



Michael J. Darr, Hydrogeologist
6729 Green Valley Pl NW
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*FAX want go
PATRICK - SEE!
REWORK!*

August 15, 2014
BY FAX: (505) 954-2010

To: Jesse Juen
Bureau of Land Management, New Mexico State Office
PO-Box 27115, Santa Fe NM 87512

Re: Project: October 2014 Competitive Oil and Gas Lease Sale
EA Log Number: DOI-BLM-NM-F010-2014-0154-EA
Location: Locations in Rio Arriba, Sandoval and San Juan County, New Mexico
Finding of No Significant Impact

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Dear Sir:

I am writing to protest the inclusion of certain parcels (NM-2014-001 through -013) in the lease sale referenced above. My interest is that I am a resident of lands adjoining Carson National Forest and a frequent visitor to lands of Santa Fe National Forest, and would be concerned as to the development of these parcels; in addition, I am a hiker, river-runner and outdoors enthusiast, and am concerned as to the effects on the Rio Chama watershed and the road conditions in the area. Finally, as a professional hydrogeologist with 32 years experience and an M.S. Degree with abundant experience in analysis of groundwater flow in complex sedimentary terrains of the southwest US, I am concerned about the effects of drilling on domestic wells and aquifers in the area. Specific points of protest are:

- **The EA does not characterize hydrology of the protested parcels.** The EA describes typical San Juan Basin groundwater conditions applicable to flat-lying areas of the basin in Cretaceous and Tertiary rocks, which are applicable to parcels NM-2014-014 and -015. However, parcels NM-2014-001 through -013 are situated in the zones where the hydrogeology is characteristic of the margin of the San Juan Basin, with steeply dipping strata of various ages and hydrologic characteristics, including Permian and Jurassic rocks known to be aquifers in the area. The groundwater flow conditions in the aquifer systems along the basin margin are vastly different than in the center of the basin. The system is much more complex at the margin, with multiple strata in hydraulic communication influenced by faults and variable dip attitudes of the beds. Hydraulic fracturing in this area could have highly unpredictable outcomes, creating interconnections across fault and fracture zones, completely counter to the scenarios outlined in the EA. Drilling methods could include vertical or near-vertical wells which could cross various strata and create interconnections and sources of contamination unprotected by encasing shales as described in the EA. Drilling in this area would pose a substantial risk of contamination of aquifer zones and watersheds of the Rio Gallinas and Rio Chama. More detailed studies would be required to adequately characterize the complex flow paths in this basin margin area, including water-table mapping and determination of

surface water – groundwater interconnection. In short the EA does not correctly identify the aquifers in the area of parcels NM-2014-001 through -013 and with this critical technical flaw there is no basis for the FONSI.

- **The EA does not identify at-risk water supply wells near the parcels.** Data from the New Mexico Office of the State Engineer were examined and numerous wells were found to exist near the parcels; for example, there are 12 wells in Township 23 North, Range 1 West, and there are 25 wells in Township 22 North, Range 1 West. The risk of potential impact to these wells and others near to parcels NM-2014-001 through -013 cannot be determined without a hydrologic analysis, as explained in the first point of this protest letter. In short the EA does not correctly identify the wells which could be potentially affected in the area of parcels NM-2014-001 through -013 and with this critical technical flaw there is no basis for the FONSI.

Thank you for your consideration of my protest. My return address and contact information are in the letterhead and footnote to this letter.

Sincerely,

MJDARRCONSULT, INC.

By: 
Name: Michael J. Darr
Title: President

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