Letter 106

"Jason Lafferty"
<jasonlafferty@eugenefreezing.com>
06/23/2003 08:25 AM

To: <lmattson@fs.fed.us>
cc:
Subject: Gunnison Energy

Project Manager:

106-1 The shortage of natural gas is all over the national newspapers. I downloaded and looked at the Environmental Assessment for Gunnison Energy Corporation's Proposed Exploratory Gas Drilling Project (http://extranet.ensr.com/gec_gasex_ea/) which does a good job of stating that the expected impacts of the wells will be minimal to non-existent. Anytime you extract natural resources there will be impacts, but in this case they will be very limited and considering current events we should move forward with Gunnison Energy's stated exploration plan without any further conditions.

Jason Lafferty

Eugene, OR

Letter 107

To:
Project Coordinator
Box 1030
Paonia, Co. 81428
Fax 527-4151

Andrea Robinsong
Box 745
Hotchkiss, Co. 81419

I would like to go on record with the following comments concerning the EA produced by the Forest Service and BLM in response to the application from Gunnison Energy Corporation to drill 8 exploratory wells on the Grand Mesa.

107-1 I consider the EA to be an inadequate assessment of the possible cumulative impacts to the National Forest and the surrounding area. Current studies sited are either incomplete and/or outdated. Drilling into coalbeds should not proceed nor continue without a comprehensive study showing the long-term cumulative impacts to regional hydrology and air quality and wildlife on the Forest. The E A does not address the long term development scenario of the Applicant's publicly announced anticipated 600 wells.

107-2 The current R M P does not address the differences between coalbed methane drilling and more traditional sand gas drilling. A full EIS should be undertaken to ensure adequate studies are conducted before drilling begins.

107-3 The Forest Service should not allow any drilling on Public Lands without bonding by the Applicants that would cover the maximum cost of clean-up in a worst case scenario.

107-4 There should be requirements for all drill sites and access routes for use of the best technology and the most strident mitigations.

107-5 At this time, enforcement on all Public Lands is woefully inadequate. Drilling should not be allowed without the Agencies' absolute assurance they are providing adequate enforcement of all regulations. This industry has an abysmal record when it comes to self-regulation.

107-6 Currently, there is no requirement that the Forest Service consider "off-site impacts." This is very unfortunate as everything that is currently being proposed will have huge impacts on the people who will have tremendously increased truck traffic to deal with, as well as impacts to water, sound, viewshed, etc. However, the Forest Service IS required to address all the concerns I have mentioned in this letter. Please take the time to adequately and thoroughly address all the possible impacts that could be produced by this application, as well as future ones. With the current mitigation structure, it will be a scenario of "too little, too late" when problems arise.

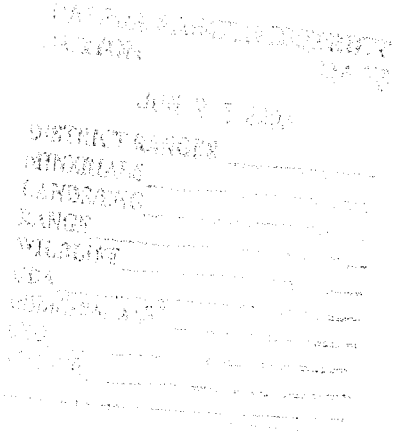
Sincerely,

Andrea Robinsong

Andrea Robinsong

Letter 108

FROM : FAX NO. : Jun. 23 2003 04:25PM P1



Liane Mattson
Project Coordinator
PO Box 1030
Paonia, CO 81428

Elliot Jackson
PO Box 538
Paonia, CO 81428
(970) 527-4151

June 23rd, 2003

Dear Liane,

With regard to the multi-well project proposed by Gunnison Energy Corp. on federal lands hereabouts, I feel that the Forest Service and the BLM do need to insist on certain minimum requirements:

108-1 1. The best available technology be used, and stringent noise, dust and environmental impact mitigation standards be put into place;

108-2 2. The company needs to post a bond that covers full reclamation costs;

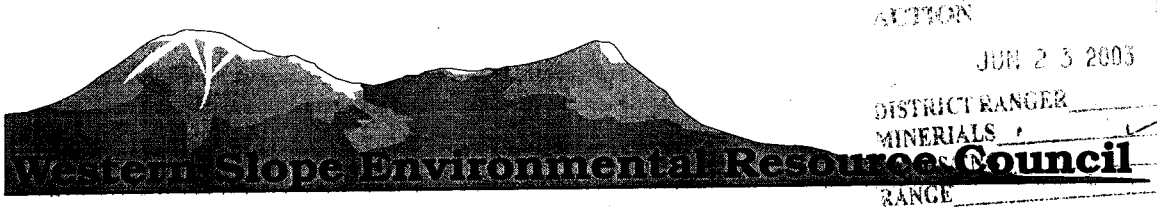
108-3 3. A full, new environmental impact study done on the effects of coalbed methane drilling.

108-4 I'm highly skeptical, personally, about the benefits of coalbed methane drilling, and think that the potential risks to the forest are astronomically higher than GEC would want us to believe. One need only look around at other counties in the West that have been ravaged by the extraction industry to urge that the USFS and the BLM take the time to put together a new Environmental Assessment. Thank you for your consideration.

Regards,

Elliot Jackson

Letter 109



June 23, 2003

Project Manager
GEC Exploration Drilling Project
P.O. Box 1030
Paonia, CO 81428

Dear Sir or Madam:

Re: Comments on the Draft EA for Gunnison Energy Corporation's Proposed Exploratory Gas Drilling Project.

I. INTRODUCTION

On behalf of the Board of Directors and the members of the Western Slope Environmental Resource Council (WSERC), High Country Citizens' Alliance (HCCA), Western Colorado Congress (WCC), Colorado Environmental Coalition (CEC) and the Center For Native Ecosystems (CNE) I am writing to convey our comments, concerns and suggestions regarding the recently released Environmental Assessment for Gunnison Energy Corporation's Proposed Exploratory Gas Drilling Project. We appreciate the opportunity to provide these written comments.

WSERC is a grassroots non-profit conservation organization based in Paonia, CO, which is dedicated to protecting and enhancing the environment and quality of life in Delta County and Colorado's Western Slope. WSERC organized in 1977 and now has approximately 450 members.

Formed in 1977, the mission of HCCA is to protect, enhance and restore the natural ecosystems and quality of human life in the Upper Gunnison River Basin and in the Mountain West. A substantial portion of our more than 600 members live on Colorado's West Slope.

WCC is a grassroots, democratic organization dedicated to challenging injustice by organizing people to increase their power over decisions that affect their lives. WCC's community groups and members work together to create healthy, sustainable communities, social and economic justice, environmental stewardship and a truly democratic society.

CEC works to protect Colorado's environment by educating and mobilizing citizens, providing technical and organizing assistance to environmental organizations and other allies, and uniting and supporting them in coalitions that defend and preserve Colorado's natural heritage and quality of life.

CNE is a non-profit advocacy organization dedicated to conserving and recovering native and naturally functioning ecosystems in the Greater Southern Rockies and Plains. We value the clean water, fresh air, healthy communities, sources of food and medicine, and recreational opportunities provided by native biological diversity. We also passionately believe that all species and their natural communities have the right to exist and thrive. CNE uses the best available science to forward its mission through

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participation in policy, administrative processes, legal action, public outreach and organizing, and education.

WSERC, HCCA,WCC, CEC and CNE each have a long-standing interest in the management of public lands administered by the Grand Mesa, Uncompahgre, and Gunnison (GMUG) National Forest and the BLM – Uncompahgre Basin Field Office (UBFO). Our members rely on Forest Service and BLM lands for everything from irrigation water, camping, hiking, mountain biking, hunting, fishing and opportunities for solitude. As such, our primary interest lies in seeing that environmental health is maintained and that cumulative impacts from activities on public lands do not degrade or overwhelm their ecological integrity.

II. COAL BED METHANE DEVELOPMENT

109-1 It appears that the agency for political reasons, is avoiding referring to GEC's project as including coal bed methane development. Coal Bed Methane ("CBM") is defined by the federal agencies in multiple agency documents as "natural gas originating from and residing in coal beds." *See e.g.*, FEIS and Proposed Plan Amendment for the Powder Basin Oil and Gas Project at 17 (January 2003). In this case, the proposed drilling is will target gas producing zones in coal layers in the Mesa Verde Formation. EA P.1-1. In fact, GEC plans to "drill[ ] through the entire Mesaverde layer..." in an effort to determine whether the coal bearing formations are producing. If these layers are nonproducing GEC will also drill deeper sandstone formations. EA at 2-14. Hydraulic fracturing would occur in the Mesaverde Formation at the level of the coal bed member to "stimulate" movement of gas from the large coal bearing formations. *Id.* at 2-14 & Appendix J. This technique does not appear to be necessary (or is necessary on a limited basis) for sandstone. Thus, to the extent GEC is targeting natural gas originating from and residing in coal beds, GEC's project must necessarily be termed a "CBM" development. Failure to consider GEC's project a CBM operation is both disingenuous and misleading to the public.

III. CBM IMPACTS, GENERALLY

A United States Geological Survey report, Coalbed Methane--An Untapped Energy Resource and an Environmental Concern (available at http://www.doi.gov/coalbed/), establishes the need for comprehensive, basin-specific study and data collection before proceeding with CBM drilling.

> Only recently has coal been recognized as a reservoir rock as well as a source rock, thus representing an enormous undeveloped "unconventional" energy resource. But production of coalbed methane is accompanied by significant environmental challenges, including prevention of unintended loss of methane to the atmosphere during underground mining, and disposal of large quantities of water, sometimes saline, that are unavoidably produced with the gas.

109-2

> Large amounts of water, sometimes saline, are produced from coalbed methane wells, especially in the early stages of production. While economic quantities of methane can be produced, water disposal options that are environmentally acceptable and yet economically feasible, are a concern.
>
> Contamination of aquifers due to coalbed methane development represents another environmental concern. Such contamination has been a problem in the San Juan basin [. . .] Studies by USGS scientists, in cooperation with State and Federal regulatory agencies, indicate that there are multiple sources of contamination--some from natural causes along fractures and

109-2

> from shallow biogenic gas; some from older, deteriorating gas wells completed in sandstone reservoirs; and some from recently completed coalbed methane wells.
>
> Basin-wide studies are needed to determine controls of the occurrence, availability, and recoverability of coalbed methane in the United States and other countries that need clean energy resources. [. . .] Most previous exploration and research efforts have been in the San Juan basin and the Black Warrior basin. However, since each coal-bearing basin has unique attributes, coalbed methane issues need to be studied separately in each basin.

Exhibit 20 (emphasis supplied).

109-3

The San Juan Basin case study enumerates several following significant environmental impacts of CBM development:

- "Gas seepage into domestic water wells." Id. at 72.
- "Effects at the outcrop—dying vegetation at the fruitland outcrop, gas seeps, coal seam fires." Id. at 72-73.
- "Impacts on wildlife. Roads and other development cause destruction of habitat as well as habitat fragmentation." . . . Id. At 73.
- Rangeland Impacts. . . . Increased development threatens the health of the land as well as the health of [ranchers'] cattle. Id. At 75.
- Air Quality. Coalbed methane development impacts air quality in several ways. Higher levels of particulate matter are released when increased road building and well pad construction strips off protective topsoil, leaving bare dirt exposed to wind. Vehicle traffic on these roads contributes further to particulate emissions. Emissions from vehicles and diesel powered generators also affect the air quality surrounding coalbed methane developments. The combined effects of these emissions can affect both the local and regional air quality and visibility, and may impact nearby areas that have protected airsheds[.]" Id. At 75.

109-4

A BLM study establishes that CBM impacts are significant and that adequate collection of baseline data must precede any drilling. Coalbed Methane Development in the Northern San Juan Basin of Colorado, A Brief History and Environmental Observations, A Working Document Compiled by the Bureau of Land Management San Juan Field Office (December, 1999), available online at http://oil-gas.state.co.us/blm_sjb.htm . Exhibit *. More impacts are established by BLM's Northern San Juan Basin CBM Study which establishes the following categories of significant CBM impacts. These impacts cannot be avoided or mitigated absent adequate pre-drilling analysis, comprehensive data on baseline conditions and strict conditions of approval.

- **Methane migration, seeps and associated impacts to property and resources.**
  - "Gas seeps in soils that overlie Mesaverde sandstone outcrops were noted in the mid-1990's as manifesting patches of dead grass in pastures northeast of Durango[.]" 16. "[N]umerous large mature Ponderosa Pine trees also showed signs of stress, and gradually died, many within a three-year period. More are showing signs of imminent

death at this writing in 1999." Id. at 28. Because the Grand Mesa wells are proposed for forested lands, the FS must consider impacts of methane seeps on trees and other vegetation.

109-4

- "In near-surface coal outcrops, hydrostatic pressure reduction may allow locally desorbed coalgas to migrate entrained with groundwater or rise vertically through porous soils to the surface." 11. "[T]wo homes located directly above the outcrop/subcrop of the Fruitland Formation coalbeds were declared unsafe for habitation due to explosive accumulations of methane; five homes were ultimately removed from the hazardous zone. . . . The immediate threat to public health, safety, and welfare at the Pine River Ranches Subdivision has been removed by the gas operator's purchase of . . . affected properties." Id. at 3, 26, 30-31.

109-5

- **Coal fires.** "Self-heating of near-surface coals can result from fluctuations/lowering of the water table in the coalbeds. . . . These *environmentally significant phenomena*, which may represent warning signs of impeding changes, have engaged the attention of regulatory agencies and the community." Id. at 3 (emphasis supplied). "Spontaneous combustion can be spawned by fluctuation of water levels within coalbeds." Id. at 17.

109-6

- **Surface water and groundwater resources.**

  - "Business risks were considerable due to high startup costs associated with pumping, storage, disposal, and corrosion potential (linked to a significant carbon dioxide content), of the produced water[.]" Id. at 5.

  - "Proposed methane migration pathways to water wells having a thermogenic gas signature include deficiencies in well casing integrity, a lack of adequate annular isolation through the Fruitland coal horizons, cathodic protection wells, seismic test holes, bedrock water wells, and natural joints and fractures." Id. at 19.

  - "Responsible resource management includes minimizing unnecessary producible gas losses and maintaining healthy ecosystems. . . . Gas lost to aquifers and soils is an environmental concern." Id. at 21. "The propensity for contamination of groundwater by methane gas was recognized as a valid concern." Id. at 22.

  - "The need for a baseline of water quality was recognized" resulting in formation of a Groundwater Task Force. Id. at 20; *see* 22-23.

  - "If recharge were insufficient to replenish water withdrawn by basin fringe gas wells near the outcrop, reversals of groundwater flow might occur with subcrops being recharged by surface flow from perennial rivers/streams." Id. at 57.

COAL BED METHANE GEOLOGY

109-7

"Coalbed methane is peculiar in that methane and carbon dioxide are predominantly stored in a molecular adsorbed phase within micropores of the coal. . . In comparison, conventional gas reservoirs contain gas molecules within interstitial porespaces, for example between sand grains in a sandstone reservoir, and in fractures." Id. at 9. The Summary and Conclusions section provides that:

Methane gas seeps, groundwater contamination, and coalbed fires have been discovered. These conditions may be exacerbated by continued production of water from the Fruitland coalbeds. Gas well water production could conceivably influence the potential for spontaneous combustion of near-surface coals due to the quantity of water withdrawn through pumping as compared to water level fluctuations attributable to normal seasonal variations as a product of precipitation and normal recharge alone. Fruitland water extraction could also play a part in drawing ambient air into the coalbeds, providing oxygen necessary for combustion and facilitating a resurgence of dormant (smoldering) coal fires.

Increases in methane content of soils overlying Fruitland coalbeds, lowering of water tables in domestic and water monitoring wells drilled into the basin rim coals, fires in Fruitland coalbeds, alignment of recently killed vegetation with underlying coal outcrops harboring high methane concentrations/depleted oxygen, and an apparent intensification of naturally occurring methane/hydrogen sulfide seeps have all been noticed since the early 1990's. These occurrences have been documented in a series of research reports and studies commissioned and conducted by regulatory agencies, the oil and gas industry and local government agencies. . . .

109-7

This effort to understand Basin dynamics related to CBM development is critical due to anticipated future CBM development. Human health and safety issues, vegetation losses, environmental degradation, and oxidation of coal reserves loom as potential associated consequences of intensified gas development. . . .

Recent indications of environmental degradation at an increasing number of sites both on and off the Southern Ute Indian Reservation lead to the concern that these conditions may proliferate.

Exh. * at 67-68 (emphasis supplied).

109-8 These impacts must be analyzed by reference to the scientific literature produced by agencies, academics and industry. The documentation of impacts clearly establishes that CBM development will have significant impacts that trigger the preparation of an EIS for this project.

WATER

The San Juan Basin case study states that "Four methods of handling produced water are typically used today." Id. at 71. These are (1) storage at the well location in tanks pending transfer by truck to wastewater treatment facilities, (2) reinjection into deep aquifers, (3) storage in onsite impoundments for evaporation and (4) surface discharge "where the produced water has a low enough salinity." BLM must analyze the hydro-geology of the Piceance Basin, target formations, quantity and quality of produced water, and all environmental impacts of produced water. The San Juan Basin case study, authored by interdisciplinary experts at Ecos Consulting, provides as follows:

109-9

Problems exist with all of these disposal methods. Produced water often leaks from storage tanks . . . several spills that have escaped the berms have permanently impacted the surrounding soil, rendering it unfit to grow forage for [rancher's] cattle. . .

Reinjection of produced water can introduce saline water into deeper aquifers that may contain fresher water. Often, an area with coalbed methane development does not have aquifers meeting

the requirements for reinjection. . . Or, if aquifers with the right characteristics are present, they might be in communication . . . with the coalbed aquifer.
Surface impoundments also have problems. . . .

109-9

Finally, assuming the water quality is good enough, produced water can be discharged onto the ground surface. This causes problems with erosion of stream channels, flooding of low-lying areas, and other downstream effects.

Report at 71-72.

IV. LAND USE PLAN NON-CONFORMITY

109-10 Neither the GMUG or the UBFO has undertaken a comprehensive analysis of the potential adverse impacts related to coal bed methane (CBM) development in this area, thus actions which could result in development of CBM resources, including gas exploration in coal seams, are not covered by the agencies' existing Land and Resource Management Plans.

109-11 Again, Coal Bed Methane is defined by the agencies as "natural gas originating from and residing in coal beds." *See e.g.*, FEIS and Proposed Plan Amendment for the Powder Basin Oil and Gas Project at 17 (January 2003). GEC's project, which targets coal bearing members of the Mesaverde formation, is by definition a CBM well. Furthermore, several aspects of coal bed methane are "unique" do to the fact that the methane is "contained in coal bed fractures and is attached to micropore surfaces. The methane is held in place in the coal bed by confining pressures. It is released when the confining pressure is reduced." FEIS 1993, pIII-16.

109-12 Here, the 1993 GMUG Oil and Gas EIS stated: "The RFD [reasonably foreseeable development scenario] does not predict any coalbed methane wells. ... No additional coalbed methane wells are anticipated on this forest." 1993 EIS at VI-38. And the BLM's 1988 Uncompahgre Basin Resource Management Plan (RMP) fails to even mention CBM development.

109-13 Clearly, withdrawing natural gas from coal seams was not anticipated by either agency. For example, CBM related activities such as hydraulic fracturing and flaring were not anticipated to occur on public lands. Consequently, the agencies must amend their respective RMP's before allowing CBM related activities to proceed, as the purpose of RMP's is to provide a foundation and general guidance for any and all activities that may at some point be conducted on federal lands under their jurisdiction.

109-14 Existing NEPA documentation does not provide for CBM related activity. "The use of existing NEPA documents is appropriate when: a current proposed action previously was proposed and analyzed (or is a part of an earlier proposal that was analyzed); resource conditions have not changed; and there is no suggestion by the public of a significant new and appropriate alternative." BLM Instruction Memorandum 99-149. None of the criteria for using existing NEPA documents applies to CBM development on the federal lands of Grand Mesa.

109-15 NEPA requires federal agencies to analyze the impact of any major federal action that significantly effects the human environment. 40 C.F.R. § 1500. When conducting NEPA analysis, agencies must analyze the cumulative as well as direct environmental impacts of the action. Id. It is clear that GEC's proposal marks the beginning of a significant exploration project that is intended to facilitate further development. Accordingly the agencies should prepare NEPA documentation analyzing the full scope of potential CBM development throughout public lands in the region. This NEPA documentation would

109-15 serve to, among other things, analyze the cumulative impacts of this proposal. Moreover, NEPA requires agencies to stay CBM development proposals until the agencies comprehensively analyze the potential impacts and appropriate safeguards involved.

109-16 Given that potential CBM development on Grand Mesa and neighboring lands is the highest profile, most controversial natural resource management issue in the region, it is recommended that the agencies rethink their current piecemeal approach to analyzing this previously undocumented form of extraction. Comprehensive analysis is required because of the dearth of analysis of CBM for this area, the high likelihood that the proposed wells could have significant impacts and the great public controversy surrounding this proposal. See 42 C.F.R. 1501.4 and FSH 1909.15, 30 (3)("If scoping indicates that the proposed action may have a significant environmental effect, prepare an EIS.")

109-17 Federal law requires that CBM development proposals be stayed to allow comprehensive analysis of potential impacts and appropriate safeguards. Granting any federal approvals for CBM exploration and development at this time would violate the agencies' legal mandates. This proposal marks the beginning of a significant exploration project which is intended to facilitate further development. GEC's intensions are clear, thus the agencies would be well advised to prepare NEPA documentation analyzing the full scope of potential CBM development. The NEPA document must analyze cumulative impacts and environmental impacts unique to CBM but not previously analyzed for federal lands in the Grand Mesa region.

109-18 Preparing a comprehensive analysis of CBM development before approving any CBM operations on the GMUG is the reasonable, conservative course of action. At some point it may be appropriate for federal lessees to proceed with exploratory wells in order to assess the potential for CBM development on federal oil and gas leases. But that point will not be reached until the BLM and the Forest Service first fulfill their legal responsibility to supplement existing NEPA documentation of oil and gas leasing in the Grand Mesa area by either individual amendments of the FS and BLM RMPs and management EISs.

109-19 CBM development on the federal lands of Grand Mesa should proceed only if the responsible agencies can assure the public that surface and ground water – including United States Drinking Water reservoirs (USDWs) -- will be protected and that the cumulative impacts of future CBM wells, roads, pipelines, hydraulic fracturing procedures, and water disposal wells are fully understood and disclosed.

V. WATER RESOURCE ANALYSIS DEFICIENCIES

109-20 The most prominent concern raised, following the public's introduction to proposed coal bed gas development in this region, was the potential for adverse impact to the area's limited water resources. Since the summer of 2002, a small number of studies have been undertaken in an attempt to alleviate fears of possible water contamination and/or depletion due to coal bed gas extraction. Wright Water Engineers (WWE) and Cordilleran Compliance Services, under contract by Gunnison Energy Corp., produced a study which concluded that no adverse impacts to water resources of the region were likely to occur as a result of exploration drilling and hydrofracturing activities detailed in this proposal.

Unfortunately, the agencies' reliance on the WWE study has not eliminated concerns about the potential for communication and/or transmission between subsurface aquifers and/or surface waters in the project area. Independent reviews of the WWE report have identified concerns about assumptions made in the study and called into question WWE's conclusions that no impact was likely to occur. Also, representatives from the U.S. Geological Survey indicated (during the Natural Gas 101 informational series) that significant new data are required in order to define baseline conditions, estimate potential impacts, and to characterize and model the ground-water system with any certainty. And finally, recent

109-20 events at Mountain Coal Company's West Elk Mine underscore the need for more specific knowledge. Evidently, the long wall operation had to be shut down when it crossed a previously unmapped fault that then dumped thousands of gallons of water into the mine.

109-21 As part of the NEPA process, CEQ regulations implementing NEPA require that agencies disclose when there is "incomplete or unavailable information" relating to the impacts of the proposed action. 40 C.F.R. § 1502.22. If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement. 40 C.F.R. § 1502.22(a); see also Forest Service Handbook (FSH) 1909.15, Ch. 13.01 (same), 57 Fed. Reg. 43180, 43198 (Sep. 18, 1992). If the information cannot be obtained because costs are exorbitant, the EIS must include: (1) a statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably significant adverse impacts on the human environment, and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. 40 C.F.R. § 1502.22(b).

For this exploration proposal, the agencies need to: (i) disclose that key scientific information about Grand Mesa is incomplete or unavailable, (ii) obtain the information if the costs are not "exorbitant", and (iii) make the required disclosures if they elect to proceed absent the relevant information. Finally, the agencies plan for complying with these regulations must be subject to public review and comment.

VI. HYDRAULIC FRACTURING CONCERNS

109-22 Hydrofracturing is another water- related source of considerable concern. The chemical constituents and significant lack of recoverability (up to 30%), the extent to which fraccing can be controlled, and again the lack of regionally specific hydrological information are the basis of these concerns. To start with, the agencies and the operator need to provide the public with a list of the exact type and quantity of chemicals to be used in proposed hydrofraccing operations. And more importantly, the agencies need to acknowledge that there is currently not enough regionally specific information to assure the public that no irreparable harm will occur to the region's water resources.

The DRAFT EPA report which has been referenced in regard to proposed fraccing at the Leon Lake #2 operation was a preliminary study that has nothing to do with the unique surface conditions, geological formations and aquifers underlying Grand Mesa. The DRAFT EPA study did not directly investigate reports of CBM-related drinking well contamination. According to independent reviewers, the DRAFT EPA report is scientifically suspect, it may have been politically influenced and it is unlikely that the conclusions would survive independent peer review (EPA's review panel reflected a decided industry bias). See October, 2002 correspondence between Congressman Henry Waxman and EPA Director Christine Todd Whitman, substantiating charges that the DRAFT report "appears to be altering scientific and policy conclusions to accommodate [industry's] interest in promoting the oil and gas drilling practice of 'hydraulic fracturing.'" Non-industry sources have already compiled a substantial amount of information and documentation on the unique hydro-geology of Grand Mesa which establishes a strong likelihood that hydraulic fracturing would have unforeseen and possibly disastrous consequences. At a minimum, existing knowledge regarding the hydro-geology of Grand Mesa establishes that additional study is needed before hydraulic fracturing operations proceed.

109-22 At a minimum, the agencies must reveal the fluid being used for hydraulic fracturing. The agencies list the chemicals in Appendix c, but fail to provide a detailed chemical analysis of what is proposed for injection including, but not limited to, the fluids: chemical composition, chemical concentrations, and quantity of fluids to be injected. Furthermore, the agencies should identify with particularity the fluids capable of "breaking down," how such process is to occur, and how long before such process occurs. The agencies should also assess the impacts of leaving 30% of the fracturing fluids in the fractures. In other words, what the potential impacts are of failure to recover such fluids, migration of fluids into water bearing formations, etc.

Brief analysis of some of the fluids proposed for use in fraccing and other drilling operations reveals the following.

The Polymers:

Several different polymer mixtures including polyacrylamide will be used at each drill site. Polyacrylamides break down into acrylamide in the environment[1]. Polyacrylamide is toxic to brain cells[2], changes the structure of the cells in the testes[3], causes major structural changes in the thyroid gland and disturbs thyroid hormone balance, and at very low doses causes testicular, thyroid, and breast tumors[4].

The Fracturing Fluid Solvents:

109-23 Almost 16 gallons of diethylene glycol or ethylene glycol monobutyl ether or 2-BE or 2-Butoxyethanol or EGBE (it has many names) are going to be used at each well during the operation period. It does not degrade in the environment and is mobile in soil and thus can enter groundwater and remain entrapped underground for years[5]. It is odorless and tasteless and thus would not deter wildlife or humans from coming in contact with it. Cattle are sensitive to this product whether through inhalation or ingestion[6]. 2-BE breaks down in humans to 2-butoxyacetic acid (BAA). It has an immediate impact on red blood cells causing anemia. It is especially toxic to the spleen, bones in the spinal column, bone marrow, and the liver. It impacts fertility, causes severe eye degeneration, undermines the immune system, and has been classified as a possible human carcinogen. Exposure during pregnancy should be avoided. If 2-BE gets into drinking water supplies, exposure would be both from ingestion and inhalation, because of its volatility.

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[1] Smith et et al., 1996. Environmental degradation of polyacrylamides: I.Effects of artificial environmental conditions. 35(2):121-135; Smith et al., 1997. Environmental degradation of polyacrylamides: II. Effects of environmental (outdoor) exposure. 37(2):76-91.

[2] Borenfreund and Babich. 1987 In vitro cytotoxicity of heavy metals, acrylamide, and organotin salts to neural cells and fibroblasts. Cell Biology and Toxicology

[3] Chapin et al., 1986. The effects of 2,5 hexandione (2,5-HD), acrylamide (ACR), and mono (2-ethylhexyl) phthalate MEHP on Sertoli cell-enriched cultures. Toxicologist 6:289-301.

[4] Khan et al., 1999. Changes in thyroid gland morphology after acute acrylamide exposure. Toxicological Sciences 47(2):151-157.

[5] Agency for Toxic Substances and Disease Registry. US Department of Health and Human Services. 1998. Toxicological Profile of 2-Butoxyethanol and 2-Butoxyethanol acetate.

[6] Coppock et al., 1996. Toxicopathology of oilfield poisoning in cattle. A review. Veterinary and Human Toxicology, 38 (1):36-42.

Fracturing Fluid Detergents:

109-23 Nonylphenol is a commercial and household detergent ingredient that has been associated with the feminization (intersex) of male fish in rivers, streams, and lakes[7]. Because of findings such as this its use has been restricted in many products around the world. The amount suggested for use in Delta County should be monitored carefully. The volume should not be increased.

109-24 In the completion operations 500 gallons of 15% hydrochloric acid (HCL) will be used at each drill site. This is an exceptionally large amount of an acutely dangerous product to have on one site. Exposure can be fatal. It can cause blindness, severe debilitating acid burns of the skin, and if the fumes are inhaled can destroy lung tissue. As the HCL is used to neutralize the alkalinity of the soils and the highly contaminated artesian ground water it could also dissolve several highly toxic trace elements not usually biologically available in our soils, causing them to become mobilized and thus contaminate the surface and ground water near the site or downstream.

109-25 Any waters directed into a reserve pit following the use of the above chemicals would pose a hazard to wildlife and especially birds (that would not be kept out by a fence). Not only the concentration of the natural and introduced elements/chemicals will increase, but, as the chemistry of the soil is changed through pH manipulation it is impossible to predict what the composition of the residuals will be. The interactive effects of the mixtures in the pits on animals and plants and plant communities are also unpredictable.

VII. AIR QUALITY ANALYSIS DEFICIENCIES

109-26 The air quality analysis contained in the EA falls short of our expectations. For example, the PM_{10} baseline data is outdated. Since 1996-97, when the data referenced in this analysis was collected, new and undocumented (within this EA) impacts to local air quality have been mounting. Specifically, the population on Colorado's western slope has increased, bringing with it associated activities and disturbance which deteriorate air quality. The region has sustained an extended period of drought, and unanticipated activities – primarily methane venting – at the North Fork Valley coal mines are contributing additional dust, vehicle emissions and methane to our air. Gas development will only add to this situation. In sum, up to date on-site air quality data for all criteria pollutants should be collected for at least one year prior to beginning operations. Furthermore, at least one years worth of site specific meteorological data should be collected to determine wind directions, climate conditions, etc. This information is critical in order to establish baseline air quality conditions in advance of development and potential field development. Especially where, as here, approximately 50% of the exploration wells could be developed into production wells and could thereafter be in place for up to 40 years.

According to USFS, the project is located in a Class II area for PSD and therefore increments are set for NOx, PM and SO2 in the area. The agency does not discuss whether the minor source baseline date is triggered for any of the baseline areas for these criteria pollutants. This must be determined. If this date is triggered for any criteria pollutant, then the emissions from GEC's wells consume available increment for that pollutant. Furthermore, if the minor source baseline date is triggered, a "Source Impact Analysis" must be performed to determine GEC's compliance, in conjunction with emissions from all other sources in the area, with the applicable Class I & II increments for the area. 40 C.F.R. §52.21(k). This analysis must occur regardless of whether or not GEC is a major stationary source.

[7] Jobling et al., 1996. Inhibition of testicular growth in rainbow trout (Oncorhynchus mykiss) exposed to estrogenic alkylphenolic compounds. Environmental Toxicology and Chemistry 15(2):194-202.

Source materials for emissions estimates for GEC's project are not provided. Furthermore, it is not clear how the emissions estimates in Table 3.1-4 were derived and what the underlying assumptions were for such calculations. Reference is made to a 1995 USEPA document which presumably supplies "all emissions factors." This document is not provided in the appendix. USFS must disclose and discuss in detail how its emissions estimates were derived so that the public can be provided an informed understanding of the emissions generated from this project. In the absence of such data, it must be assumed that emissions for this project are substantially underestimated and/or not properly calculated. In particular, emissions estimates from tail-pipes from GEC's fleet of mobile sources and GEC's flaring operations appear small.

The most recent data on visibility should be provided as well as data on other air quality related values. In particular, the most recent air quality data West Elk Wilderness. Such data is important to establish baseline conditions if and when full field gas production occurs.

109-26

The project provides for methane venting or flaring through a "Blooie line". This process will result in NO_2, CO, So2, VOC, methane and CO_2 emissions. The GMUG Oil and Gas FEIS and the GMUG LRMP lack any analysis of CBM impacts. The Oil and Gas FEIS section on air-quality impacts of conventional gas development mentions only increased dust from road use and drilling operations. FEIS at II-15. The Oil and Gas EIS does not predict or evaluate the emission of the criteria pollutants, hazardous pollutants, and green house gases released through flaring. Id. Accordingly, the FS must amend the FEIS and LRMP to analyze the air quality impacts of CBM development.

CBM flaring involves a six-foot flame. The LRMP and Oil and Gas FEIS fail to analyze the potential fire hazard and impact to the GMUG Forests from flaring. Recently, a CBM flare caused a ** acre fire. This incident shows the magnitude of this potential impact.

Obtaining all necessary air quality permits should be made a condition of approval of GEC's operation. And finally, the agencies must also demonstrate compliance with the PM 2.5 NAAQS.

VIII. ECOLOGICAL CONCERNS

Anticipated impacts to sensitive plants and wildlife appear to be minimized throughout the EA, leaving us with numerous concerns regarding adverse impacts which are anticipated and presumably accepted as inconsequential by the Forest Service and BLM. For example, construction of roads and drill pads within mapped elk calving grounds and winter range, potential increased sedimentation in streams containing "pure" populations of Colorado River Cutthroat Trout, allowing drilling and related activities during hunting season, reduction of secure areas for bear and other big game, providing opportunities for increased predator competition in Lynx Analysis Units, and allowing disturbance of sensitive plant species are all unacceptable.

109-27

Furthermore, the discussion on wildlife is peppered with inconsistencies and/or contradictions. For example, the EA states at p3.6-11 that "reductions in habitats considered limiting (winter range) or in security with increased hunting pressure are management concerns. For species identified as USFS sensitive, threatened or endangered, population viability is a concern because habitat changes could affect small local populations." Some data in table 3.6-1 is also inconsistent with information provided in subsequent discussions (i.e. Hairy Woodpecker probability of occurrence).

Given the above-referenced statements on management concerns, it is troubling that the GMUG would propose actions which would disturb elk winter range and calving areas. Furthermore, impacts to elk habitat capability are inconsistent with direction in the GMUG Amended Land and Resource Management Plan. Guidelines set forth in the ALRMP (p.III-26, 02a) require the GMUG to "maintain habitat capability at a level at least 40 percent of potential capability." The EA clearly states that HABCAP objectives will not be met for elk in the Surface Creek area – a decrease from 30 to 29 percent further erodes conditions which already do not meet stated objectives. This is unacceptable.

It is also troubling that the GMUG would accept the risk of a drilling related accident or even temporary increased sedimentation negatively impacting conservation populations of Colorado River Cutthroat Trout. Assuming that these populations are small and potentially isolated, it is easily conceivable that a single stochastic event could effectively wipe out the entire population.

109-27 The analysis also frequently refers to "relatively small, short-term losses of habitat" and asserts that impacts from the proposed action would not contribute significantly to habitat fragmentation. First, the extent of fragmentation depends upon the species requirements being called into question, and second, fragmentation is an incremental process of deterioration. Even seemingly insignificant disturbances such as short spur roads and drill pads contribute to fragmented habitat conditions. Furthermore, the widely variable duration of the proposed impacts should not be discounted or overlooked. In section 3.6.3, the EA repeatedly states that the maximum duration of increased cumulative impacts would only be three years, yet the potential life of the wells, and thus disturbance associated with their use, maintenance and reclamation could last up to 20 or 30 years. The impacts from the proposed action cannot be characterized as minor or short-term.

109-28 Lack of population and trend data for Management Indicator Species (MIS) is also unacceptable. There is no way to monitor, much less mitigate, short-term, long-term or cumulative impacts to designated MIS without this information.

109-29 The BLM Manual 6840 (Special Species Management) requires that the agency inventory, monitor, and protect Special Status Species, which include those listed under the Endangered Species Act (ESA), those proposed for ESA listing, candidates for ESA listing, those listed by the state of Colorado "in a category implying but not limited to potential endangerment or extinction," and those designated by BLM as "Sensitive." Although the draft EA briefly discusses these species, there is no evidence that the BLM has inventoried for them, developed conservation strategies for them, and fulfilled its other relevant BLM Manual duties. Additionally, by failing to comply with these obligations, BLM is also failing to meet its NEPA duties to take a "hard look" at the potential impacts of the proposed project with respect to these species and their habitat.

109-30 One of the Forest Service's most important duties is to protect the viability of wildlife and the diversity of life on lands it administers. This is required by the National Forest Management Act (NFMA). 16 U.S.C. § 1604(g)(3)(B). NFMA's implementing regulations require, more specifically, that the Forest Service manage fish and wildlife habitat to maintain viable populations of existing native and desired non-native vertebrate species within the planning area. 36 C.F.R. § 219.19 (1995). The plain language of the regulations thus requires the Forest Service to protect the viability of species on land under its jurisdiction by determining:

> -- the estimated numbers and distribution of reproductive individuals across the planning area;

109-30

-- that the estimated number and distribution of reproductive individuals would insure its continued existence within the planning area;

-- that the habitat requirements necessary to support, at least, a minimum number of reproductive individuals have been met; and

-- that the distribution of habitat ensures that individuals can interact with others in the planning area.[8]

109-31

Several courts have concluded that "the viability regulation requires the agencies to look to species populations -- not merely to habitat for hypothetical populations." Seattle Audubon Society v. Lyons, 871 F.Supp. 1291, 1316 (W.D. Wash. 1994), aff'd sub nom Seattle Audubon Society v. Mosely, 80 F.3d 1401.

109-32

However, the Forest Service's duty to protect viable populations is not limited to individual species, for it also "requires planning for the entire biological community -- not for one species alone." Seattle Audubon Society v. Moseley, 798 F.Supp. 1484, 1489 (W.D. Wash. 1992) quoting unpublished March 7, 1991, Order on Motions for Summary Judgment and Dismissal.

109-33

A memorandum from the Chief's office provides relevant guidance on the meaning of the population viability requirement. The memorandum emphasizes that "it is essential" that size and distribution of management areas "should be based on the specific biological requirements of the management indicator species such as home range size and dispersal capabilities." Hilmon (1982) at 1. Furthermore, "distribution of habitat [must] enable individuals to move among suitable habitat within their existing range" and the species' "general distribution" must not be affected by reductions in density. Id.

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[8] Forest Service guidance on the one hand endorses the plain language of the regulation, and on the other hand, grossly misinterprets it.

> For example, the Forest Service Manual (FSM) defines "viable populations" as:
>
> [a] population that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range ... within the planning area.

FSM 2670.5(22), WO Amendment 2600-95-7 (June 23, 1995). That definition is substantially similar to that contained in the first sentence of 36 C.F.R. § 219.19.

109-34

However, Forest Service guidance contradicts the plain language of the regulation, by providing that the Forest Service may "analyze the significance of potential adverse effects on the population or its habitat" in attempting to protect the viability of sensitive species. FSM 2670.32(4), WO Amendment 2600-95-7 (June 23, 1995) (emphasis added). By permitting the Service to focus only on habitat and to ignore population, distribution, and potential for reproductive success, the manual would nullify the language in the regulation regarding minimum populations. The FS cannot lawfully rely on an analysis of potential habitat and nothing else in its evaluation impacts to species viability. See Sierra Club v. Glickman, 974 F.Supp. at 936-38; Seattle Audubon Soc'y v. Lyons, 871 F.Supp. 1291, 1315-16 (W.D.Wash. 1994); Sierra Club v. Martin, 168 F.3d at 7.

109-35 The duty to ensure viable or self-sustaining populations applies with special force to "sensitive" species. Or. Natural Resources Council v. Lowe, 836 F.Supp. 727, 733 (D.Or. 1993) (sensitive species "require additional attention" under viable population provision); Or. Natural Resources Council v. Marsh, 52 F.3d 1485, 1490-91 (9th Cir. 1995). Sensitive species are those species:

> for which population viability is a concern because they have significant current or predicted downward trends in population numbers or density, or for which there is a significant downward trend in their current or predicted habitat which would reduce their distribution.

Id.; see also FSM Supp. § 2670.5(19), WO Amendment 2600-95-7 (1995).

109-36 The FS has adopted guidance to monitor and protect sensitive species. The purpose of protecting sensitive species is, among other things,

> to ensure their viability and to preclude trends toward endangerment that would result in the need for Federal listing.

FSM §§ 2672.1.

109-37 Guidance also directs Forest Supervisors to "determine [the] distribution, status, and trend of threatened, endangered, sensitive, and proposed species and their habitats on National Forest System lands." FSM §§ 2670.45(4). To avoid future problems with population viability, the USFS must take proactive measures to insure that populations of imperiled species do not continue to drop to the point where listing is necessary. The agency must "[d]evelop and implement management practices to ensure that species do not become threatened or endangered ..." FSM §§ 2670.22(1). District Rangers must also conduct "necessary biological evaluations" and "ensure compliance with procedural and biological requirements for sensitive species." FSM §§ 2670.46(1) and (4).

109-38 NFMA, its regulations, and FS guidance require that FS project level decisions comply with NFMA's viability provision. Federal courts have also held that project level decisions must not result in a loss of viability. See Inland Empire, 88 F.3d at 760 n.6; Neighbors of Cuddy Mountain v. United States Forest Service, 137 F.3d 1372, 1376 (9th Cir. 1998). FS guidance states that for specific management proposals "[t]here must be no impact to sensitive species without an analysis of the significance of adverse effects on the populations, its habitat, and on the viability of species as a whole." FSM §§ 2672.1.

109-39 To assist in achieving this goal, FS guidance dictates that the agency assess the impact of proposed project-level actions on sensitive species through the use of project-level "biological evaluations" or BEs. FSM §§ 2672.4; FSM §§ 2670.32. The goal of a BE is to, among other things, "ensure that Forest Service actions do not contribute to loss of viability" of such species. FSM §§ 2672.41. As part of each project-level analysis, the FS must prepare biological assessments or evaluations which identify those "factors that may affect the continued downward trend of the population, including such factors as: distribution of habitats, genetics, demographics, habitat fragmentation, and risk associated with catastrophic events" across the geographic range of the species. FSM §§ 2621; see also FSM §§2670.32(2).

109-40 Regulations implementing NFMA also require that the Forest Service gather and keep data to ensure species diversity in the planning area. 36 C.F.R. § 219.26 states in relevant part:

109-40

> Forest Planning shall provide for the diversity of plant and animal communities and tree species consistent with the overall multiple use objectives of the planning area. Such diversity shall be considered throughout the planning process. Inventories shall include quantitative data making possible the evaluation of diversity in terms of its prior and present condition.

36 C.F.R. § 219.19 specifically requires that the Forest Service monitor the population of Management Indicator Species (MIS), stating:

109-41

> Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. . . . (1) In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species . . . . (6) Population trends of the management indicator species will be monitored and relationships to habitat changes determined

These NFMA regulations obligate the FS to maintain population data on MIS.

109-42

> [T]he Forest Service's approval of the timber sales without gathering and considering data on the MIS is arbitrary and capricious. The regulations require that MIS be monitored to determine the effects of habitat changes. The timber projects proposed for the Chattahoochee and Oconee National Forests amount to 2000 acres of habitat change. Yet, despite this extensive habitat change and the fact that the some MIS populations in the Forest are actually declining, the Forest Service has no population data for half of the MIS in the Forest and thus cannot reliably gauge the impact of the timber projects on these species.

Sierra Club v. Martin, 168 F.3d 1, 7 (11th Cir. 1999)(internal citations omitted). These regulations apply at both the Forest Plan and the site-specific project level. Martin, 168 F.3d at 6.

109-43

"The unambiguous language of the MIS regulations requires collection of population data." Sierra Club v. Glickman, 974 F.Supp. 905, 936 (E.D. Tex. 1997), injunction aff'd sub nom. Sierra Club v. Peterson, 185 F.3d 349, 359 (5th Cir. 1999). The Ninth Circuit and several district courts have also held that, where the FS failed to conduct MIS trend and population monitoring at a site-specific or plan level, the site-specific action must be enjoined until the appropriate survey and monitoring data is collected. Seattle Audubon Soc'y v. Moseley, 80 F.3d 1401 (9th Cir. 1996); Sierra Club v. Glickman, 974 F.Supp. at 936-38; Seattle Audubon Soc'y v. Lyons, 871 F.Supp. 1291, 1315-16 (W.D.Wash. 1994), aff'd sub nom.

109-44

In addition, on October 2, 2001, the U.S. District Court for the District of New Mexico issued a Memorandum Opinion and Order in the case of Forest Guardians v. Forest Service (D.N.M. CV 00-714 JP/KPM-ACE) which supports this result. That opinion concludes that the Forest Service violated NFMA and implementing regulations by failing to develop population and trend data for MIS species, both at the Forest-wide and project level, in implementing a timber-removal project, the McGaffey timber sale. The District Court reached this conclusion based on an analysis of Tenth Circuit case law. Tenth Circuit jurisdiction overlaps with that of the Northern Region of the Forest Service.

109-45

There is thus a clear mandate that the FS gather population and trend data for MIS.

109-46 Despite these obligations, the Forest Service and BLM have failed to ensure that viability of all native and desired non-native vertebrate species will be maintained. The viability analysis for most of these species consists of little more than a brief acknowledgement of potential impacts with assertions that viability will not be affected in the place of analysis. Furthermore, to the best of our knowledge, neither the FS nor the BLM have acquired or analyzed, through actual population surveys, population and trend data for all of its MIS and BLM Sensitive species. Although limited surveys have been conducted for some species, the FS and BLM have apparently neglected these critical steps for most. In fact, it is unclear if the FS has even prepared a Biological Assessment or Biological Evaluation.

109-47 The draft EA fails to discuss potential impacts to the Surface Creek Potential Conservation Area, designated by the Colorado Natural Heritage Program, and the element occurrences (occurring within or in close proximity to the well pad buffer areas) of *Abies lasiocarpa-Picea engelmannii/Alnus incana*, *Populus angustifolia/Cornus sericea*, *Penstemon mensarum*, and *Populus angustifolia/Alnus incana*.

109-48 Finally, the Forest Service and BLM must also engage in formal consultation with the Fish and Wildlife Service over potential impacts to ESA-listed species, including the Canada lynx. It is unclear if this has occurred, and the absence of a Biological Opinion in the EIS' appendices precludes our ability to fully assess potential impacts to such species.

IX. CUMULATIVE IMPACTS ANALYSIS DEFICIENCIES

109-49 The cumulative effects analysis in the document fails to make important correlations concerning a number of issues that are important to understanding this proposal and its potential effects. For example, in the Cumulative Impacts section for noise (3.9-3) the document states "noise effects would mainly affect wildlife". There is no mention in this section of what those effects might be, what wildlife are referred to, where those effects would be most pronounced, at what times etc.

Concerning potential cumulative impacts to air quality, the document states "cumulative impacts are expected to be minor and would be temporary (up to 3 years) in duration.". The section goes on to state "no cumulative [air] impacts are anticipated with natural gas development projects" (3.1-9). Yet, the document also notes that "there is a potential that approximately 50 percent of the exploration wells in the lease areas could be developed into production wells; it is estimated that these wells could be in place for up to 40 years" (3.1-8-9). Given the likelihood that some percentage of wells will be producers, the analysis should have included additional vehicle emissions produced by daily visits, plus maintenance (equal to 4 wells per day times 40 years = 57,600 trips) plus an estimate of fugitive dust emissions for every mile of dirt road traveled (miles multiplied by daily trips over 40 years). Our quick calculations for vehicle emissions alone indicate that the present analysis may have underestimated NO, SO, CO and VOC emissions by a factor of ten or more. Additionally, although it is difficult to tell for certain from the way the analysis is presented, we believe the analysis also failed to include idling vehicle emissions in the calculations of potential cumulative impact to air emission for this project. These figures can be substantial and should be added to form the basis of a credible air analysis.

Concerning impacts to recreation, the document states that regarding the Leon Lakes #4 & 5 wells, "[i]ncreased traffic, noise and human activity could displace hunters or cause them to leave the area altogether. This impact would be temporary and no long-term impacts would occur." This is a faulty conclusion which could only be true if these wells are not producers. Yet the document speculates that as many as 50% of the wells will not fall into that category, that is, they'll be producers. If this is the case, impacts to recreational hunters would indeed be long-term, lasting as long as the well produced--up to 40 years.

109-49 There will be long-term impacts related to roads. The document states that "[T]here would be no long-term transportation impacts from the proposed action." (3.12-15) Yet, there would be road upgrades as a part of approving this proposal that *would* be long-term, and would potentially have impacts on the larger transportation system. Thus, decisions made in this analysis do have potential long-term implications for the transportation system made up of federal, county and state routes, and they should be analyzed.

X. FIRE MITIGATION CONCERNS

Wild fire is another concern, made even greater by several years of persistent drought throughout the project area and western Colorado. Concern over fire has centered on the issue of flaring at completed gas wells in the rugged, dry topography commonly found on the southern flank of the Grand Mesa. We are aware that GEC has been required to submit a Fire Mitigation Plan as a condition of approval, yet we are nonetheless still concerned due to characteristics of this landscape and perceived inconsistencies between flaring restrictions at coal mine methane drainage wells and gas exploration wells.

In the February 2002 EA "Coal Methane Drainage Project Panels 16-24, Mountain Coal Company – West Elk Mine", USFS eliminated from further study the option of flaring methane drainage wells on the forest. On page 2-9 of that document USFS states, with regards to flaring at well sites that, "There would be...an associated potential fire hazard where flammable brush, trees, or other vegetation exist in close proximity to the wellhead and the USFS does not have existing policy regulating this issue." Yet, the current EA states that flaring *would be* permitted. Impacts of drilling in a forest ecosystem will be unique and are not well described, with regards to wildfire hazard. USFS needs to disclose the wildfire hazard associated with flaring in the vegetation types at proposed well sites.

109-50

The use of "venting" or "flaring" in GEC's gas development (and in particular GEC's coal bed methane development) is not properly accounted for or evaluated in the NEPA process. Furthermore, the use of venting or flaring is not provided for in the Mineral Leasing Act 43 C.F.R. §§ 3100, FLPMA 43 U.S.C.A. § 1701 to 1784, NFMA 16 U.S.C.A. § § 1600 to 1614, or their governing regulations. Nor is venting or flaring accounted for as a condition or stipulation of GEC's leases. Finally, the 1993 EIS for Oil and Gas Leasing, the GMUG LRMP, and the Uncompahgre RMP do not account for flaring from coalbed methane operations. For this reason, venting or flaring as part of GEC's gas development is unlawful.

XI. STIPULATION EXEMPTIONS

We are discouraged at the agencies' willingness to exempt GEC from various stipulations which are intended to ensure protection of natural resources as well as health, safety and welfare of the general public. For example, locating well pads within 500 feet of streams and wetlands is objectionable from the standpoint that storm events resulting in heavy runoff may easily exceed the capacity of berms placed at the edge of drill pads to control unanticipated spills or runoff. In addition, locating wells on known "slope failure complexes" in areas of moderate to high geological hazard is, in our opinion, poor judgment at best. A major landslide, however improbable, could easily compromise the integrity of even the most stoutly reinforced well bore, leading to potential explosion and/or loss of a valuable resource.

109-51

XII. LEASES AT ISSUE

109-52 The agencies must demonstrate the validity of the underlying leases in question. In particular, the validity of lease C-13563-A or C-13509. Here it appears that there has never been production in paying quantities and the primary term of the lease expired in 1981. Thus, the lease appears to have terminated by operation of law. The agencies should explain in detail and by referencing and incorporating all necessary documents (including but not limited to the Leon Lake Unit Agreement) to explain to the public why this lease has not terminated.

As for the other leases, almost all of which were issued last year, the agencies must demonstrate compliance with 30 U.S.C. §226(g) and determine whether or not the company and its affiliates have failed to comply in any material respect with reclamation requirements and other established standards for any prior lease.

XIII. RECLAMATION CONCERNS

109-53 Throughout this EA, the agencies emphasize the important role of reclamation in mitigating surface damage to vegetation, wildlife habitat, soils, slope stability, and so on. Yet they fail to disclose any dollar amounts for reclamation bonds intended to ensure that proper and timely reclamation occurs in accordance with guidelines set forth in this EA. Furthermore, it is widely known that, despite best intensions or best management practices, reclamation has met with limited success on previous projects in this and other regions where gas development occurs. For example, it has come to our attention that reclamation of the Trans Colorado Pipeline is not proceeding well despite years of concerted efforts. Worse yet, it is not unheard of for "bankrupt" drilling companies to abandon unproductive wells or disappear altogether, leaving inadequate bonds in place to perform important reclamation. It cannot be assumed that reclamation will return the landscape to productive habitat and/or other uses.

XIV. ENFORCEMENT CONCERNS

109-54 Ineffective enforcement of resource damaging activities has been a major cause for concern on both Forest Service and BLM lands in and around the project area. For example, gas operator BDS International has been at fault for significantly damaging roads in the Muddy Country in northwestern Gunnison County. In repeat incidents, BDS has conducted re-working operations at well sites on GMUG lands which resulted in severe rutting of Forest Service and county roads, destruction and/or plugging of culverts, mud blading, and (in at least one case) introduction of bladed road materials into wetlands along Little Henderson Creek.

These activities were allowed to proceed to the point that operations had to be halted in order for repairs to be made to the damaged roads. Damage resulted in adverse impacts to citizens with legitimate rights to use the roads at issue, and given the repeat nature of the offense, we are concerned that the GMUG is not able to adequately enforce road use and other permit requirements which are intended to eliminate or mitigate resource damage which may occur as a result of gas drilling and related activities.

XV. AFFIRMATIVE ACTION

109-55 Private companies that do business with the federal government must follow affirmative-action laws requiring them to hire people of different sexes, races and ethnic backgrounds to reverse the legacy of past discrimination. Anti-discrimination laws include:

The 1964 Civil Rights Act, prohibiting employment discrimination based on race, color, religion, sex or national origin

The 1963 Equal Pay Act, requiring men and women working at the same company receive equal pay for equal work.

The 1967 Age Discrimination in Employment Act, protecting employees age 40 and above from age discrimination.

109-55

The 1990 Americans with Disabilities Act, prohibiting employment discrimination against qualified individuals with disabilities.

The 1991 Civil Rights Act, providing monetary damages for intentional employment discrimination.

GEC, as a federal lease holder, must demonstrate compliance with these statutes. Such demonstration should be performed as part of the NEPA process.

XVI. CONCLUSION

Residents of the North Fork Valley will have to live with the environmental impacts of CBM development for decades to come. These citizens, including members of WSERC, HCCA, WCC, CEC And CNE have the right to ensure that the potentially significant environmental impacts documented above are thoroughly analyzed and mitigated prior to drilling. See 40 C.F.R. § 1500.1(b) ("NEPA

109-56

procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken") (emphasis supplied). The public also has an interest in protecting drinking water and irrigation waters; in preventing methane migration, soil erosion, salinity problems, vegetation loss and noise pollution and addressing impacts to wildlife, open spaces and clean air. This project requires preparation of an EIS and amendment of governing land-use plans which did not analyze or authorize CBM drilling.

Again, we appreciate the opportunity to submit these comments, and we look forward to your reply.

Sincerely,

Jeremy D. Puckett
Assistant Director, Public Lands Coordinator
Western Slope Environmental Resource Council

for Sandy Shea
Public Lands Director
High Country Citizens' Alliance

for Matt Sura
Executive Director
Western Colorado Congress

for Pete Kolbenschlag
West Slope Field Director
Colorado Environmental Coalition

for Jacob Smith
Executive Director
Center for Native Ecosystems

APPENDIX

The following documents will be attached to the comments as part of the record:

1. Colorado NTL-88-2, Paying Well Determinations and Venting, and Flaring Applications on Jurisdictional Cal Bed Methane Wells
2. USGS Fact Sheets
a. USGS Fact Sheet, Coalbed Methane- An Untapped Energy Resource and an Environmental Concern, January 1997
b. FS-15600 November 2000, Water Produced with Coal-Bed Methane
c. USGS Fact Sheet FS-123-00 (methane migration)
d. USGS data for the Uintah Basin, total dissolved solids (TDS)
3. A Brief History and Environmental Observations; A Working Document complied by the Bureau of Land Management San Juan Field Office (December 1999), available on-line at http://oil-gas.state.co.us/blm_sjb.htm („Northern San Juan Basin Report‰)
4. Coalbed Methane in the San Juan Basin of Colorado and New Mexico Case Study, from Coalbed Methane Development in the Intermountain West (July 2002 Natural Resources Law Center report or „NRLC Report), additional excerpts:
a. Gary Bryner, Overview of CBM Development in the Intermountain West, pp. 1 -- 50
b. Steve de Albuquerque, EHS Manager, Phillips Petroleum, An Overview of CBM Exploration and Production, pp. 117 ^ 129
c. Catherine Cullicott, Carolyn Dunmire, Jerry Brow, Chris Calwell, Ecos Consulting, Coalbed Methane in the San Juan Basin of Colorado and New Mexico, pp. 51 --85
5. U.S. Environmental Protection Agency DRAFT Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs
a. Gregory D. Lazear, An Analysis of the Wright Water Engineers Conceptual Model for the Hydrology of the Cedaredge Area (March 30, 2003)
6. Gerald L. Zimpfer, Eric J. Harmon and Bradford C. Boyce Disposal of Production Waters from Oil and Gas Wells in the Northern San Juan Basin, Colorado (1988).
7. Impact of Methane Gas Industry on Air Pollution in the San Juan Basin, by Erick Brown, MD (2002).
8. Assessment of Proposed Gunnison Energy Corporation Coal Bed Methane Test Well Project, WestWater Associates, Inc.
9. Review of Documents Concerning Proposed Coal Bed Methane Extraction Tests and Production, U.S. Geological Survey, July 2002.
10. Theo Colborn, An analysis of Possible Increases in Exposure to Toxic Chemicals in Delta County, Colorado Water Resources as the Result of Gunnison Energy Corporation's Proposed Coal Bed Methane Extraction Activity (October 22, 2002)
11. Greg Lazear, Can Coal Bed Methane Development Impact Our Water Resources?, (June 4, 2002).

12. Greg Lazear et. al, The Potential Impact of Coal Bed Methane Development on Water Resources on the South Side of Grand Mesa.
13. Glen A. Miller, Proposed Coal-bed Methane Project in North Fork Valley, Potential Effects on Water Resources, June 10, 2002.
14. Gregory D. Lazear, An Assessment of Potential Impacts to Water Resources from Coal Bed Methane Development on the South Side of Grand Mesa, Delta County,Colorado (June 17, 2002).
15. John F. Skok, Correspondence with Delta County Commissioners Re: comparison of Greg Lazear's "Assessment of Potential Impacts..." vs. Cordilleran Compliance Services "Hydrology of the South Flank of Grand Mesa..." (July 1, 2002).
16. Glen A. Miller, Correspondence with Delta County Commissioners Re: previous letter (July 1, 2002).
17. Gregory D. Lazear, Final County Commissioner's Review: The Latest Findings Concerning the Impact of CBM Development on Water Resources on the South Side of Grand Mesa, Delta County, Colorado (July 8, 2002).
18. Gregory D. Lazear, Comments by Greg Lazear on GEC's report

Letter 110

United States Department of the Interior

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Ecological Services
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Grand Junction, Colorado 81506-3946

PAONIA RANGER DISTRICT
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IN REPLY REFER TO:
ES/CO:FS/GMUG
MS 65412 GJ

July 3, 2003

Liana Mattson, Project Manager
GEC Exploration Drilling Project
P.O. Box 1030
Paonia, Colorado 81428

Dear Ms. Mattson:

The Service has received the U.S. Forest Service, Grand Mesa, Uncompahgre and Gunnison National Forests Forest Supervisor's May 23, 2003, correspondence requesting comments on the Gunnison Energy Corporation's Proposed Exploratory Gas Drilling Project environmental assessment (EA). After reviewing the environmental assessment, we have the following question and comments.

110-1 1) Although the Federal candidate *Botrychium lineare* (slender moonwort) has not been reported on this forest, habitat may exist in the project area. Surveys for this species should be considered at the Hawksnest and Leon Lake #4 sites. For additional information regarding this species and its habitat, you should confer with biologists on the Arapaho National Forest.

110-2 2) A Forest Service (FS) approved seed-mix is cited on page 3.5-16. On page 2.32 a different seed mix is proposed. Please explain which seed-mix will be used.

110-3 3) Documentation of historic populations of boreal toad (*Bufo boreas boreas*), a Federal candidate for listing under the Endangered Species Act, exists in and around your project area. In areas where boreal toad habitat exists and drilling projects are proposed, surveys should be considered.

110-4 4) Impacts to species protected under the Migratory Bird Treaty Act should be considered. To prevent unintentional and/or intentional "take," a plan could be developed that would give direction when active nests are encountered.

110-5 5) The Gunnison River watershed has a total of 14 streams identified as being occupied by Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*). In April 2001, several Federal agencies (including the FS) signed a Conservation Agreement to protect and conserve this species. Your EA identified a potential sediment increase into adjacent streams at the Bull Park, Leon Lake #4 and #5, and the Powerline sites (page 3.6-19). The Service believes efforts to minimize this impact are appropriate.

Letter 110 Continued

If the Service can be of further assistance, please contact John Kleopfer at the letterhead address or (970) 245-3920 or 243-6209, extension 39.

Sincerely,

Acting for Allan R. Pfister
Acting Colorado Field Supervisor

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