



Doc # 845576  
Compl. # 845576

DEPARTMENT OF NATURAL RESOURCES  
Roy Romer, Governor  
1120 Lincoln St., Suite 801  
Denver, CO 80203  
Phone: (303) 894-2100  
FAX: (303) 894-2109  
Website: www.dnr.state.co.us/oil-gas

August 6, 1998

RECD AUG 10 1998

Mr. Manuel Luis  
14705 Weld County Road 18  
Ft. Lupton, CO 80621

RE: COMPLAINT OF WATER QUALITY IN PRIVATE WATER WELL  
SW SE SECTION 22, T2N, R66W, WELD COUNTY, COLORADO

Dear Mr. Luis:

As you are aware, on July 16, 1998 your well was sampled for water quality. During the sampling it was observed that the water contained gas. A gas sample was collected from this well and sent to Isotech Laboratories, Inc. for isotopic analysis. Additionally, a sample of sediment in the well water was sent to Standard Geological Services, Inc. for x-ray diffraction analysis.

Laboratory results of the sediment indicate minerals that are common to a sandstone and shale sequence. The 67.0 percentage of quartz is typical of a sandstone deposit.

The gas sample from your well had a delta carbon 13 value of  $-69.78$  and a hydrogen deuterium value of  $-273.9$  (see attached laboratory results). Based on the results of the isotopic analysis, the gas present in your well water has been determined to be biogenic methane. Biogenic methane gas occurs in most near-surface environments and is the principal product of the decomposition of buried organic material. In Weld County many of the coal zones in the Laramie/Fox Hills formation contain biogenic methane gas similar to the gas detected in your well.

The gas produced from the gas wells around your home is not "biogenic" gas, but rather "thermogenic" gas. Thermogenic methane is formed by the thermal breakdown of organic material in rocks resulting from high temperatures created by deep burial. Isotopic analysis of gas samples collected and analyzed previously by the United States Geological Survey from two J sandstone/Codell wells located in Sections 25 and 26, T2N, R66W, have delta carbon 13 values of  $-46.60$  and  $-46.40$ , respectively. These values are typical of thermogenic gas in this part of the Wattenburg Field and comparison of the analytical results shows that the gas in your well is not the same as the gas being produced commercially.

Information from the Office of the State Engineer indicates that your water well was drilled to a depth of 650 feet. A review of a geophysical log from a nearby oil and gas well (Hein #2) indicates that your water well was drilled approximately 50 feet below the main Fox Hills sandstone. Your well was subsequently perforated and completed within the lower portion of the main Fox Hills sandstone and a shaley zone below it. The occurrence of biogenic gas in your water suggests that there may also be a coal seam within the perforated section of your well.

Copies of the laboratory analyses and an isotope ratio chart are attached. Should you have any questions, please call me at (303) 894-2100 ext. 118.

Sincerely,

A handwritten signature in cursive script that reads "Randall H. Ferguson". The signature is written in black ink and includes a long horizontal flourish at the end.

Randall H. Ferguson  
Environmental Protection Specialist

Attachments

Cc: Rich Griebing  
Debbie Baldwin  
Pat Flynn – HS Resources, Inc.