NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

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NEWS RELEASE

For release: January 14, 2007

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State Finds Bureau of Land Management's Environmental Assessment on Otero Mesa Insufficient!

Urges BLM to Perform a Full Environmental Impact Statement

Santa Fe, NM – Governor Bill Richardson and Energy, Minerals and Natural Resources Secretary Joanna Prukop expressed concern today that the BLM's Environmental Assessment on an Application for a Permit to Drill a gas well on Otero Mesa is incomplete and insufficient. The State of New Mexico calls upon the Bureau of Land Management to conduct a full Environmental Impact Statement.

"Rather than an Environmental Assessment, a complete Environmental Impact Statement is necessary to protect this vulnerable geographic area," said Secretary Prukop. "The adverse repercussions to the environment are irrecoverable if oil and gas exploration continues without more in-depth study."

Energy, Minerals and Natural Resources Secretary Prukop sent a letter to the BLM today expressing the state's concerns about the BLM's Environmental Assessment on this issue. The letter discusses cumulative impact issues, such as those affecting wildlife and wildlife habitat, ground water, fragmentation, vegetation, and including the potential impact of ongoing litigation.

The BLM generated an environmental assessment in response to the Application for Permit to Drill submitted by the Harvey E. Yates Company (HEYCO) for a proposed gas well located on the HEYCO lease number NMNM 71526 in T. 26S, R. 12E, Sect. 23, SW1/4, NMPM.

The state's main concern is protecting Otero Mesa from the cumulative impacts of anticipated oil and gas development. The Chihuahuan Desert Grasslands is one of the three most species-diverse arid regions in the world in terms of plants and animals, surpassing even the Sonoran Desert of Arizona and California. The area has been ranked by the World Wildlife Fund as "globally outstanding for species richness" in the category of reptiles, birds,

mammals and cacti. In addition, there is a large fresh-water aquifer located directly below and adjacent to the Otero Mesa that is believed to contain approximately 15 million acre-feet of recoverable, potable, fresh ground-water. However, the data being accumulated regarding the soils in this region indicate it may be exceptionally vulnerable to surface contaminants impacting ground-water.

“Otero Mesa is an ecologically viable and precious area,” said Governor Bill Richardson. “It is critical that every safety measure be taken to protect ground water and native plant and animal species from the activities involved with oil and gas operations.”

The BLM’s Environmental Assessment is incomplete, and relies upon data that is outdated and incomplete, particularly in light of recent Federal Court of Appeals Rulings, confirming that much more than a perfunctory discussion is required under National Environmental Policy Act (NEPA) *Center for Biological Diversity v. NHTSA,* 508 F.3d 508 (9th Cir. 2007). Further analysis and evaluation are required to meet the requirements imposed by NEPA and to protect the natural resources in this region.

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The Energy, Minerals and Natural Resources Department provide resource protection and resource development services to the public and other state agencies.

Attachment: Letter from Secretary Prukop to BLM

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor

Joanna Prukop
Cabinet Secretary

January 14, 2008

John Besse
BLM Las Cruces District Office
1800 Marquess Street
Las Cruces, NM 88005

Re: Environmental Assessment for Bennett Ranch Unit #6, EA #NM-030-2006-161

Dear Mr. Besse,

I am writing to express the comments of the New Mexico Energy, Minerals and Natural Resources Department (EMNRD) on the Environmental Assessment generated in response to the Application for Permit to Drill (APD) submitted by the Harvey E. Yates Company (HEYCO) for a proposed well located on the HEYCO lease number NMNM 71526 in T. 26S, R. 12E, Sect. 23, SW1/4, NMPM. EMNRD has reviewed the Environmental Assessment (EA) prepared by the BLM purporting to analyze the potential impacts of HEYCO's proposal, and, for reasons more fully discussed below, we feel that the assessment is incomplete, outdated and insufficient, particularly in light of recent Federal Court of Appeals Rulings, and that further analysis and evaluation is required in this case.

- **CUMULATIVE IMPACT ISSUES: i) Fragmentation & Vegetation; ii) Water**

The purported cumulative impact analysis put forth by the EA falls far short of that which is required of the BLM pursuant to the National Environmental Policy Act ("NEPA"). The subject EA has erroneously focused solely on the one well specified in the application, rather than addressing the reasonably foreseeable large number of wells that are likely to be drilled in this ecologically valuable and sensitive area. The EA further fails to contemplate what actual production of even that one well, let alone production of the reasonably foreseeable numerous wells in this geographic area, would involve in terms of impacts to the environment. One example of this is the EA's failure to adequately address the extensive pipeline system and associated additional roads that will be required for the operation of the wells proposed for this area, and the transportation of the natural gas produced by such wells. HEYCO has two producible natural gas wells that are currently shut-in because there is currently no pipeline. Therefore, the BLM definitely should have considered a pipeline in determining the impacts of the action proposed by the Application.

The Ninth Circuit Court of Appeals recently had an opportunity to address the importance of the cumulative impact analysis, and, indeed, confirmed that much more than a perfunctory discussion is required under NEPA. *Center for Biological Diversity v. NHTSA,* 508 F.3d 508 (9th Cir. 2007). Based upon the conclusions reached by the Ninth Circuit in *Center for Biological Diversity*, and the guidance provided by publications generated by the EPA regarding such analyses, the BLM must revisit the cumulative impact analysis in this matter.

In 1999, in an attempt to provide some guidance regarding what constitutes a proper and sufficient cumulative impact analysis, the EPA generated the publication entitled *Consideration of Cumulative Impacts in EPA Review of NEPA Documents,* U.S. Environmental Protection Agency, Office of Federal Activities

(2252A), EPA 315-R-99-002/May 1999. This publication provides an informative discussion regarding the major review areas to be considered in a cumulative impact analysis under NEPA, and provides definitive examples of the kinds of analysis under each review category that would or would not be sufficient for purposes of NEPA. In that publication, the EPA noted that "[t]he adequacy of cumulative impact analysis depends on how well the analysis considers impacts that are due to past, present, and reasonably foreseeable future actions." *Id.* at p. 10. The Ninth Circuit reiterated this standard in the recent *Center for Biological Diversity Case*, and, quoting the opinion in the case *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 993-94 (9th Cir. 2004), went on to observe that "[c]umulative impacts of multiple projects can be significant in different ways…[and that] [s]ometimes the total impact from a set of actions may be greater than the sum of the parts." *(Emphasis added.) Center for Biological Diversity* 508 F.3d at 548.

In discussing the implications and parameters of this standard, the EPA stresses that it is important to include information regarding "thresholds" indicative of adverse change for a particular area or resource, noting that a variety of factors can be used to define thresholds, including change in land cover, change in water quality, changes in watershed integrity or changes in or the occurrence of habitat fragmentation. *Consideration of Cumulative Impacts* at p. 18. The EPA's discussion goes on to instruct that cumulative impact analysis should "focus on the specific resources and ecological components that can be affected by the incremental effects of the proposed action and other actions in the same geographic area" by considering such things as whether the resource is particularly vulnerable to incremental effects, whether the proposed action is likely to be only one of a number of similar actions being taken in the same geographical area, whether the anticipated effects have been historically significant with regard to the particular resource, among other considerations. (*Emphasis added). Id.* at p. 5.

The obligations imposed upon agencies by NEPA serve two important purposes: to inform the public and to ensure agency consideration of the environmental impacts of the actions being proposed. *Center for Biological Diversity,* 508 F.3d at 546. An analysis of whether a proposed action may have a significant effect on the environment "requires consideration of two broad factors: context and intensity." *Id.* at 14914 quoting 40 CFR § 1508.27. Regulations mandate that agencies consider a number of specific factors in conducting such an analysis, with one being "[t]he degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration." 40 CFR 1508.27(b)(6).

The cumulative impact analysis contained within the EA in this matter wholly fails to fulfill the requirements under NEPA, in that the analysis is approached largely in a vacuum, focusing on this single proposed well, and without fully fleshing out the significant, long-term, cumulative impacts that will arise if the area is developed in the manner planned by HEYCO, particularly with regard to habitat fragmentation and impacts to water resources. While the Application at issue is, indeed, only for a single well, because of the nature of the well (natural gas) and because information has already been placed in the record establishing long-term plans for large-scale development of this area by HEYCO, it would be unrealistic, as well as insufficient according to the recommendations contained within the above-referenced EPA publication and per the conclusions reached by the Ninth Circuit ruling, to evaluate the Application in terms of only this one well.

Moreover, the EA explicitly states that it "tiers to" the RMPA/FEIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties ("RMPA"). As noted in the RMPA/FEIS at 4-64, Ch. 4, the RMPA relies upon a presumption that the mineral leasing and development in the two counties would entail three gas fields, each implementing 320-acre spacing and with total field coverage of six square miles, and that each gas field would further contain an oil field developed using 40-acre spacing. As is discussed in more detail further below, it is now known that this is not the nature of the development planned for this area, and thus reference to and reliance upon the cumulative impact analysis of the RMPA is no longer sufficient or appropriate. This is particularly so when viewed in

conjunction with the conclusions outlined in the 2005 Record of Decision relating to the RMPA, noting that the BLM has an obligation to take into account such factors as natural resource concerns and ongoing exploration or development as it develops a lease strategy for the area, and that there is an overriding objective "to protect remnant Chihuahan Desert grassland habitat and associated special status species of wildlife through improved planning of future oil and gas development on a unit." *See Record of Decision, January 2005, at p. 11.*

i) Issues of Fragmentation & Vegetation

Although it was apparently originally the intention of HEYCO to drill for and produce oil from this basin, the existing wells drilled by HEYCO have, instead, indicated that the area is more commercially viable for the production of natural gas. On this basis, HEYCO recently submitted an Application to the Oil Conservation Division (OCD), seeking to expand the Bennett Ranch Exploratory Unit Area from 8,856.90 acres to 11,637.09 acres. The OCD denied this Application; however, HEYCO has now sought *de novo* review before the Oil Conservation Commission, and is therefore still pursuing expansion of this unit.[1] According to HEYCO representatives testifying at the hearing on the matter, the expansion request was made to allow for a shift from the originally contemplated 40-acre spacing units for oil wells to 640-acre spacing-units for natural gas wells to be drilled in the unit. *See Reporter's Transcript of Proceedings, Examiner Hearing September 20, 2007* at p. 6:23 - 7:4 attached as **Attachment A.**

For purposes of the RMPA analysis, the BLM estimated that approximately 140 wells were likely to be drilled in the two-county area, with approximately 84 of those wells ultimately proving to be productive. The BLM estimated that the breakdown between productive oil and gas wells was likely to be roughly 30 gas to 60 oil. (*See January 5, 2004 News Release* and *RMPA/REIS* at 4-52). Based upon the Application filed by HEYCO to expand its unit, and the hearing held on that matter, HEYCO plans to develop the unit extensively, plans to drill a large number of natural gas wells, and of significance, no longer plans to pursue recovery of oil on the unit. According to testimony provided by HEYCO representatives, HEYCO intends to implement (and has in fact already implemented for those wells already drilled) 640-acre spacing for the gas wells that are anticipated to be drilled on the unit, as opposed to the 320-acre spacing relied upon by the RMPA. **Attachment A** at 6:23 – 7:4. As noted by the OCD in its denial of HEYCO's application, "the switch from an oil target to natural gas objective means that miles of pipeline will need to be constructed to get the gas out of this basin." *See Order of Division* at p. 3, attached as **Attachment B**. With well spacing being implemented at 640 acres per well, the installation of a pipeline connecting the producing wells and transporting the product out of the basin will be no small feat, and will result in *gross* fragmentation of the basin. Moreover, while this particular well, as proposed, might be in close enough proximity to an existing road such that no additional roads need be constructed at this time, with the extent of expansive development HEYCO plans for Otero Mesa, it is obvious that this will not be the case for all of the anticipated wells, and that a number of additional roads will therefore need to be constructed to enable crews and equipment to gain access to the various sites. This will only serve to compound the fragmentation of the area. This is clearly a situation where the total environmental impact has the potential to be "greater than the sum of the parts" as discussed in *Center for Biological Diversity.* (at 548).

The Chihuahuan Desert Grasslands is one of the three most species diverse arid regions in the world in terms of plants and animals, surpassing even the Sonoran Desert of Arizona and California. *See Excerpts from Transcript of Oil Conservation Commission Hearing regarding Application for Amendment to 19.15.1 NMAC, Case No. 13269, June 17, 2004,* attached as **Attachment C** at 216:3-10. The area has been ranked by the World Wildlife Fund as "globally outstanding for species richness" in the category of reptiles, birds, mammals and cacti. *Id.* at 302:14-17. Approximately 50-70% of these grasslands have already been replaced by shrub-lands, which are less species-diverse in nature. *Id.* at 216:16-21. The

1 The *de novo* case is scheduled to be heard by the Commission on January 22, 2008.

Otero Mesa area of grasslands represents a sizeable, intact piece of grassland. *Id.* at 217:22-25. The significance of preserving and protecting this type of uninterrupted expanse of grassland is to enable animal migration to continue to occur. *Id.* at 218:8-23.

The fragility of the grassland is at least in part due to the character of the topsoil. Redistributing the topsoil will result in the amalgamation of the soil horizon, and will render the environment much more hospitable to noxious, invasive weeds and "tap-rooted" plants than to the native grass species. *Id.* at 219:25 - 220:11. If the nature of the soils of these grasslands is changed, the recovery or "succession" of the area back to a grassland status is likely to be very slow – centuries long – or may not even occur at all. *Id.* at 224:15-22. The mixed, unconsolidated soil profile resulting from this topsoil disturbance cannot be considered a short-term impact to this arid, grassland ecosystem, and this stands in contradiction to the conclusion of the BLM under section 4.12.1 that "no long-term impact to vegetation is anticipated."

Even where operators are required to institute mitigation provisions for noxious weed prevention and reclamation, noxious weed infestation is very difficult to combat. A prime example of this is that during the summer of 2005, an EMNRD-Forestry Division botanist found a large, mature plant of African rue (*Peganum harmala*) growing in the well pad area of the Bennett Ranch 25 Unit #1 that had apparently been inadvertently introduced by the reclamation operations of the previous year. This discovery represented an incipient infestation of a noxious weed species. Thus far, the only location of this noxious weed, which is but one of several exotic plant species that threaten this region, is on the "reclaimed" area of the Bennett Ranch 25 Unit #1 well pad near the proposed well pad. As additional well pads are created and further soil disturbance occurs, additional opportunities will be created for this and other noxious weeds to invade and proliferate in the area. Pipeline and road construction and installation will only serve to exacerbate this problem.

In addition to the threat to the vegetation directly, a secondary threat is created with regard to the wildlife dependant upon that vegetation. In general, grassland bird species are declining in the U.S. due to a variety of factors, including habitat fragmentation. *Id.* at 305:11-20. The grasslands in Otero and Sierra Counties provide a habitat or potential habitat for a number of threatened or endangered species. *Id.* at 306:8-17. Every road and every well-pad will have a "zone of impact" associated with it that will effect the habitats of the species in the area. *Id.* at 313:9-10. Under NEPA, the BLM must consider the reasonably foreseeable wide-scale development of this area by multiple oil and gas operators, and must evaluate the "degree to which the action may establish a precedent for future actions with significant effects…." *Consideration of Cumulative Impacts* at p. 10, 40 CFR 1508.27(b)(6).

The drilling of numerous, widely-spaced wells and the installation of the pipeline connecting them, and all of the disruption that goes along with the construction and maintenance of those wells and the pipeline, will ultimately transform the basin into a giant checkerboard of fragmented parcels of grassland, forever destroying the uninterrupted expanse of rare Chihuahuan Desert grasslands. This scenario is even more concerning when one considers that HEYCO is but one operator (and the Bennett Unit is but one unit), and that HEYCO is likely to be the first of many operators to seek leave to explore and develop units in this fragile region. The cumulative, negative impact of other operators on the ecology of these grasslands (particularly with regard to fragmentation and changing the nature of the native vegetation in the region) is likely to be exponential and must be taken into consideration.

As the BLM recognized in the RMPA to which the EA tiers, "in the long term, fragmentation alters the biodiversity of the landscape." *RMPA/REIS* at 4-33. The actual impacts of fragmentation of this type of rare expanse of grassland on plant and animal life are significant. As was noted by the New Mexico Department of Game and Fish in its 2005 publication *Habitat Fragmentation and the Effects of Roads on Wildlife and Habitats* (Mark L. Watson, Habitat Specialist), "[b]y far, the largest single threat to biological diversity worldwide is the outright destruction of habitat, <u>along with habitat alteration and fragmentation of large habitats into smaller patches.</u>" *Emphasis Added.* (*Citing* Meffe, G.K., and C.R.

Carroll and contributors, 1997, *Principles of Conservation Biology*, *Second edition*. Sinauer and Associates Inc., Sunderland, MA. 729 pp.).

"Habitat fragmentation creates landscapes made of altered habitats or developed areas fundamentally different from those shaped by natural disturbances that species have adapted to over evolutionary time." *Id.* The installation of roads is one way in which habitats are fragmented, creating these "altered habitats," dividing large patches of landscapes into smaller patches, and converting "interior" habitat areas into "edge" habitat areas – completely transforming the character of the habitat to which the plant and animal species had become adapted. *Id.* Further, "roads serve as a means of dispersal for many non-native invasive plant species, with seed or plant parts inadvertently transported into previously unaffected areas." *See* Parendes, L.A., and J.A. Jones, *Light Availability, Dispersal, and Exotic Plant Invasion Along Roads and Streams in the H.J. Andrews Experimental Forest*, Oregon Conservation Biology 14:64-75 (2000). This is of particular concern in the Chihuahuan Desert grasslands, which "comprise a small part of the Chihuahuan Desert but are vital to the biological diversity of the ecoregion." *See* M. Desmond, M. Atchley Montoya, *Status and Distribution of Chihuahuan Desert Grasslands in the United States and Mexico,* USDA Forest Service Proceedings RMRS-P-40. 2006. Otero Mesa's grasslands contain at least 13 different grass species, a number of which are either rare or found nowhere else. *See* W. Whitford, P.h.D. and K. Bixby, *The Last Desert Grasslands*, Southwest Environmental Center (2006). The biodiversity of the grasslands on Otero Mesa, coupled with the fact that it is one of the last expansive and largely uninterrupted tracts of its kind, render it unique. *Id.*

Despite all of the above, and despite the fact that the EA actually recognizes that "[t]he development of this tract would lead to the degradation/fragmentation and the possible reduction of local wildlife populations and their habitats due to the increase in activity associated with oil and gas operations," a conclusion is inexplicably reached that "[m]itigation is not required" with regard to wildlife. *See EA* at 4.14. The conclusion is wrong and underscores the need for a more complete analysis. Until such further study is conducted regarding the anticipated, cumulative oil and gas exploration activity in this area and the resultant cumulative impact upon the native species (both animal and plant), appropriate mitigation measures for the prevention of habitat fragmentation and the protection of native plant-life in this ecoregion cannot be created and/or implemented. The BLM should perform an **updated, comprehensive EIS**, complete with a full, cumulative impact analysis based upon the information that is now known regarding the anticipated development of this area, which has changed, in some ways significantly since the time at which the previous EIS relating to this area was conducted. Out of this new data, appropriate mitigation measures that correlate directly with the data collected and current information regarding oil and gas development of the area can then be created and implemented.

Given the fragility of this bio-diverse region, and the fact that the extent of the oil and gas resources is largely still unknown, EMNRD stands by its previous recommendations regarding oil and gas exploration of this region. As noted in the Energy, Minerals and Natural Resources Department Protest Letter of February 6, 2004 (regarding the proposed RMPA, at p. 5):

> Given the lack of knowledge about the extent of [oil and gas] resources, the Bureau of Land Management should not open the entire area to oil and gas drilling … [but instead] should consider the environmental effects that will occur if exploration and drilling is very successful and oil and gas lessees view more extensive development in the future as warranted; and should close or not lease sensitive areas such as the Otero and Nutt Mesa desert grasslands to surface occupancy.

Further, in the same letter (at p. 4), EMNRD raised the concern that the requirement that habitat areas be restored to their pre-project condition had been removed from the RMPA/FEIS, the removal of this condition leading to the conclusion that such restoration is not possible. For those habitats for

which it is not possible to achieve restoration to pre-project condition, fluid mineral leasing should be prohibited so as to protect and preserve them.

Additionally, EMNRD supports the recommendation made by Governor Richardson (designated as "*Stipulation 1. Timing of Operations*") in his *Alternative to RMPA*. The Governor, noting that the region in question is an arid region, recognized the need for optimizing the conditions for site remediation and/or restoration for any disturbances in this region. Per the *Governor's Alternative to RMPA*, p. 35, Stipulation 1:

> All drilling operations must be timed to (1) avoid surface disturbance during seasons of high wind, in order to minimize wind erosion, (2) avoid conducting operations during livestock/wildlife calving/fawning seasons, and (3) to the extent not incompatible with the foregoing objectives, arrange to conclude operations prior to anticipated moist seasons so that re-vegetation can begin promptly.

Governor Richardson further recommended that the "no surface occupancy" condition be imposed in certain regions of the Chihuahuan Dessert grassland/Otero Mesa and the Nutt Grassland habitat areas, recognizing the "abundant historic cultural resources" and that these areas consist of "critical habitats" for certain grassland species, some of which are endangered. *Id.* at pp. 34-35. Such an approach, however, would require the consolidation of wells and the use of directional drilling in order to access the mineral resources below, an approach that the BLM discarded despite the fact that there is increasing support and data to indicate that directional drilling is not only feasible, but ultimately profitable. As noted in a 2003 publication addressing directional drilling:

> Directional drilling has proven technically and economically feasible in a broad range of geologic settings, including tight gas, heavy oil, and coal bed methane. This method is proven to substantially increase producible reserves of oil and gas. Because the increased productivity of directional drilling compensates for the added costs, directional drilling is often more profitable than vertical drilling.

Molvar, E.M. 2003. Drilling smarter: Using minimum-footprint directional drilling to reduce oil and gas impacts in the Intermountain West. Laramie, WY: Biodiversity Conservation Alliance, 32 pp.: Again, further study is necessary regarding the terrain in this basin so that requirements for directional drilling can be appropriately established and implemented. EMNRD supports the Governor's recommendation regarding no surface occupancy in these regions, and encourages the BLM to implement conditions setting out requirements limiting surface disturbance and providing conditions for directional drilling.

ii) Water

It is well established that there is a large fresh-water aquifer (the Salt Basin aquifer) located directly beneath and adjacent to Otero Mesa, within the area defined by the RMPA off of which the subject EA is purported to "tier." The Salt Basin covers approximately 2,400 square miles of south-central New Mexico and extends across the state line into Texas. *See* G.F. Huff & D.A. Chace, *Knowledge and Understanding of the Hydrogeology of the Salt Basin in South-Central New Mexico and Future Study Needs*: U.S. Dept. of Interior/U.S. Geological Survey, Open File report 2006-1358, 17 p. The aquifer contained within the Salt Basin is a large, fresh-water aquifer that is believed to contain approximately 15 million acre-feet in recoverable, potable, fresh ground-water, and in 2002 was described as one of the last untapped aquifers in New Mexico. *See Tularosa Basin and Salt Basin Regional Water Plan, May 2002,* prepared by Livingston Associates, P.C. in association with John Shomaker and Associates, Inc. At this time, two communities (Timberon and Pinon) have begun to use the Salt Basin Aquifer for municipal supply. **Attachment C** at 487:1-5.

A deep-seated fracture system known as the "Otero Break" exists in Otero County, which is an area of high-fracture density in the southern part of Otero Mesa (and extending into Texas). *Id.* at 494:25 -

495:21. An oil and gas well previously drilled along the Otero Break (20 miles south of the New Mexico/Texas border) found fresh water at 3,000 feet. *Id.* The Salt Basin in general, particularly the Otero Mesa area, is considered a "recharge area," whereby water is collected in the "Otero Break" and discharged down to the Salt Lakes south of Dell City in Texas. *Id.* at 496: 5-10. The fractured nature of the rock in the Salt Basin and the lack of soil cover render the area particularly vulnerable to groundwater contamination. *Id.* at 499:18-23. Fracturing is a well-documented, driving force for the migration of surface spills. *Id.* at 501:4-7. The depth to groundwater is very variable, and can be less than 100 feet in some places. *Id.* at 501:3-4.

Despite the existence of the Salt Basin aquifer beneath Otero Mesa, the EA only discusses "useable groundwater" in very general terms in relation to the proposed oil and gas development of this area, and does not directly address the potential impact to or mitigation of contamination of the Salt Basin aquifer in the context of proposed oil and gas exploration.

The EA analysis concedes that there is potential for contamination of soils and ground water by such things as spillage and seepage of drilling fluids, salts and accidental spills of hydrocarbons, and further notes that the risk of such contamination would be even higher if earthen pits were used (if a Rule 21 waiver is granted by the OCD). Despite the conclusion that such risk of contamination is greater if earthen pits are used, the EA inexplicably appears to be drafted largely based upon a premise that the operator will obtain a waiver of Rule 21. The OCD has yet to grant such a waiver in this region, and there is no basis for the operator or the BLM to anticipate that such a waiver would be granted in this case. Relying on a presumption of a waiver being granted is therefore inappropriate. Moreover, the "no pit" approach is simply more protective, and the BLM should require it as part of mitigation.

Further, the EA fails to go beyond the preliminary discussion of soil contamination and provide any substantive discussion regarding the unique geology of the basin – specifically the fractured, limestone character that renders the groundwater in the basin particularly vulnerable to contamination from surface disturbances. There are publications available for review, such as the 1995 and 1998 reports addressing the fractured limestone rock structure and the groundwater flows, and the Tularosa and Salt Basin Regional Water plan (draft issued in 2001), that would provide additional data for consideration regarding the geology and fragility of the basin in this regard, and for determination of what areas of the mesa (and aquifer) may be more vulnerable than others. Just as was the case with the RMPA, the BLM did not appear to review or consider these available publications in its analysis here, when preparing the EA for this unit.

The data available suggests that because of the porous and fractured nature of the rock in Otero Mesa, contaminants are able to move from the surface and travel to the groundwater in a much more "efficient" manner than in a less porous environment. *See* Steven T. Finch, Jr., CPG, *Evaluation of Potential Water-resource Impacts from BLM Proposed Resource Management Plan Amendment for Federal fluid Minerals Leasing and Development in the Salt Basin, New Mexico* (February 6, 2004). In fact, the data indicates that if a contaminant gains access to a fracture in the rock, it can travel as quickly as 1,000 feet in a day. *Id.*

The recent geological survey conducted by the Department of the Interior discussed the vulnerability of the aquifer to the introduction and rapid movement of contaminants and recognized that "a better understanding of the hydrologic nature of the Salt Basin…will aid in…assessing areas of the carbonate aquifer that may be vulnerable to the rapid spread of subsurface contaminants." *See* Huff & Chace at p. 14. The authors of the survey further stated that "[t]he responsible development and management of ground-water resources in the Salt Basin require a comprehensive understanding of the hydrogeologic system," and note that while much has been done to investigate the basin, the data is still incomplete. *Id.* at p. 13. For example, the water-level data for the aquifer is not yet complete, and further study is needed to define depth-to-water and gain a more complete understanding of the groundwater elevation. There is evidence that some of the ground water in the basin is shallow, which

would make it especially vulnerable to contamination from surface disturbances due to oil and gas exploration.

Given the amount of oil and gas development that is being planned for this geographic area, and the amount of disturbance that the proposed development would entail, the movement of surface contaminants to the aquifer below is a significant concern, and warrants additional investigation and evaluation. As the New Mexico Environment Department concluded in its 2000 publication, *Ground-water Contamination and Remediation in New Mexico: 1997-2000*, "[p]revention of ground-water pollution is always more cost effective and technically achievable than remediation."

The cause for concern regarding the water resources in Otero Mesa, and the need for further study of the basin is exemplified by the significant problems that were encountered by HEYCO as it began the exploratory drilling on the Bennett Ranch lease. Upon beginning to drill on Otero Mesa, HEYCO discovered that areas of the unit have gas and water in close proximity. In fact, the first well attempted by HEYCO failed because it encountered "a lot of water," which caused the shale in the area to swell, resulting in loss of the hole at about 2,400 feet. As a result of that experience, HEYCO tried different approaches to "control the shales" as it drilled the other two wells by implementing such methods as the use of "a high concentration of KCL." HEYCO drilled each of the wells to the lower Paleozoic section using air, and then switched to a fluid system using what was described as a "cut brine." **Attachment A** at 24:6-19.

Despite the data suggesting that this area is highly fractured, geologically unique, highly variable regarding depth to water and generally not yet fully studied and understood, the EA fails to recommend the institution of adequate mitigation measures in dealing with hazardous or solid wastes, or for the protection of groundwater, generally. Regarding wastes, the EA simply states that there are other environmental regulations in place that serve to ensure adequate procedures for the safe handling and disposal of drilling fluids, saline water and the like, and states that, therefore, "mitigation is not required." Given what is known about the fractured and vulnerable nature of this basin, and the speed with which contaminants can move through this kind of rock to the groundwater below, it seems clear that at the least, further inquiry and study is necessary before a conclusion that "no mitigation is required" can be reached.

The analysis and provisions for "mitigation" with regard to groundwater are particularly troublesome. The EA provides that the surface or intermediate casing should be set "below the last known useable water" and that the casing should be cemented to the surface to reduce or eliminate the potential for contamination. The EA further states that "[b]ased on the best available data derived from local water wells" the BLM will require operators to set casings to a depth of at least 900 feet to protect useable groundwater. As has become abundantly clear from the studies that have been conducted to date on this region, the depth to groundwater is extremely variable and determining the depth of the "last known useable water" at a particular location is not a simple undertaking and requires extreme care. Second, for the wells that have already been drilled or attempted to be drilled in this region, there has been considerable difficulty cementing the casing all the way to the surface due to the unique nature of the area and unexpectedly encountering water. *See* **Attachment A**, at 21:22 - 23:7, generally, regarding HEYCO'S problems setting casings, getting casing stuck, and uncertainty regarding whether ultimately able to run cement to surface). The imposition of conditions requiring operators to plan ahead so as to be better able to address and prepare for these kinds of situations is a necessity for drilling in this environment.

Finally, the BLM's use of the depth provided by the "best available data" as noted in the EA is an error, given that it is known that fresh water was encountered in the Otero Break region (just south of the New Mexico/Texas border) at 3,000 feet, and that HEYCO (the applicant in this matter) recently encountered water at approximately 2,400 feet (and ultimately "lost the hole" as a result) as it was drilling a well in this same geographic region. Further, as was noted in the *Governor's Reply to the BLM*

addressing his Appeal Regarding Otero Mesa, a sundry notice filed with the OCD for the subject area "identified possible water zones at 385, 525, 870 and 2520 feet." (at p.14). The mitigation proposed by the EA simply will not adequately protect groundwater in this region.

Unless and until further study and survey of the area is conducted, allowing for a better understanding of what areas are particularly porous and "vulnerable," and providing more substantive data regarding the range of depths to groundwater, promulgating and implementing specific mitigation plans will not be possible. As was previously recommended by the EMNRD in its Letter of February 6, 2004, protesting the RMPA/FEIS:

> …the Bureau of Land Management should conduct a full hydrogeologic analysis before determining those areas to be open for leasing. In addition, the Bureau of Land Management should require specific protections to prevent groundwater contamination such as:
>
> - Special stipulations for wellhead protection areas, watershed areas and areas identified in the draft RMPA/EIS as public water reserves;
> - The prohibition of use of open pits and requirement of tank storage of generated fluids; and
> - A prohibition of surface disturbance within 200 meters of the outer edge of floodplains, flowing water or standing water.

Finally, **at a minimum**, a requirement should be imposed mandating that the water-protection string be long enough to be **cemented below any usable water in the specific location being accessed**, and the production string should then be tied back into the water-protection string. Cementing to the surface should be required for all wells drilled in this region.

- **POTENTIAL IMPACT OF ONGOING LITIGATION**

In addition to the incongruity caused by the fact that the presumptions and data relied upon by the RMPA to which this EA tiers is now outdated and, in some respects, no longer applicable, there are other issues worth noting relating to the EA's reliance upon the RMPA. Although the EA repeatedly notes that the analysis contained therein "tiers to and incorporates by reference the information and analysis contained in the Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (RMPA/FEIS) for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties, December 2003." *(EA* at p. 1, Sect. 1.0), nowhere in the EA does the BLM note or address the fact that the referenced RMPA/FEIS is currently on appeal to the 10th Circuit.

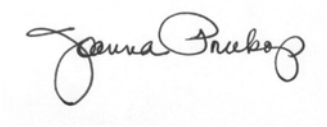
If, indeed, the EA does "tier to and incorporate by reference" the RMPA/FEIS, and the State prevails in its appeal to the 10th Circuit regarding the referenced RMPA/FEIS, this would invalidate the EA. Conversely, according to the language of the RMPA, only new leases are subject to its provisions. The current proposal relates to an existing lease, which was not subject to the provisions of the RMPA requiring significant NEPA evaluation at the leasing stage. Therefore, the EA relating to this proposed well cannot possibly "tier to" the RMPA as is stated in the language of the EA. The EA was incorrectly constructed in this regard.

- **CONCLUSION**

For all of the reasons outlined above, it is clear that the cumulative impacts of anticipated oil and gas development in the Bennett Ranch area of Otero Mesa are likely to be significant, and it is incumbent upon the BLM to prepare an Environmental Impact Statement to address the environmental impacts of such development, including all wells, roads, pipelines and other facilities that are reasonably foreseeable. *See, e.g., Davis v. Mineta,* 302 F.3d 1104 (10th Cir. 2002).

EMNRD appreciates the opportunity to provide comment regarding the Bennett Ranch Unit #6 EA, and encourages the BLM to seriously consider the opinions and recommendations contained herein. Please do not hesitate to contact us should you require any further information from EMNRD, or should questions regarding our recommendations arise.

Sincerely,



Joanna Prukop
Cabinet Secretary
New Mexico Energy, Minerals & Natural Resources Department