League of Women Voters of Colorado

League of Women Voters of La Plata County, CO

League of Women Voters of Montezuma County, CO

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To: Jill Dean, EPA Office of Research and Development (hydraulic.fracturing@eps.gov)

From: Stephanie Huss, President of the League of Women Voters of La Plata County, CO
Jodi Foran, Past-President of the League of Women Voters of Montezuma County, CO

Re: EPA's Hydraulic Fracturing Study (2010-2012)

The League of Women Voters (LWV) of Colorado (CO) has worked to protect both the quality and quantity of our water resources since the 1950's. We believe that our natural resources should be managed as interrelated parts of life-supporting ecosystems and that the pollution of these resources should be controlled in order to preserve those ecosystems and protect public health. We are pleased that the EPA's Office of Research and Development will be conducting a scientific study to investigate the possible relationships between hydraulic fracturing and drinking water. The LWV of the United States adopted a resolution regarding Safe Mining and Drilling at its 2010 annual meeting. There is concern that immediate energy needs and exemptions for drilling and mining have taken precedence over the preservation and protection of the environment, including conservation of water, protection of water quality and maintenance of clean air.

Colorado has three large coal-bed methane formations where fracking is occurring -- the San Juan Basin, the Piceance Basin, and the Raton Basin. Mounting evidence indicates that impacts on water and air quality are more than anecdotal. The LWVCO requests that the EPA consider the following in defining the scope of their study and in identifying key research questions:

- **Groundwater contamination**. Water quality can be compromised at several stages of natural gas extraction from hydraulic fracturing. Between 30% and 70% of the fracking fluids returns to the surface as flowback and deep underground native water flows throughout well production. In addition to possibly contaminating surface water, the water/chemical mix can leak onto the ground and migrate through the soil into wells. In Colorado between 2002 and 2006, there were 924 spills of chemicals and waste of 5 gallons or more recorded by the Colorado Oil and Gas Conservation Commission. Twenty percent of these spills contaminated water of which 14% contaminated groundwater. In the last 2 1/2 years, oil and gas companies have reported almost 1,000 spills to Colorado regulators totaling 5.2 million gallons of drilling liquids and oil. One hundred eighty-two spills got into groundwater and 82 into surface water. Another 10 reached both groundwater and surface water. In addition to potential underground water contamination and surface spills, we shouldn't overlook incidents in Colorado where water containing methane from household faucets has been lit on fire like a torch. What impacts methane and these spills are having on our water supplies and public health should be more closely examined.

- **Disposal wells.** Disposal of the water produced from the fracking process can cause its own unique set of problems including drinking water contamination. Massive amounts of disposed water forced into injection wells can displace deep native water which can then flow through natural fault and fracture systems. As was discovered in La Plata County, Colorado the displaced deep underground water can travel miles into drinking water wells where the brackish water can sicken those who drink it. In this incident, the displaced water was in a heated basin and as it rose to the surface, it seeped into wells, heated the ground, abnormally melted snow, and killed trees. Tests that measure the temperature of flowing water and well water to indicate subsurface temperature would point to displacement and should be conducted in the proximity of injection wells.

- **Existing studies.** There was an exhaustive examination of the methane problem on Colorado's Western Slope with a report released by Garfield County in December 2008. The Garfield County Hydrogeologic Study concluded that gas drilling has degraded water in dozens of water wells and indicated that a system of interconnected natural fractures and faults could stretch from deep underground gas layers to the surface. It called for more research into how fracking might increase the risk of contaminants making their way up into an aquifer. The reports examined over 700 methane samples from 292 locations and found that methane, as well as flowback from drilling, was making its way into drinking water. Another data source is the water-monitoring program in southwestern Colorado overseen by the Colorado Oil and Gas Conservation Commission. However, the data set that was produced does not test for proprietary fracking chemicals but looks for a common component of the mixtures, potassium chloride. Potassium chloride is also a common component of fertilizer which is heavily used in this agricultural area. We suggest that water testing needs to be done using markers definitively traceable to fracking chemicals.

- **Surface water contamination**. The EPA's Underground Injection Control (UIC) Program prevents contamination of "underground sources of drinking water" by regulating injection activities. It was unclear whether the study will include surface water. If not included in the proposed study, we strongly urge the EPA to consider the relationship between hydraulic fracking and its potential impacts on surface sources of drinking water. Flowback and chemical spills can affect both surface and groundwater drinking water sources.

- **Air Quality.** Natural gas is the cleanest of all fossil fuels, however natural gas production is not without consequences. Its extraction impacts air quality and releases greenhouse gases into the atmosphere. In 2005, La Plata County, Colorado's Greenhouse Gas (GHG) Emissions Inventory identified natural gas drilling as the source of over 30% of their GHG emissions. Colorado changed its air quality regulations in December 2006 to reduce oil and gas production emissions. Methane, which is released when a well is drilled or reworked, is 72 times as potent a warming agent as carbon dioxide over a 20-year time period. We strongly urge the EPA to expand the scope of this study to include air quality and to re-evaluate the emissions factor used by their agency for methane release per well drilled and completed.

The LWVUS Safe Mining and Drilling resolution supports significant strengthening of the regulation, oversight, inspection, and penalties with regard to the development of fossil fuel resources. This includes elimination in national and state legislation of exemptions for drilling and mining, and additional legislation requiring the federal and state agencies to regulate drilling and mining in a manner consistent with the preservation of a healthy environment. As seen in the oil spill from Deepwater Horizon, it is too late to put preventive and curative processes in place after the catastrophe has occurred. We hope the study will result in measures that will protect our waters, air, and the health of our citizens from known and unintended consequences of hydraulic fracturing for natural gas.