PITKIN COUNTY

BOARD OF COUNTY COMMISSIONERS

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January 17, 2012

Mr. Steven Bennett, Field manager
Bureau of Land Management
Resource Management Plan (RMP) Comments
Colorado River Valley Field Office
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Silt, Colorado, 81652
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Dear Mr. Bennett,

We would like to thank you for the opportunity to participate in the development and review of the CRVRMP Draft and Draft Environmental Impact Statement. Our compliments on a very difficult assessment and culmination of work. Pitkin County has taken the review of the RMP very seriously and has held at least 4 public meetings to engage local citizens in the process. We hope that our comments will be constructive and will be incorporated into the final RMP in light of the critical role that BLM parcels play in the social, economic and environmental health of Pitkin County.

While our attached comments are more detailed and specific, we would like to summarize them as follows:

1. Pitkin County recommends that specific management plans be developed based on a Carrying Capacity approach for BLM parcels that are experiencing a great deal of multiple use due to close proximity to communities; and which have critical wildlife habitat. We anticipate these management plans being developed collaboratively with citizens and user groups as well as local, state and federal jurisdictions and agencies. The parcels that have the most pressing needs for specific management plans are The Crown, Light Hill and Arbaney Kittle.

   The natural environment is integral to our quality of life in the valley and to our economy. In specific areas such as the ones mentioned above "loving these parcels to death" needs to be addressed in a community dialog in order to educate and gain support for a plan that will be sustainable and enforceable not only by the BLM but by the citizens. We hope that the BLM's management structure will recognize and be able to embrace this high level of citizen input in a collative planning process in which Pitkin County will fully participate.

2. In the interim while the final RMP and separate collaborative management plans are being developed, Pitkin County supports enactment of the winter closures and additional comments made by Colorado Parks and Wildlife in order to protect wildlife during a sensitive time of year based on the studies that have been conducted for our area.

3. To the extent that there are existing oil and gas leases in the Thompson Divide area, BLM should take this opportunity to revisit those leases to ensure that they were issued in compliance with existing laws and regulations. Approximately 1/2 of the Thompson Divide area was designated by the 2001 Roadless Rule and Colorado Roadless Rule for protection from further road building.

4. Pitkin County understands that an adaptive environmental management (AEM) approach has been successful in other locations relative to Oil and Gas development, as a means of monitoring impacts and establishing trigger points at which uses are modified to meet acceptable standards. A collaborative approach with the industry, BLM , county and citizens should be incorporated as a requirement of the RMP for all BLM parcels and specifically for the area west of the Crystal River being considered for Oil and Gas development. The Adaptive Environmental Management approach is also a logical long term approach for all of the BLM parcels and should be incorporated into the management plans for specific parcels.

The following answers are in response to your specific questions about continued participation in the RMP/DEIS process (Clifford Jarman's e-mail of Jan 11):

1. Pitkin County intends to continue our participation in the proposed RMP:

2. Contacts: Cindy Houben, Pitkin County Community Development Director;
   Ellen Sassano, Pitkin County Senior Long Range Planner;
   George Newman, Pitkin Country Commissioner

3. Prioritization of locations and approaches:

   a) Development of a schedule for creation of specific parcel management plans for the Crown, Light Hill and Arbaney Kittle parcels;

   b)Development of an Adaptive Environmental Process approach for Oil and Gas development

4. If possible, it would be helpful to see (or have a link to) all comments received from the public prior to the scheduled February 22 meeting; and/or as an alternative, a summary of comments could be presented by BLM staff at the meeting.

5. We could summarize the Pitkin County comments in about 30 minutes.

Once again, we sincerely appreciate the opportunity to comment and to continue working with you on the management plan for these valued public lands.

Sincerely,

Pitkin County Board of County Commissioners

Michael M. Owsley
Chair

Jack Hatfield

Rachel E. Richards

Rob Ittner

George Newman

PITKIN COUNTY COMMENTS REGARDING THE 2011 DRAFT RESOURCE MANAGEMENT PLAN & DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE COLORADO RIVER VALLEY FIELD OFFICE, COLORADO

January 17, 2012

Comments are broken into the following five sections:

GENERAL COMMENTS:

1. *Document Organization:* The Resource Management Plan is organized by topic area rather than by alternative for each BLM parcel. While we understand the immensity of the planning area, the organization and volume of information in the document makes it difficult to identify critical issues. We recommend that the format of the final document and EIS be organized to include background information and management alternatives *by parcel* to facilitate public review and comment.

2. *Mapping:* To review specific areas relative to parcel ownership information, roads, natural physical features and landmarks, etc., it was necessary to overlay County GIS data on the BLM maps provided in the RMP. The scale and lack of detailed information on the BLM maps made this a difficult exercise. To facilitate review of the final draft Plan and EIS, and communication with citizens, we recommend that mapping in the final draft document and EIS be available at a more legible scale, and be provided to cooperating agencies in Arc View Shape Files upon distribution of the Draft for review.

3. *Terminology for Management Designations*: According to the Resource Management Plan, BLM lands are designated as Special Recreation Management Areas (SRMAs,), Extensive Recreation Management Areas (ERMAs,) or left undesignated, with some exceptions, including Areas of Critical Environmental Concern (ACECs.) The ERMA and SRMA designations are confusing and not clearly defined as distinctively different. Furthermore, we don't believe that any of the BLM parcels in Pitkin County should be managed with recreation as the primary management objective. We recommend that a simpler, more holistic approach be used in the Final Draft Plan, using a *Resource Management Area* (RMA) designation for more heavily used areas that warrant a designation, with overlays specific to management for wildlife habitat, recreation, areas of critical environmental concern, oil and gas development, etc.

4. *Timing*: Review of the document is premature. A comprehensive analysis of the impacts of oil and gas related industry impacts cannot be assessed because associated documents have not been finalized. These include:

- The USFS Supplemental Oil and Gas Leasing EIS (This SEIS covers the areas of split estate in Pitkin County where there is USFS surface underlain with BLM mineral leases).
- The Oil Shale and Tar Sands Resource Programmatic DEIS for Colorado and Utah.

To allow for a comprehensive analysis of oil and gas development potential and related impacts, we recommend that development of the Final draft document and EIS be delayed until such time as the above-referenced documents have been completed and published for public review, and incorporated into the RMP EIS.

5. *County Roads*: The County is opposed to use of County roads for uses that are in conflict with the zoning and designation of the roadways in the Pitkin County Road Management Plan. Such conflict may occur on Thompson Creek Road where zoning and road standards place limitations on year round access, and include minimum standards for width in order to maintain the character of the area. A change to existing use, such as management of the area for oil and gas development, would result in use of the road that conflicts with local standards and zoning.

6. *Tourism/public lands/open space/ economy*: The vast majority of Pitkin County is comprised of federal lands. The 27,490 acres of BLM lands in Pitkin County possess outstanding scenic quality, and provide important recreational access to our rivers and mountains. These mid-elevation parcels are a critical part of the ecosystem and integral to the local landscape of the Roaring Fork Valley. Any change in the status of these federal lands or their scenic, recreational or natural quality could have a significant impact on our community and local economy. The aesthetic, recreational and ecological benefits of these lands are the reason many people visit here, live here, and are able to work here.

   Hundreds of thousands of tourists enjoy these public lands, which are integral to our tourist economy, providing a source of livelihood for many residents that work directly in the recreation/tourist industry. The recreation/tourism sector comprises at least 53% of total employment in Pitkin County. While 53% is a readily available statistic, we know intuitively that our local economy is dependent upon a significant amount of additional, tertiary employment directly related to tourism.

   Pitkin County and the State of Colorado are heavily dependent upon income and sales tax revenue generated by our resort/recreation/tourist based economy, which is in turn dependent upon preservation and maintenance of the undeveloped natural environment. Outdoor recreation contributes over $10 billion annually to Colorado's economy, supporting 107,000 jobs across Colorado, nearly $500 million in annual state tax revenue and $7.6 billion annually in retail sales and services across Colorado (*Outdoor Industry Foundation*.)

   We acknowledge that there is a demand for locally produced oil and natural gas, and that there are appropriate areas for development of these resources. However, physical and environmental impacts still persist as reminders of Pitkin County's history of boom and bust cycles associated with mineral extraction. We believe the subsequent move to tourism as a driver for the local economy has resulted in a more sustainable economy and environment.

The importance of public lands and open space to Pitkin County is demonstrated by the Open Space and Trails program, which has invested over $100 million of public funds in the acquisition of land or property interests (conservation or recreational access easements) in order to protect our scenic areas, recreational opportunities, natural features and ecological systems. Several of Pitkin County's largest conservation investments are adjacent to BLM lands. (Please see Attachment 2 for a complete list of County Open Space ownership and easements adjacent to BLM lands.)

There are unparalleled benefits and values associated with public lands left in their natural undeveloped state. Hunting, fishing, wildlife watching, hiking, biking, cross country skiing, solitude, clean air and water will be best sustained by a management objective that places a priority on clean air and water sheds, and robust, healthy ecosystems on public lands. It is imperative that the preferred alternative in the EIS and draft RMP underscore the importance of the un-built environment on public lands as a critical component of the local and state economy.

7. *Air Quality*: Analyses of the oil and gas development projections in the DRMP, in coordination with the air quality review, indicate that the RMP would be in violation of Federal air quality standards. Specific issues to be considered in the final draft EIS are iterated on pages 11 and 21 under the heading of "Air Quality."

8. *Public Access*: BLM lands in Pitkin County provide key access points to thousands of acres of publically owned lands that are a vital part of the local recreation economy. Under "Parcel Specific Comments" and under "Comprehensive Trails and Travel Management" comments on pages14 and 13 respectively below, we make several access related recommendations for consideration in the Final draft EIS and RMP. These range from maintenance of existing public access on specific properties, to the need to work cooperatively with the County or other agencies to accommodate existing access with improved trailhead parking, or a different management approach.

9. *Real Estate*: Disposal of BLM lands to another public agency through the Recreation and Public Purposes Act (R&PP), or sale at fair market value if R&PP is not applicable, or land exchange among public agencies to consolidate administration can be an effective way to ensure continued management of lands for public benefit. We request that the Final draft RMP and EIS incorporate recommendations regarding "Land Tenure" policy defined on page 8 below.

10. *Ecosystems*: The mid elevation ecosystem that is discussed in section 3 (3-2.5 beginning on page 3-33) underscores the need for the BLM parcels in this area to be retained in order to preserve the integrity of the larger ecosystems in the Roaring Fork Valley. These parcels include lands that are not otherwise addressed as primarily recreational or special designations. Specifically, these are: Light Hill, Williams Hill, East Sopris Creek un-named parcel, Prince Creek parcel, Red Rim/Red Canyon, section 25, Triangle Peak and the parcel above the Chaparral subdivision. Many of these parcels are also ranked by the Colorado Natural Heritage Program as Potential Conservation Areas (PCA). Analysis of management alternatives in the Final RMP EIS should consider the Carrying Capacity and specific

management plans for parcels within this mid elevation ecosystem as it relates to core wildlife areas, recreational and agricultural resource values.

11. *Mineral Estates*: The RMP, Figure 1-2, indicates that the BLM owns and manages some mineral interest on non-federal lands in which Pitkin County also holds an interest – either fee simple ownership of the surface or a conservation easement. These property interests were acquired by the county using open space funds to preserve resources important to the public, including recreational access, ecological values, agricultural operations, and scenic quality. Because of this investment of public funds, Pitkin County would be opposed to any exercise of these mineral rights which could result in any impact to those values which we have acted to protect.

12. *Citizen Created trails*: The BLM should not adopt all existing trails and should consider the elimination of trails that are inappropriate given the sustainability, compatibility, need and impacts to other resources.

13. *Population Centers*: Many BLM parcels are near or adjacent to Towns and population centers in the Roaring Fork Valley and are receiving recreational pressures. Pitkin County looks forward to coordinating access, infrastructure and consistent management practices with the BLM in order to properly manage increased demands.

14. *Preferred Alternative*: In most cases Alternative C provides the management scheme that best aligns with the values and goals for our community, however, no one alternative clearly provides for the full range of management preferences of Pitkin County. Consequently, we propose the following blended alterative to incorporate the following management objectives:

    Carrying Capacity (CC) Alternative:

    <u>*Parcel by Parcel Management Plans Based on Carrying Capacity*</u> Under this scenario, parcel by parcel, multi-use area management plans would be developed for BLM lands including the Crown, Arbaney Mesa, Williams Hill and Light Hill areas, and others located within close proximity to communities. Management Plans would be developed using a carrying capacity approach to determine limits on infrastructure, including trailhead access and parking, and various uses such as recreation and grazing on a parcel by parcel basis, with preservation of wildlife habitat and natural environment/intact ecosystems as the priority management objective. Collaborative groups consisting of citizens, local, state and federal agencies would be established to develop parcel specific management plans, and to determine effective enforcement strategies to implement management decisions (using the Red Hill Council as a model.)

    Pitkin County specifically supports delaying management decisions on the Crown, Light Hill and Arbaney Kittle until such time as a Collaborative Plan, including citizen and agency input can be developed. We support a manageable timeframe in which to accomplish this Plan with the user groups in the area, and we offer our support in the effort.

Adaptive Environmental Management (AEM) Management Plans would incorporate an "Adaptive Environmental Management" (AEM) approach to monitor impacts associated with uses on a regular basis, identify triggers or thresholds at which modification to use is required, and implement adjustments to use levels accordingly as necessary to keep uses and resources in healthy equilibrium. (See pages 11 and 23 for related discussions regarding AEM concept.)

Winter Core Wildlife Area Designation Develop a separate *management designation* or *overlay* for Winter Core Wildlife Areas with the intent of managing with preservation of wildlife habitat and use as the main resource and focal point in areas defined as having Winter Core Wildlife characteristics. Coordinate with Colorado Parks and Wildlife (CPW) to incorporate necessary full winter closures within these areas.

Coordination with Local Road Standards Ensure that all management decisions, including specifically those in the Thompson Creek area, are consistent with local road standards designed to enforce local zoning, particularly as it relates to preservation of rural character.

Alternative C for Other Parcels Generally incorporate conservation management philosophy defined in Alternative C for parcels in Pitkin County that do not experience as much recreational use as those in close proximity to communities; incorporating aspects of Alternative B where specific recommendations are called for in this memorandum.

Interim Management Until Parcel by Parcel Management Plans are Developed Until such time as collaboratively developed management plans are completed, we recommend the following interim management approach for the Crown, Light Hill and Arbaney Mesa areas:

- To protect critical winter core wildlife areas, implement full winter closures from December 1-April 30 (or as specified by CPW) in the following areas:
  - The Crown
  - Light Hill - Full closure with the exception of the road leading up from East Sopris Creek #8336 and the road from Gateway #8336D to the top only, where the roads should then be closed. Full closure includes the trail from Basalt High School to the top of Light Hill;
  - Arbaney Kittle – Full closure from the top of the trail at the overlook and everything leading east over to Arbaney Mesa. (No closure is recommended for the Arbaney Kittle trail from the trailhead at the bottom to the overlook at the top as this segment of the trail passes mainly through pinon-juniper which has little wildlife value except for cover);
- New trails in some locations may be appropriate to improve access, and/or to relocate a poorly constructed or located trail. However, new trails and existing citizen created trails should be considered in the context of the development of overall parcel by parcel management plans. Citizen-created trails in particular, should be reviewed with respect to terrain and/or proximity to wildlife habitat, sensitive species and grazing use. As new trails on these parcels may continue to fragment habitat, increasing impacts to wildlife – we recommend that outside of a

concerted planning process between agencies, citizens and jurisdictions, no new trails be constructed.

- Separate motorized and non-motorized areas on the Crown;
- Manage the ridge of the Crown as an Area of Critical Environmental Concern to address the Harrington's Penstimon located in the area;
- If the Carrying Capacity alternative is not implemented, then we recommend that a Resource Management Area (RMA) designation be used for the Crown, Arbaney Mesa, Light Hill and Williams Hill, with a winter core wildlife area overlay established in areas specifically recommended by CPW. This approach will manage natural resources and protect wildlife, at the same time attempting to minimize conflicts between different recreation uses. As currently proposed, the ERMA and SRMA designations place too much emphasis on recreation at the expense of natural resources and wildlife. Maintaining the high quality of natural resources will ultimately provide for a positive recreation experience.

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CONSOLIDATED STAFF REVIEW BY TOPIC AREAS

Fish and Wildlife –

With respect to fish and wildlife, Pitkin County generally supports Alternative C. However, we ultimately believe a hybrid alternative will be necessary to include the following management direction as a means of providing the best protection for a healthy fish and wildlife population:

- Protect all streams from surface disturbance - not just fish bearing streams.
- Core Wildlife Areas provide critical habitat for wildlife, particularly during the winter. SRMA designations, which give management priority to recreation, conflict with management objectives for Core Wildlife areas, resulting in recreational pressures leading to wildlife displacement, disturbance and stress. The SRMA designation should be removed from all Core Wildlife areas including the Crown and Thompson Creek areas (with the exception of the current SRMA associated with the Climbing Fins in Thompson Creek).
- Pitkin County supports the development of a *management designation* for Winter Core Wildlife Areas – either as a management designation of it's own, or to be used as an overlay on other management areas. The intent would be to manage with preservation of wildlife habitat and use as the main resource and focal point in areas defined as having Winter Core Wildlife characteristics. Management of these areas would include a stipulation for total closure (for areas specified on page 5 of these comments, under the heading of "*Interim Management…"* from December 1- April 30, or as recommended by CPW.
- Manage the Crown, Light Hill, and Arbaney Mesa to the east beyond the lookout point as designated Winter Core Wildlife Areas. Include a stipulation for total closure (for areas specified on page 5 of these comments, under the heading of "*Interim Management…"* from December 1- April 30 every year regardless of snow levels (due to local Colorado Parks &Wildlife (CPW) knowledge and research of the forage benefit of these areas to the wildlife even, in low snow

years.) Total closure should result in closure to human activity as well as to motorized and mechanized use.

- Include a stipulation for total closure in the Thompson Creek area from December 1- April 30, or as recommended by the CPW. Total closure should result in closure to human activity as well as to motorized and mechanized use.
- Based on high value as Core Wildlife Areas, include a No Surface Occupancy designation for the *entire* Crown and Thompson Creek areas.

Visual Resource Management (VRM) -

Pitkin County places a high level of importance on maintaining our high scenic quality. Alternative B supports Pitkin County land use objectives. It is the strictest on the allowed disturbances that could occur to scenic quality on BLM lands within Pitkin County. However, Pitkin County questions the BLMs criteria on page 4-405, under Alternative B: "Within VRM Class II areas, all new disturbance should be within existing ROW or within 200 meters of existing disturbance." If the new disturbance cannot meet the visual mitigation standards for a Class II area it should not be allowed, regardless of proximity to other disturbance.

In general, BLM should be more proactive about upholding the rules associated with Scenic Quality Classes. If an adjacent landowner creates disturbance on BLM that does not meet the Scenic Quality Class regulations, the landowner should be held accountable and be forced to mitigate the disturbance they created.

Forestry –

Pitkin County supports the forestry management strategy outlined in Alternative C. Specifically, we are in support of: removing The Crown ACEC from forest production; limiting the salvage after an event like pine beetles so the area is not immediately put up for harvest so as not to lose value. This will protect wildlife habitat that depends on snags, downed timber, etc.

Grazing –

Pitkin County favors a combination of Alternative B and C. Pitkin County has invested significant funds to protect agriculture and significant wildlife habitat throughout the county and believe the BLM should provide an alternative that provides direction on each specific area in Pitkin County since the County does not want a blanket statement that either favors wildlife over grazing or vice versa. Light Hill is currently an area that receives little grazing pressure and is being managed for the improvement of wildlife habitat and The Crown is the opposite. These differences are not noted in the different alternatives. The retirement of grazing allotments, indicated in both Alternative B and C, 08328, 08332, 08333, 08350, 08351 along Arbaney Mesa and Williams Hill is supported by Pitkin County due to retirement of Forest Service grazing allotments in that area, protection of significant wildlife habitat, and steep terrain. Grazing allotment 08353 on the west side of Light Hill should be retired due to significant wildlife concerns and extremely steep terrain, but it is not clear if the BLM is trying to combine it with the adjacent allotment in Alternative C since the map shows it being closed and Appendix I says it is going to combined. Pitkin County believes that the BLM needs to monitor allotments in Pitkin County on a regular basis. Pitkin County requests a copy of the BLM's recent assessments for all grazing allotments in Pitkin County on vegetation

attributes within grazing allotments to ensure that BLM Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management (BLM 1997) (Appendix J) are met per established protocols and technical reference.

Land Tenure –

Federal public lands comprise some 83% of Pitkin County and create the mosaic of extraordinary scenery, habitat, recreation and natural resources that are of immeasurable value to the health, welfare and enjoyment of Pitkin County's residents and visitors. Any loss of these Federal public lands or of public access thereto is a serious concern for Pitkin County and should be avoided whenever possible. Pitkin County created an Open Space & Trails Program in 1990 and as of January 1, 2011 has invested more than $82 million over the past twenty years to secure over 18,700 acres of additional conserved private lands for the benefit of Pitkin County's residents and visitors. Pitkin County prefers that new public land acquisition is secured through purchase rather than exchange. Public access to Pitkin County's Federal public lands is also of immeasurable value to our residents and visitors. The loss of Federal land within Pitkin County has the potential to negatively affect the quality of life for Pitkin County residents and visitors who currently derive benefits from public lands; and to ultimately undermine the value of the County's ongoing investment in its Open Space and Trails Program. We also wish to ensure that the potential benefits of land exchanges are measured locally, so that lands of benefit to Pitkin County are not depleted for outside objectives.

Pitkin County recognizes that the BLM will use land tenure adjustments to achieve "more efficient and better management of resource values of BLM lands", and supports these adjustments when they are also in the public's interest. In general, acquisition of non-federal lands for resource protection, public access, or other improved management purposes would be of benefit to the public.

Disposal of BLM lands to another public agency through the Recreation and Public Purposes Act (R&PP), or sale at fair market value if R&PP is not applicable, or land exchange among public agencies to consolidate administration can be an effective way to ensure to continued management of lands for public benefit. Pitkin County has worked effectively with federal agencies in the past to complete land exchanges that protect the public benefit of those lands, or, in some cases, to meet other public needs, such as infrastructure. We also see the potential to acquire certain small, isolated BLM parcels such as trailhead parcels and boat ramps in Pitkin County through R&PP in order to arrive at the most efficient management for those properties

Disposal of BLM lands to private entities, on the other hand, should be considered only where such lands do not contribute to the resource values we strive to protect: wildlife, scenery, agriculture, and recreation. Pitkin County is concerned about the loss of these local and State public benefits resulting from the conveyance of BLM lands to private entities through sale or land exchange. The Draft RMP recognizes these concerns by stating:

"recent community meetings have expressed that local communities and local governments would like the BLM to retain BLM land, which tends to be open space surrounded by private lands. New procedures are being considered for land tenure adjustments in the CRVFO planning area, including reviewing parcels on a case-by-case basis based on management criteria and public input."

Pitkin County recommends that this plan reflect such a procedure, by requiring that any property being considered for disposal to a private entity first be made available at a fair price to other public agencies that protect public resources, including municipalities, counties, state agencies and other federal agencies. In the case that the BLM is not able to find another public agency willing to take over the management of these lands, then it should only complete land conveyances to private entities if there is support from local governing agencies in addition to the criteria set forth in the RMP. Such support would be based on the assurance that public values important to our community are adequately protected through conservation and/or public access easements.

As far as the criteria presented in the Draft RMP under GOAL 2, Pitkin County prefers Alternatives B and C with the following modifications:

1. Amend Lands and Realty GOAL 2 (pg 2-87) as follows:
   - Under Objective, change Item (3) to delete "dispose of lands or interests in lands that are difficult or uneconomical to manage" and add "transfer to the public agencies for more efficient management and dispose of only those lands lacking in natural resource values."
   - The criteria for retaining lands for long-term management (pg 2-87) should include all those lands described under Alternative C and should be expanded into include all BLM lands that have access points from trails or other public lands, however remote and, the BLM should seek to enhance access for constrained areas.

2. The exception criteria for retention areas (pg 2-88) be amended to:
   - include the proposal discussed above, that conveyance of lands be first offered to all other public agencies, and if no agency is willing to assume ownership, then conveyances are only conducted with the support of local governments with jurisdiction;
   - under item (2), the term "long-term conservation easement" should be replaced with "perpetual conservation easement and/or public access easement";
   - the word "or" between items (2) and (3) be changed to "and", and; under item (3)add "and public access to adjacent public lands is retained if requested by the managing agency".

3. Action items for lands considered for disposal (pg 2-89) should be modified from what is presented under Alternatives B&C to:
   - include the proposal discussed above, that conveyance of lands be first offered to all other public agencies, or are only conducted with the support of local governments with jurisdiction;
   - add to the last bullet "and public access to adjacent public lands shall be preserved if requested by the managing agency of those adjacent lands" and;
   - to add a bullet "land exchanges with private entities should result in no net loss of equal quality acreage in the Roaring Fork watershed, or public access for a geographic region (for Pitkin County, that region would be the Roaring Fork Watershed,) or alternatively, no net loss of cumulative public benefit for the citizens of Pitkin County."

Finally, the plan should also acknowledge that Pitkin County does not recognize a development right for lands leaving public ownership.

Pitkin County Emergency Management Comments

1.) Law Enforcement Officer Response
The Pitkin County Sheriff's Office continues as the primary all hazard, all risk first response agency within the geographical boundaries of Pitkin County.

We recommend that a mutual aid agreement or inter agency agreement be developed between BLM Rangers (LEOs) and the Pitkin County Sheriff's Office defining law enforcement parameters on BLM lands. Crimes on Federal property are Federal crimes and are consequently adjudicated before a Federal Magistrate greatly compromising the standard operating procedures for response and criminal investigations of The Pitkin County Sheriffs' Office. This is one of several issues to be addressed in a mutual aid agreement.

2.) Search and Rescue
The Pitkin County Sheriffs' Office continues to fulfill its' statutory responsibility for search and rescue within the geographical boundaries of Pitkin County.
We recommend development of an inter agency agreement between BLM and the Pitkin County Sheriffs' Office regarding search and rescue missions on BLM lands.
Standard operating procedures for the Pitkin County Sheriffs' Office are to notify the United States Forest Service (USFS) of any search and rescue mission on Federal lands and to request permission for the use of mechanized or aircraft resources when relevant.

3.) Wildfire Response

The Pitkin County Sheriffs' Office maintains an annual mutual aid agreement with BLM and USFS for wildfire response and wildfire suppression on county and Federal lands known as the Annual Operating Plan (AOP).

4.) *Hazardous Material Transport and Spill Mitigation and Response* (Please See the oil and gas section of this review)

Public Health and Safety

Environmental Consequences - Chapter 4

It is important that the BLM acknowledges that public health and safety issues need to receive priority consideration, recognizing that increased public land use will result in increased exposures. The studies conducted for Garfield County remain inconclusive, but recommend continued monitoring. Regardless of the management plan alternative chosen, Garfield County's findings should be followed and considered. Energy development on BLM and other public lands impacting Pitkin County and municipalities

should have carefully selected monitoring programs in place in an attempt to measure potential impacts.

Affected Environment- Chapter 3

The RMP focuses on a few key activities that tend to impact public health and safety with energy development taking a large portion of the section. Reference to the 2010 Colborn study acknowledges that there may be long-term health effects that are not immediately recognized, and the difficulties of developing monitoring programs that will allow us to identify indicators and trends. The epidemiologic data presented in the RMP is not conclusive.

Addressing some of the challenges Garfield County has encountered in their attempt to identify risk and impacts of the oil and gas industry would be prudent. A highlight noted in the plan from the Witter 2008 study was lack of precise demographic data to properly assess risks.

Air Quality-

Pitkin County recommends that the chosen alternative incorporate an Adaptive Environmental Management(AEM) process relative to air quality. Adaptive Management is a structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring. It involves the integration of project/program design, management, and monitoring to systematically test assumptions in order to adapt and learn (Wikipedia). Pitkin County believes an AEM would be appropriate to deal with the uncertainties associated with proposed oil and gas development in this region. The AEM approach in this case should not only monitor impacts to air quality on a regular basis, but should identify triggers or thresholds at which modification to use is required to maintain air quality in conformance with adopted local, state and federal standards. Similar processes have been used in other BLM management areas such as the Pinedale Anticline Project area and the Four Corners area. A variety of stakeholders should be involved in such an AEM process. The Four Corners Air Quality Task Force is a good example of stakeholders that have come together to participate in such a process.

The Ecological Bill of Rights, which Pitkin County adopted in 2000, describes our desire to be stewards of our natural heritage and resources and to protect the ecological carrying capacity of the county. This bill provides our residents and visitors the right to breathe clean air, enjoy clear vistas, and minimize involuntary exposure to toxic chemicals that are hazardous to health. There are many other rights adopted in this bill, but those mentioned in the previous sentence reflect Pitkin County's desire to maintain a sustainable environment. The Ecological Bill of Rights draws a direct parallel to Pitkin County's concerns about potential impacts on air quality from oil and gas development on BLM lands.

Pitkin County is concerned about the cumulative air quality impact of the alternatives identified in the Resource Management Plan (RMP) as well as other proposed developments, including the Tar Sands development in Wyoming, Utah, and Colorado. All development that has the potential to degrade air-shed quality should be included in any analysis.

Pitkin County requests that the RMP specifically assess the level of pollutant contributions from oil and gas in the planning area. How would Pitkin County's emissions inventory be affected? Specifically, how significantly would oil and gas activities contribute to increased pollutant levels that are considered harmful to public health and the environment, such as carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM10 and PM2.5), volatile organic compounds (VOC), and benzene? These emission levels are of concern and should be assessed and monitored closely.

Pitkin County requests that modeling data for visibility (FLAG) levels be based on 0.5 dv and 1.0 dv in order to assess at which point there are factors "contributing" and "causing" degradation .

Pitkin County teamed with Wilderness Workshop to hire an air quality expert, Megan Williams whose credentials and report is attached as Attachment 1. Please incorporate Ms.William's entire report and recommendations as a part of Pitkin County's comments. Also see comments related to air quality in the Oil and Gas drilling section of this review.

Water Quality -

Affected Environment – Water Resources (Chapter 3)

The plan indicates that abandoned wells continue to be a source of toxic contaminants if proper capping and maintenance procedures are not used. With that risk identified, it's important that industry follow the strict guidelines for that process, as well as other requirements that exist to protect ground and surface water. To date, Counties do not have enforcement authority (nor do we have the resources to monitor) to determine if those standards are being met.

The amount of water needed to drill is a concern that should be addressed. Where will the water come from, will it deplete any local resources? These questions are important to the values and policies of Pitkin County. We understand that the resolution to issues surrounding these questions require an understanding of the laws and perhaps the ability to negotiate for a balance relative to environmental consequences surrounding water usage. The Roaring Fork Watershed Plan identifies issues of water quality and quantity that are specific to the Roaring Fork valley and which should be considered as part of any local analysis.

With respect to wastewater, it will be important to consider disposal and/or treatment. The oil and gas industry should have a well-developed plan for the treatment or disposal

of both domestic wastewater and process water that is typically poor quality. There are technologies available for reuse. All alternatives should be evaluated. Garfield County has good experience that we can draw from. The potential of illegal dumping in remote areas can occur if disposal or treatment alternatives are not well vetted.

Climate Change: As an implication of management practices throughout the RMP Climate change should be considered as a variable. Management of vegetation and mineral resource development are two areas that warrant attention in this regard.

Comprehensive Trail and Travel Management –

In general, Pitkin County believes that the BLM should not continue to adopt citizen-created trails and encourages the BLM to start taking a more proactive approaching on managing trail building. Additionally, we have the following specific comments for the following travel zones based on the status of the parcels today. Given specific management plans, these recommendations could be modified:

Zone H (Thompson Creek): Pitkin County supports Alternatives C, with no additional illegal trails to be adopted.

Zone I (The Crown): Pitkin County Supports Alternative B with the modification of changing Route 8324CB needs to Foot and Horse to match our management of Nancy's Path. This alternative concentrates motorized in the SW corner where motorized use exists today. We believe this will protect the non-motorized users and wildlife from the impacts from motorized uses.

Zone J (Basalt Area): Pitkin County supports Alternative C with the modification of Route 8344 to mechanized designation in order to match out management on lower trail sections.

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GENERAL COMMENTS REGARDING MANAGEMENT TO ADDRESS CARRYING CAPACITY FOR WILDLIFE, RECREATION AND GRAZING & TO ADDRESS PARCEL-SPECIFIC PLANNING NEEDS AND ENFORCEMENT ISSUES:

We recommend that the following broad management approaches be applied to the Crown, Light Hill and Arbaney/Kittle properties, all of which are heavily used by nearby communities and in danger of being "loved to death" relative to recreational uses. As these areas contain irreplaceable natural resources including core wildlife areas, and sustain multiple uses including agricultural grazing, motorized, mechanized and pedestrian recreational activities in all seasons, conflicts between users and degradation of natural resources are on the rise. Heavy use has already resulted in measurable impacts to wildlife, as documented by Colorado Parks and Wildlife, impacts to grazing leases and conflicts between various recreation users.

Pitkin County recommends the following two approaches to address the issue of finding balance between multiple uses and resource preservation:

1. *Carrying Capacity* Develop a carrying capacity analysis for the Crown, Light Hill and Arbaney/Kittle properties to use as a basis for determining to what extent limitations are necessary to maintain natural resources and a positive user experience. A "carrying capacity" analysis is intended to identify a balance at which existing and/or proposed uses can be sustained for the long term without damaging natural resources or the quality of recreational or agricultural use. In some cases, uses may have to be eliminated or re-allocated to protect the natural resource. If limits on and balancing of the multiple uses occurring on these parcels does not take place, then the natural resources and the recreational experiences will soon be greatly diminished and ultimately lost. Just within the last decade, Colorado Parks and Wildlife has measured the significant loss of wildlife and healthy herd populations in the valley which depend on these BLM critical habitat parcels for survival. This is primarily thought to be due to human presence (loving it to death), fragmentation of habitat through creation of new trails, and the presence of dogs.

2. *Public Management/Citizen Enforcement* To enforce management decisions resulting from carrying capacity analyses on the Crown, Light Hill and Arbaney Kittle properties, establish collaborative groups (modeled on the existing Red Hill Council as an example,) consisting of public agency and citizen representatives. The intent of such groups would be to facilitate the following outcomes:

    - Communication between federal and state agencies (BLM, US Forest Service, Colorado Parks and Wildlife,) and citizens.
    - Education necessary to inform user groups about preserving existing resources and reducing conflicts; and
    - Enforcement of wildlife closures and management decisions for use of trails, etc.;

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PARCEL SPECIFIC COMMENTS RE: FUTURE MANAGEMENT OF BLM PARCELS LOCATED IN PITKIN COUNTY TO ADDRESS RECREATION & VISITOR SERVICES, PUBLIC ACCESS & WILDLIFE

1. Red Mountain/ Hunter Creek Trailhead parking:

The Hunter Creek parking lot should remain a public parking area. This is the only non-restricted upper parking area which accesses the Hunter Creek Frying Pan Wilderness, the 10th Mountain Hut System and allows day hiking/biking access for the popular "closer in" USFS lands known as the Hunter Creek Valley adjacent to private lands just to the North of the City of Aspen. Access and parking to these areas provide local and resort visitor access (hikers, bikers, hunters, back country skiers, snowshoeing, educational classes etc.) and is an important aspect of the resort economy**.**

Currently the parcel contains a parking area and access which are under a management agreement with Pitkin County Open Space and Trails (OST). Other portions of the property contain County communication equipment and radio repeater equipment that is used for the City of Aspen Water and Streets department.

This parcel is a suitable candidate for conveyance to a local public agency under the Recreation and Public Purposes Act. The County would like to explore purchasing this

parcel in collaboration with the City of Aspen since it is clearly not a property that the BLM wishes to manage.

Note: Figure 3.3.3 – 1 should include a parking area designation for the Hunter Creek Trailhead parking located just north of Aspen.

2. Eagle Mountain:

Pitkin County agrees with a Wilderness Study Area (WSA) designation for Eagle Mountain. Pitkin County has spent millions of dollars in open space funds to protect the surrounding properties which also have wilderness characteristics, wildlife habitat and scenic values.

The Eagle Mountain parcel boarders Snowmass Creek at a location adjacent to where the County road crosses the creek. The area immediately to the west of the bridge has served as an informal parking area for winter (snowshoeing, walking, X-Country skiing)and summer(hiking, biking and fishing) recreationalist. The BLM and Pitkin County should further research property boundaries and collaboratively work to maintain the parking at this location. If parking is not compatible with WSA designation, perhaps that small portion of the parcel that extends past Snowmass Creek Road should be transferred to the USFS or purchased by Pitkin County through the R and PP act.

3. ***Woody Creek/ parcel north of the red road cut above Chaparral:***

Access to this BLM parcel from the valley floor has been limited to pedestrian access through private property. This makes it a unique property for recreation and wildlife.

This BLM public access is only one of 5 public access points between the Aspen City Limits and Old Snowmass into the Federal lands north of the Roaring Fork River and out of the valley floor. Three out of these 5 access points rely on BLM property for access to thousands of acres of Federal lands that would otherwise be too remote for many to access. To demonstrate the importance of maintaining access to public lands in this area, Pitkin County acquired public recreation access through private lands to this Woody Creek BLM parcel and the national forest beyond.

4. Red Rim Road and Red Canyon Creek / Triangle Peak:

This land and access are similar to the #3 above. This portion of BLM lands receives public recreational use on Red Rim Road, as well as dispersed recreation and hunting. Pitkin County has negotiated public access connecting to Red Canyon for the purpose of providing access to the adjoining public lands. These two roads provide important access points to federal lands in the mid-valley

5. Section 25:

This parcel is part of a greater publically owned landscape that provides wildlife habitat in a relatively pristine state and as such it should remain in public ownership.

6. Williams Hill:

While access is very steep and/or is limited to this area by private access easements, this area is used for hunting and for public utilities (Pitkin County translator and AT & T cell towers).The Pitkin County translator is located on State land adjacent to this BLM parcel. A BLM easement may need to be issued for access to the State parcel and maintenance of the translator. If the State land were to become available, it would be a good parcel for the BLM to acquire allowing for the entire area to be managed as a single unit.

These current uses and access specific for maintenance of utility sites and hunting should remain. Future utility allowances on the parcel should be clustered with the existing uses in order to reduce the need for additional roads and disturbance to the area.

Our map shows that this BLM parcel crosses Hwy 82 and includes a stretch of the Roaring Fork River. That stretch of river is popular for boaters and fishermen, and is also ecologically significant. The Dart property conservation easement and fishing access borders on the north and downstream of the BLM stretch of the river. Thus access continues downstream from the BLM property, and parking to access is provided downstream on CDOT property. This portion of the BLM parcel should remain in public ownership to provide public access to the river and complement public investment of funds downstream.

The topography and relatively undisturbed wildlife habitat and critical winter range on Williams Hill makes it an undesirable location for extensive developed recreation. Due to local Colorado Parks & Wildlife knowledge and research of the forage benefit of this area to wildlife even in low snow level years, this area warrants total closure from December 1- April 30 every year regardless of snow levels. (Specific areas warranting total closure on Williams Hill should be determined by the CPW.) Furthermore, *Timing Limitations (TL)* for surface disturbing activities should be extended to the entire area of Light Hill and Williams Hill; not just a portion of it, as variations in snow levels and temperatures in any given year may result in north-facing slopes becoming winter range and winter concentration areas.

7. Hay Stack-Hay Park Parking and Trailhead:

This is a heavily used critical trailhead parking area for access to thousands of acres of federally owned recreational lands. This is one of very few non 4-Wheel drive access points for the area that can accommodate horse trailers and campers. This parcel should remain in public ownership. The trail and trailhead are in need of maintenance

Figure 3.3.3 – 1 should include a parking area designation for the Hay Park Trailhead in the Capitol Creek drainage.

8. Light Hill:

Pitkin County recognizes that Light Hill is receiving increasing recreational use and recreation access attention. It also possesses important wildlife characteristics which garnered habitat improvement projects recently. We believe that these attributes warrant a separate citizen driven management plan, or a Resource Management designation now,

as activity on this property grows, to manage these resources in a manner that minimizes conflict. Some areas on Light Hill, as specifically defined by CPW, may also warrant total closure from December 1- April 30 every year regardless of snow levels (due to local Colorado Parks & Wildlife knowledge and research of the forage benefit of the area to wildlife even in low snow levels.) Furthermore, *Timing Limitations (TL)* for surface disturbing activities should be extended to the entire area of Light Hill and Williams Hill; not just a portion of it, as variations in snow levels and temperatures in any given year may result in north-facing slopes becoming winter range and winter concentration areas.

Pitkin County has acquired recreational access to Light Hill and wishes to pursue development of a sustainable trail access to Light Hill. Pitkin County has invested considerable funds in preserving lands in this vicinity, all of which are adjacent to these BLM lands for the purpose of scenic and habitat protection, continued agriculture and public access (Schoelkopf, Timroth, Fender, Middle Ranch, Crown Mtn Ranch). These investments were made in part, because of the proximity to federal public lands, and the desire to preserve a greater landscape, connecting Light Hill area to the National Forest (also to Parcel 8 described below and located across East Sopris Creek road from Light Hill). These BLM lands should be maintained as public lands and managed for similar public goals.

Currently there is not adequate parking for access to Light Hill from the East Sopris Creek County Road. The BLM and the County should collaborate to provide appropriate levels of adequate parking.

To address issues of resource management on Light Hill, we recommend that both a carrying capacity analysis be developed, and that a public management/citizen enforcement strategy be incorporated, both approaches as described under the heading of "Carrying Capacity Analysis" and "Public Management/Citizen Enforcement" paragraphs above on page14.

9. ***East Sopris Creek Road- Section 36-Emma- Sopris Mountain Ranch/ un-named area****:*
This area is used largely for hunting access and provides a critical public access point onto East Sopris Creek Road that is otherwise surrounded by private property. This narrow access point provides access to thousands of acres of public recreational lands managed by both the BLM and USFS. This is one of only Four public access points surrounding the base of Mount Sopris, a heavily used recreational area and access to the Snowmass Wilderness area.

10. ***The Crown***
Based on the intense demand for a wide range and mix of recreation, mechanized and motorized use, grazing and cattle management – and its significant value as critical winter range for deer and elk use, the BLM initiated a public outreach effort in 2008 to develop a community supported management approach for the Crown. While some of the recommendations that came out of that effort were carried forward in Alternative B, we believe issues of carrying capacity and mechanisms for management and enforcement were not thoroughly addressed. To address these issues, we recommend that

management decisions for the Crown be deferred until the effort begun in 2008 to develop a distinct management approach for the Crown can be completed. Pitkin County public outreach to the community that uses this area has indicated that additional work must be done in order to develop a satisfactory, community supported management plan for the Crown. Original alternatives developed by citizens in 2008 should be utilized as a starting point.

Pitkin County supports delaying management decisions on the Crown until such time as a Citizens Plan can be developed. We support a manageable timeframe in which to accomplish this Plan with the user groups in the area, and we offer our support in the effort.

Until such time as a collaboratively developed management plan is completed, we recommend the following interim management approach for the Crown:

- To protect critical winter core wildlife areas, implement full winter closures from December 1-April 30 (or as specified by CPW;)
- New trails in some locations may be appropriate to improve access, and/or to relocate a poorly constructed or located trail. However, new trails and existing citizen created trails should be considered in the context of the development of a specific management plan. Citizen-created trails in particular, should be reviewed with respect to terrain and/or proximity to wildlife habitat, sensitive species and grazing use. As new trails on these parcels may continue to fragment habitat, increasing impacts to wildlife – we recommend that outside of a concerted planning process between agencies, citizens and jurisdictions, no new trails be constructed – and that poorly constructed, poorly located, or redundant trails be eliminated.
- Separate motorized and non-motorized areas on the Crown;
- Manage the ridge of the Crown as an Area of Critical Environmental Concern to address the Harrington's Penstimon located in the area;

If the Carrying Capacity alternative is not implemented, then we recommend that a Resource Management Area (RMA) designation be used for the Crown, with a winter core wildlife area overlay established in areas specifically recommended by CPW. This approach will manage natural resources and protect wildlife, at the same time attempting to minimize conflicts between different recreation uses. As currently proposed, the ERMA and SRMA designations place too much emphasis on recreation at the expense of natural resources and wildlife. Maintaining the high quality of natural resources will ultimately provide for a positive recreation experience.

With respect to travel management, Pitkin County Supports the approach in Alternative B, with the modification of changing Route 8324CB needs to Foot and Horse to match Pitkin County's management of Nancy's Path (trail.) This alternative concentrates motorized use in the SW corner where motorized use exists today. We believe this will protect the non-motorized users and wildlife from the impacts of motorized uses.

Parking and County road use issues have been increasing for both the West Sopris Creek road and the Prince Creek Road access to the Crown. The ERMA designation is appropriate over other more intensive recreational designations due to the desire of the County to maintain the existing road status and service levels – though a citizen driven management plan or Resource Management Area designation is preferable to either an ERMA or SRMA. Citizens living in close proximity to the Crown have expressed concern about traffic associated with existing recreational use of the Crown and do not support additional use that might be facilitated by development of new trails. In addition, parking for this area needs to be better managed through joint coordination with the County and the BLM. Parking should only be accommodated to the point that it supports an established carrying capacity.

To protect resources under any management scenario, we believe this area should be maintained for local use rather than proactively marketed and developed with increased opportunities for parking, campgrounds and public amenities. The public infrastructure and County neighborhood master plans do not support that level of development.

To address issues of resource management on the Crown, our clear preference is for development of a carrying capacity based, collaboratively developed management plan.

County Road 111- Prince Creek- Crystal parcel:
Pitkin County has submitted comments to the BLM addressing the recently proposed land exchange, and the recent permit renewal for grazing (See Attachment 6 & 6A.) Comments highlighted the important ecological attributes of the property, specifically the bighorn sheep winter concentration area. As stated in our overall comments, we believe that BLM lands that connect to other public lands should be categorized as land for retention (Also see land tenure section above).

11. Arbaney Kittle

This parcel is used extensively for recreational purposes and accesses USFS lands leading to numerous recreational routes to the North of the Roaring Fork Valley. Pitkin County Open Space and Trails purchased 11 acres at the bottom of the trail head to accommodate parking. Travel management on the Arbaney portion of the parcel is consistent with Pitkin County management. Local agencies hope to further work with Federal agencies to develop additional access points closer to Basalt.

To address issues of resource management on Arbaney Kittle, we recommend that a collaboratively developed management plan be completed for this urban interface parcel. In the interim, we recommend the following management approach for the Arbaney Mesa area:

- To protect critical winter core wildlife areas, implement full winter closures from December 1-April 30 (or as specified by CPW) in the following area:
    - Full closure from the top of the trail at the overlook and everything leading east over to Arbaney Mesa. (No closure is recommended for the Arbaney Kittle trail from the trailhead at the bottom to the overlook at the top as this

segment of the trail passes mainly through pinon-juniper which has little wildlife value except for cover);

- New trails in some locations may be appropriate to improve access, and/or to relocate a poorly constructed or located trail. However, new trails and existing citizen created trails should be considered in the context of the development of overall parcel by parcel management plans. Citizen-created trails in particular, should be reviewed with respect to terrain and/or proximity to wildlife habitat, sensitive species and grazing use. As new trails on these parcels may continue to fragment habitat, increasing impacts to wildlife – we recommend that outside of a concerted planning process between agencies, citizens and jurisdictions, no new trails be constructed.
- If the Carrying Capacity alternative is not implemented, then we recommend that a Resource Management Area (RMA) designation be used for the Arbaney Mesa, with a winter core wildlife area overlay established in areas specifically recommended by CPW. This approach will manage natural resources and protect wildlife, at the same time attempting to minimize conflicts between different recreation uses. As currently proposed, the ERMA and SRMA designations place too much emphasis on recreation at the expense of natural resources and wildlife. Maintaining the high quality of natural resources will ultimately provide for a positive recreation experience.

12. ***Thompson Creek*:**

Pitkin County supports the following management prescriptions for Thompson Creek (as designated in Alternative C with a few modifications):

- RMA and ACEC designations which include: a Class1 Scenic Quality ranking (manage for VRM class 1) and limits the ability for "surface occupancy" and closes the area to fluid mineral leasing.

- New climbing routes are not permitted and number of those climbing per day is limited. We concur with the prohibition of bolting on the "important geologic features" including additional route generation on the vicinity of existing bolts.

- Wild and Scenic Rivers - the classification of 4.8 miles of Thompson Creek as NWSRS, as identified in Alternative C.

- Zone H (Thompson Creek): Pitkin County supports Alternatives C, with no additional illegal trails to be adopted.

Note: Miscellaneous Comments Regarding BLM Parcels–

All maps should remove the 40-acre parcel known as "Parcel 79" located in the Crystal River Valley just south of the Pitkin County line.

OIL & GAS SPECIFIC COMMENTS

Underestimated Projected Demand/Air Quality Impacts

A November 21, 2011 article in the Grand Junction Daily Sentinel indicates that the Executive Director of the West Slope Colorado Oil and Gas Association (COGA) and the Staff Attorney for the Wilderness Workshop concur that the BLM has underestimated projections for fluid minerals (specifically oil shale and oil and gas) development, and consequently failed to adequately analyze costs and benefits to local economies, and costs to the environment, respectively.

As evidenced by the 1999 BLM's Colorado River Valley Field Office (CRVFO) estimate and analysis for 300 wells over 15 years, prior estimates by the CRVFO for oil and gas development have been well short of the actual demand realized. In fact, three hundred wells were approved by 2002, and by 2010, at least 2,400 wells had been approved through the Field Office (*Wilderness Workshop December 2011 Newsletter, pg. 10*.)

The reasonably forseeable development scenario in the current DEIS for the Resource Management Plan anticipates that another 5,318 wells could be drilled in the management planning area by 2028. As noted in the preceding paragraph, both industry representatives and environmental protection organizations believe this estimate to be low.

In addition to underestimating potential demand in the Colorado River Valley, the DEIS also fails to *comprehensively* analyze impacts for new development in the Colorado River Valley as it relates to significant additional wells anticipated in the Grand Junction BLM Office Planning area, on the White River and Gunnison National Forests, and on private land.

According to Megan William's comments (Attachment 1) regarding the Air Quality Analysis for the *Colorado River Valley Field Office Draft Resource Management Plan (DRMP,)*

"The air analyses included in the DRMP are not a comprehensive assessment of the environmental and public health impacts resulting from an increase in air pollution in an area already heavily impacted by the adverse effects of increasing development. Without such an analysis, the BLM cannot know what the impacts of the activities proposed in the DRMP will be on air quality, human health and the natural environment or whether the BLM will prevent significant deterioration in air quality, as required by the Clean Air Act." In addition, "…the DRMP does not adequately analyze the air quality impacts that could occur as a result of the actions authorized under the DRMP, therefore, failing to comply with the National Environmental Policy Act (NEPA) and the Federal Land Policy and Management Act (FLPMA)."

In her attached comments and detailed analysis, Megan Williams concludes that the Draft RMP does not prevent significant air quality deterioration, and that visibility impairment is already occurring due in part to current development in the Planning area. Due to deficiencies in the DRMP, it is likely that air quality impacts would be even more severe than anticipated in the DRMP.

In summary, Ms. Williams identifies the following air quality issues that must be addressed in the Draft Resource Management Plan to correct deficiencies in the air quality impact analysis:

- Background concentrations of ozone and particulate matter in the area are at or exceed the NAAQS

- Visibility in nearby Class I areas is already impaired
- The BLM's air quality modeling analysis predicts significant nitrogen dioxide impacts
- The BLM's air quality modeling analysis predicts significant particulate matter impacts
- The BLM's air quality modeling analysis predicts significant ozone impacts
- The BLM's air quality modeling analysis predicts significant visibility and ecosystem impacts
- The BLM's air quality modeling analysis does not assure the prevention of significant deterioration of air quality
- The BLM's air quality modeling analysis likely underpredicts ozone concentrations
- The BLM's air quality modeling analysis likely underpredicts particulate matter concentrations
- The DRMP does not include a comprehensive regional inventory for use in determining existing and reasonably foreseeable cumulative air quality impacts
- The BLM's air quality modeling analysis does not evaluate impacts for all Class I and Sensitive Class II areas that could be affected by the proposed development
- The DRMP does not sufficiently address greenhouse gas emissions and climate change impacts from the proposed development

Analysis of Management for and Impacts to Private and Pitkin County Open Space lands underlain by BLM Mineral Estate

The DRMP fails to address how the federal mineral estate underlying private lands in Pitkin County (including those on which Pitkin County holds conservation easements,) and County-owned open space parcels, will be managed and administered. On privately-owned lands, Pitkin County will apply local land use regulations regarding mineral exploration and development, in conjunction with BLM and State standards.

The County has invested public funds to purchase Open Space land and easements to conserve significant natural resource values that exist on the surface estate, and are an integral component of the resort/recreation tourism economy upon which our County depends. Where BLM mineral estate underlies County-owned open space parcels, we recommend that BLM work with the County to consolidate the surface and mineral estates. Because of our investment of public funds, Pitkin County is opposed to any exercise of these mineral rights which could result in negative impact to those values we have acted to protect. If consolidation is not possible, we recommend that mineral development be prohibited.

Analysis of Management for and Impacts to USFS lands underlain by BLM Mineral Estate

The Executive Summary of the DRMP notes that decisions regarding leasing and development of the BLM fluid mineral estate underlying surface lands administered by the U.S. Forest Service (USFS,) will be subject to leasing decisions made in the *USFS Oil and Gas Leasing Plan EIS*, anticipated to be published by the end of December, 2011 "The USFS will analyze impacts from oil and gas leasing and development on National Forest System Lands and identify areas the USFS will or will not consent to leasing. The BLM is responsible for decisions relating to drilling, completing, producing and plugging and abandoning federal wells underlying national forest lands (pg. ES-4.)"

It is difficult to provide a comprehensive review and comments on impacts associated with oil and gas development without the benefit of an understanding of how the BLM mineral estate

will be administered on the National Forest Lands. Consequently, we recommend that decisions in the RMP regarding these lands be deferred until the *USFS Oil and Gas Leasing EIS* has been published, and impacts on air, water, roads, etc. may be comprehensively analyzed as they relate to decisions relating to oil and gas leasing on the National Forest Lands in the Colorado River Field Office Area.

Oil Shale and Tar Sands

We understand that the *Oil Shale and Tar Sands Resources Leasing Programmatic Draft Environmental Impact Statement* (OSTS DEIS) will be issued in late December, 2011. The intent of this EIS is to "consider whether it is still appropriate for the land identified in the 2008 PEIS to remain open for oil shale and tar sands leasing and development in light of the nascent character of the technology for development of these resources." (BLM's April 13, 2011 News Release)

It is difficult to comprehensively analyze the impacts of potential mineral leasing and development in the DEIS for the Resource Management Plan, (RMP DEIS) without access to the analysis completed for the *Oil Shale and Tar Sands DEI*S. How will the findings of the OSTS DEIS be incorporated into the RMP DEIS? Pitkin County's concerns regarding oil shale development, specifically relating to the nascent character of technology, impacts to water quality and quantity, air quality, human health impacts, and local economy, are outlined in the attached letter, dated June 10, 2011 (Attachment 4.) We recommend that analysis of oil shale development be deferred until the *Oil Shale and Tar Sands Resources Leasing Programmatic Draft Environmental Impact Statement* (OSTS DEIS) has been published, and impacts on air, water, roads, etc. may be comprehensively analyzed.

Health and Safety

The Health and Safety discussion in the DRMP includes the stated Goal to "Protect lives, resources and property to improve the quality of life in local communities." Objectives and Actions in Alternatives B, C, and D all speak to ensuring public health and safety.

> *Hydro-Fracking:* In order to implement the goal of protecting lives and providing safe facilities, we recommend that the Health and Safety section of the DRMP and the DEIS address the need for full disclosure of chemicals used in the hydro fracturing process associated with oil and gas development.
>
> *Hazardous Material Transport and Spill Mitigation and Response, Relative to Oil and Gas Drilling:* The Pitkin County Office of Emergency Management currently does not have the administrative infrastructure, mitigation/response plans or response and recovery resources to meet the possible needs of new oil and gas drilling on BLM lands in Pitkin County. We recommend that the EIS analyze and address the local government cost associated with the administrative and operational aspects of pre-planning, mitigation, emergency response and recovery associated with hazardous material transport, spill mitigation and other emergencies related directly to oil and gas development.
>
> *Adaptive Environmental Management AEM:* To adequately address potential for health impacts related to air quality, Pitkin County recommends that the chosen alternative incorporate an Adaptive Environmental Management (AEM) process (as described under

the *Air Quality* comments on page 11 of this memo in detail.) Pitkin County believes an AEM would be appropriate to deal with the uncertainties associated with proposed oil and gas development in this region. The AEM approach in this case should not only monitor impacts to air and water quality on a regular basis, but should identify triggers or thresholds at which modification to use is required to maintain air quality in conformance with adopted local, state and federal standards. Similar processes have been used in other BLM management areas such as the Pinedale Anticline Project area and the Four Corners area. A variety of stakeholders should be involved in such an AEM process. The Four Corners Air Quality Task Force is a good example of stakeholders that have come together to participate in such a process.

Process

To the extent that a local RMP may influence National BLM policy regarding process, we recommend that the Colorado River Valley RMP incorporate public review and comment for both the *Master Plan Development* process (fka *Geographic Area Proposal*,) that describes 2-5 years of activity for operator controlled Federal oil and gas leases within a reasonable geographic area, and the *Unitization Process.* Public review and comment will allow impacts associated with such proposals to be fully vetted and addressed.

Allowable Use

If, as stated in the DRMP, 99% of new gas development is expected to occur in high potential areas and 1% in moderate to low potential areas (based on the CRVFO RFD (BLM 2008e), the DEIS should include an alternative that eliminates leasing in moderate to low potential areas. Such an alternative would allow the areas with less oil and gas development potential to be managed for protection of natural resources such as wildlife habitat and water quality, which also contribute significantly to local economies.

Under this (or any other) alternative, leasing within areas known to have high occurrence potential should be limited to areas where the mineral resource can be developed without detriment to the environment, including critical wildlife habitat, areas with wilderness characteristics, air and water quality.

Restrictions on Use

(Closed to Leasing for Fluid minerals (CL)) At a minimum, we recommend that all of the areas identified in Alternative C, including the following areas in Pitkin, be closed to leasing for fluid minerals:

- Lands within municipal boundaries;
- Thompson Creek Natural Environment Area (part of the ACEC;)
- Eagle Mountain (Maroon Bells Addition;)
- Thompson Creek ACEC (Areas of Critical Environmental Concern) (CRV-CL-8);
- Core wildlife area;
- Greater Sage-grouse habitat;
- State Wildlife Areas;
- Areas managed as LWCs (Lands with Wilderness Characteristics).

(No Surface Occupancy) In addition to all areas identified in Alternatives B&C for No Surface Occupancy stipulations (NSO), we recommend the addition of the following areas:

- Riparian and Wetland Zones, with no exceptions allowed;
- Domestic watershed areas and Municipal Watershed Areas; (*All domestic and municipal watershed areas should be mapped by BLM and included in the RMP*;)
- State Wildlife Areas;
- Fish-bearing streams;
- Lands with Wilderness Characteristics outside of Wilderness study areas (if these areas aren't closed to leasing altogether;)

Special Designations

Areas of Critical Environmental Concern (ACEC) We support the following actions regarding mineral development in ACECs:

- Close to salable minerals/mineral materials disposal
- Close to leasing of non-energy solid materials
- Withdraw from mineral location (locatable minerals) AND
- Withdraw from leasing for fluid minerals
- In the Thompson Creek ACEC, we support actions in Alternatives B and C, but recommend that the action be modified to apply to all 4,300 acres, rather than to 3,400 acres, to protect scenic, geologic, historic and ecological values

Wilderness Study Areas (WSAs) We support closure of all Wilderness Study Areas to leasing for fluid minerals, and a prohibition of surface occupancy.
If Congress releases WSAs from wilderness consideration, we support the direction in Alternatives B and C "to manage the lands to protect their wilderness character per the Management and Setting Prescriptions for BLM lands outside WSAs as Being Managed to Protect Wilderness Characteristics." These lands under any circumstances should be closed to oil and gas leasing and development, mechanized and motorized vehicles.

Lands with Wilderness Characteristics (LWCs) We concur with management of *Lands with Wilderness Characteristics* to protect their wilderness character and preserve the social, cultural, economic, scientific and ecological benefits they provide to current and future generations.
We recommend that 47,000 acres of lands found by BLM to have wilderness characteristics be closed to motor vehicles, closed to fluid minerals and geophysical exploration, and have a use restriction that prohibits surface occupancy.

ATTACHMENTS

1 Megan Williams Analysis of Air Quality Aspect of RMP (and her credentials)
2 Pitkin County Open Space Parcels & Easements Adjacent to BLM Lands
3 Pitkin Comments to BLM Regarding Grazing Potato Gulch & RE: Proposed Sutey Land Exchange
4 June 10, 2011 Pitkin County Scoping Comments Regarding the Oil Shale and Tar Sands Resources Leasing Programatic DEIS

ATTACHMENT 1

January 13, 2012

SUBMITTED ELECTRONICALLY

Bureau of Land Management
Colorado River Valley Field Office
2300 River Frontage Road
Silt, CO 81652
Attn: John Russell, RMP Project Manager
Email: BLM_CO_SI_CRVRMP@blm.gov

RE: Comments on the Air Quality Analysis for the Draft Environmental Impact Statement for the Colorado River Valley Field Office Resource Management Plan

Dear Mr. Russell:

I am writing to submit comments on the September 2011 Draft Environmental Impact Statement (DEIS) for the Colorado River Valley Field Office Resource Management Plan (RMP). My comments pertain to the air quality portions of the DEIS. These comments were developed under contract to Pitkin County, Wilderness Workshop, Natural Resources Defense Council, and The Wilderness Society.

The air quality modeling analyses performed by BLM for the DEIS indicate that adverse impacts on air quality would occur due to the proposed project sources alone and cumulatively when considering other sources in the region. These adverse impacts will further exacerbate existing air quality conditions that threaten violation of air quality standards. Background data and other analyses indicate that compliance with National Ambient Air Quality Standards (NAAQS) is threatened, significant air quality deterioration is not being prevented and visibility impairment is already occurring due in part to current development in the area. An analysis of the area impacts is detailed in the attachment to this letter. Further, the air quality analyses presented in the DEIS and accompanying air quality technical documents are deficient as detailed in the attachment to this letter. As a result of these deficiencies, it is likely that air quality impacts would be predicted to be even more severe than what is presented in the DEIS.

Specifically, the attachment to this letter includes detailed comments on the following air quality issues that this DEIS must address:

- Background concentrations of ozone and particulate matter in the area are at or exceed the NAAQS
- Visibility in nearby Class I areas is already impaired
- The BLM's air quality modeling analysis predicts significant nitrogen dioxide impacts

- The BLM's air quality modeling analysis predicts significant particulate matter impacts
- The BLM's air quality modeling analysis predicts significant ozone impacts
- The BLM's air quality modeling analysis predicts significant visibility and ecosystem impacts
- The BLM's air quality modeling analysis does not assure the prevention of significant deterioration of air quality
- The BLM's air quality modeling analysis likely underpredicts ozone concentrations
- The BLM's air quality modeling analysis likely underpredicts particulate matter concentrations
- The DEIS does not include a comprehensive regional inventory for use in determining existing and reasonably foreseeable cumulative air quality impacts
- The BLM's air quality modeling analysis does not evaluate impacts at all Class I and Sensitive Class II areas that could be affected by the proposed development
- The DEIS does not sufficiently address greenhouse gas emissions and climate change impacts from the proposed development

The DEIS does not adequately analyze the air quality impacts that could occur as a result of the actions authorized under the DEIS, therefore, failing to comply with the National Environmental Policy Act (NEPA) and the Federal Land Policy and Management Act (FLPMA). The air analyses included in the DEIS are not a comprehensive assessment of the environmental and public health impacts resulting from an increase in air pollution in an area already heavily impacted by the adverse effects of increasing development. Without such an analysis, the BLM cannot know what the impacts of the activities proposed in the DEIS will be on air quality, human health and the natural environment or whether the BLM will prevent significant deterioration in air quality, as required by the Clean Air Act.

The BLM does not put forth any alternative in the DEIS that fully protects air quality in the area. The Agency Preferred Alternative (B) provides for close to 11,000 new wells and 6 new compressor stations.[1] Even Alternative C, the conservation alternative, is not protective of air quality. All of the alternatives fall short of establishing enforceable mitigation measures that will ensure that there are no violations of the applicable State and Federal requirements (*e.g.*, compliance with the National Ambient Air Quality Standards). The BLM must propose a detailed and enforceable mitigation plan and consider that plan in detail as an alternative in the DEIS, using any and all means, prior to issuance of the final EIS, that will ensure no violations of Clean Air Act standards and, further, adherence to thresholds established by best available science regarding protection of public health and the environment. If the BLM authorizes this project, its actions will not protect air quality. The BLM must improve upon its air quality analysis and then must develop an alternative that ensures no violations of Clean Air Act standards.

[1] DEIS TSD Table 2-2. These estimates include all BLM Project sources, BLM non-project sources, Roan Plateau sources, as well as all Non-BLM Federal, State and private sources.

I have over 15 years of experience working on air quality issues. My curriculum vitae is enclosed for further information on my expertise. Based on my air quality experience, I believe the Colorado River Valley Field Office DEIS will have potentially significant adverse impacts on air quality and air quality related values and that those impacts have not been adequately disclosed or addressed in the DEIS.

Thank you for consideration of these comments. Please include me on the mailing list for any future actions on the RMP for the Colorado River Valley Field Office.

Sincerely,

Megan M. Williams
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Attachments

ATTACHMENT

Detailed Air Quality Comments on the Draft Environmental Impact Statement for the Colorado River Valley Field Office Resource Management Plan

I. The BLM's Own Assessment Indicates the Proposed Development Will Have Adverse Impacts on Air Quality and Therefore the DEIS—Which Does Not Acknowledge Such Impacts—Does not Satisfy the Requirements of the National Environmental Policy Act and the Federal Land Policy and Management Act

The BLM's analysis of the DEIS shows adverse impacts on air quality. Specifically, the BLM's own analysis fails to ensure compliance with the National Ambient Air Quality Standards (NAAQS) for nitrogen dioxide (NO_2), particulate matter (PM) and ozone and shows numerous impacts to visibility in nearby Class I and sensitive Class II areas. The BLM's analysis also does not ensure that the project will prevent significant deterioration of air quality. In short, the DEIS does not satisfy the BLM's obligations under the National Environmental Policy Act (NEPA) and the Federal Land Policy and Management Act (FLPMA) to disclose whether the proposed development will cause Clean Air Act (CAA) violations, and to consider alternatives that better mitigate air pollution under NEPA, and to adopt mitigation under FLPMA, to prevent CAA violations and to prevent unnecessary or undue degradation of public lands and the environment (43 U.S.C. § 1732(b)).

Under NEPA, the BLM has obligations to assess and report the near-field, far-field and cumulative impacts of expected emissions from the proposed project on the NAAQS, prevention of significant deterioration (PSD) increments, and air quality related values (AQRVs), and to identify alternatives or other mitigation measures sufficient to prevent expected violations of NAAQS, PSD increments and adverse impacts on AQRVs. (40 C.F.R. §§ 1502.14(a), (f), 40 C.F.R. § 1502.16(h) and 40 C.F.R. § 1508.27(b)(10)). Furthermore, FLPMA mandates that, "[i]n the development and revision of land use plans, the Secretary shall . . . (8) provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans…"(43 U.S.C. § 1712(c)(8)). This statute is implemented with the following regulation:

> "Each land use authorization shall contain terms and conditions which shall: (3) Require compliance with air and water quality standards established pursuant to applicable Federal and State law." 43 C.F.R. § 2920.7(b)(3)

Compliance with this regulation assists, although it does not necessarily ensure, BLM's compliance with FLPMA's duty to prevent unnecessary or undue degradation of public lands and the environment. 43 U.S.C. § 1732(b). Providing even more detail, the BLM's own Land Use Planning Handbook explains that the analysis of alternatives in the draft EIS must

> "… provide adequate information to evaluate the direct, indirect, and cumulative impacts of each alternative in order to determine the best mix of potential planning decisions to achieve the identified goals and objectives (the analysis should also specifically address the attainment, or non-attainment, of Land Health Standards expressed as goals). The assumptions and timeframes used for analysis purposes (such as reasonably foreseeable development scenarios) should be documented."[2]

In order to meet its obligations under NEPA and FLPMA, the BLM must identify an allowable level of emissions for the proposed development that would not cause or contribute to violations of pollution standards in the ambient air or adverse impacts on air quality related values in Class I areas, and identify mitigation measures to achieve those emission levels. NEPA explicitly requires that the EIS for the development "shall include discussions of: (h) Means to mitigate adverse environmental impacts (if not fully covered under § 1502.14(f))." Where "[m]itigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of the action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation." 40 CFR § 1508.20. Furthermore, the requirement of FLPMA to "provide for compliance" with these standards re-enforces the requirement of NEPA that the EIS identify the measures available to BLM to provide for compliance with CAA requirements.

In its EIS analysis, BLM must include all information relevant to reasonably foreseeable significant adverse impacts and must fully justify any incomplete or unavailable information per the requirements of 40 CFR 1502.22.

The BLM has failed to accomplish this in this DEIS. Importantly, all alternative scenarios are shown to violate at least one, if not several of the air quality standards laid out by the CAA and mandated for NEPA projects under FLPMA. Even Alternative C, the conservation alternative, is shown to result in adverse impacts to air quality and air quality related values. Specifically, the DEIS and associated support documents report modeled exceedances of the NO_2 and PM NAAQS, significant deterioration of air quality and numerous visibility impacts. Even more troublesome is the fact that the modeling does not fully evaluate impacts and does not fully disclose the maximum potential impacts. Further, background concentrations understate air quality in the area meaning that the adverse air quality impacts would likely be much worse, in reality, than what is shown in this DEIS.

[2] BLM, "Land Use Planning Handbook," H-1601-1, March 11, 2005, 22.

II. The BLM Must Acknowledge and Address the Existing Air Quality Concerns in the Colorado River Valley and Nearby Impacted Areas

The BLM must acknowledge the existing air quality concerns in the area and recognize that high background levels of air pollutants can mean that even if the activities analyzed in the DEIS will result in only minor increases in certain pollutants, the aggregate level of pollution that could result might have significant detrimental effects on human health and the environment (*e.g.*, visibility and ecosystems).

Background concentrations of ozone and PM in the area are at or exceed the NAAQS and leave virtually no room for additional growth in emissions. Visibility in nearby Class I areas is already impaired. For the BLM to present alternatives for the EIS that allow for growth in the emissions that contribute to these existing air quality concerns is inconsistent with the CAA's goal to protect human health and the environment. These issues must be dealt with in this DEIS by ensuring overall air quality compliance throughout the affected area. Specifically, the BLM must acknowledge and address the areas of concern described in more detail below.

Wintertime Ozone Exceedances Near Oil and Gas Fields Point to a Worsening Problem

The DEIS presents several background concentrations for ozone, ranging from 63 to 72 parts per billion (ppb), in Table 3-1 of the Air Resources Technical Support Document (TSD).[3] These values are reported as the 4th highest maximum 8-hour average concentration averaged over several years, depending on the available data record (*e.g.*, some sites have three years of data while others only have one or two). These background concentrations do not include some of the more recent monitoring activity in the region and may not account for wintertime ozone concentrations.

There is increasing precedence for wintertime ozone problems where oil and gas development occurs in the West. The atmospheric chemistry leading to ozone formation is complex and is highly sensitive to a wide range of factors, including the intensity of sunlight, air temperature and the quantity and chemical composition of the volatile organic compounds (VOC) and nitrogen oxide (NO_x) pollutants that combine in the presence of sunlight to form ozone. Traditionally, elevated ozone levels are thought to be a summertime problem that plagues large urban areas. But recent events that have occurred in rural southwest Wyoming and northeast Utah in wintertime demonstrate this is not always the case. This raises a concern with respect to potential wintertime ozone formation in the CRVFO planning area.

According to a recent study by the National Oceanic and Atmospheric Administration, ozone rapidly formed in southwest Wyoming "when three factors converged: ozone-forming chemicals from the natural gas field, a strong temperature inversion that trapped the chemicals close to the ground, and extensive snow cover, which provided enough

[3] BLM, Final Colorado River Valley Field Office, Resource Management Plan Revision, Air Resources Technical Support Document, Revised August 2011.

reflected sunlight to jump-start the needed chemical reactions."[4] The CRVFO planning area also exhibits these factors needed for ozone formation. First, oil and gas sources in the planning area contribute to pollutant concentrations that have the potential to form ozone. Second, strong temperature inversions are present, in particular where the planning area interacts with the Uinta Basin to the west and the Colorado Plateau Basin to the south with these areas exhibiting a high potential for wintertime meteorological inversions. Finally, given the overall high elevation throughout the planning area, extensive snow cover is persistent in the region during winter months.

In 2008, the State of Wyoming issued three ozone advisories in the winter for the Pinedale region in the Upper Green River Basin. At the time, the Wyoming Department of Environmental Quality said the cause of the elevated ozone levels is probably the area's intensive natural gas development.[5] Since then, the State of Wyoming, BLM and EPA have been coordinating efforts to reduce wintertime ozone concentrations in the area. High wintertime ozone concentrations have resulted in a proposed nonattainment designation for Sublette County. The Uinta Basin in Utah is now experiencing a similar situation of wintertime ozone and PM NAAQS exceedances together with increasing oil and gas development. Ignoring the possibility of wintertime ozone formation in the planning area has the potential to lead to a nonattainment designation, similar to that facing Wyoming and Utah.

The importance of protecting the air quality for those people who live in the region, most importantly for sensitive populations, including children, the elderly and those with respiratory conditions is huge. Exposure to ozone is a serious concern as it can cause or exacerbate respiratory health problems, including shortness of breath, asthma, chest pain and coughing, decreased lung function and even long-term lung damage.[6] According to a recent report by the National Research Council "short-term exposure to current levels of ozone in many areas is likely to contribute to premature deaths".[7]

In 2008, EPA revised the 8-hour ozone standard from 80 ppb to 75 ppb and in January of 2010 proposed even stricter standards, between 60 and 70 ppb.[8] EPA has since decided to continue implementing the 75 ppb standard until the next regularly scheduled regulatory review in 2013 and does not intend to finalize the proposed revisions from 2010.[9] The Clean Air Scientific Advisory Committee's (CASAC) —appointed by the Administrator to recommend revisions to the existing standards, per section 109(d)(2) of the Clean Air

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[4] See NOAA's press release at http://www.noaanews.noaa.gov/stories2009/20090118_ozone.html, January 18, 2009 for Schnell, R.C., et al. 2009. Rapid photochemical production of ozone at high concentrations in a rural site during winter. *Nature Geoscience* 1-3 (January 18, 2009), http://www.nature.com/naturegeoscience.

[5] As reported in the Billings Gazette in 2008.

[6] See EPA's National Ambient Air Quality Standards for Particulates and Ozone, 62 FR 38,856 (July 18, 1997).

[7] http://www.nationalacademies.org/morenews/20080422.html

[8] *See* 73 FR 16436, Effective May 27, 2008 and 75 FR 2938, January 19, 2010.

[9] Note, the 2008 standard is currently under legal challenge. *See*, September 22, 2011, EPA Memo, Implementation of the Ozone National Air Quality Standard, http://www.epa.gov/ozonepollution/pdfs/OzoneMemo9-22-11.pdf

Act—recommended in 2008 that EPA substantially lower the 8-hour standard. At that time the EPA did not abide by the committees recommendations. Specifically, the CASAC put forth a unanimous recommendation to lower the 8-hour standard from 80 ppb to somewhere between 60-70 ppb.[10] The committee concluded that there is no scientific justification for retaining the current 8-hour standard and that the EPA needs to substantially reduce the primary 8-hour standard to protect human health, especially in sensitive populations. So, even ozone concentrations at levels as low as 60 ppb can be considered harmful to human health and the BLM should consider this when evaluating the air impacts in the DEIS, including by considering, in detail, an alternative in the DEIS pursuant to NEPA that would constrain emissions within the 60-70ppb range established by the CASAC, regardless of what EPA eventually chooses to do as BLM has a duty, independent of the CAA, to protect public health and the environment.

In addition to the human health effects, ozone pollution can cause adverse effects to the physical environment. Ozone is absorbed by plants and can cause leaf discoloration, reduced photosynthesis, and reduced growth as well as make plants more susceptible to disease, pests and environmental stresses.[11] Ozone effects on trees are thought to accumulate over time such that whole forests or ecosystems can be affected. A National Park Service analysis of ozone data from 1992-present in Canyonlands National Park found that ozone concentrations have significantly increased in the park and that observed concentrations are at a level that could produce effects on certain species under certain conditions.[12] According to the National Park Service, it is likely that ozone concentrations in Arches National Park are similar.[13] Canyonlands and Arches National Parks are home to several plant species known to be sensitive to ozone - Amelanchier alnifolia, Pinus ponderosa, Populus tremuloides and Rhus trilobata. Many plant species have been identified by the Federal Land Managers as being sensitive to ozone pollution, include subalpine fir, trembling aspen, and huckleberry in the Flat Tops Wilderness Area.[14]

Recent data from ozone monitors in the region indicate that ozone levels are already exceeding the NAAQS of 75 ppb on some days, by a considerable margin.[15] Specifically, the newly established monitors in Meeker and Rangely have recorded maximum 8-hour average ozone concentrations close to and exceeding the NAAQS with a maximum 8-

[10] EPA-CASAC-LTR-07-001, Clean Air Scientific Advisory Committee's (CASAC) Peer Review of the Agency's 2nd Draft Ozone Staff Paper, October 24, 2006.
[11] As discussed in U.S. National Park Service, Air Quality in Our National Parks, 2002, Chapter 2.
[12] See http://www2.nature.nps.gov/air/Permits/ARIS/cany/
[13] See http://www.nature.nps.gov/air/Permits/ARIS/arch/?CFID=10150473&CFTOKEN=83478653
[14] See Appendix 3.A of the Federal Land Manager's Air Quality Related Values Workgroup Phase I Report, December 2000 (FLAG guidance).
[15] While some of these data were collected at monitors that technically cannot [yet] be used to determine attainment status for the NAAQS they are Federal Equivalent Method monitors and the data are considered viable and representative of the area. According to the DEIS. "[a]lthough the stations [in Rangely and Meeker] were intentionally set up so that the data could be used for regulatory purposes by CDPHE, the data have not yet been subjected to quality assurance and quality control (QA/QC) and cannot at the time of this printing be used for regulatory determinations. Therefore, the data are provided for information purposes only."

hour average wintertime concentration recorded in February 2011 in Rangely of 88 ppb.[16] The ozone monitors in Rifle and Palisade also recorded maximum 8-hour average concentrations that exceeded the NAAQS in 2008.[17] The DEIS also reports ozone concentrations as high as 87 ppb in Gothic from 2006.[18] While the Rangely and Meeker monitors have not been operational long enough to be able to determine the area's attainment status with regard to the ozone NAAQS, background concentrations in the area must account for these monitored exceedances and must be based on the maximum monitored concentrations.

The determination of background concentrations does not require the use of three years worth of data, as with an attainment demonstration. *See* 40 CFR Part 51, Appendix W, Section 9.2.[19] The concentration to be used as reflective of background should be determined based on the use of the maximum concentration, as this is the best way to ensure public health protection. Monitoring data do not capture the maximum potential emissions from sources impacting background concentrations and are therefore already less conservative than a modeling analysis of background concentrations that accounts for all sources during maximum operating scenarios. For this reason, using something less than the maximum monitored concentration does not allow for a conservative enough assessment of representative background concentrations in a given area.

All of the ozone monitors in the area have recorded 8-hour average concentrations that exceed the lower end of the range (60 ppb) identified by CASAC as harmful to human health. Namely, all of the background concentrations identified in Table 3-1 of the DEIS for ozone exceed 60 ppb.

Just west of the planning area in northeastern Utah, maximum recorded wintertime ozone values at monitors in Ouray and Redwash in 2010 were as high as 123 ppb. The 4th highest maximum 8-hour average ozone concentration at these monitors in 2010 was 116 ppb, with a full 68 days recording 8-hour average concentrations of 75 ppb or greater and 135 days recording 8-hour average concentrations of 60 ppb or greater.[20] According to the recent draft Gasco development EIS in this area:

> Based on the emission inventories developed for Uintah County, the likely dominant source of ozone precursors at the Ouray and Redwash monitoring sites are oil and gas operations near the monitors. The monitors are located in remote areas where impacts from other human activities are unlikely to be significantly contributing to this ozone formation. Although ozone precursors can be transported large distances, the meteorological conditions under which this cold pool ozone formation is occurring tend to preclude any significant transport.

[16] EPA AirExplorer, Rangely, CO, Monitoring ID 08-103-0006, Annual monitoring report for 2011, First maximum value.
[17] EPA AirExplorer, Rifle, CO, Monitoring ID 08-045-0012, Annual monitoring report for 2008, First maximum value = 76 ppb and Palisade, CO, Monitoring ID 08-077-0020, Annual monitoring report for 2008, First maximum value = 77 ppb.
[18] BLM TSD Table 5-6 at 5-25.
[19] 70 FR 68218, November 9, 2005.
[20] EPA Air Explorer, 2010. http://www.epa.gov/airexplorer/

> Currently, ozone exceedences in this area are confined to the winter months during periods of intense surface inversions and low mixing heights.[21]

According to EPA, the high ozone concentrations recently monitored in Rangely may be related to the Uinta Basin air quality issues because the Rangely area "basically sits on the [Uinta] basin's eastern end".[22]

Given the fact that there is very little wintertime ozone monitoring data in the CRVFO planning area and what little data have been collected to date show that elevated ozone concentrations are present, it is critical that the BLM not proceed without implementing further mitigation measures to prevent a similar situation to that in Utah and Wyoming where wintertime ozone concentrations near oil and gas development have caused regular and considerable exceedances of the ozone NAAQS.

The ozone monitors in Dinosaur National Monument and Colorado National Monument have not recorded exceedances of the NAAQS, however, these portable monitors only operate May through September and therefore cannot detect wintertime ozone concentrations. Also, the United States Forest Service (USFS) monitors at Ripple Creek Pass and Sunlight only operate from June to August.[23] It is critical that BLM consider all available data from year-round monitors.

Essentially, there is no room for growth in emissions that contribute to these harmful levels of ozone pollution in the area - namely, NO_x and VOC. Yet, in the preferred alternative BLM is contemplating a total of 11,000 additional wells in the area, adding over 1,250 tons per year of VOC emissions and 60 tons per year of NO_x emissions (excluding Roan Plateau sources).[24]

Any increase in emissions of ozone precursors will exacerbate the negative health effects of ozone in the region and is almost certain to cause significant health-based impacts when considering the CASAC recommendations. The BLM must establish strict and enforceable, state-of-the-art mitigation measures that essentially do not allow for growth in NO_x and VOC emissions in the area in order to protect human health and to avoid future violations of the ozone NAAQS. These mitigation measures should be considered, in details, as alternatives in the DEIS pursuant to NEPA. In order to protect human health and to fulfill its responsibility to provide for compliance with the ozone standard in this DEIS, the BLM must ensure that this value does not increase further and instead make a plan within this DEIS to keep ozone below harmful levels. Accordingly, the BLM should fully consider the CASAC recommendations when evaluating the human health impacts from ozone concentrations in the region and consider, in detail, alternatives in the DEIS

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[21] Gasco Draft EIS at 3-13, available online at http://www.blm.gov/ut/st/en/fo/vernal/planning/nepa_/gasco_energy_eis.html
[22] Grand Junction Daily Sentinel, 'Big-City' Ozone Goes Rural, March 24, 2011, http://www.gjsentinel.com/news/articles/bigcity_ozone_goes_rural/
[23] See, *e.g.*, BLM DEIS at 5-44.
[24] BLM TSD Table 2-6 at 2-15.

to prevent emissions from rising above not only the ozone NAAQS, but the CASAC's science-based 60-70ppb threshold.

Since the modeling performed for the DEIS does not simulate wintertime ozone it is even more critical that the BLM use a background concentration that reflects the higher concentrations of ozone seen during these wintertime inversion events.

In Wyoming, the BLM is partnering with cooperating agencies, operators, the environmental community and the public to implement an Adaptive Environmental Management (AEM) process.[25] This process will, among other things, include mechanisms for continual monitoring and assessment of impacts by periodically reviewing mitigation measure effectiveness, validating predictive models with field observations and impact monitoring and then making necessary adjustments to mitigation measures, as needed. Due to increasingly high ozone levels in northwest New Mexico, the Farmington, New Mexico RMP developed a strategy in which the BLM joined with other air quality control agencies in the area to create the Four Corners Ozone Task Force. The goal of this task force is to develop a plan that would prevent ozone levels from violating the standard.[26] Those efforts culminated in a report that lays out voluntary mitigation options for power plants, oil and gas sources and other major sources of emissions in the area.[27] In addition, a technical work group on San Juan County ozone action will be initiated if ozone levels in San Juan County exceed 95% of the federal ozone standard. The BLM should consider taking similar cooperative steps in the CRVFO and revise the EIS to reflect the outcomes from any such stakeholder process.

Particulate Matter Emissions in the Area are High

The DEIS presents background concentrations for particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$) from monitors in Rifle and Grand Junction, respectively, in Table 3-1 of the TSD. The background concentrations for PM are based on recommendations from the Colorado Department of Public Health and Environment's Air Pollution Control Division (CDPHE-APCD) in 2008.[28] The PM_{10} background concentration is based on the second maximum 24-hour average concentration monitored in 2006 in Rifle of 56 micrograms per cubic meter ($\mu g/m^3$). The $PM_{2.5}$ background concentration is based on the 98th percentile of the multi-year average of data from 2003 to 2006 in Grand Junction and is reported as 24 $\mu g/m^3$. These data do not reflect more recent PM monitoring data from the area. Specifically, PM_{10} monitoring data since 2008 from Parachute, Clifton, Grand Junction, Crested Butte, Mount Crested Butte and Delta all show significantly higher background concentrations. The following table summarizes these additional PM_{10} data:

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[25] *See* Pinedale Anticline FRMP, Appendix C, Adaptive Environmental Management Process, available online at http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/pfodocs/anticline.Par.6236.File.dat/017app-c.pdf

[26] See http://www.nmenv.state.nm.us/aqb/4C/index.html

[27] See http://www.nmenv.state.nm.us/aqb/4C/index.html

[28] BLM TSD Table 3-1, Footnote a.

PM_{10} Monitoring Data (Source: EPA AirExplorer)

Site	ID	Monitor Notes[1]	Year	1st High PM_{10} 24hr [$\mu g/m^3$][2]	2nd High $PM_{2.5}$ 24hr [$\mu g/m^3$][2]
Parachute	08-045-0005	FRM Other	2008	178 LC	118 LC
Parachute	08-045-0005	FRM Other	2009	77 LC	64 LC
Parachute	08-045-0005	FRM Other	2010	107 LC	49 LC
Parachute	08-045-0005	FRM Other	2011	85 LC	63 LC
Clifton	08-077-0019	FRM Special Purpose	2008	125 STP	96 STP
Clifton	08-077-0019	FRM Special Purpose	2009	147 STP	122 STP
Clifton	08-077-0019	FRM Special Purpose	2010	163 LC	75 STP
Clifton	08-077-0019	FRM Special Purpose	2011	60 STP	54 STP
Grand Jct	08-077-0017	FRM SLAMS	2008	116 STP	103 STP
Grand Jct	08-077-0017	FRM SLAMS	2009	68 STP	61 STP
Grand Jct	08-077-0017	FRM SLAMS	2010	132 LC	64 STP
Grand Jct	08-077-0017	FRM SLAMS	2011	41 STP	37 STP
Grand Jct	08-077-0018	FRM SLAMS	2008	149 STP	110 STP
Grand Jct	08-077-0018	FRM SLAMS	2009	130 STP	80 STP
Grand Jct	08-077-0018	FRM SLAMS	2010	171 STP	131 STP
Grand Jct	08-077-0018	FRM SLAMS	2011	90 STP	45 STP
Mt Crested Butte	08-051-0007	FRM SLAMS	2008	102 STP	64 STP
Mt Crested Butte	08-051-0007	FRM SLAMS	2009	93 STP	81 STP
Mt Crested Butte	08-051-0007	FRM SLAMS	2010	168 STP	123 STP
Mt Crested Butte	08-051-0007	FRM SLAMS	2011	65 STP	62 STP
Crested Butte	08-051-0004	FRM SLAMS	2008	108 STP	99 STP
Crested Butte	08-051-0004	FRM SLAMS	2009	103 STP	86 STP
Crested Butte	08-051-0004	FRM SLAMS	2010	174 STP	87 STP
Crested Butte	08-051-0004	FRM SLAMS	2011	77 STP	74 STP
Delta	08-029-0004	FRM SLAMS	2008	92 STP	64 STP
Delta	08-029-0004	FRM SLAMS	2009	165 LC	114 STP
Delta	08-029-0004	FRM SLAMS	2010	125 STP	115 STP
Delta	08-029-0004	FRM SLAMS	2011	51 STP	44 STP

TABLE NOTES:

[1] Monitor notes include information on whether or not the monitor is a Federal Reference Monitor (FRM), the owner, if other than CDPHE (*e.g.*, National Park Service (NPS)), and the monitor type (*e.g.*, state and local air monitoring stations (SLAMS), etc.).

[2] STP indicates standard temperature and pressure, LC indicates local conditions

The above table shows that more recent PM_{10} background monitoring data are higher than what was used in the DEIS. In fact, all of the monitoring locations in the summary table have recorded second high PM_{10} concentrations higher than the value of 56 $\mu g/m^3$ used in the DEIS. Each location has a second high value greater than 99 $\mu g/m^3$ with the highest second high value recorded in Grand Junction in 2010 of 131 $\mu g/m^3$, which is over two times higher than the background concentration used in the DEIS. According to EPA data, the monitors in Parachute (08-045-0005) and Grand Junction (08-077-0017)

are considered "violating monitors in areas not previously designated as non-attainment for the PM_{10} standard".[29]

For $PM_{2.5}$, more recent monitoring data from Grand Junction indicate that the background concentration of 24 $\mu g/m^3$ used for the DEIS (that is based on 2003-2006 data from Grand Junction) may be too low. In 2009 and 2010, the first high 24-hour average concentrations in Grand Junction were 59.1 $\mu g/m^3$ and 43.3 $\mu g/m^3$, respectively. These concentrations both exceed the 24-hour average NAAQS value of 35 $\mu g/m^3$. Even the 98th percentile 24-hour average concentration for these monitors—41 $\mu g/m^3$ and 37.3 $\mu g/m^3$, respectively—both still exceed the 24-hour NAAQS. Both of these concentrations were observed in wintertime (January).

In addition to wintertime ozone, wintertime PM is a growing concern near oil and gas development. In oil and gas development areas in northeast Utah, air quality monitors have monitored several exceedances of the 24-hour average $PM_{2.5}$ NAAQS. A monitor in Vernal, Utah was operated by the Utah Department of Air Quality (UDAQ) from December 2006 through mid-December 2007 and recorded several very high values of $PM_{2.5}$ during that time, including six exceedances of the 24-hour $PM_{2.5}$ NAAQS and a maximum 24-hour average $PM_{2.5}$ concentration of 63 $\mu g/m^3$.[30] UDAQ collected additional $PM_{2.5}$ data in Vernal and Roosevelt from January 21, 2009 through March 5, 2009.[31] During that time, there were three recorded exceedances of the 24-hour average $PM_{2.5}$ NAAQS in Roosevelt with 24-hour average concentrations reaching 42 $\mu g/m^3$ and four recorded exceedances in Vernal with 24-hour average concentrations as high as 60.9 $\mu g/m^3$.[32]

Speciation studies completed on the samples collected in 2009 in Vernal and Roosevelt found that the sources that contribute to the high concentrations (organic and elemental carbon sources) are different than those seen in the urban areas of the Wasatch Front (mostly ammonium nitrate from combustion sources (NO_x)).[33] And while the Uinta Basin concentrations were determined to have a large fraction of carbon, it is unknown how much of this comes from wood smoke (elemental) versus other (organic) sources (*e.g.*, VOC emissions from oil and gas, etc.). In fact, the speciation studies were inconclusive in determining the ratio of elemental carbon to organic carbon and therefore it is not possible to determine the specific types of sources contributing to the high values in the area. One thing that can be said is that the speciation studies did not provide evidence that the $PM_{2.5}$ concentrations were due to something other than oil and gas sources.

BLM must consider the higher background concentrations monitored in Grand Junction

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[29] EPA, Design Value data 2008-2010, http://www.epa.gov/airtrends/values.html
[30] *See* data from the State's "Particulate PM2.5 Data Archive" at http://www.airmonitoring.utah.gov/dataarchive/archpm25.htm ("VL" for Vernal monitor)
[31] September 3, 2009 letter from EPA Region 8 to David Garbett, SUWA, Re $PM_{2.5}$ Monitor in Vernal, Utah.
[32] September 3, 2009 letter from EPA Region 8 to David Garbett, SUWA, Re $PM_{2.5}$ Monitor in Vernal, Utah.
[33] *See* September 3, 2009 letter from EPA Region 8 to David Garbett, SUWA, Re $PM_{2.5}$ Monitor in Vernal, Utah.

in winter as part of the DEIS analysis. The BLM cannot simply ignore the fact that the area is experiencing concentrations of $PM_{2.5}$ that have been shown to exceed the NAAQS in winter. With the large amount of oil and gas development going on in the area it is critical that the BLM use a background concentration that is reflective of the nearby oil and gas sources. According to the EPA's Guideline on Air Quality models, "[b]ackground air quality includes pollutant concentrations due to: (1) Natural sources; (2) nearby sources other than the one(s) currently under consideration; and (3) unidentified sources." See 40 CFR 51, Appendix W, Section 8.2.1.[34]

It is possible that the high concentrations of $PM_{2.5}$ recorded in Grand Junction are due, in part, to the secondary formation of $PM_{2.5}$ (*e.g.*, sulfates and nitrates), as opposed to directly emitted [primary] PM (*e.g.*, road dust and wood smoke). The high values occurred during the wintertime and could potentially be associated with inversions that limit dispersion and provide conditions (*e.g.*, high relative humidity) that contribute to the formation of secondary $PM_{2.5}$ in the atmosphere. Since it is possible that the monitored high values are due to gaseous pollutants that form fine particles after reacting with other compounds in the air during wintertime inversions then it would be very important for the BLM to consider these wintertime $PM_{2.5}$ background concentrations in its air quality impact assessment.

In 2006, EPA lowered the short-term $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ because scientific information showed that the pollutant is a health concern at levels lower than what the previous standard allowed.[35] $PM_{2.5}$ can become lodged deep in the lungs or can enter the blood stream, worsening the health of asthmatics and even causing premature death in people with heart and lung disease. $PM_{2.5}$ is also a major contributor to visibility impairment. See the EPA's staff paper on particulate matter (EPA-452/R-05-005a, December 2005) as well as the EPA's Air Quality Criteria Document for Particulate Matter (EPA/600/P-99/002aF and EPA/600/P-99/002bF, October 2004) for more detailed information on the health effects of $PM_{2.5}$.[36] Even $PM_{2.5}$ concentrations lower than the current NAAQS are a concern for human health. The CASAC, in their letter to the EPA on the revised $PM_{2.5}$ standard, unanimously recommended that the 24-hour $PM_{2.5}$ standard be lowered from 65 $\mu g/m^3$ to 30-35 $\mu g/m^3$ and that the annual standard be lowered from 15 $\mu g/m^3$ to 13-14 $\mu g/m^3$.[37] EPA set the standard on the high end of the CASAC recommended range for the short-term standard and chose not to lower the annual standard at all. In response, CASAC made it clear that their recommendations were based on "clear and convincing scientific evidence" and that the EPA's decision not to lower the annual standard does not provide for "an adequate margin of safety … requisite to protect the public health" as required by the CAA and, furthermore, that their recommendations were "consistent with the mainstream scientific advice that EPA

[34] 70 FR 68218, November 9, 2005.
[35] 71 FR 61144, effective December 18, 2006.
[36] *See* http://www.epa.gov/ttn/naaqs/standards/pm/data/pmstaffpaper_20051221.pdf and http://cfpub2.epa.gov/ncea/cfm/recordisplay.cfm?deid=87903
[37] EPA-CASAC-LTR-06-003, Clean Air Scientific Advisory Committee Recommendations Concerning the Final National Ambient Air Quality Standards for Particulate Matter, September 29, 2006, http://yosemite.epa.gov/sab/SABPRODUCT.NSF/1C69E987731CB775852571FC00499A10/$File/casac-ltr-06-003.pdf

received from virtually every major medical association and public health organization that provided their input to the Agency".[38] This strongly suggests that BLM should consider, in detail, an alternative in the DEIS pursuant to NEPA that constrains 24-hour and annual $PM_{2.5}$ emissions within the ranges identified by the CASAC.

The BLM has an obligation, under NEPA, to evaluate all potential health effects from exposure to increased pollution under the various alternatives of this DEIS. The fact that the EPA has set the $PM_{2.5}$ standards at levels that CASAC asserts is not adequate to protect human health should not limit the BLM to using only EPA's standards. The BLM must assure adequate protection of human health from exposure to $PM_{2.5}$ in the area and could certainly use the CASAC recommendations as a guide for achieving this protection.

Since exceedances of the short-term $PM_{2.5}$ NAAQS have already been observed in the planning area it is imperative that the BLM not allow for growth in the area that will contribute to additional exceedances. Major sources of $PM_{2.5}$ from oil and gas development include products of combustion (*e.g.*, from compressor engines and drill rig engines used during natural gas development) as well as travel on unpaved roads and fugitive dust from construction activities during well development.

The amount of growth allowed under any of the alternatives in this DEIS is cause for great concern with respect to the health effects of an increase in $PM_{2.5}$ levels in the planning area and continued exceedances of the $PM_{2.5}$ NAAQS unless the BLM can assure the public that there will be adequate mitigation of the $PM_{2.5}$ emissions contributing to these exceedances. The BLM's Preferred Alternative (B) proposes to allow an additional 10 tons per year of $PM_{2.5}$ emissions and 66 tons per year of PM_{10} emissions in the area (and 25 tons per year of $PM_{2.5}$ and 177 tons per year of PM_{10} under the Resource Development Alternative (D)).[39] The proposed development certainly has the potential to contribute to future violations of the short-term and annual $PM_{2.5}$ NAAQS, depending on where and when the proposed growth in emissions occurs. PM emissions from small oil and gas development projects have threatened violation of the NAAQS. The Kerr-McGee Bonanza Environmental Assessment in the Vernal Field Office in Utah for just 95 oil and gas wells predicted 24-hr PM_{10} concentrations well above the PM_{10} NAAQS.[40] This is just one example.[41] It is important to note that individual projects, considered in isolation, can threaten compliance with the PM NAAQS. The cumulative impacts of oil and gas development projects anticipated in the

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[38] *Id.*

[39] See Table 2-6 on page 2-15 of the BLM TSD.

[40] October 30, 2006 Kerr McGee Bonanza Environmental Assessment, UT-080-06-240.

[41] The final Enduring Resources Saddletree Draw Leasing and Rock House Development EA in Utah (Rock House EA) for 60 wells predicted $PM_{2.5}$ levels at over 90% of the short-term NAAQS and predicted violations of the PM_{10} Class II increment.[41] Several factors associated with the Rock House EA NAAQS modeling analysis (*e.g.*, the use of background concentrations much lower than what has been observed in the area, modeling of only a subset of emissions, assumptions that were not made enforceable in the EA and no accounting for $PM_{2.5}$ formation from precursor emissions) indicate that in fact the near-field impacts from the Rock House EA development will almost certainly contribute to exceedances of the $PM_{2.5}$ NAAQS in the area.

CRVFO could certainly have an even greater impact on an area's compliance with the NAAQS, depending on where and when the various project emissions occur within the planning area. If the BLM is going to allow for continued growth in oil and gas development in the area it must also establish strict and enforceable measures to control PM emissions (and their precursors) from these sources so that the area will continue to be in attainment of all PM standards.

Visibility and other Air Quality Related Values in Several Class I Areas Are Already Being Impacted by Growth of the Oil and Gas Industry in the Area

The USFS operates two Inter-agency Monitoring of Protected Environments (IMPROVE) monitors to measure visibility conditions at Buffalo Pass (on the south end of the Mount Zirkel Wilderness Area) and at Aspen Mountain Ski Area (east of the Maroon Bells-Snowmass Wilderness). Data from 2004 and older from these monitors are presented in the DEIS.[42]

Several recent modeling analyses performed by the BLM for project-specific EISs, Environmental Assessments (EA) and RMPs assessed visibility impacts in the Class I areas that are also of concern for the CRVFO. Those analyses indicate that visibility in several Class I and sensitive Class II areas is threatened by ongoing development.

The Little Snake RMP showed impacts to visibility at the Black Canyon of the Gunnison (Class I), Mt. Zirkel Wilderness (Class I), Eagles Nest Wilderness (Class I) and Dinosaur National Monument (Class II) areas, when considering a 0.5 deciview (dv) change in visibility.[43]

The BLM's far-field modeling analysis for the West Tavaputs Plateau oil and gas development EIS in Utah indicated that the impacts from project sources alone would result in 87 days above a 1.0 dv change in visibility at Ouray National Wildlife Refuge and 7 days above 1.0 dv at Dinosaur National Monument, both considered sensitive Class II areas. These same areas would see over 156 days and over 53 days above a 0.5 dv change in visibility. Cumulative impact modeling predicted numerous visibility impacts in every single Class I and sensitive Class II area assessed, except three. Many of these areas are the same areas that have the potential to be impacted from the proposed development in the CRVFO: Arches National Park (Class I), Canyonlands National Park (Class I), Flat Tops Wilderness Area (Class I), Maroon Bells-Snowmass Wilderness Area (Class I), Dinosaur National Monument (Class II), Colorado National Monument (Class II), Browns Park National Wildlife Refuge (Class II), Flaming Gorge National Recreation Area (Class II), Ouray National Wildlife Refuge (Class II), Raggeds Wilderness Area (Class II) and the High Uintas Wilderness Area (Class II).[44]

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[42] BLM DEIS at 3-9.
[43] Little Snake Proposed RMP and Final EIS, August 2010, http://www.blm.gov/co/st/en/fo/lsfo/plans/rmp_revision/rmp_docs.html
[44] BLM, West Tavaputs Final EIS, Appendix J, Air Quality Technical Report, Table 6-8, http://www.blm.gov/ut/st/en/fo/price/energy/Oil_Gas/wtp_final_eis.html

Several recently revised RMPs in Utah have identified concerns with visibility impacts from oil and gas development in several Class I areas including Canyonlands National Park. For example, in the September 2007 draft Price RMP the BLM reported that if compressors associated with the oil and gas development in the Price planning area are fueled by natural gas, the standard visual range could be reduced by more than 10% for 2 days at Canyonlands National Park and the standard visual range reduction could range from 5% to 10% for 16 days at Canyonlands National Park.[45] The BLM makes a statement in the Price RMP that "the potential for cumulative visibility impacts (increased regional haze) is a concern" in the area.[46] Similarly, in the October 2007 draft Richfield RMP the BLM says it is particularly concerned with the reduced visibility resulting from increased recreational activities in the area. However, neither of these RMPs (for Price and for Richfield) specify the extent of the visibility issues nor do they analyze the effects of reasonably foreseeable development in the planning areas on visibility in affected Class I areas.

In the final EA for the five oil shale Research Development and Demonstration (RD&D) test sites in the Piceance Basin in Colorado, the BLM showed that there will be significant adverse effects on visibility at the Flat Tops Wilderness Area Class I area when considering all oil shale research projects along with the ExxonMobile Piceance Development Project activities. Specifically, the BLM's analysis predicted there would be greater than a 1.0 dv change in visibility on 13-20 days.[47] Thus, the potential air quality impacts of the oil shale RD&D sites are already quite significant with respect to visibility in the Flat Tops Wilderness Area, which is also predicted to have impacts from the proposed development in the CRVFO planning area.

In all of these cases the visibility impacts predicted by the BLM were likely underestimated due to deficiencies in the emissions inventories as well as assumptions used in the modeling analyses.[48] And while the BLM has used a change of 1.0 dv to

[45] Final Air Quality Baseline and Analysis Report for the Price Resource Management Plan, p. 39.
[46] Final Air Quality Baseline and Analysis Report for the Price Resource Management Plan, p. 25.
[47] *See*, e.g., Shell Oil Shale Research, Development and Demonstration Projects Environmental Assessment (CO-110-2006-117-EA), August 2006 at 150.

[48] *See* August 30, 2006 Comments on Environmental Assessment for EGL Resources, Inc., Oil Shale Research, Development and Demonstration Proposal Tract CO-110-2006-118-EA Regarding Air Quality Impacts (V. Stamper and M. Williams), September 15, 2006 Comments on Environmental Assessment for the Chevron Oil Shale Research, Development and Demonstration Proposal Tract, CO-110-2006-120-EA, Regarding Air Quality Impacts (V. Stamper and M. Williams), September 15, 2006 Comments on Environmental Assessment for the Shell Oil Shale Research, Development and Demonstration Projects, CO-110-2006-117-EA, Regarding Air Quality Impacts (V. Stamper and M. Williams), January 14, 2008 Comments on the Air Quality Analysis for the Supplement to the Draft Price Resource Management Plan Draft Environmental Impact Statement (M. Williams) and January 24, 2008 Comments on the Air Quality Analysis for the Richfield Resource Management Plan Draft Environmental Impact Statement (M. Williams), May 1, 2008 Comments on the Air Quality Analysis for the West Tavaputs Plateau Natural Gas Full Field Development Plan Draft Environmental Impact Statement (M. Williams), November 24, 2008 Comments on the Additional Air Quality Impact Assessment to Support the Little Snake Field Office Draft Resource Management Plan and Environmental Impact Statement, Moffat, Routt, and Rio Blanco Counties, Colorado (M. Williams).

denote visibility impairment in these RMPs, a threshold of 0.5 dv is much more protective of visibility in Class I areas. All of the Federal Land Managers (*i.e.*, those agencies with an affirmative responsibility under the Clean Air Act for protecting the air quality related values of mandatory Class I areas) including the USFS consider a 0.5 dv change to be a Limit of Acceptable Change threshold.[49] Thus the potential impacts to visibility from the ongoing development in the areas impacted by the proposed development are likely even more than those briefly summarized above. This DEIS must fully consider these existing visibility concerns along with the impacts of the increases in air pollutants that contribute to visibility impairment (*e.g.*, sulfates, nitrates, dust, etc.) that will come from the proposed oil and gas development under the various proposed alternatives.

In addition to visibility, other air quality related values (*e.g.*, sulfur and nitrogen deposition) are indicating that there are ecosystem impacts in Class I areas potentially impacted by the proposed development. It is likely that there will be significant impacts on sulfur or nitrogen deposition at the Flat Tops Wilderness Area from the cumulative impacts of the five Colorado oil shale RD&D sites and the ExxonMobile Piceance Development Project activities, depending on the significance criteria used. In the final EAs for the RD&D test sites the BLM used a significance threshold that is much higher than the Class I FLMs "Deposition Analysis Thresholds" used in reviewing air permits under the Clean Air Act.[50] Under the Deposition Analysis Thresholds, the BLM's predicted cumulative impacts on both sulfur and nitrogen deposition would be significant.

All of these existing air quality concerns in the study area must be acknowledged and addressed in this DEIS. The BLM cannot proceed with approving further development in the area without ensuring the public that such development would not further exacerbate the NAAQS exceedances and the visibility impairment as well as other air quality related value impacts in the area.

III. The BLM's Analysis Predicts Significant Air Quality Impacts

The BLM's Air Quality Modeling Analysis Predicts Significant NO_2 Impacts

The BLM's near-field modeling analysis predicted NO_2 concentrations from the proposed oil and gas development scenario based on the more conservative Alternative A emission control parameters for NO_2 (*i.e.*, the least stringent control measures that assume, *e.g.*,

[49] *See* U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2010. Federal land manager's air quality related values workgroup (FLAG) phase I report—revised (2010). Natural Resource Report NPS/NRPC/NRR—2010/232. National Park Service, Denver, Colorado. p. 23.

[50] The maximum total nitrogen deposition at Flat Tops Wilderness Area was predicted to be 0.265 kg/ha-yr and the maximum total sulfur deposition was predicted to be 0.033 kb/ha-yr. The BLM claims these impacts are insignificant based on an acceptability threshold of 3 kg/ha-yr. Final Shell EA at 150. Indeed, these impacts *are* significant when compared to the National Park Service's Class I area "Deposition Analysis Thresholds" of 0.005 kg/ha-yr for both nitrogen and sulfur deposition.

use of Tier 2 drill rig engines). The predicted modeled concentrations were not added to a representative background concentration and compared to the 1-hour NAAQS to determine whether or not the proposed development would result in significant impacts. Instead, the BLM will be determining background concentrations at a future, unidentified, time based on source-specific actions that occur in the future. Specifically, the DEIS states:

> Depending on the level of the 1-hour NO2 background concentration determined to be representative of the CRVFO oil and gas development area, *near-field modeling results for the 1- hour NO2 standard indicate that compliance with the standard may be difficult for some facilities or at some locations.* Determining whether 1-hour NO2 exceedances might occur in the future will largely depend on the following three factors: 1) facility-specific equipment and emissions, 2) site-specific topography, and 3) ambient 1-hour NO2 concentrations at or near the site. Prior to constructing high NO2-emitting facilities, site-specific modeling that demonstrates compliance with the 1-hour NO2 standard will be required by CDPHE and air quality permits will be required for stationary sources whose NO2 emissions exceed permitting thresholds.[51] [*emphasis added*]

The BLM does not specify the permitting thresholds referenced in the DEIS and whether those would be different from existing State permitting thresholds. The DEIS also does not define what constitutes a "high NO_2-emitting facility". Either way, BLM is required under NEPA to analyze and disclose all significant air quality impacts, regardless of whether another agency might address an adverse environmental impact in the future (*e.g.*, the EPA or State). BLM is required under NEPA to satisfy all Clean Air Act requirements, and thus BLM cannot authorize an action unless it has ensured that the NO_2 NAAQS will not be exceeded. Reliance on the State's permitting process cannot be substituted for the BLM's obligations under NEPA to provide for compliance with the NAAQS. The fact that the State has a legal responsibility to assess NAAQS compliance for permitted sources does not mean that BLM is relieved of its responsibilities under NEPA to provide for compliance with CAA requirements and to fully describe the impacts of the proposed development and identify mitigation measures to prevent adverse impacts.

Cumulative far-field modeling predicted maximum 1-hour NO_2 concentrations at Class II receptors on the far west end of the planning area that are significantly above the 1-hour NO_2 NAAQS.[52] According to the DEIS, "[t]he eighth-highest predicted total concentration is approximately 873 µg/m3; this concentration and other high predicted concentrations are largely attributable to [reasonably foreseeable future action] RFFA sources."[53] The DEIS goes on to explain that "[s]pecific siting of future compressor stations will be determined by a variety of factors, including air quality modeling to demonstrate NAAQS compliance."[54] Again, the BLM cannot ignore these significant

[51] BLM TSD at 3-11.
[52] BLM TSD at 4-15.
[53] BLM TSD at 4-15 and Table 4-6 at 4-16.
[54] BLM TSD at 4-15.

modeled impacts by promising future action by state permitting to ensure compliance with the 1-hour NO_2 NAAQS.

The DEIS indicates that the 1-hour average NO_2 background concentration was not added to the modeled concentration for comparison with the NAAQS.[55] Specifically, the DEIS states:

> February 22, 2010 USEPA guidance describes identification of the 3-year average of the eighth-highest modeled concentration on a receptor-by-receptor basis (USEPA 2010c). Inclusion of background concentration is not included in the procedure for comparing AERMOD modeling results with the 1-hour NO2 NAAQS.[56]

It is unclear what BLM means by the above, but it is not acceptable to simply leave out the background concentration when determining compliance with the NAAQS. EPA has issued recent guidance on combining modeled results and monitored background concentrations to determine compliance with the 1-hour NO_2 NAAQS and BLM must adhere to this guidance.[57]

When determining compliance with the 1-hour NO_2 NAAQS, the BLM should add the overall highest hourly representative background concentration to the modeled design value that is based on the form of the standard (*i.e.*, the 98th percentile of the annual distribution of daily maximum 1-hour concentrations averaged across the number of years modeled). According to the EPA's Guideline on Air Quality models, "[b]ackground air quality includes pollutant concentrations due to: (1) Natural sources; (2) nearby sources other than the one(s) currently under consideration; and (3) unidentified sources." See 40 CFR 51, Appendix W, Section 9.2.1. The background concentration is meant to represent natural sources, minor sources and distant major sources that contribute to the existing air quality in the area but that aren't included in the modeling.

The BLM's Air Quality Modeling Analysis Predicts Significant PM Impacts

The DEIS predicts 24-hour average and annual average $PM_{2.5}$ impacts at Class II areas under Alternative D above the NAAQS.[58] The DEIS also predicts maximum cumulative 24-hour average PM_{10} impacts at Class II areas for Alternative A above the NAAQS.[59] According to the DEIS, Alternatives B, C, and D include measures designed to reduce fugitive dust emissions, so total PM_{10} emissions from these Alternatives are less than PM_{10} emissions from Alternative A.[60] The DEIS goes on to identify concentrations above the NAAQS predicted under Alternatives B, C and D outside the CRVFO – *i.e.*, "in an area near the South Taylor Project Mine (located along the border of the White River and

[55] BLM TSD Table 3-5, Footnote b.
[56] BLM TSD Table 3-5, Footnote b
[57] EPA MEMO, "Applicability of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard", June 28, 2010 at 18.
[58] BLM TSD Tables 4-10 and 4-11.
[59] BLM TSD Tables 4-8.
[60] BLM TSD at 4-19.

the Little Snake Field Offices)".[61] These significant PM_{10} impacts cannot be ignored and specifically the impacts predicted under the Agency's Preferred Alternative (B).

According to recent guidance from EPA, demonstrating compliance with the 24-hour $PM_{2.5}$ NAAQS requires the use of the average of the 1st highest modeled 24-hour average concentration over the five meteorological years modeled to be added to the 98th percentile monitored value.[62] The DEIS presents the maximum modeled concentration from the far-field analysis in Table 4-10 of the TSD but then includes a footnote saying that "[c]ompliance with the 24-hour PM2.5 NAAQS is based on the eighth-highest three year average maximum."[63] And Table 3-5 of the TSD presents the modeled concentration for the near-field analysis that is used to compare with the NAAQS as the highest 3-year average of the highest 8th highest concentration (or 98th percentile). According to EPA, "[c]ombining the 98th percentile monitored value with the 98th percentile modeled concentrations for a cumulative impact assessment would result in a value that is below the 98th percentile of the combined cumulative distribution and would therefore not be protective of the NAAQS".[64] The BLM must demonstrate compliance with the 24-hour average $PM_{2.5}$ NAAQS using the average of the 1st highest 24-hour average concentration over the five meteorological years modeled.

The BLM's Air Quality Modeling Analysis Predicts Significant Ozone Impacts

The BLM's ozone modeling analysis predicts significant impacts. The highest modeled 8-hour average maximum daily ozone concentration in the modeled domain is 108 ppb and occurs in Routt County on July 17. The highest modeled 8-hour average maximum daily ozone concentration within the CRVFO is 97 ppb and also occurs on July 17 for all Alternatives.[65] Per the DEIS:

> On some days, absolute predicted concentrations exceed 75 ppb. For reasons stated in Section 5.7.4.2, these predicted concentrations do not indicate a violation of the NAAQS. Additional monitoring data collected in or near the CRVFO are needed in order to determine if high ozone concentrations predicted in the CRVFO during April could cause concern in localized areas. New ozone monitors were installed in Meeker and Rangely during 2010. Although it will take several years for these monitors to acquire enough data to develop [design values], data

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[61] BLM TSD at 4-19.
[62] *See* February 26, 2010 MEMO from Tyler Fox, EPA Air Quality Modeling Group to Erik Snyder, Lead Regional Modeler EPA Region 6, Regarding "Model Clearinghouse Review of Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS", http://www.epa.gov/ttn/scram/guidance/mch/new_mch/MCmemo_Region6_PM25_NAAQS_Compliance.pdf
[63] DEIS Table 4-10, Footnote b.
[64] *See* February 26, 2010 MEMO from Tyler Fox, EPA Air Quality Modeling Group to Erik Snyder, Lead Regional Modeler EPA Region 6, Regarding "Model Clearinghouse Review of Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS" at 2, http://www.epa.gov/ttn/scram/guidance/mch/new_mch/MCmemo_Region6_PM25_NAAQS_Compliance.pdf
[65] BLM TSD at 5-59 and Table 5-19.

> from these monitors can be used to inform management actions in the near term and to better assess ozone compliance over the next three years.[66]

Any modeled exceedance of the ozone NAAQS should be considered a significant impact for the DEIS, regardless of whether there are three years worth of available monitoring data for use in determining the area's official attainment status under the CAA. And, as discussed earlier, since concentrations below the NAAQS are known to pose health threats, BLM should consider lower concentrations as potentially significant impacts. The BLM has a basic obligation under NEPA to "provide full and fair discussion of significant environmental impacts", where in evaluating the significance of the impact, the responsible official must consider "[t]he degree to which the proposed action affects public health or safety." See 40 CFR §§ 1502.1 and 1508.27(b)(2).

In addition to the fact that the model predicted significant ozone exceedances, the model was shown to under-predict concentrations in some situations and, specifically, on the highest concentration days. The DEIS states:

> The model tends to under-predict ozone during July. As described in the MPE Report (BLM- URS 2009), the model under-predicted ozone on July 17 at the Gothic and Dinosaur NM monitors.[67]

Also, it is extremely important to point out that none of the modeling performed for the DEIS accounts for wintertime ozone formation. According to the DEIS, "[w]inter months generally show poorer model performance, particularly from December through February".[68] While the DEIS does acknowledge that high winter ozone concentrations have been monitored in some oil and gas areas in Wyoming and Utah, ozone modeling for the DEIS was only performed during April and July.[69]

The DEIS presents an ozone analysis that shows incremental ozone impacts from the proposed project. According to the DEIS:

> The greatest ozone concentration increases due to Project emissions for each of the modeled episodes is 2 ppb occurring on April 19, 20, 21, and 26 (with the greatest extent on April 20) and 5 ppb occurring on July 14 (Figure 5-15). For both episodes, the maximum increases occur within the CRVFO area.[70]

Modeled results must be evaluated with care given the fact that: (1) the model performance evaluation showed some under-prediction in certain situations; and (2) none of the modeling accounts for wintertime ozone conditions. Given the likelihood that modeled concentrations may, in fact, under-predict ozone impacts and the fact that there have been recent ozone exceedances in the area, the DEIS must contain enforceable VOC

[66] BLM TSD at 5-77.
[67] BLM TSD 5-60. See also TSD 5-69.
[68] BLM TSD at 5-11.
[69] BLM TSD at 5-11
[70] BLM TSD at 5-51.

and NO_x mitigation measures in the DEIS that ensure modeled ozone concentrations do not result in exceedances of the NAAQS at all modeled receptors in the region.

The BLM's Air Quality Modeling Analysis Predicts Significant Visibility and Ecosystem Impacts

The BLM's far-field direct project and cumulative impact analyses at Class I and sensitive Class II areas show significant visibility impacts. Specifically, the BLM's far-field modeling indicates that project impacts alone will result in one day above a 1.0 dv change in visibility at Flat Tops Wilderness Area (Class I) and at Big Mountain View (Colorado Scenic View). Project sources alone are predicted to result in up to 69 days above 1.0 dv at the Roan Cliffs View (Colorado Scenic View).[71] These same areas would see cumulative impacts that result in a change in visibility over 68 days (Flat Tops Wilderness Area), over 208 days (Big Mountain View) and over 350 days (Roan Cliffs View) as well as an additional 7-209 days at *every single one* of the remaining Class I and sensitive Class II areas.[72] These visibility impacts must be addressed in the DEIS.

Further, the BLM should rely on a 0.5 dv change as defining whether there would be significant visibility impacts at the Class I area receptors. Again, since all of the Federal Land Managers consider a 0.5 dv change to be a Limit of Acceptable Change threshold the BLM must base its decisions on this threshold.[73] Project sources alone are predicted to result in 4 days above 0.5 dv at Flat Tops Wilderness Area (Class I) and 13 and 157 days at Big Mountain View and Roan Cliffs View, respectively.[74] The DEIS does not present modeling results for days of visibility change greater than 0.5 dv from cumulative sources but suffice it to say that all areas would show significant impacts at this threshold considering all areas showed significant impacts at a less conservative threshold of 1.0 dv change.

Since FLPMA requires that the BLM provide for compliance with CAA requirements the BLM must not authorize the proposed development if it will cause or contribute to adverse impacts on visibility. The DEIS fails to provide an adequate mitigation scenario that would remedy the adverse visibility impacts predicted for Class I and sensitive Class II areas. This is necessary to meet BLM's obligation under NEPA to ensure the professional and scientific integrity of the DEIS, as well as its obligations under the Clean Air Act to not only prevent future impairment of visibility, but to also remedy existing impairment. See 40 CFR 1502.24, 42 U.S.C. 7491(a)(1).

The deposition impact assessment shows nitrogen and sulfur deposition from CRVFO BLM sources at certain Class I and sensitive Class II areas that could be considered significant, depending on the significance criteria used. The BLM should consider

[71] BLM TSD Table 4-18.
[72] BLM TSD Table 4-18.
[73] *See* U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2010. Federal land manager's air quality related values workgroup (FLAG) phase I report—revised (2010). Natural Resource Report NPS/NRPC/NRR—2010/232. National Park Service, Denver, Colorado. p. 23.
[74] BLM TSD Tables G-16 and G-18.

impacts significant when compared to the National Park Service's Class I area "Deposition Analysis Thresholds" of 0.005 kg/ha-yr for both nitrogen and sulfur deposition. Using the Deposition Analysis Thresholds, the DEIS predicts significant impacts on nitrogen deposition at the Flat Tops Wilderness Area (Class I) and the Maroon Bells-Snowmass Wilderness Area (Class I).[75]

The BLM's Air Quality Modeling Analysis Does Not Assure the Prevention of Significant Deterioration of Air Quality

The BLM has not properly analyzed whether the proposed plan will prevent significant deterioration (PSD) of air quality, as required by the Clean Air Act. The BLM must complete an analysis to determine how much of the incremental amount of air pollution allowed in clean air areas (*i.e.*, PSD increment) has already been consumed in the affected area and how much additional increment consumption will occur due to the proposed development. Without this analysis, the BLM is not adequately ensuring that air quality will not deteriorate more than allowed under the CAA. However, even without the proper analysis (one that looks at the impact of *all* increment consuming and increment expanding sources in the area in addition to the proposed action sources), the BLM's analysis shows that modeled concentrations from project sources alone exceed the allowable 24-hour average PM_{10} increment.[76] This PSD increment will, therefore, also be exceeded when considering all other increment consuming sources in the area that impact the same area impacted by the project sources.

In addition, cumulative pollutant concentrations were shown to exceed the following Class II increments and must be further evaluated with a proper increment consumption analysis – one that includes all increment-affecting sources:

(1) The maximum annual NO_2 cumulative impact at Class II areas under Alternatives C and D is predicted to exceed the PSD Class II increment;
(2) The maximum 24-hour average PM_{10} cumulative impact at Class II areas under Alternative A is predicted to exceed the PSD increment;
(3) The maximum 24-hour average $PM_{2.5}$ cumulative impact at Class II areas under Alternative D is predicted to exceed the PSD Class II increment; and
(4) The maximum annual average $PM_{2.5}$ cumulative impact at Class II areas under Alternative D is predicted to exceed the PSD Class II increment.[77]

The DEIS says that EPA has not yet set the $PM_{2.5}$ increments, however, EPA did just recently finalize the Agency's proposed $PM_{2.5}$ increments, which went into effect on October 20, 2011.[78] The BLM is also stating that the PSD increment demonstrations, in general, are for "informational purposes only, and are not regulatory PSD increment consumption analyses".[79] However, it is the BLM's responsibility to assess PSD

[75] BLM TSD Table G-13.
[76] BLM TSD Table 4-8.
[77] BLM TSD Tables 4-7, 4-8, 4-10, 4-11.
[78] 75 FR 64865, Oct. 20, 2010.
[79] BLM TSD at 1-9.

increment consumption in order to meet its obligations under FLMPA to provide for compliance with all Federal CAA requirements. The BLM must consider the PSD increments as important and legally binding CAA requirements and it must provide for compliance with these requirements in the DEIS. Since emissions from major stationary sources which commenced construction or modification after the applicable "major source baseline date" and emissions increases from minor, area and mobile sources that occurred after the relevant "minor source baseline date" affect the allowable increment, it is impossible to tell how much of the modeled cumulative concentrations consume increment.[80] The correct way to determine compliance with the PSD increments is to complete a modeling analysis of all increment consuming and increment expanding sources that impact the same area impacted by the proposed development. As mentioned above, FLPMA and related regulations specify that all CAA requirements be met in the development of land use plans and subsequent authorizations. The BLM is required to "provide for compliance with" all CAA requirements, and cannot authorize an action that would violate the PSD increments, which are a CAA requirement under Section 163.

IV. The BLM's Near-Field, Far-Field and Cumulative Analyses Likely Under-predict Air Quality Impacts

The BLM's own modeling, as described in the previous section, shows numerous adverse air quality impacts. However, the model inputs and the way in which the BLM performed the modeling analyses are not adequate to fully assess the potential impacts from the proposed development on an area already impacted by industrial growth. The result of the deficiencies in the modeling is that the adverse air quality impacts from the development are almost certainly worse than what is disclosed in the DEIS. The areas of greatest concern are discussed in more detail below.

The Air Quality Modeling for the DEIS Does Not Take into Account the Complex Terrain of the Area

According to the DEIS,

> A variety of terrain is found within the CRVFO's high potential oil and gas development area. High potential development areas in which well pads will be located are mainly in the southwestern area of the Field Office. Most of the current and future oil and gas development is located along the Colorado River valley floor, which is up to several miles wide, or on large, flat- topped mesas and broad secondary valleys along its flanks. This terrain is more reflective of flat terrain than complex terrain. Where oil and gas developments do or could occur in

[80] The major source baseline dates are January 6, 1975 for SO_2 and PM_{10} and February 8, 1988 for NO_2 (40 CFR 52.21(b)(14)(i)). The minor source baseline dates in Colorado differ by pollutant and by [baseline] area and were triggered on the date that a complete PSD permit application was received by the State (or by the EPA for sources proposing to locate in Indian Country). See definitions of "major source baseline date", "minor source baseline date" and "baseline area" in 40 CFR 52.21(b)(14)(i), 52.21(b)(14)(ii) and 52.21(b)(15).

> narrow valleys extending into adjacent uplands, these are typically short and open quickly onto the main valley floor. More rugged terrain farther from the valley floor is overwhelmingly on federal land with no residential receptors.[81]

The modeling assumes flat terrain for all modeled scenarios, even though that may not adequately represent the terrain of some of the oil and gas development areas considered within the planning area. The model would likely show higher ambient pollutant concentrations if the complex terrain of the area were taken into account, which is precisely the reason why the BLM should have made a better attempt to estimate the locations of air pollutant sources considering the topography of the planning area and the expected areas of development. Irregular terrain such as that which exists in certain parts of the planning area can readily result in much higher pollutant concentrations than would occur over flat terrain, when emission plumes impact elevated terrain above a source and/or when the effects of trapping of pollutants can occur. If, as is indicated in the DEIS, it is possible that well pads will be located within areas of complex terrain, then a modeling analysis that assumes flat terrain may underestimate impacts.

The DEIS Likely Underpredicts PM Concentrations

It appears that BLM may have under-represented potential maximum impacts from particulate matter. When considering PM_{10} and $PM_{2.5}$ impacts, BLM found that modeling of Alternative A emissions control scenarios resulted in significant impacts. Specifically, the DEIS explains that:

> For near-field modeling, PM2.5 and PM10 were modeled using emissions representing Alternatives B, C, and D. Because initial near-field modeling results based on Alternative A emissions controls indicated high particulate impacts, AERMOD was re-run based on more stringent PM2.5 and PM10 emissions controls included in the management actions associated with Alternatives B, C, and D.[82]

Therefore, the control measures modeled for the DEIS must be enforceable requirements for all alternatives in any final action taken on resource development in the planning area. Clearly, the fugitive dust control measures from Alternative A (*e.g.,* 50% control of fugitive dust on unpaved roads) are not sufficient to ensure that there will be no significant PM impacts.

In fact, fugitive dust emissions were calculated for Alternative A assuming 50% control efficiency yet there is not a corresponding 50% control requirement listed in the Proposed Air Quality Management Actions in Table 2-3 of the TSD. Alternative A must include a provision for controlling fugitive dust emissions at the level proposed in Alternatives B and C.

[81] BLM TSD at 3-2.
[82] BLM TSD at 3-1.

In addition, fugitive dust emissions from vehicle travel on unpaved roads were only considered during half the year (May – October).[83] The DEIS states that:

> Fugitive dust emissions from unpaved roads were assumed to be insignificant during the cold-weather season when roads are muddy or frozen. The BLM approved using these assumptions for fugitive dust modeling.[84]

Further, the way that the BLM implemented this assumption may result in significant underestimates of the short-term modeled impacts. For example, the inventory shows that PM fugitive dust emissions estimates per well are multiplied by a factor of 0.5, which is labeled as the "Ratio of Months with Frozen or Muddy Roads".[85] Taking the emissions per well and cutting that emission rate in half and then modeling the impact that rate has on ambient concentrations is *not* the same thing as modeling the full fugitive dust emission rate (per well) only during summer months. The 24-hour average PM impacts in summer are, in a sense, based on an annual average emission rate (*i.e.*, one that considers the ratio of months that are frozen and muddy).

It is uncertain if BLM's assumption, in the first place, is defensible. BLM must provide more documentation on the probability that *all* roads in the planning area between the months of May and October will generate "insignificant" fugitive dust emission. It seems reasonable that emissions could be lower in the winter months but to assume they are negligible likely underpredicts actual impacts during the winter. If BLM is going to assume that there are no PM emissions from road dust in the winter then it must model a maximum possible short-term emission rate in summer months and not, as it appears to have done, model an annual average emission rate over the entire year.

Given the concern for wintertime air pollution episodes similar to what is occurring in the Uinta Basin in eastern Utah, it is critical that BLM fully and accurately assess all potential PM emissions from the significant travel on unpaved roads that is associated with oil and gas development, even in winter. Vehicle road dust emissions make up the overwhelming majority of PM emissions from construction and production with PM_{10} and $PM_{2.5}$ emissions from fugitive road dust comprising over 99% of all construction-related PM emissions and over 80% of all operation-related emissions from the proposed development.[86]

Further, it appears that the BLM has not modeled the maximum 24-hour average emission scenario. According to the DEIS:

> The emission source scenario for the PM10 and PM2.5 24-hour averaged models accounted for concurrent construction of two of the four well pads and associated roads while active drilling and completion activities were assumed to occur at the

[83] BLM TSD at 3-6.
[84] BLM TSD at 3-6.
[85] *See*, TSD Appendix A Emissions Inventory, Vehicle Road Dust calculations, *e.g.*, pages A-8, A-11, A-13, A-17, A-19, A-32.
[86] Based on summary inventory data on page A-38 of the TSD Appendix A (Alternative A).

> other two well pads. Emissions associated with each of these activities (e.g., fugitive dust due to light duty truck travel and rig moving) were accounted for in the AERMOD modeling.[87]

In fact, PM emissions during construction are three times higher than PM emissions that occur during production for Alternative A (and two times higher for Alternative B).[88] Therefore, in order to determine maximum short-term PM impacts, BLM should have modeled construction of all four representative well pads.

Finally, BLM must also take into account the particulate matter impacts from the route system it is designating in the DEIS. All of the Alternatives in the DEIS include well over 1,000 miles of motorized routes, with the BLM's Preferred Alternative (B) totaling 1,240 miles.[89] These routes will be a significant contributor to fugitive dust and must be included in BLM's assessment of air quality impacts. To accurately and fully understand the impact of motorized travel on designated routes, the BLM must model the air quality impacts from fugitive dust and tailpipe emissions from travel on the thousand-plus miles of designated routes under the various alternative scenarios in the DEIS.

All of these issues with the PM modeling presented in the DEIS must be addressed in the final EIS and, as mentioned earlier, PM impacts must be assessed using the maximum modeled concentration (not the 98th percentile concentration).

The BLM Must Consider Secondary $PM_{2.5}$ Formation in its Modeling Analyses

The $PM_{2.5}$ modeling conducted by the BLM for the DEIS only considered primary $PM_{2.5}$ (directly emitted from combustion point sources and from fugitive sources). Emissions of NO_x, VOCs, SO_2 and ammonia can form, after emitted into the atmosphere, into $PM_{2.5}$ and this could potentially be a significant component of ambient $PM_{2.5}$ concentrations. Estimates of $PM_{2.5}$ formation from these precursors should also be included in the BLM's modeling analyses.

The fraction of $PM_{2.5}$ concentrations in the ambient air that is due to the secondary formation of $PM_{2.5}$ (*e.g.*, sulfates and nitrates), as opposed to directly emitted [primary] $PM_{2.5}$ (*e.g.*, as a product of combustion) is dependent on many factors. However, the presence of strong temperature inversions that limit dispersion and provide conditions that contribute to the formation of secondary $PM_{2.5}$ in the atmosphere can increase secondary $PM_{2.5}$ formation. Due to the potential for wintertime temperature inversions in the region, the BLM must seriously consider the contribution from secondary $PM_{2.5}$ to total $PM_{2.5}$ concentrations in the area. All of the sources of the primary pollutants that contribute to secondary $PM_{2.5}$ formation—*e.g.*, NO_x, SO_x, VOC and ammonia—from sources in the area should be accounted for in an assessment of $PM_{2.5}$ impacts.

The BLM must address how it will account for secondary $PM_{2.5}$ impacts from the

[87] BLM TSD at 3-6.
[88] BLM TSD Appendix A.
[89] BLM DEIS at ES-17.

proposed project development. EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) provides various resources for modeling the impacts of secondary $PM_{2.5}$. For example, EPA's recently-developed model based on the Community Multi-scale Air Quality (CMAQ) model in support of the development of the $PM_{2.5}$ NAAQS has been shown to "reproduce the results from an individual modeling simulation with little bias or error" and "provides a wide breadth of model outputs, which can be used to develop emissions control scenarios".[90] The Comprehensive Air quality Model with extensions (CAMx) is another tool available to assess secondary $PM_{2.5}$ formation. CAMx has source apportionment capabilities and can assess a wide variety of inert and chemically reactive pollutants, including inorganic and organic $PM_{2.5}$ and PM_{10}. The Regional Modeling System for Aerosols and Deposition (REMSAD) can also model concentrations of both inert and chemically reactive pollutants on a regional scale, "including those processes relevant to regional haze and particulate matter".[91] These are just some examples of current models, identified by EPA, with the capability to assess secondary $PM_{2.5}$ impacts. With adequate testing (using existing regional monitoring data to ensure accuracy) these models could be used in the NEPA context. An alternative to these grid models would be for BLM, in cooperation with EPA, to develop a screening point source model—like CALPUFF—to look at near-field $PM_{2.5}$ primary and secondary impacts.

It is important that the BLM use the available tools to fully assess the impact of emissions from the development project that contribute to secondary $PM_{2.5}$ formation. Resulting $PM_{2.5}$ concentrations will be higher when considering the additional impacts from secondary $PM_{2.5}$. Considering the already high $PM_{2.5}$ concentrations in the area the secondary $PM_{2.5}$ impacts are critical to understanding the best way to mitigate health impacts from fine particle pollution in the project area and throughout the planning area.

The DEIS Does Not Include a Comprehensive Regional Inventory for Use in Determining Existing and Reasonably Foreseeable Cumulative Air Quality Impacts

According to the DEIS, "[t]he CRVFO RFD includes future development on all lands within the CRVFO (including development on the Roan Plateau and on USFS land), regardless of ownership."[92] However, BLM appears to have grossly underestimated future development potential within the CRVFO.

Based on a review of the Reasonably Foreseeable Development (RFD) inventory in the DEIS and the 2008 RFD for the Glenwood Springs Field Office, it is likely that BLM significantly underestimated reasonably foreseeable development potential in the planning area. For example, industry estimates for the 2008 RFD inventory indicate the potential for over 16,000 new coalbed methane wells in the Mesaverde Gas Play alone. Specifically, the 2008 RFD reports the following about the Mesaverde Gas Play:

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[90] *See* Technical Support Document for the Proposed PM NAAQS Rule (available at: http://www.epa.gov/scram001/reports/pmnaaqs_tsd_rsm_all_021606.pdf).
[91] *See* http://remsad.saintl.com/
[92] BLM TSD at 1-2.

> Most of the major oil and gas operators in the [Glenwood Springs Field Office] area are interested in this play. This play includes all production from the Mesaverde Group, including the Corcoran, Cozzette, and Rollins Sandstone Members of the Iles Formation and the Williams Fork Formation. The latter includes the Cameo coal zone. The large majority of the oil and gas reserves within the GSFO are in this play, which extends across all of the high potential area of the GSFO. It is assumed that this play will continue to be developed on 10-acre spacing using multi-well pads. *Industry input has predicted approximately 16,230 wells to be drilled in this play over the life of the Plan Revision*.[93] [*emphasis added*]

The alternatives assessed in the DEIS grossly underestimate the number of wells in the area. Even Alternative D, the maximum resource use alternative, assesses less than 16,000 wells for all BLM and non-BLM sources during the planning period (including all BLM project sources, BLM non-project sources, Roan Plateau sources, non-BLM Federal, State and private sources).[94] And the BLM's Preferred Alternative (B) assesses less than 11,000 wells.[95] Clearly, the BLM has grossly underestimated the number of potential wells in the CRVFO planning area if there is the potential for over 16,000 new coalbed methane wells to be drilled in the Mesaverde gas play, alone. The DEIS must assess all reasonably foreseeable development in the area and must include the Mesaverde gas play along with the other plays identified by industry in the 2008 RFD unless BLM will be specifically limiting the number of new wells to the estimate used in the air quality analysis (*i.e.*, 10,965 wells under Alternative B).[96]

The 2008 RFD for the Glenwood Springs Field Office also projects 9,024 private wells in the planning area over 20 years.[97] And, in fact, BLM accounts for those wells in Alternative D of the DEIS.[98] But, for Alternatives A through C, the DEIS assumes a much smaller number of private wells with, for example, Alternative B including only 6,317 private wells.[99] It is unclear why the number of private wells should vary under the different alternatives given that these wells will not be subject to the requirements of the EIS. This difference in the number of private wells assessed for the DEIS under Alternative B, compared to the number of private wells projected in the 2008 RFD, amounts to over 2,700 wells.[100]

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[93] BLM, Reasonable Foreseeable Development: Oil and Gas in the Glenwood Springs Field Office (GSFO) Administrative Boundary Area, July 31, 2008 at 15.
[94] BLM TSD Table 2-2, 15,664 wells under Alternative D.
[95] BLM TSD Table 2-2, 10,965 wells under Alternative B.
[96] *E.g.,* additional plays identified by industry in the 2008 RFD inventory include the Wasatch gas play, Niobrara gas play, Coalbed Natural gas play (Williams Fork Formation coal zones), and gas plays east of the Grand Hogback. BLM, Reasonable Foreseeable Development: Oil and Gas in the Glenwood Springs Field Office (GSFO) Administrative Boundary Area, July 31, 2008 at 15-17.
[97] BLM, Reasonable Foreseeable Development: Oil and Gas in the Glenwood Springs Field Office (GSFO) Administrative Boundary Area, July 31, 2008, Table 8, p. 38.
[98] BLM TSD Appendix A, p. A-3, where for Alternative D the total number of wells on fee (private) lands – for the Roan Plateau and outside the Roan Plateau – equal 9,024 (i.e., 6,903 + 2,121).
[99] BLM TSD Appendix A, p. A-3, where for Alternative B the total number of wells on fee (private) lands – for the Roan Plateau and outside the Roan Plateau – equal 6,317 (i.e., 4,196 + 2,121).
[100] 9,024 – 6,317 = 2,707 wells less under Alternative B than Alternative D.

Modeling of sources within the CRVFO assumes certain controls that are not required for non-BLM sources. According to the DEIS:

> Alternative A levels of emission control were assumed when calculating emissions for non-BLM sources. As described earlier, Alternative A management actions were based on current practices within the CRVFO. The Alternative A management actions also reference CDPHE and USEPA emission control requirements. Due to less stringent emission controls for some sources, per-well, emissions from certain types of non-BLM CRVFO sources are greater than emissions from similar sources located on non-BLM land based on Alternative B, C, or D scenarios.[101]

And, as mentioned earlier in this section, the modeling for Alternative A resulted in high particulate matter impacts and so BLM modeled Alternative A for the DEIS assuming the implementation of fugitive dust control measures for Alternatives B and C. Therefore, the modeling for the CRVFO non-BLM sources under-predicts potential impacts from these sources, especially for particulate matter.

BLM has also failed to include an analysis of potential impacts from coal mining in the DEIS. Yet BLM is proposing, under Alternatives A, B and D, to open to consideration 28,500 acres of the Federal mineral estate in the CRVFO for coal leasing and, under Alternative C, to open to consideration approximately 17,900 acres of the Federal mineral estate.[102] According to the DEIS,

> Since coal management was not identified as an issue of concern during the scoping process for air quality impact analysis, and since the CRVFO determined that the relative contribution of emissions associated with this activity were de minimis, emission from this activity were not calculated in the emissions inventory. If and when these activities are proposed for implementation under this RMP, and if air quality is determined to be an issue of concern during the NEPA analysis process, then an appropriate air quality analysis would be conducted at that time.[103]

If BLM will be allowing for the possibility of coal mining activities under the RMP then BLM must include an assessment of the potential air quality impacts from those activities as part of this EIS process. BLM must analyze, in particular, the potential PM_{10}, $PM_{2.5}$ and NO_x impacts from coal mining operations, including the impacts associated with the transport of the coal after it is mined.

In addition to a comprehensive emissions inventory of the various development and operation sources anticipated under the proposed development, BLM must also prepare an inventory of all air pollution sources expected to impact the same areas impacted by

[101] BLM TSD at 2-16.
[102] BLM DEIS at 2-90.
[103] BLM DEIS at 4-25.

emissions from the proposed development. These sources include any State- and Federal-permitted sources, any state Oil and Gas Conservation Commission permitted wells as well as all reasonably foreseeable development sources (*e.g.*, other NEPA projects, proposed major sources, etc.). The BLM must include all emissions from NEPA projects and RMPs in other areas in Colorado and Utah that could be impacting the same area as the impacted area of the proposed development under the CRVFO DEIS. The remaining development in any NEPA-approved projects in the impact area must be included in the RFD inventory.

Section 2.3.10 of the TSD reviews the RFD emissions inventory for "Other Field Offices", including the Little Snake, White River and Vernal Field planning areas.[104] BLM must assume the worst-case impacts to air quality from the surrounding planning areas that have not yet finalized updates to their RMPs. For example, the far-field modeling assumes four different cumulative modeling scenarios that pair a CRVFO Alternative with a "similar" White River Field Office Alternative.[105] Specifically, the TSD summarizes the following pairings[106]:

- Alternative A: CRVFO Alternative A with WRFO Alternative A
- Alternative B: CRVFO Alternative B/C with WRFO Alternative B
- Alternative C: CRVFO Alternative B/C with WRFO Alternative C
- Alternative D: CRVFO Alternative D with WRFO Alternative D

Since the White River Field Office has not finalized a specific Alternative yet, BLM must model impacts based on the Alternative that results in the worst-case air quality impacts for the DEIS, not on the Alternative that is the most similar to the corresponding CRVFO Alternative.

The RFD inventory must also include the proposed development for the other adjacent planning areas, in addition to the Little Snake, White River and Vernal planning areas. The Kremmling, Uncompahgre, and Grand Junction field offices are all working on updates to RMPs with the Kremmling office's plan already out for public review and the Uncompahgre and Grand Junction plans scheduled to be released for public comment within the next year. These neighboring planning areas impact many of the same Class I areas as the CRV planning area (*e.g.*, Mt. Zirkel Wilderness Area, Flat Tops Wilderness Area, Eagles Nest Wilderness Area, Black Canyon of the Gunnison National Park and Wilderness Area, West Elk Wildereness Area and Maroon Bells-Snowmass Wilderenss Area, etc.) and therefore the proposed development in these planning areas must be included in the RFD inventory and cumulative modeling, even if the plans have not been officially proposed yet.

As an important note, BLM must ensure that all of the RMPs that were updated under the 2008 Final Programmatic EIS for oil shale and tar sands leasing and that impact the planning area (as well as the areas outside the planning area that are impacted by growth

[104] BLM TSD at 2-17 – 2-18.
[105] BLM TSD at 4-13.
[106] BLM TSD at 4-13.

in the planning area) are fully considered in the RFD inventory and that RFD information for the upcoming PEIS update for oil shale and tar sands development (expected in 2012) is included as information becomes available.[107] This would include, for example, the additional electrical power needs for in-situ oil shale production. Under the 2008 PEIS, BLM assumed that a combination of construction of new power plants and expansion of existing power plants would occur and that future in-situ projects would require somewhere around 2,400 megawatts (MW) of additional electricity generation capacity when commercial production levels of 200,000 barrels of oil shale per day are reached.[108] BLM must ensure that the air quality impacts from potential oil shale development in the region are fully considered in the DEIS.

Further, the DEIS must include the most recent estimates for development potential for the Roan Plateau. The DEIS RFD inventory is based on development estimates for the Roan Plateau that suggest that BLM is not considering more recent industry estimates for up to 3,200 wells atop the Roan Plateau.[109] Specifically, Table 2-2 of the TSD shows 1,570 wells that are considered "BLM (Non-Project, Roan Plateau)" wells. This number matches the total number of wells estimated atop the Plateau and below the Cliffs in the final EIS for the Roan Plateau and only accounts for 210 wells atop the Plateau.[110] The leases sold to date for the Roan Plateau do not limit drilling to a specific number of wells and, therefore, the RFD inventory must fully assess the 3,200 wells possible atop the Plateau.

Accounting for the additional 3,000 wells atop the Roan Plateau, plus the 2,700 private wells that are not included under Alternative B (but that are projected in the 2008 RFD), the air analysis appears to underestimate Alternative B by 5,700 wells – more than 50 percent of the 10,965 wells projected under Alternative B in the DEIS.[111]

The reasonably foreseeable future actions (RFFA) inventory in the DEIS includes sources located within the far-field modeling domain that were not reflected in monitored background concentrations and, generally, includes sources from Colorado and Utah state inventories that added emissions to the region between 2006 and 2007.[112] Specifically, the TSD states:

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[107] In 2008, the BLM published a Final PEIS that amended 12 resource management plans in Utah, Colorado, and Wyoming to make approximately 2 million acres of public lands potentially available for commercial oil shale leasing and development and 430,000 acres potentially available for tar sands leasing and development. These RMPs included the Glenwood Springs, Grand Junction and White River Field Offices in Colorado; the Moab, Monticello, Price, Richfield and Vernal Field Offices and the Grand Staircase-Escalante National Monument in Utah; and the Kemmerer, Rawlins and Rock Springs Field Offices in Wyoming.

[108] Final PEIS at 4-14. http://ostseis.anl.gov/documents/fpeis/vol1/OSTS_FPEIS_Vol1_Ch4.pdf

[109] *See, e.g.,* Bill Barrett Corporation's statement to investors that there are up to 3,200 potential drilling sites on the Roan Plateau mesa. Reported in the Denver Post, September 2, 2009, Roan Plateau Wells Could Exceed 3,000, and in the Grand Junction Daily Sentinel, August 22, 2009, Barrett May Drill 3,200 Wells Atop Roan Plateau.

[110] BLM Proposed Plan/Final EIS, Roan Plateau Planning Area, August 2006, Table S-2 on page S-10.

[111] BLM TSD, Appendix A, p. A-3.

[112] BLM TSD at 2-18.

> If an existing source began operation before the background monitoring date [*i.e.*, before 2006], this source's emissions were usually assumed to be included in background concentrations and its emissions were not modeled directly. However, if emissions at an existing source increased more than 1 tpy between the years 2006 and 2007 for Colorado and Utah sources, the emissions increases were modeled.[113]

A closer look at the inventory shows that, for oil and gas sources, only emissions from producing wells in Colorado and Utah where the first production occurred between January 1, 2007 and December 31, 2007 were included in the analysis.[114] For all other sources in the inventory it is unclear what the inventoried time period is.[115] Not only must BLM include all sources from 2006, per the description in the TSD, but BLM must include any more-recent sources since 2007, including sources recently permitted or which have recently submitted complete PSD permit applications but which are not yet operating, that will have an impact on the same areas impacted by the proposed development.

BLM must make sure all other reasonably foreseeable development projects within the planning area are fully accounted for, including Williams Production oil and gas EA (DOI-BLM-CO-N040-2011-0001 EA), EnCana Natural Gas EA (DOI-BLM-CO-N040-2010-0092 EA), BLM Colorado State Office oil and gas EA (DOI-BLM-CO-N040-2011-0076 EA), all Master Development Plans in preparation or anticipated, and any others. For example, all of the Master Development Plans for Oil and Gas Development listed in Table 4.1.1-1 of the DEIS (at 4-6 and 4-7) – totaling almost 2,000 wells - must be either included in the baseline analysis or included in the RFD analysis. BLM must also make sure all reasonably foreseeable development projects in nearby planning areas are accounted for such as the Mesa County Dakota oil development project in the Grand Junction Field Office, SG Interests natural gas EA (DOI-BLM-CO-150-2009-0005 EA) and Rimrock Mining and Exploration EAs (DOI-BLM-CO-S050-2011-0032 EA, DOI-BLM-CO-S050-2011-0036 EA, DOI-BLM-CO-S050-2012-0007 EA) in the Uncompahgre Field Office, and the proposed development associated with the second round of oil shale research, development and demonstration projects in the White River planning area.

BLM must consider the impacts from the following development projects in Utah and Wyoming: Greater Natural Buttes oil and gas development project for 3,675 wells, the South Unit project and the Monument Butte project, as well as the Southam Canyon, Big Pack, and Riverbend Infill projects. In addition, the BLM must consider the Greater Deadman Bench Oil and Gas Producing Region (GDBR) EIS and Chapita Wells-Stagecoach Area Natural Gas Development EIS sources – both in the Vernal planning area. Other existing and reasonably foreseeable development projects in the Vernal Field Office and other nearby field offices include: Coastal's proposed development of the

[113] BLM TSD at 2-18.
[114] BLM TSD Appendix C, Table C-5, Footnotes 1 and 2.
[115] *E.g.*, for all other tables in the RFFA inventory (Tables C-1 through C-4), there is no indication of what year(s) the emission rates span.

Ouray Field, North Hill Creek Field Development, modifications to the Antelope Creek Oil and Gas Field Expansion / Infill and Thermal Recovery Projects, Tabby Canyon Oil and Gas Field Development EA, Castle Peak and Eight Mile Flat Oil and Gas Expansion Project EIS, West Brundage Canyon Oil and Gas Field Development EA, West Bonanza and Bonanza Area EAs, Resource Development Group EIS, Sowers Canyon Oil and Natural Gas EA, Love Unit EA, Riverbend Natural Gas Drilling Project EA, LCU/HCU/BPU EA, Gasco Development EIS, Monument Butte/Myton Bench EA, Wexpro Company EA Island Unit, Riverbend Natural Gas Drilling Project EA, North Alger Natural Gas Expansion Project, Tumbleweed Unit Exploratory Gas Well Development EA and Kings Canyon EA. The BLM must also consider any potential impacts from the Moxa Arch (Kemmerer Field Office), Hiawatha (Rock Springs Field Office) and Continental Divide-Creston (Rawlins Field Office) oil and gas development project EISs in southwest Wyoming. The cumulative impacts from these projects along with all other projects in the area must be fully considered before the BLM takes final action on any further development.

The BLM must be scrupulous in its cumulative impact analyses for this and future resource development in the area in order to ensure that the development is not improperly segmented. That is to say, the BLM must – for this EIS and for all future project-specific EISs in the area – perform a comprehensive cumulative impact assessment so as not to allow individual projects to proceed that would contribute to cumulative impacts in the area.

The Far-Field Modeling Analysis Does Not Evaluate Impacts at All Class I and Sensitive Class II Areas that Could Be Affected by the DEIS

The DEIS assesses far-field impacts at the following Class I and sensitive Class II areas:

Class I and Sensitive Class II Areas Considered in the DEIS[116]

Designated Area	Designation	FLM
Arches National Park	Class I	NPS
Eagles Nest Wilderness Area	Class I	USFS
Flat Tops Wilderness Area	Class I	USFS
Maroon Bells-Snowmass Wilderness Area	Class I	USFS
Mount Zirkel Wilderness Area	Class I	USFS
Dinosaur National Monument	Class II	NPS
Colorado National Monument	Class II	NPS

According to the DEIS:

> Sensitive Class II areas do not receive special protection under the CAA, but were designated by Colorado Department of Public Health and Environment Air

[116] BLM TSD at 1-3.

> Pollution Control Division (CDPHE-APCD) and include Dinosaur National Monument (NM) and Colorado NM. For visibility analysis only, sensitive Class II areas also include specific scenic and/or important views designated by CDPHE. Impacts to air quality and Air Quality Related Values (AQRVs) at sensitive Class II areas are included in the analysis for disclosure purposes only.[117]

The DEIS analysis leaves out some key Class I and sensitive Class II areas that could be impacted by the proposed development in the planning area and other reasonably foreseeable sources. Specifically, the DEIS analyses should expand the far-field modeling domain to consider impacts on the following Class I and sensitive Class II areas:

Additional Class I and Sensitive Class II Areas that Should Be Considered in the DEIS

Designated Area	Designation	FLM
West Elk Wilderness Area	Class I	USFS
Black Canyon of the Gunnison National Park	Class I	NPS
Canyonlands National Park	Class I	NPS
Rawah Wilderness Area	Class I	USFS
Rocky Mountain National Park	Class I	NPS
La Garita Wilderness Area	Class I	USFS
Weminuche Wilderness Area	Class I	USFS
Curecanti National Recreation Area	Class II	NPS
Holy Cross Wilderness Area	Class II	USFS
Hunter-Fryingpan Wilderness Area	Class II	USFS
Raggeds Wilderness Area	Class II	USFS
Ouray National Wildlife Refuge	Class II	FWS
Browns Park National Wildlife Refuge	Class II	FWS
Flaming Gorge National Recreation Area	Class II	USFS

Not only should these Class I and sensitive Class II areas been included in the analysis, but BLM should make sure the modeling domain captures all other sources of air pollution that are impacting these parks.

The DEIS Should Look at Additional Hazardous Air Pollutant Impacts from the Proposed Development

The BLM has assessed impacts from emissions of BTEX, n-Hexane, formaldehyde and diesel exhaust and should also consider the impacts from 1,3-butadiene and secondary formaldehyde that will result from this project development. 1,3 butadiene is recognized

[117] BLM TSD at 1-3.

as a known human carcinogen[118] and is a product of the combustion of gasoline and diesel oil, among other things.[119]

V. The DEIS Does Not Sufficiently Address Greenhouse Gas Emissions and Climate Change Impacts From the Proposed Development

The DEIS includes estimates for CO_2 and methane emissions for CRVFO BLM project sources and CRVFO non-BLM sources in Table 2-7 of the TSD. Greenhouse gas (GHG) emission estimates are based on EPA estimates, where available, and also from guidance provided by the Intergovernmental Panel on Climate Change as well as the American Petroleum Institute.[120] Emissions projections for the year 2028 for the BLM Preferred Alternative (B) are 266,907 metric tons per year of carbon dioxide equivalent (CO_{2eq}).[121]

The Council on Environmental Quality (CEQ) has released new (2010) draft guidance on how NEPA should consider and evaluate greenhouse gas emissions and climate change. The draft guidance outlines how federal agencies should consider climate change issues under NEPA. Under this draft guidance, the agency should quantify and disclose its estimate of the expected, annual direct and indirect greenhouse gas emissions. Specifically, where a proposed action is anticipated to cause direct, annual emissions of 25,000 metric tons or more of CO_2-equivalent greenhouse gas emissions, a quantitative and qualitative assessment is required together with the consideration of mitigation measures and reasonable alternatives to reduce greenhouse gas emissions.[122]

Project emissions of CO_{2eq} total over 250,000 tons per year and clearly exceed the 25,000 ton per year threshold needed to require a quantitative and qualitative assessment of impacts, including consideration of mitigation measures.[123] Therefore, this type of assessment should be included in the DEIS.

The DEIS includes an analysis of: (1) current and future regulation of GHGs; (2) the quantity of GHGs emitted on BLM lands from oil and gas activities; (3) GHG efficiency of CRVFO BLM natural gas production; and (4) natural gas displacement of other fuels.[124]

EPA has commented, in recent NEPA reviews, that an analysis of reasonable alternatives be performed that includes an assessment of potential means to mitigate project-related

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[118] U.S. EPA, Integrated Risk Information System, http://www.epa.gov/iris/subst/0139.htm
[119] U.S. EPA, OAQPS, *Locating and Estimating Air Emissions from Sources of 1,3-Butadiene*, EPA-454/R-96-008, November 1996.
[120] BLM TSD at 2-16.
[121] BLM TSD Table 2-7.
[122] Note that, land management agencies should not be granted a pass from NEPA's duty to evaluate impacts and consider alternatives to mitigate GHG emissions. Indeed, the activities contemplated by the DEIS show precisely why land management agencies should evaluate and consider alternatives to mitigate GHG emissions, in particular methane emissions.
[123] BLM TSD Table 2-7.
[124] BLM TSD at 6-3.

greenhouse gas emissions.[125] Specifically, EPA suggested assessing carbon capture and sequestration technologies, measures from BLM's Supplemental Information Report for the eight EAs in Montana, North Dakota and South Dakota and EPA's GasSTAR technologies.[126] These measures should be considered as alternatives pursuant to NEPA in the DEIS and, moreover, should be enforced through lease stipulations or mandatory conditions of approval.

The DEIS should include a quantitative assessment of the impacts from greenhouse gas, and in particular methane, emissions from the proposed development and mitigation measures for reducing impacts from methane emissions. This assessment should consider the full-sweep of likely greenhouse gas emissions sources if the DEIS's proposed action moves forward. The BLM should ensure that its inventory of GHG sources is based on the best available quantification methods. Given the uncertainty in many of the estimation methods for greenhouse gas emissions from the natural gas industry, BLM should rely on the most up to date estimation methods and tools[127] and should consult the emissions estimate methodologies finalized by EPA in its recent Greenhouse Gas Reporting Rule for Petroleum and Natural Gas Systems (40 C.F.R. Part 98, Subpart W).[128]

This quantitative assessment – by taking a hard look at place-based geologic and environmental factors at play in the CRVFO's jurisdiction – would help address otherwise serious controversy and uncertainties regarding oil and gas greenhouse gas emissions. For example, in a Technical Support Document prepared for EPA's mandatory GHG reporting rule for the oil and gas sector, EPA found that several emissions sources were "believed to be significantly underestimated in the U.S. GHG Inventory…."[129] EPA thereafter revised emissions factors for four of the most significant underestimated sources upwards by a factor of 10 (for well venting for liquids unloading) and by a factor of 8,850 (for gas well venting from unconventional well completions).[130] When EPA accounted for just these four revisions, it more than doubled the estimated GHG emissions from oil and gas production.[131]

Importantly, as detailed below, BLM's quantitative assessment should account for methane's long-term (100-year) global warming impact and, also, methane's short-term (20-year) warming impact using the latest peer-reviewed science to ensure that potentially significant impacts are not underestimated or ignored. *See* 40 C.F.R. §

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[125] January 7, 2011, EPA, Comments on the Gasco Uinta Basin Natural Gas Development Project Draft EIS, CEQ # 20100386.
[126] BLM's Supplemental Informational Report for the eight EAs in Montana, North Dakota and South Dakota – http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/leasingEAs.html
[127] *E.g.,* The DEIS references the American Petroleum Institute's 2004 Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry however the API has since released an update to the Compendium in August 2009 and BLM should update their estimates based on this newer version. Available online at http://www.api.org/ehs/climate/new/upload/2009_GHG_COMPENDIUM.pdf
[128] 75 FR 74458, November 30, 2010.
[129] EPA, Background Technical Support Document, Petroleum and Natural Gas Systems (available at http://www.epa.gov/climatechange/emissions/downloads10/Subpart-W_TSD.pdf)
[130] *Id*. at 9, Table 1.
[131] *Id*. at 10, Table 2.

1508.27(a) (requiring consideration of "[b]oth short- and long-term effects"). Oil and natural gas systems are the biggest contributor to methane emissions in the United States, accounting for over one quarter of all methane emissions.[132] Although it has a relatively short atmospheric lifetime of about 12 years, methane is nonetheless a potent greenhouse gas. EPA assumes that each molecule of methane is 21 times as potent as carbon dioxide (CO_2) over a 100-year time horizon, a global warming potential (GWP) based on the Intergovernmental Panel on Climate Change's Second Assessment Report from 1996.[133] However, more recent peer-reviewed science teaches that methane is 33 times as potent as CO_2 over 100 years and 105 times as potent as CO_2 over 20 years.[134] Methane, thus, is a prime contributor to short-term climate change over the next few decades and a prime target for near-term GHG reductions. And, in fact, there are many proven technologies and practices already available to reduce significantly the methane emissions from oil and gas operations. These technologies also offer opportunities for significant cost-savings from recovered methane gas. Indeed, reducing methane emissions is important to not only better protect the climate, but to prevent waste of the oil and gas resource itself and the potential loss of economic value, including royalties

There is a large body of scientific work documenting the adverse impacts to public health and welfare from climate change caused by greenhouse emissions, such as methane. More recently, scientific studies have also demonstrated that these same methane emissions contribute to the formation of ground-level ozone.[135] Specifically, the U.S. Climate Change Science Program recently reported that methane reductions accomplish the dual goal of addressing climate change and ozone pollution.[136] Methane reductions have a direct impact on both climate change and ozone pollution. In addition, many of the proven methane emission controls for the oil and gas sector also reduce hazardous air pollutants (HAP). The associated air quality benefits that result from reductions in VOC and HAP emissions are a huge co-benefit of methane reduction technologies.

There are numerous existing control technologies for oil and gas emission sources that achieve cost-effective reductions in methane emissions. For example, compressor rod-packing technologies can reduce methane emissions by more than 90%, the use of no bleed pneumatic devices can practically eliminate methane emissions, the use of dry seals in centrifugal compressors can reduce methane emissions by 99%, zero emission dehydrators virtually eliminate methane emissions, the use of vapor recovery units at crude oil and condensate storage tanks can reduce methane emissions by at least 98%,

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[132] U.S. Emissions Inventory 2007: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005.
[133] www.epa.gov/climatechange/emissions/downloads10/US-GHG-Inventory-Fast-Facts-2008.pdf.
[134] Shindell *et al*., "Improved Attribution of Climate Forcing to Emissions," Science 2009 326 (5953), p. 716 (www.sciencemag.org/cgi/content/abstract/326/5953/716).
[135] *See, e.g.*, Arlene M. Fiore *et al.*, "Characterizing the Tropospheric Ozone Response to Methane Emission Controls and the Benefits to Climate and Air Quality," Journal of Geophysical Research Vol. 113, April 30, 2008, p.1 ("[I]n the presence of nitrogen oxides (NO_x), tropospheric CH4 [methane] oxidation leads to the formation of O_3 [ozone].")
[136] *See* Hiram Levy II *et al.*, U.S. Climate Change Science Program Synthesis and Assessment Product 3.2, "Climate Projections Based on Emissions Scenarios for Long-Lived and Short-Lived Radiatively Active Gases and Aerosols", September 2008, p. 65, http://www.climatescience.gov/Library/sap/sap3-2/final-report/ (finding that reducing methane emissions "lead[s] to reduced levels of atmospheric ozone, thereby improving air quality" and "lead[s] to reduced global warming").

and significant salable gas can be recovered with the use of reduced emissions completions (or "green completions"). Many of these technologies are proposed as potential mitigation measures in the DEIS but BLM should include a more comprehensive set of actions to address greenhouse gas emissions and consider these actions as an alternative in the DEIS – an alternative that would mandate these actions as a lease stipulation or, where leases have already been issued, mandatory conditions of approval.

The DEIS should seriously explore the impact of emissions of methane from the project and potential mitigation methods to reduce the associated impacts. The DEIS inventories the emissions of both carbon dioxide and methane from the proposed project but then fails to seriously investigate the many cost-effective alternatives available to avoid or minimize these impacts from the project as required by 40 C.F.R. § 1502.1, 40 C.F.R. § 1502.14 and 40 C.F.R. § 1502.16.

VI. The BLM Must Include Adequate Plans to Protect Air Quality in the Area as Part of This DEIS

The DEIS has laid out air quality management actions to control emissions from oil and gas sources in the project area under the proposed alternatives. The management actions are summarized in Table 2-3 of the TSD and include the following air quality controls for the Agency's Preferred Alternative (B): (1) 94% reduction in fugitive dust from roads; (2) the use of Tier 4 engines for all new and existing drill rig engines and hydraulic fracturing pump engines; (3) reduced emissions completions combined with flaring during well completions that cannot use reduced emissions completions; (4) twice daily watering during construction activities; (5) electric compression at compressor stations; (6) NO_x (1.0 gram/hp-hr), CO (2.0 g/hp-hr), and VOC (0.7 g/hp-hr) emission limits for field compression; (7) 90% VOC control from dehydrators; and (8) 95% VOC control from condensate tanks and produced water tanks.[137]

There are other reduction measures that can bring significant reductions in emissions that should also be considered by the BLM. On August 23, 2011, EPA proposed revisions to the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) for the oil and natural gas sector (76 FR 52738, Augsut 23, 2011). EPA's proposal includes a review of the current NSPS for VOC and SO_2 emissions from natural gas processing plants and of the current NESHAP for HAP emissions from for the oil and natural gas production and natural gas transmission and storage sectors and proposes amendments to the existing NSPS and NESHAP for emissions sources not currently addressed. The additional requirements proposed by EPA that BLM has not included for consideration, should be included in the DEIS. This would include:

1) The use of no-bleed and low-bleed pneumatic controllers;

[137] BLM TSD Table 2-3.

2) Operational and equipment standards for centrifugal and reciprocating compressors (*e.g.*, replacement of rod packing in reciprocating compressors to minimize VOC emissions and use of dry seals in place of wet seals in centrifugal compressors);
3) Improved leak detection and repair at gas processing plants;
4) 95% control of emissions from dehydrators; and
5) Measures to reduce SO_2 emissions from natural gas processing plants.

When EPA promulgates the final rule for the oil and gas NSPS/NESHAP all new sources will be subject to these increased requirements, with full implementation of this control program expected by 2015. These rules will require significant emission reductions from oil and gas sources in the production, processing, and storage and transmission sectors, however, there are additional reduction measures that should also be considered in the DEIS.

EPA's Natural Gas STAR Program has compiled detailed information on many Natural Gas STAR partners that have implemented various emission control technologies or practices and achieved cost effective methane reductions (that would also reduce VOC emissions as a co-benefit in many cases and would also help to address ozone). The BLM's Best Management Practices (BMPs), California's Air Resources Board's Clearinghouse of Non-CO_2 Greenhouse Gas Emission Control Technologies and the Four Corners Air Quality Task Force Mitigation Measures for oil and gas are also good examples of mitigation strategies that should be considered as alternatives in the DEIS.[138] Wyoming DEQ has implemented specific permitting requirements for oil and gas sources with additional requirements in areas of high oil and gas development.[139] Colorado also has additional requirements for oil and gas sources that impact the ozone levels in the Denver area.[140] In light of the aforementioned oil and gas emissions control programs, the BLM should also include mitigation options to:

1) Require reduced emissions completions at all wells, including at exploratory and delineation wells, where feasible;
2) Require the use of plunger lift systems and well monitoring technology to improve operational systems during well cleanup operations;
3) Optimize flaring efficiency through the use of a more contained process when flaring must be used rather than reduced emission completion;
4) Encourage the use of alternative energy sources to power no-bleed pneumatic devices where electrical power from the grid is not available;
5) Reduce emissions from pneumatics through the use of fast-acting devices and device maintenance where feasible;
6) Require leak detection and repair at all possible locations (such programs are well documented by Gas STAR partners for reducing methane emissions and are requirements

[138] BLM, Air Resource BMPs, www.blm.gov/bmp, ARB, http://www.arb.ca.gov/cc/non-co2-clearinghouse/non-co2-clearinghouse.htm and Four Corners Air Quality Task Force, http://www.nmenv.state.nm.us/aqb/4C/
[139] Wyoming DEQ, http://deq.state.wy.us/aqd/oilgas.asp
[140] Colorado Oil and Gas Conservation Commission, http://cogcc.state.co.us/, Colorado Department of Public Health and Environment, http://www.cdphe.state.co.us/ap/oilgas.html

in some counties in California such as South Coast Air Quality Management District, San Joaquin Valley Air Pollution Control District and Santa Barbara County);[141]
7) Require 98% control efficiency at storage vessels; and
8) Require 98% control efficiency at dehydrators.

In addition, the BLM should consider implementing a set of specific thresholds that would trigger pre-arranged mitigations and shutdowns. These actions should ensure protection of the NAAQS and all other CAA standards and requirements based on the modeling that is finalized for the EIS. The BLM is implementing a similar strategy in the Upper Green River Basin in Wyoming and should consider implementing a similar strategy in the CRVFO.[142] This type of enforceable measure is particularly important given the fact that the DEIS, as proposed, does not limit development to the number of wells that are analyzed in the modeling for the EIS and likely grossly underestimates the potential development in the planning area. Therefore, specific measures are needed to ensure that growth does not exceed what was analyzed in the DEIS.

Beyond that, the BLM should consider alternatives that would satisfy the CASAC recommendations for ozone and PM. The many additional mitigation measures in this section provide reasonable and technically feasible means of reducing emissions to achieve those recommendations.

The BLM has not fully evaluated the air quality impacts from the activities analyzed under the DEIS (the proposed development) and has not proposed adequate enforceable mitigation measures to assure no adverse impacts on air quality are occurring or will occur in the affected area. The BLM's mandate under FLPMA to "provide for compliance" with the air quality standards gives the agency the authority to regulate sources on the land it leases in order to prevent violations of applicable air quality standards. Additionally, the BLM has sole authority to allow pollution sources to locate on its land—that is, the BLM has sole authority in the first instance to allow or disallow sources of emissions such as oil and gas well sites. At the basic level, this would allow the BLM to stop any additional projects from taking place if those projects would further degrade the environment at an unacceptable level. The BLM should recognize and implement this underlying authority, as necessary, so as to meet its statutory obligation to provide for compliance with the CAA and related laws and, more fundamentally, to ensure air quality and public health is protected throughout the project area and all other affected areas in the region.

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[141] SCAQMD, Rule 1173: Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants," http://www.aqmd.gov/rules/reg/reg11/r1173.pdf, San Joaquin Valley Air Pollution Control District, Rule 4401: Steam Enhanced Crude Oil Production Wells," http://www.valleyair.org/rules/currntrules/R4401%20Clean%20Rule.pdf, and Santa Barbara County, Rule 331: Fugitive Emissions Inspection and Maintenance.

[142] *See*, e.g., the NO_x emissions threshold of 693.5 tons per year established in the Pinedale Anticline FEIS to ensure that emissions do not exceed the EIS scope of analysis. Pinedale Anticline FEIS Section 3 at 16.