

January 18, 2012

Barbara Sharrow
Uncompahgre Field Office
Attn: 22-parcel lease scoping
2465 South Townsend Avenue
Montrose, Colorado 81401

RE: REQUEST TO WITHDRAW LEASE PARCELS

Dear Ms. Sharrow,

The Bone Mesa Domestic Water District (BMDWD) requests the BLM withdraw the following parcels from the proposed August 2012 lease sale:

- **The entirety** of parcels number 6190, 6192, 6193, 6194, 6197, 6198, 6199, 6200, 6201, 6203, 6205, and 6217; and
- Portions of the following parcels:
 - The two blocks of parcel 6189 located south of Highway 133;
 - The eastern-most detached block of parcel 6191;
 - The small detached block of 6195 and the equal-sized block of 6195 in which the northwest corner of this block contacts a corner of the largest block of 6195;
 - All of the blocks of 6198 with the exception of the western-most detached block that is located directly south of the Town of Hotchkiss and adjacent to the Hotchkiss High School; and
 - The eastern-most block of the furthest north blocks of 6202.

The BMDWD serves 167 water taps generally located south of Back River Road between the Towns of Paonia and Hotchkiss (see enclosed map). We request these parcels be withdrawn for the reasons described below.

Potential for Water Contamination

Despite the energy industry's claim that a thick layer of bedrock safely separates the gas-containing rock layer being fractured from ground water used for drinking water, evidence is emerging that indicates that contaminants from gas wells are making their way into groundwater. Here are a few examples:

1. In a newly released draft report investigating ground water contamination near Pavillion, Wyoming, where intensive drilling and fracking has occurred, the United States Environmental Protection Agency (EPA) found 11 of 39 water samples collected from domestic wells were contaminated with chemicals linked to local natural gas fracking operations. The EPA found arsenic, methane gas, diesel-fuel-like compounds and metals including copper and vanadium. Of particular concern were compounds called adamantanes—a natural hydrocarbon found in natural gas—and a little-known chemical

called 2-butoxyethanol phosphate, or 2-BEp. 2-BEp is closely related to 2-BE, a substance known to be used in fracking fluids. The EPA report goes on to state:

Elevated levels of dissolved methane in domestic wells generally increase in those wells in proximity to gas production wells. (From page xiii.)

Detection of high concentrations of benzene, xylenes, gasoline range organics, diesel range organics, and total purgeable hydrocarbons in ground water samples from shallow monitoring wells near pits indicates that pits are a source of shallow ground water contamination in the area of investigation. Pits were used for disposal of drilling cuttings, flowback, and produced water. There are at least 33 pits in the area of investigation. When considered separately, **pits represent potential source terms for localized ground water plumes of unknown extent.** When considered as whole they represent potential broader contamination of shallow ground water. (From page 33.) (Emphasis added.)

The explanation best fitting the data for the deep monitoring wells is that **constituents associated with hydraulic fracturing have been released into the Wind River drinking water aquifer at depths above the current production zone.** (From page 33.) (Emphasis added.)

Although some natural migration of gas would be expected above a gas field such as Pavillion, data suggest that **enhanced migration of gas has occurred to ground water at depths used for domestic water supply and to domestic wells.** (From page 37.) (Emphasis added.)

A lines of reasoning approach utilized at this site best supports an explanation that **inorganic and organic constituents associated with hydraulic fracturing have contaminated ground water at and below the depth used for domestic water supply....** A lines of evidence approach also indicates that **gas production activities have likely enhanced gas migration** at and below depths used for domestic water supply and to domestic wells in the area of investigation.¹ (From page 39.) (Emphasis added.)

2. A Congressional report issued in February 2011 revealed that energy companies have injected more than 32 million gallons of diesel fuel or diesel mixed with other fluids into the ground nationwide in the process of fracking to extract natural gas.² In Colorado, between

¹ United States Environmental Protection Agency. December 2011. *Investigation of Ground Water Contamination Near, Pavillion, Wyoming* (Draft). Viewed at: <http://www.epa.gov/region8/superfund/wy/pavillion>, on January 15, 2012.

2005 and 2009, 1.3 million gallons of fluids containing diesel fuel was used in fracking natural gas wells.³ The EPA has stated that “the use of diesel fuel in fracturing fluids poses the greatest threat” to underground sources of drinking water.⁴ According to Congresswoman Diana DeGette of Colorado, fracking with diesel fuel was done without permits in apparent violation of the Safe Drinking Water Act.⁵

3. In 2007, EPA hydrologists sampled a pristine drinking water aquifer under the Jonah Well Field near Pinedale, Wyoming. They found high levels of benzene, a known carcinogen, in 88 separate samples stretching across 28 miles in an undisturbed landscape in which the only industry that exists is natural gas extraction.
4. The Endocrine Disruption Exchange (TEDX) has documented nearly 1,000 products that energy companies inject into the ground in the process of extracting natural gas. Many of these products contain chemicals that are harmful to human health. According to TEDX:

In the 980 products identified [for use during natural gas operations], there were a total of 649 chemicals. Specific chemical names and CAS numbers could not be determined for 286 (44%) of the chemicals, therefore, the health effects summary is based on the remaining 362 chemicals with CAS numbers...Over 78% of the chemicals are associated with skin, eye or sensory organ effects, respiratory effects, and gastrointestinal or liver effects. The brain and nervous system can be harmed by 55% of the chemicals. These four health effect categories...are likely to appear immediately or soon after exposure. They include symptoms such as burning eyes, rashes, coughs, sore throats, asthma-like effects, nausea, vomiting, headaches, dizziness, tremors, and convulsions. Other affects, including cancer,

² Environment News Service. February 4, 2011. *Toxic Diesel Fuel Used Without Permits in Fracking Operations*. Viewed at: <http://www.ens-newswire.com/ens/feb2011/2011-02-04-092.html>, on March 3, 2011.

³ Frantz, Karen. February 5, 2011. *States probe use of diesel fuel*. Durango Herald. Viewed at: <http://www.durangoherald.com/article/20110206/NEWS01/702069922/-1/s>, on March 3, 2011.

⁴ Williams, David O. February 1, 2011. *U.S. House probe alleges Halliburton, others illegally used diesel in gas fracking*. Colorado Independent. Viewed at: <http://coloradoindependent.com/73593/u-s-house-probe-alleges-halliburton-others-illegally-used-diesel-in-gas-fracking>, on March 3, 2011.

⁵ DeGette, Diana, Markey, Edward J., & Waxman, Henry A. January 31, 2011. *Letter to Lisa Jackson, Administrator, U.S. EPA, from Congressional Representatives Henry A. Waxman, Edward J. Markey, & Diana DeGette*. Viewed at: http://degette.house.gov/index.php?option=com_content&view=article&id=1048:energy-a-commerce-committee-fracking-investigation-reveals-millions-of-gallons-of-diesel-fuel-injected-into-ground-across-us&catid=76:press-releases-&Itemid=227, on March 11, 2011.

organ damage, and harm to the endocrine system, may not appear for months or years later. Between 22% and 47% of the chemicals were associated with these possibly longer-term health effects. Forty-eight percent of the chemicals have health effects in the category labeled ‘Other’. The ‘Other’ category includes such effects as changes in weight, or effects on teeth or bones, for example, **but the most often cited effect in this category is the ability of the chemical to cause death.**⁶ (Emphasis added.)

The primary obligation of the Board of Directors of the BMDWD is to provide clean, safe, uncontaminated drinking water to the District’s tap holders. All of the parcels we have asked to be withdrawn are located within a seven-mile radius of the Mays Spring—the primary source of water for the BMDWD (see enclosed map). The seven-mile radius was used based on the findings of Dennis Coleman, a leading international geologist and expert on tracking underground migration. Coleman’s Illinois-based company, Isotech Laboratories, has both the government and the oil and gas industry as clients. According to Mr. Coleman, “**methane gas [can] seep underground for more than seven miles from its source. If the methane can seep, the theory goes, so can the fluids.**”⁷ (Emphasis added.)

Parcel 6197 is particularly egregious because the western-most block of this parcel is located just one-half mile from the Mays Spring, which is the primary source of our District’s water.

Permeability of HDPE Pipe to Hydrocarbons

BMDWD began a capital improvement project in 2011 that includes the installation of 12 miles of water transmission pipeline. At the recommendation of its engineer/consultant at Buckhorn Geotech, in Montrose, CO, the District approved the use of high-density polyethylene pipe (HDPE), the transmission pipe that most water companies today are using. This recommendation was based on the fact that no oil or gas development was occurring or expected to occur within or near the service area of the BMDWD. Under most situations HDPE pipe performs well. However, according to the Plastics Institute, the literature suggests that permeation of organic chemicals and hydrocarbons through polyethylene pipe, though extremely rare, is possible.⁸

⁶ The Endocrine Disruption Exchange. Undated. *Chemicals In Natural Gas Operations: Health Effects Spreadsheet and Summary*. Viewed at: <http://www.endocrinedisruption.com/chemicals.multistate.php>, on February 23, 2011.

⁷ Lustgarten, Abrahm. February 25, 2011. *Hydrofracked? One Man’s Mystery Leads to a Backlash Against Natural Gas Drilling*. ProPublica. Viewed at: <http://www.propublica.org/article/hydrofracked-one-mans-mystery-leads-to-a-backlash-against-natural-gas-drill/single>, on December 20, 2011.

⁸ Plastics Pipe Institute. March 16, 2009. *PPI Comments on Permeation of Water Pipes on the AWWA-RF Report on Hydrocarbons*. Page 1. Viewed at: <http://plasticpipe.org/pdf/ppi-comment-permeation-hydrocarbons.pdf>, on January 15, 2012.

Of particular concern to BMDWD is the potential for spills that saturate the ground with hydrocarbons that subsequently come in contact with our water transmission lines, permeate the HDPE pipe, contaminate the water, and cause illness to a member of the community.

According to the Oil and Gas Accountability Project, there were approximately 924 spills exceeding 5 barrels in Colorado in the four-year period between June 2002 and June 2006. Spilled products included: crude oil/ condensate, produced water, and “other” products. The “other” products included diesel fuel, glycol, amine, lubricating oil, hydraulic fracturing fluids, drilling muds, other chemicals, and natural gas leaks.⁹

Potential Monetary Value Lost/Property and Lives Damaged

The residents of our District are being asked to assume all of the risk of oil and gas development while receiving none of the rewards. Financially, here is what our tapholders are being asked to risk:

- The fair market value of each BMDWD water tap is approximately \$25,000 for a total investment value of **\$4,175,000**;
- Water rights to the Gelwick Springs as a cost of **\$150,000, paid for by our tapholders**;
- Equity in the existing infrastructure of **\$377,000** as of December 2010, **paid for by our tapholders**. This excludes the items listed below.
- The 2011 upgrade of the collection system of the Mays Springs of **\$35,000, paid for by our tapholders**. The balance of the approximately \$60,000 project cost was paid for by the Town of Paonia.
- A filtration system for the Gelwick, started in 2011 and to be completed in 2012 at a cost of **\$15,000, to be paid for by our tapholders**.
- Capital improvements to the District’s infrastructure and transmission lines started in 2011 with a **projected cost of \$1,500,000, to be paid for by our tapholders**. The project includes the installation of two, 125,000 gallon in-ground storage tanks; and approximately 12 miles of HDPE transmission pipeline.

Therefore, at a minimum, the tapholders of our District are being asked to risk \$6,252,000 if oil and gas development contaminates the District’s water. As no known method of ground water remediation exists, this loss would be permanent.

⁹ Oil and Gas Accountability Project. Undated. *Colorado Oil and Gas Industry Spills--A review of COGCC data (June 2002 – June 2006)*. Page 1. Viewed at: <http://www.earthworksaction.org/files/publications/Spills.pdf?pubs/Spills.pdf>, on January 15, 2012.

The \$6,252,000 does not take into consideration:

- **The loss of clean domestic water.** Who will supply the District's 167 families with clean drinking water for the years to come if BMDWD's springs are contaminated?
- **The loss of delivered domestic water.** Who will reimburse our tapholders for the inconvenience of having to haul their domestic water?
- **The diminished real estate value of the tapholders' properties.** There is a substantial difference in the market value of properties that are part of a delivered water system and those that are not.
- **Living with the fear of house explosion,** as happened in Bainbridge, Ohio, on November 15, 2007. The Ohio Department of Natural Resources attributed the explosion to a methane leak from a nearby hydraulic fractured well. The faulty cement casing of the well developed a crack allowing methane to seep underground and fill the couple's basement.¹⁰

If our springs are contaminated, a sufficient dollar figure cannot be placed on the damage to the individual lives of the homeowners within our District that may never again have clean water delivered to their homes.

Risk/Reward

If the lease sale goes forward, BLM will force the tap holders of the BMWD to accept all the risks of oil and gas development while receiving none of the rewards.

On behalf of the tap holders of BMDWD, the BLM does not have the District's approval to place our residents at risk.

¹⁰ Division of Mineral Resources Management. September 1, 2008. *Report on the Investigation of the Natural Gas Invasion of Aquifers in Bainbridge Township of Geauga County, Ohio*. Ohio Department of Natural Resources. Viewed at” <http://www.dnr.state.oh.us/Portals/11/bainbridge/report.pdf>, on January 15, 2012; and Demirjian, Joan. January 7, 2010. *Insurance company [sues] driller over home explosion*. Chagrin Valley times. Viewed at: <http://www.chagrinvalleytimes.com/NC/0/1571.html>, on January 15 2012.

Thank you for considering our comments.

Sincerely,

Mark LeValley, President
Board of Director

Eames Petersen, Vice President
Board of Director

Cynthia Wutchiett, CPA
Board of Director

cc: Helen Hankins, BLM Colorado State Director
Lori Armstrong, BLM Colorado Southwest Regional Director
Ken Salazar, Secretary of Interior
Mark Udall, U.S. Senate
Western Slope Regional Director, Office of Senator Mark Udall
Michael Bennet, U.S. Senate
Monica Piergrossi, Western Slope Regional Director, Office of Senator Michael Bennet
Scott Tipton, U.S. House of Representatives
John Hickenlooper, Governor
Gail Schwartz, State Senator District 5
Don Coram, State Representative District 58
Douglas Atchley, Delta County Commissioner
Bruce Hovde, Delta County Commissioner
Olen Lund, Delta County Commissioner

