

Appendix B – Public Response Documents

Public Response Document 00051

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Larson Livestock, Inc.



Box 39 LYMAN, WYOMING 82937

October 11, 2007

Kemmerer RMP and EIS
Bureau of Land Management
Kemmerer Field Office
312 Hwy 189 North
Kemmerer, WY 83101

via FAX No.: 307-828-4539

ATTN: Michele Basely, RMP Project Manager

Dear Michele:

Thank you for sending me a hard copy of the RMP and EIS. Even though I received it late during the comment period, I have been able to review this document to some degree, although not as thoroughly as I would have liked. For this reason we request an extension period of 180 days. We feel that if this extension is granted that the officers of Larson Livestock, Inc. will be able to make a much better review of this document and provide you with more specific comments, which will improve the document.

The first item we are very concerned with is the Sage Grouse and how any restrictions may affect our livestock operation. We have grazed sheep on these lands we currently operate on for over 100 years. My grandfather began our specific operation in the late 1880's. I have spent over 60 years myself on these same rangelands and I know from personal experience what is going on with a variety of issues in this area. I know the environmental community says that all this information is anecdotal and therefore is not solid scientific information and therefore should not be considered. We disagree. For instance with regard to the Sage Grouse, I can remember back 40 years ago, seeing flocks of over 100 Sage Grouse on the Hampton Bench on the Carter Lease Allotment. This was during a period, when there were more sheep operators in the business and many more sheep were being wintered on the Carter Lease. An example is the Bill Rees operation. They owned 7 shares in Western Wyoming Company and ran over 10,000 head of sheep in this area. They are no longer in business. There are many of our shareholders taking non-use, and still there are fewer Sage Grouse in this area than there were 40 years ago. Why? It is not the sheep nor the sheep operations that have caused this decline in numbers of Sage Grouse. Forty years ago we did not have any Red Fox in this area. Could this be the reason for the decline? We feel it is. Do the restrictions called for in the RMP and EIS pertain to our sheep grazing or our placement of our sheep camps. If so what periods of time. We run in this area from December 1st of each year to April 30th. Some other permits run into the summer. The use of these federal lands along with our private lands are critical to our livestock operation. Will your restrictions on the federal lands render our private checkerboard lands unusable?

Another issue in your RMP and EIS is the "Ute Ladies'-Tresses Orchid". The USFWS write-up on the UL-T is referred to as a "Rangewide Status Review of the UL-T", and consists of 101 pages. The map of the existing populations of this species showed NO populations in SW Wyoming in 2005 and no populations that have been "extirpated". Because there are no populations of this species in SW Wyoming, a great many of the "Conservation Measures" do not apply

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because they refer to activities within some distance of "known populations" of the species. This means that most of the Conservation Measures listed on page A-2 and A-3 are not relevant because there are no "known populations" of this species in SW Wyoming. Thus, the following measures should not even be listed in the Draft RMP because they refer to non-existent situations (i.e., known populations):

1,3,4,6,8,9,10,11, and 13

Most of the other conservation measures talk about prohibited activities within some distance of either "known Ute Ladies'-Tresses habitats" or simply "Ute Ladies'-Tresses Orchid habitats". These measures include 2,5,7,12, and 14. What constitutes "known Ute Ladies'-Tresses habitats" or simply "habitats" is never defined. Are all riparian areas "known habitats"? This does not make any sense and would not be defensible.

The whole section on this species simply does not make sense. The Conservation Measures referring to "known populations" should be deleted and the Measures dealing with "habitats" needs to have some definition of Ute Ladies'-Tresses habitat". Without some definition, the BLM or environmentalists could claim that all riparian areas are "habitat" and use this to eliminate grazing.

There are many other issues that we will discuss later when and if an extension period for comments is granted. Some of these issues are:

- view sheds
- historic trails
- areas of critical environmental concern
- proposed wilderness areas
- wild, scenic and recreational stream designations
- BLM road and travel plan
- definitions i.e. surface disturbance or surface disturbing activities
- wildlife corridors
- Wyoming Landscape Conservation Initiative
- "off site" mitigation (many issues here, i.e. voluntary vs involuntary, ESA style)
- forage reserves
- WGFD objectives and wildlife management - how this affects livestock preference rights and forage allocations,
- private property rights - how are they affected by this RMP and EIS?

There are additional issues too numerous to mention here. Again if an extension to comment is granted you will have a much better document.

Thanks for the opportunity to comment. If you have any questions please contact us.

Sincerely,

Carl A. Larson
President

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David R. Brown
Manager, Regulatory Affairs/HSE
Company



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October 11, 2007

Ms. Michelle Easley
Bureau of Land Management-Kemmerer Field Office
312 Hwy 189 N
Kemmerer, Wyoming 83101-9711

Comments To The Draft Resource Management Plan and Environmental Impact Statement for the Kemmerer Field Office Planning Area, Wyoming

Please find attached our comments to the Draft Resource Management Plan and Environmental Impact Statement for the Kemmerer Field Office Planning Area. BP is a leaseholder within the Planning Area and currently operates wells within the Kemmerer Field Office Planning Area. BP is the leading producer of natural gas in North America and a global producer and manufacturer of oil, natural gas, petroleum products and petrochemicals. The company is also internationally recognized as a leader in environmentally responsible operations and corporate transparency.

We have conducted a thorough review of the Draft RMP/EIS and attempted to produce a commentary document that highlights our areas of concern and clearly explains each along with recommendations. Our comments are arranged in sequential order by section and page number, and as needed by sentence.

We have two serious very serious comments concerning this document:

- 1) Alternative B has so many restrictions that it would compromise our existing lease rights and interfere with reasonable development. Examples of this include: increased areas of VRM Class II; extending riparian buffers; and designating very large areas within the Planning Area as being administratively unavailable for oil and gas leasing. Alternative B does not appear to meet the CEQ requirements of being a "reasonable alternative" suitable for inclusion in the range of alternatives analyzed in an EIS.
- 2) Unfortunately, the Draft RMP/EIS does not provide any detailed information on how air emissions were calculated, instead a spreadsheet is referenced in the document that provides detailed information on calculation methods and data. "Detailed descriptions for emissions estimations for each activity follow. Individual tables of air emissions for all

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BLM activities were calculated in spreadsheets for each activity. These spreadsheets are available on CD." (Vol. 2 of 2, page J-11). BP requested this spreadsheet and BLM was unable to provide it in a timely manner. Thus, it was not possible for BP to evaluate the calculation procedures nor the specific assumptions used to estimate changes in emissions as a result of the proposal. In reviewing the provided oil and gas emission estimates, BP has identified issues that merit greater critical review but further analysis was not possible because the data was unavailable. Before the draft is finalized, it is important that BLM fully disclose the emission calculation procedures and assumptions so that stakeholders can fully comment on them. In fact, having brought this issue to your attention, we reserve the right to comment beyond the deadline on issues related to these data that were not provided for our review.

Thank you for considering our comments to the Draft RMP/EIS.

Sincerely,
Dave Brown

cc: Ron Kainer - BP Houston
Fred Lemond - BP Moxa OC
Darren Mulkey - BP Moxa OC
Gary Austin-BP Denver

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BP America's Comments:

Draft Resource Management Plan and Environmental Impact Statement for the Kemmerer Field Office Planning Area

Executive Summary

Item: Qualitative Assessment

Comment: Although RMP's are by nature somewhat general and qualitative, the formulation of alternatives and the impact assessment are so dependent on qualitative data, that there is little support for any of the major decisions that were made on selecting alternatives, or in the conclusions that were made regarding potential impacts.

Chapter 2, Resource Management Alternatives

Item: General Comment on Alternatives

Comment: In general, all buffer areas (e.g., for wetlands, perennial streams, raptor nests, greater sage grouse, and other sensitive areas) should be compared to existing standards or other potentially applicable BLM stipulations/requirements to evaluate consistency. The sizes of many buffer areas vary by alternative with no technical support for the buffer other than they vary from the other alternatives. Support should be provided in this document for any differences in mitigation. This is also the case for other types of mitigation, particularly including the timing of seasonal restrictions (e.g., NSO) and daily restrictions (e.g., with respect to greater sage grouse leks and human activity).

Item: General comment on Alternative B

Comment: Alternative B has so many restrictions that it would compromise our existing lease rights and interfere with reasonable development. Examples of this include: increased areas of VRM Class II; extending riparian buffers; and designating very large areas within the Planning Area as being administratively unavailable for oil and gas leasing. Alternative B does not appear to meet the CEQ requirements of being a "reasonable alternative" suitable for inclusion in the range of alternatives analyzed in an EIS.

Item: Section 2.4.2, Page 2-3, RFD

Comment: Text refers to the RFD, summary contained in Appendix M. Table M-2 in Appendix M, p.M-10. See also Table 4-8 page 4-32. These list the projected number of new federal wells and projected number of new non-federal wells. Absent the information contained in the referenced RFD document, the information presented in the Draft RMP/EIS is inadequate to understand the proposed and projected oil and gas development and should be expanded and clarified in the Final document. Regardless, adding the totals ranging from ~2000-2600 wells is unrealistic. That number is not

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realistic given that the Moxa Arch Infill project itself currently being reviewed by the Kemmerer BLM staff has proposed 1,861 wells in the next 10 years. The RFD is underestimating the potential for new wells in the planning area and must be revised.

Item: Section 2.5, Table 2-3, Page 2-41, Buffers for Wetlands, Riparian, Floodplains

Comment: Alternative B excludes surface-disturbing activities within 1/4 mile of wetlands, riparian areas, aquatic habitats, and 100-year floodplains. These restrictions are excessive, not scientifically justified in the DEIS. In the past a 500 foot setback has generally proven effective for resource protection for wetlands, riparian areas and aquatic habitats. The specific setback should be determined on a case by case basis. The location of surface-disturbing activities should be on a case by case basis, as site specific conditions may make it preferable to locate activities within the proposed buffers due to topographic constraints or other environmental conditions.

Item: Section 2.5, Table 2-3, Page 2-44, Availability of Federal Mineral Estate for Oil and Gas Leasing.

Comment: The preferred alternative increase the amount of federal mineral estate unavailable for oil and gas leasing from the existing 104,817 acres to 181,716 acres, an increase of over 73 percent. Alternative B makes 710,058 acres of federal mineral estate unavailable for oil and gas leasing, an increase of about 577 percent. Both of these management actions are unnecessary, and could result in a decrease in energy production from federal lands. This is not consistent with the goals of the Energy Policy and Conservation Act (2000), nor with our nation's need for an increase in energy production within the United States.

Item: Section 2.5, Table 2-3, Page 2-44, Constraints on Lands Availability of Federal Mineral Estate for Oil and Gas Leasing.

Comment: The amount of land available for oil and gas leasing with either "moderate" or "major" constraints varies considerably between alternatives. It was not readily apparent in a review of the Draft RMP/EIS what the exact definition of moderate and major constraints are, i.e. what restrictions are imposed under moderate or major constraints and further, this seems to vary within the document. For industry to react to this specific management action the BLM must specify what is meant by these two categories.

Item: Section 2.5, Table 2-3, Page 2-50, 12.5 percent new loss of crucial habitat

Comment: The BLM has not adequately addressed or explained its rationale for ensuring that no greater than 12.5 percent new loss of crucial habitat occurs in the planning area over the life of the plan in the absence of voluntary offsite mitigation. Where did this value of 12.5 percent come from? Why was this level set as the trigger to initiate "voluntary offsite mitigation"? How will an offsite mitigation program be administered, and what are the definitions of "offsite", etc? There is a lot of detail missing in this entire area that needs further explanation in the Final RMP/EIS.

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Item: Section 2.5, Table 2-3, Page 2-62, **Habitat Fragmentation**

Comment: There is substantial discussion of habitat fragmentation throughout the document. Specific mitigations are proposed for more than one alternative to address habitat fragmentation. This is a complex subject that varies by geographic area and species. In addition, fairly limited scientific information is available to support resource management decisions with respect to this subject.

This requirement ...*"Avoid habitat fragmentation through attenuation, siting, and consolidation of roads, energy facilities, and other developments in identified special status species habitats to no more than 3 percent of available habitat."*...is of concern. To keep the acreage of surface disturbance to 3 percent of available special status species habitats for Alternative B would be difficult to implement, monitor and achieve. Further, it is uncertain how disturbance would be allocated from other activities within the same habitat areas such as roads, livestock operations, utilities, other industry, etc. when an operator has no ability to influence/control such "other developments".

Item: Section 2.5, Table 2-3, Page 2-62-63, **Sage Grouse Buffers**

Comment: These new restrictions greatly increase the area of impact on industry operations for sage grouse protection. No justification is included in the document for these expanded stipulations.

1) *"Greater sage-grouse leks: (1) Avoid surface disturbance or occupancy within ¼ mile of the perimeter of occupied greater sage-grouse leks; (2) Avoid human activity between 8 p.m. and 8 a.m. from March 1 through May 15 within ¼ mile of the perimeter of occupied greater sage-grouse leks.*

Comment: This will be very difficult to administer with public road access and use and at a minimum should be reworded to insert the words "to the extent possible, avoid human activity between 8 pm....".

2) *Greater sage-grouse nesting and early brood-rearing habitats: Avoid surface-disturbing and disruptive activities in suitable greater sage-grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified greater sage-grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 through July 15.*

Comment: The nesting/brood rearing habitat is not identified in the document. Additionally the protective zone is extended beyond the 2 mile buffer to any habitat which has yet to be mapped as the stipulation presently reads. We recommend this stipulation be removed from the RMP/DEIS.

3) *Greater sage-grouse winter habitat: Avoid surface disturbance and disruptive activities in occupied greater sage-grouse winter habitats from November 15 through March 14. Exceptions to CSU and timing restrictions will continue to be considered on a case-by-case basis.*

Comment: The winter habitat stipulation extends the time period significantly and greatly reduces the timeframe when oil and gas development can occur.

Item: Section 2.5, Table 2-3, Page 2-63, **Noise Levels**

Comment: The limitation on continuous noise with respect to selected noise-sensitive species to 49 db as measured 150 feet (Alternative B) or 900 feet (Alternative D) from

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the noise source may not be needed and would be impossible to very difficult to achieve in certain circumstances. What is the basis for this limitation, and how was this level and distance selected? What science based research suggests that 49 db is the appropriate standard? Noise thresholds vary by species. Also, what would the measurement protocol be for demonstrating compliance? Is this threshold of 49 db measured on the A weighted scale?

Item: Section 2.5, Table 2-3, Page 2-63, **High-Profile Structures**

Comment: Prohibiting or avoiding high-profile structures (defined as greater than 12 feet tall and also including guy wires) within one mile of occupied sagebrush obligate species is excessive and not needed for resource protection. This complete prohibition would eliminate visual screening or taking advantage of topographic and vegetative features. In addition, defining a high-profile structure as any structure over 12 feet seems arbitrary. Further, there was no limitation of whether this prohibition applies to permanent or temporary structures. This action should be reviewed by the BLM for its reasonableness and usefulness. BLM must define what constitutes a high-profile structure. The height limit should be supported with references and any height limitation that is specified if necessary should not apply to transient/temporary structures, such as drilling, workover, well servicing, and construction operations.

Item: Section 2.5, Table 2-3, Page 2-63, **Raptor Buffers**

Comment: The radial NSO distance around active raptor nests is very large in Alternative B (1.5 miles) and has not been demonstrated to be needed for adequate protection. The distances for Alternative D are 1 mile (ferruginous hawk) and .75 mile (other species). These distances are also large and should be compared to other existing requirements and studies on the effectiveness of buffers. The BLM's prohibition on surface disturbing operations within ¼ of a mile of burrowing owl nests from April 1 through September 15 would apply to qualifying prairie dog colony areas since nests are assumed to be collocated. This is not only an extension of the existing stipulation period which has not been explained, but an increase in the area (¼ mile buffer around those colonies that qualify) which is not presently mapped. Also, saying that activities are prohibited within these distances is not a reasonable way to manage multiple use activities that occur within the planning area, and does not recognize how site specific conditions, (i.e. topographic, vegetative screening,) can reduce the potential for disturbance to nests.

Item: Section 2.5, Table 2-3, Page 2-72, **Utility Corridors**

Comment: Alternative B continues through all of the resource programs to designate unreasonable and counter-productive management actions. Limiting utility corridors in Alternative B to only ¼ mile wide is an example of an unnecessary restriction that would eliminate flexibility in achieving responsible corridor siting. There may be cases which mandate a much wider corridor to effectively route a right-of-way to avoid sensitive resources.

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Item: Section 2.5, Table 2-3, Page 2-89, **VRM Classes**

Comment: Several of the proposed VRM Class II corridors are excessive, expanding corridors to 3, 6 and 10 mile buffers. Expanding these areas of Class II will certainly limit and could prohibit responsible energy development activities in areas with low scenic quality. The amount of use on many of the proposed Class II areas is generally quite low, and combined with what is often Class B or C scenery, these areas do not qualify to be categorized as VRM Class II. BLM should review the mapping of the VRM components and apply the proper criteria and resulting VRM classes.

Chapter Three, Affected Environment

Item: Section 3.4, Page3-42, **Habitat Fragmentation**

Comment: There is a substantial focus on habitat fragmentation in the biological impact assessment. This is a complex subject that is not well understood, even by experienced biologists who have been studying this issue for years. Resource management decisions with respect to this subject need to consider the variation in response of difference species to surface disturbance.

Item: Section 3.8.2, Table 3-48, Page3-170, **Estimated State Severance Tax**

Comment: "Natural gas was the largest contributor to state severance taxes within all three counties." It is important to recognize the contribution of the industry to the tax revenues of this area and the State. Natural gas tax collections contributes 81%, 70%, and 83% of the total tax collections for Lincoln, Sweetwater, and Uinta Counties respectively.

Chapter Four, Environmental Consequences

Item: Section 4.4, Page 4-51, **Surface Disturbing Activities**

Comment: The document notes that under Alternatives A and C, surface-disturbing activities are managed to comply with current standard Wyoming BLM mitigation guidelines. Proposed requirements under Alternatives B and D (preferred alternative) are more restrictive than those guidelines, while a basis for imposing greater restrictions is absent. As an example, Alternative B avoids surface disturbance on slopes of 10 percent or greater. This is more limiting than standard Wyoming BLM mitigation, and is unnecessary with adequate soil mitigation, BMPs, and successful reclamation.

Item: Section 4.4, Page 4-52, **Habitat Fragmentation**

Comment: The document notes that Alternatives B and D address habitat fragmentation by managing large blocks of federal land by maintaining or enhancing sagebrush, aspen, and mountain shrub communities. As noted previously, this could represent a significant constraint on development, based on an assumption that managing large continuous blocks of federal land will improve biological diversity. We are not aware of data on which its actual effectiveness has been measured.

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Item: Section 4.4.2.2, Page 4-73, **Boring Watercourses**

Comment: For Alternative B, the document notes all underground facility crossings of watercourses will be bored. There is no other federal (e.g., Section 404 of CWA) or state requirement for this action. With the proper BMPs, open cutting in most situations can be completed without environmental harm. Including mitigation that calls for boring in all circumstances is inflexible and does not provide for alternatives that may actually be more resource protective than boring. Boring will however, add additional expense to operators.

Item: Section 4.6.6.2, page 4-200, **Travel Management**

Comment: For Alternative D, the BLM notes that seasonal road closures will occur between January 1 to April 30 and that road density in big game winter range will be limited to two miles per square mile. There is insufficient information in the draft document to determine where these road closures will take place. In addition, the limitation of two miles per section was not supported by reference or data. Further, it is not clear from the document exactly what the definition is for an "open road"? From the draft document, it was not possible to determine the impact of this proposal on existing and future oil and gas operations.

Appendices

Item: Appendix J and L, Page J1-80, L1-6, **Air Quality Technical Support Document and Mitigation Matrix**

Comment: **Appendix J and L Summary Comments** - BP conducted a review of the Air Quality Technical Support Document (Appendix J) and Mitigation Options (Appendix L) of the 2007 Draft Kemmerer Resource Management Plan (RMP). In the review, BP identified significant air quality issues that BLM must address before the RMP is finalized.

BP requested the BLM air quality emission calculation spreadsheet. BLM was unable to provide this document in a timely manner and therefore BP was unable to review the emission calculations. Subsequent review of the emissions reported in the draft indicate that there are some important undefined assumptions regarding per well emission reductions in NO_x and VOC from gas well operations. Before the draft is finalized, it is important that BLM fully disclose the emission calculation procedures and assumptions so that stakeholders can fully comment on them.

Another finding was that the base year inventory of the RMP was 2001 and the first growth estimate was 2011. More current emission information is available to represent existing emissions through 2006 (5-years). Selecting a 2001 base year and a 2011 growth period means that half of the first 10-year period of growth has been already taken place. BLM needs to justify the selection of the 2001 base year and supplement the analysis with changes in emissions that have occurred between 2001 and 2006 or revise the

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analysis to represent a more accurate baseline and growth. BP believes that this is a significant issue that must be addressed.

BP identified that BLM assumed an undocumented and unjustified 3 percent decrease in NO_x emissions from small heaters in 2011 and 2020 compared to 2001. The small heaters are less than 0.5 MMBtu/hr and further control is not cost effective or technically possible. In addition, emission estimates for small heaters are overstated by 50 percent because they only operate during the winter.

BP also found that for VOCs the Draft RMP assumes individual well emissions for Alternatives A, C, and D would be reduced by 44 percent in 2011 over the base case and also for these alternatives in 2020; emissions would be reduced by an additional 5 percent (49 percent relative to the base case). The RMP must provide additional documentation on these assumed reductions. For Alternative B the reduction in 2011 over the base case was 49 percent and in 2020 an additional reduction of 12 percent was assumed (total reduction of 62 percent was assumed over the 2001 base case). For Alternative B a higher level of emission reduction was assumed than for the other alternatives, however, no documentation or justification was provided. BLM must provide justification regarding the assumed emission reductions.

BP believes that BLM needs to estimate emissions on production, not simply well count. This is important because production will decline and therefore will require less equipment to produce the gas and result in lower overall emissions.

The RMP document needs to place the identified mitigation options in proper perspective regarding possible implementation. The report needs to stress that the need for such options must be based on demonstrated adverse air quality impacts rather than potential emission reductions. Demonstration of such impacts must be based on analysis of ambient monitoring data in conjunction with emission inventory data as well as appropriate air quality modeling. For modeling potential ozone concentrations, deposition and visibility photochemical grid models must be used. In this context, it is imperative that an evaluation of model accuracy be conducted. It is also important that adverse impacts be defined using appropriate definitions (i.e., NAAQS for ozone).

The selection of a mitigation option must be developed based on environmental, economic (cost to control as well as capital cost), reliable and technical feasibility. It is important that industry has technical input into the determination of need for mitigation implementation, the data used to rank options and involvement in any ranking of options. Further, not all of the listed mitigation measures are appropriate for consideration since some of the technologies are not technically feasible, are unproven or may result in unsafe operations.

Item: Appendix J, Page J1 – J80

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Comments on Air Quality Technical Support Document for the Draft Resource Management Plan and Environmental Impact Statement for the Kemmerer Field Office Planning Area

Page J-9

Comment

It is suggested that the paragraph on regulatory framework be changed as suggested in the following. As written, the paragraph is incomplete and does not accurately reflect the current regulatory framework.

“Regulatory Framework

~~For quantitative analysis, the following air quality criteria apply. Although the criteria listed below do not apply to the qualitative analysis presented in this draft Environmental Impact Statement (EIS), they are identified here for reference purposes. The basic framework for controlling air pollutants in the United States is mandated by the 1970 Clean Air Act (CAA) and its amendments, EPA regulations and State and local air quality regulations and the 1999 Regional Haze Regulations. The CAA addresses criteria air pollutants, state and national ambient air quality standards for criteria air pollutants, and the Prevention of Significant Deterioration program. EPA regulations address ambient air quality standards, emission control technology, modeling and monitoring and AQRY impacts including regional haze. The Regional Haze Regulations address visibility impairment. State and local agencies can impose more stringent regulations than federal standards.”~~

A section should be added that discusses current emission control requirements mandated by the Wyoming SIP as well as new EPA regulations that will effect oil and gas sources. There are substantial new regulations being proposed by EPA that will ultimately reduce emissions and a discussion of these requirements is needed in the document (i.e., NSPS for Reciprocating Internal Combustion Engines).

Page J-9

Comment

It is suggested that the discussion on pollutants be modified as indicated in the following:

~~“Nitrogen Dioxide. NO₂ is a highly reactive compound formed at high temperatures during operation of internal-combustion engines fossil fuel combustion. At high concentrations, it can form a red-brown gas. At concentrations in excess of the EPA air quality standard, it is a respiratory irritant; however, all areas of the United States are in compliance with this air quality standard.~~

~~During fossil fuel combustion, such engines emit NO which is released into the air which reacts in the atmosphere to form NO₂. NO plus NO₂ is a mixture of nitrogen gases, collectively called nitrogen oxides (NO_x). NO_x emissions can contribute to~~

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~~brown cloud conditions and can convert to ammonium nitrate particles and nitric acid which can cause visibility impairment and acid rain. Biological action in soil can be a natural source of nitrogen compounds.~~

Sulfur Dioxide. SO₂ forms during combustion from trace levels of sulfur compounds in fuels (i.e., coal, ~~smog gas~~ or diesel fuel). At concentrations in excess of national air quality standards, it is a severe respiratory irritant. SO₂ can convert to ammonium sulfate ((NH₄)₂SO₄) and sulfuric acid (H₂SO₄), which can cause visibility impairment and acid rain. Volcanoes are natural sources of SO₂. Anthropogenic sources include refineries and power plants.

Ozone. O₃ is a faint blue gas that is generally not emitted directly into the atmosphere but is formed in the atmosphere from complex photochemical reactions involving from NO_x, NO₂ and volatile reactive organic compounds (VOC) emissions.

Internal combustion engines are one source of the main source of NO_x. However, coal fired power plants have the highest NO_x emissions although any combustion source can produce NO_x. Volatile organic compounds, like turpene, are very reactive.

Sources of VOCs include, but are not limited to, automotive emissions, paint, varnish, oil and gas operations and some types of vegetation.

The faint acrid smell common after thunderstorms is caused by ozone formation by lightning. O₃ is a strong oxidizing chemical that can burn lungs and eyes, and damage plants. Ozone is a severe respiratory irritant at concentrations in excess of the federal standard. EPA is currently in the process of revising the ozone standard as part of its statutory requirements under the CAA.

• Particulate Matter. Particulate matter (e.g., soil particles, hair, pollen, etc.) is essentially small particles suspended in the air that settle to the ground slowly and may be resuspended if disturbed. Separate allowable concentration levels for particulate matter are based on the relative size of the particle:
– PM₁₀ particles with diameters smaller than 10 micrometers are small enough to be inhaled and can cause adverse health effects at concentrations in excess of the standard.
– PM_{2.5} particles with diameters smaller than 2.5 micrometers are so small that they can be drawn deeply into the lungs and cause serious health problems at concentrations in excess of the standard. Particles in this size range are also the main cause of visibility impairment.”

Page J-13

Comment

It is suggested that the discussion on deposition be modified as indicated in the following:

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“Atmospheric Deposition Constitutes

Sulfur and nitrogen compounds that can be deposited in terrestrial and aquatic ecosystems include nitric acid, ~~ammonium~~ nitrate, ammonium, and sulfate. Nitric acid and nitrate are not emitted directly into the air, but form in the atmosphere from industrial and automotive emissions of NO_x. Sulfate is formed in the atmosphere from industrial emission of sulfur dioxide (SO₂). Deposition of nitric acid, nitrate, and sulfate can adversely impact plant growth, soil chemistry, lichens, aquatic environments, and petroglyphs. Ammonium is primarily associated with feedlots and agricultural fertilization. Ammonium deposits can affect terrestrial and aquatic vegetation. Although deposition may be beneficial as a fertilizer, it can adversely impact the timing of plant growth and dormancy.”

Page J-13

Comment

The discussion of PSD Class I Areas needs to be modified as noted:

“• PSD Class I Areas: Congressional mandated PSD Class I Areas with pristine air quality, such as wilderness areas, national parks, and some Indian reservations, are accorded the strictest protection. Only very small incremental increases in concentration are allowed in order to maintain the very clean air quality in these areas.”

Page J-14

Comment

The discussion of PSD increment analyses needs to be modified as noted:

“In project specific NEPA analyses, Comparisons of potential PM₁₀, NO₂, and SO₂ concentrations with PSD increments are intended to evaluate a threshold of concern only and do not represent a regulatory PSD increment consumption analysis. Regulatory PSD increment consumption analyses are solely the responsibility of the State of Wyoming, which has been granted primacy (with EPA oversight) under the CAA.

In project-specific EISs, the BLM does not expect that a PSD analysis will be performed; rather, the PSD standards are used as a reference only to give the public a better understanding of the level of potential impact.”

BP supports the position that BLM has taken regarding conducting PSD increment analyses in RMPs or EISs.

Page J-16

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It is recommended that the following paragraph be changed as noted in the following.

“Given the project area’s current attainment status, future development projects that have the potential to emit more than 250 tons per year of any criteria pollutant (or certain listed sources that have the potential to emit more than 100 tons per year) would be required to undergo a site-specific regulatory PSD increment consumption analysis under the federal New Source Review permitting regulations. Development projects that require PSD permits also may be required by the applicable air quality regulatory agencies to incorporate additional emission control measures (including a best available control technology [BACT] analysis and determination) to ensure protection of air quality resources and to demonstrate that the combined impacts of all PSD sources will not exceed the allowable incremental air quality impacts for NO₂, PM₁₀, and SO₂. Minor sources having emissions below the cutoff rates mentioned above do not require PSD permits; nevertheless, their emissions consume increment. Sources below the PSD threshold are required to obtain a Wyoming minor operating and construction permit which requires a BACT analysis.”

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Comment

It is recommended that the following paragraph be modified as noted to improve the accuracy of the statements.

“A regulatory PSD increment consumption analysis may be conducted, either as part of a New Source Review or independently. The determination of PSD increment consumption is a legal responsibility of the WDEQ applicable air quality regulatory agencies, with EPA oversight. In addition, both PSD NSR review and WDEQ minor source review require an analysis of cumulative impacts due to all existing sources and the permit applicant’s sources is required during a New Source Review to demonstrate that applicable ambient air quality standards will not be exceeded, be met during the operational lifetime of the permit applicant’s operations.”

Page J-15

Comment

It is recommended that the following paragraphs be modified as noted to improve the accuracy of the statements.

“Visual range, one of several ways to express visibility, is the farthest distance at which a person can distinguish a dark landscape feature from a light background, such as the sky. Depending on the scene and the meteorological conditions, in without human-caused visibility impairment, natural visual range is estimated to

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average about 110 to 115 miles in the western United States and 60 to 80 miles in the eastern United States (Malm 1999).

The EPA developed regional haze regulations in response to the CAA amendments of 1977 and 1990. These regulations are intended to maintain visibility on the least-impaired days and to improve visibility on the most-impaired days in mandatory federal Class I areas across the United States, so that visibility in these areas is returned to natural conditions by the year 2064. These regulations require states to submit a regional haze SIP and progress reports to demonstrate reasonable progress toward the 2064 goal of returning mandatory Class I Areas to natural conditions.”

Page J-15

Comment

While USFS, NPS and USFWS have expressed concern regarding potential visibility and deposition impacts in areas that they manage, they have not provided any data (especially for visibility) that indicates any degradation in air quality. At the Bridger and Yellowstone National Park IMPROVE monitors there has been no change in measured visibility over the period of record (1988 through 2005). It is suggested that the RMP document provide monitoring data to illustrate the trends in visibility and deposition in applicable Class I Areas.

“The U.S. Forest Service (USFS), the National Park Service (NPS), and the U.S. Fish and Wildlife Service (USFWS), located throughout Wyoming, also have expressed concerns about potential atmospheric deposition (acid rain) and visibility impacts within downwind PSD Class I and PSD Class II sensitive areas under their administrations.”

Page J-16

Comment

It is recommended that the following paragraphs be modified as noted to improve the accuracy of the statements.

“Given the project area’s current attainment status, future development projects that have the potential to emit more than 250 tons per year of any criteria pollutant (or certain listed sources that have the potential to emit more than 100 tons per year) would be required to undergo a site-specific regulatory PSD increment consumption analysis under the federal New Source Review permitting regulations. Development projects that require PSD permits also may be required by the applicable air quality regulatory agencies to incorporate additional emission control measures (including a best available control technology [BACT] analysis and determination) to ensure protection of air quality resources and to demonstrate that the combined impacts of all PSD sources will not exceed the allowable incremental air quality impacts for NO₂, PM₁₀, and SO₂. Minor sources having emissions below the cutoff rates mentioned above do not require PSD permits; nevertheless, they must undergo minor source review including BACT and their emissions consume increment.”

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Comment

It is recommended that the following paragraphs be modified as noted to improve the accuracy of the statements. Including the phrase “during the operational lifetime of the applicant’s operations” infers continuous modeling to demonstrate compliance and is not appropriate.

“A regulatory PSD increment consumption analysis may be conducted, either as part of a New Source Review or independently. The determination of PSD increment consumption is a legal responsibility of the applicable air quality regulatory agencies, with EPA oversight. In addition, an analysis of cumulative impacts due to all existing sources and the permit applicant’s sources is required during a New Source Review to demonstrate that applicable ambient air quality standards will be met during the operational lifetime of the permit applicant’s operations.”

Page J-16

Comment

Because the NAAQS and WAAQS short term standards have a statistical form that involves ranking of the measurements, Table J-3 needs to provide information on the ranking of any short term measurements. Table J-3 is incorrect regarding the 8-hour SO2 standard because there is no 8-hour SO2 standard but there is rather a 24-hour standard.

It is also recommended that BLM provide the conclusion that, in general, monitoring data indicates very low concentrations of pollutants for which there are standards.

Table J-3. Background Concentrations and Applicable Ambient Air Quality Standards

Pollutant	Averaging Time	Concentration (µg/m ³)	NAAQS (µg/m ³)	WAAQS (µg/m ³)	Location Sampling Dates
Nitrogen Dioxide	Annual	3.4	100	100	Green River Basin Visibility Study, Green River, WY (2001)
Ozone	8 Hours	147	157	157	Green River Basin Visibility Study, Green River, WY

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					(2001)
PM10	24 Hours Annual	48 25	150 50	150 50	Monte Arch Infill Project, Rock Springs, WY (2001)
Carbon monoxide	1 Hour 8 Hours	2229 1148	80,000 10,000	40,000 10,000	Colorado Oil Shale Projects, Rifle and Mack, CO (early 1980's)
Sulfur dioxide	3 Hours 8 Hours Annual	29 18 5	1,200 365 80	1,200 260 40	Craig Power Plant and oil shale areas (1980-1984)

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Comment

The following paragraph is not technically correct and it is recommended that the following paragraphs be modified as noted.

“Sources subject to the PSD permit review procedure also are required to demonstrate potential impacts on air quality-related values (AQRV) in mandatory Class I Areas. These include visibility impacts, degradation of mountain lakes due to atmospheric deposition (acid rain), and impacts on sensitive flora and fauna in Class I areas. The CAA also provides specific visibility protection procedures for the mandatory federal Class I areas designated by the U.S. Congress on August 7, 1977, which included wilderness areas greater than 5,000 acres in size, as well as national parks and national memorial parks greater than 6,000 acres in size as of that date.”

Page J-18

Comment

Agencies Roles and Responsibility

The RMP needs to provide a map of PSD Mandatory Class I Areas as well as other sensitive Class II Areas and the Kemmerer region.

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Comment

Existing Air Quality

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Because of concern for AQRVs (especially visibility) in PSD Mandatory Class I Areas, BLM needs to provide information on speciated IMPROVE fine particulate measurements used to characterize visibility. In addition, a discussion is needed on any observed trends in these data as well as any known changes in emissions during the period of the measurements. The document also needs to provide similar data on deposition measurements. The omission of this information is a serious flaw in the document.

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Comment

BP has previously submitted extensive comments on levels of concern for visibility impairment as well as assumptions that are integral to the specified levels of concern^{1,2}. There is considerable speculation whether a 1 dv change will produce an actual noticeable change in visibility as discussed in the paragraph below.

“Because the potential air pollutant emission sources comprise many small sources spread out over a very large area, discrete visible plumes are not likely to impact the distant sensitive areas, but the potential for cumulative visibility impacts (increased regional haze) is a concern. Regional haze degradation is caused by fine particles’ and gases’ scattering and absorbing light. Potential changes to regional haze are calculated in terms of a perceptible “just noticeable change” (1.0 deciview) in visibility when compared to background conditions in mandatory federal PSD Class I areas.”

Page J-20

Comment

The following statement is not completely accurate. The CAA does provide AQRV protection for PSD mandatory Class I Areas but does not provide the same level of protection to sensitive Class II Areas and Federal Land Managers do not have the same level of authority to protect Sensitive Class II Areas as in Class I Areas.

“It is important to note that before actual development could occur, the applicable air quality regulatory agencies (including the state, tribe, or the EPA) would need to review specific air pollutant emissions preconstruction permit applications that examine potential project-specific air quality impacts. As part of these permit reviews (depending on source size), the air quality regulatory agencies could

¹ BP Comments on Pinedale EIS

² BP Comments on Jonah EIS

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require additional air quality impact analyses or mitigation measures. Thus, before development occurred, additional site-specific air quality analyses would be performed to ensure protection of air quality. Federal land managers would require a demonstration that potential effects from proposed projects would not adversely impact AQRV (including visibility) in sensitive Class I and Class II areas.”

Page J-21

Comment

The list of assumptions needs to state that air emissions are likely to decrease as a result of declining production from both new and existing oil and gas development. It is recommended that the following points be modified as indicated.

“Assumptions Used in Developing Emissions for the Kemmerer

RMP - The following assumptions were used in the emission calculations:

- All producing coalbed natural gas (CBNG) and conventional oil and gas wells projected in the RFD and existing currently were assumed to be fully operational and to remain operating, except for normal projected well closures throughout the area (well numbers are from BLM 2006a). In this analysis it was assumed that natural gas (CBM or conventional) production would remain constant over time. In reality, emissions will likely decrease over time as production decreases. Any new project will need to address how emissions will change over time in response to declining production
- For oil, gas, and CBNG wells, development of new federal producing wells was assumed to occur at a uniform rate from 2004 through 2020 and did not consider any decline in production over time.
- Stationary sources associated with oil and gas development would operate at emission levels based on currently observed Wyoming BACT levels, and compressor stations for natural gas and CBNG would be equipped with lean burn or clean burn engines or nonselective catalytic reduction (NSCR) catalyst and would have to demonstrate compliance with the upcoming EPA New Source Performance Standards (NSPS) for reciprocating internal combustion engines (RICE).

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Comment

The assumption that fugitive dust emissions result from separators, dehydrators, and water-tank heater operations is not correct and should be changed and additionally emissions need to be recalculated to eliminate this error.

“Oil and Gas Wells Emissions Estimation

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- **Fugitive dust and combustion emissions from separators, dehydrators, and water-tank heater operations”**

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Comment

Table J-5 should be modified to present current production levels (MMSCF/yr or BBLS/yr) in addition to presenting the number of wells. Presenting this data will provide a more realistic estimate of new development and if this information is correctly used, it will present a more accurate estimate of emissions.

Table J-5. Producing Oil and Gas Wells in the Planning Area

Well Type	Existing Wells	2011 Operational	2020 Operational
Alternative A			
Coalbed Natural	0	97	189
Natural Gas	590	866	1,118
Oil	572	520	468
Alternative B			
Coalbed Natural	0	46	91
Natural Gas	590	748	878
Oil	572	516	461
Alternative C			
Coalbed Natural	0	94	184
Natural Gas	590	868	1,122
Oil	572	520	469
Alternative D (Preferred Alternative)			
Coalbed Natural	0	94	183
Natural Gas	590	864	1,115
Oil	572	520	468

Comments on Comparison of Emissions for Alternatives

Unfortunately, the RMP does not provide any detailed information on how emissions were calculated; instead a spreadsheet is referenced in the document that provides detailed information on calculation methods and data. “Detailed descriptions for emissions estimations for each activity follow. Individual tables of air emissions for all BLM activities were calculated in spreadsheets for each activity. These spreadsheets are available on CD.” BP requested this spreadsheet and BLM was unable to provide it in a timely manner. Thus, it was not possible for BP to evaluate the calculation procedures nor the specific assumptions used to estimate changes in emissions as a result of the proposal. This is very unfortunate because a critical portion of the analysis cannot be critiqued and therefore can only be accepted at face value. In reviewing the provided oil and gas emission estimates, BP has identified issues that merit greater critical review but further analysis was not possible because the data was unavailable.

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The base year inventory of the RMP was 2001 and the first growth estimate was 2011. BLM needs to justify why 2001 is an appropriate base year. More current emission information is available to represent existing emissions through 2006 (5-years). By selecting a 2001 base year and a 2011 growth period means that half of the first 10-year period of growth has been already taken place. BLM needs to justify the selection of the 2001 base year and supplement the analysis with changes in emissions that have occurred between 2001 and 2006 or revise the analysis to represent a more accurate baseline and growth. BP believes that this is a significant issue that must be addressed by BLM.

It is assumed in the review of the RMP that the estimated emissions in 2011 represent growth in emissions over the 2001 base case (total emissions equal 2001 base plus 2011 growth) and that the 2020 estimate reflects emission for 2011 growth plus growth from 2011 to 2020. The document does not provide any documentation on what these emissions represent.

The document needs to provide an extended gas analysis to support the estimate of SO₂ emissions from routine operations (compression and heaters).

The following per well table presents the RMP estimated emissions for the major emission categories for operations on a per well basis using the emissions for the 2001 base case and the 2011 and 2020 development cases. The estimated emissions were divided by the estimated number of wells (listed in Table J-5 of the RMP). Examining the emission data in this manner indicates concern for the underlying assumptions in the emissions data.

First, the per well table indicates that an undocumented and unjustified 3 percent decrease in NO_x emissions from small heaters was assumed in 2011 and 2020 in the RMP. The small heaters are less than 0.5 MMBtu/hr and further control is not cost effective or even technically possible. In addition, emission estimates for this group of sources is overstated by 50 percent because these sources only operate during the winter.

For VOCs, the RMP assumes that for Alternatives A, C, and D individual well emissions would be reduced by 44 percent in 2011 over the base case and also for these alternatives in 2020, emissions would be reduced by an additional 5 percent (49 percent relative to the base case). The RMP must provide additional documentation on these assumed reductions. For Alternative B the magnitude of the emission reductions was different than the other alternatives. For Alternative B the reduction in 2011 over the base case was 49 percent and in 2020 an additional reduction of 12 percent was assumed (total reduction of 62 percent was assumed over the 2001 base case). For Alternative B a higher level of emission reduction was assumed than for the other alternatives, however, no documentation or justification was provided. BLM must provide justification regarding the assumed emission reductions.

In conclusion, given the uncertainty in the estimated emissions, there is no significant difference in the estimated emissions between the alternatives. BP believes that from an

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air quality perspective BLM can select the maximum development scenario for oil and gas.

BP also believes that BLM should provide an estimate of prescribed fire emissions. The RMP document only calculated emissions for ancillary activities and not the prescribed burn itself.

Item: Appendix L, Page L1-L6, **Mitigation Matrix**
Comment: Comments on Mitigation Matrix

The RMP document needs to place the identified mitigation options in proper perspective regarding possible implementation. The report needs to stress that the need for such options must be based on demonstrated adverse air quality impacts rather than potential emission reductions. Demonstration of such impacts must be based on analysis of ambient monitoring data in conjunction with emission inventory data as well as appropriate air quality modeling. For the modeling of potential ozone concentrations, deposition and visibility photochemical grid models must be used. In this context, it is imperative that an evaluation of model accuracy needs to be conducted. It is also important that adverse impacts be defined using appropriate definitions (i.e., NAAQS for ozone).

The selection of a mitigation option must be developed based on environmental, economic (cost to control as well as capital cost), reliability and technical feasibility. It is important that industry has technical input into the need for mitigation implementation; the data used to rank options and is involved in any ranking of options. Further, not all of the mitigation measures listed in this section are appropriate for consideration since some of these technologies are not technically feasible, unproven or may result in unsafe operations. It is important to stress that WDEQ has a very aggressive New Source Review (NSR) program that will ensure that new sources achieve the maximum cost effective reduction possible.

It is inappropriate for BLM to suggest that such mitigation options should be considered in the planning assessment. It is also true that advances in technology may result in lower emissions during the time covered by the RMP.

SCR for Oil and Gas Emission Sources

Type of Mitigation	Estimated Cost of Mitigation	Environmental Liabilities	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures				
Utilize selective catalytic reduction (SCR) on drill rig engines and compressors.	Relatively expensive as compared to nonselective catalysts. Typical	Requires the use and storage of ammonia, which presents health and safety issues. Results in increased ammonia emissions.	NOX emission rate for compressors reduced to 0.1 g/hp-hr; reduced	Not applicable for 2-stroke engines

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	costs are \$125/hp (EPA Cost Control Manual, January 2002) for compressors.	which may contribute to the formation of ammonium sulfates and increased visibility degradation.	ammonium nitrate formation and resulting visibility impacts. Application to drill rig engines may result in substantial NOx reduction.	
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Comments

The application of SCR on drilling rig engines and compressor engines should not be considered as a potential mitigation technology for oil and gas sources at the present time as discussed below.

Drilling Rig Engines

SCR on drilling rig engines has been attempted in Wyoming (by both Shell and Ultra Petroleum in the Pinedale Anticline). SCR was installed on both mechanical and electric drilling rigs.

The installation of SCR on the mechanically driven rigs (where the diesel engines are coupled directly to the drill) was not successful due to extreme exhaust gas temperature fluctuations, and for periods of time the engine exhaust gas temperature was outside the operating range of the SCR systems. The temperature fluctuation was caused by the dynamic load demands on these engines.

To obtain emission reductions, the installation of SCR on electric rigs (the diesel engines drive electric generators that power electric motors) required two additional full time operators. Table 1 presents draft emission testing for SCR on a drilling rig. It should be noted that there is a large fluctuation in the NOx emission rates. While the SCR was not adjusted for a maximum removal rate, the suggestion that the installation of this technology can achieve an emission limit on a continuous basis of 0.1 g/hp-hr is unjustified and not achievable.

Table 1. Draft Test Results Shell – Nabors 789 Drill Rig Engine Exhaust

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Caterpillar 3512 Engine – Unit #3						
Test Parameter	Run #1	Run #2	Run #3	Run #4	Run #5	Average
BHP	328	683	610	680	667	594
SCR Outlet Emissions						
NO _x (grams/BHP-hr)	1.2	0.5	0.6	0.9	0.7	0.8
CO (grams/BHP-hr)	0.0	0.0	0.0	0.0	0.0	0.0
SO _x (grams/BHP-hr)	0.2	0.1	0.1	0.1	0.1	0.1
HC (grams/BHP-hr)	0.0	0.0	0.0	0.0	0.0	0.0
PM (grams/BHP-hr) ¹⁾	0.17	0.11	0.17	0.09	0.07	0.12
NH ₃ (grams/BHP-hr)	0.0	0.0	0.0	0.0	0.0	0.0
NO _x + HC (grams/BHP-hr)	1.2	0.5	0.6	0.9	0.7	0.8
NO _x Control Efficiency (%)	82	83	80	79	81	81 ²⁾

1 – Data for PM was not yet available at the time of this writing due to lab turnaround time.
 2 – Shell requested that the NO_x control efficiency be set at roughly 80%.

WDEQ has concluded that SCR is currently not a viable technology for drilling rigs. An important piece of information is that drilling rig engines typically last 5 to 6 years and then are replaced, not rebuilt. This means that there will be a constant infusion of new technology engines over a relatively short period of time.

Compressor Engines

SCR is applicable on existing or new lean burn natural gas fired internal combustion engines. This technology uses excess oxygen in a selective catalytic reduction system. Reactant injection of industrial grade urea, anhydrous ammonia, or aqueous ammonia is required to facilitate the chemical conversion. A programmable logic controller (PLC) based control software for engine mapping/reactant injection requirements is used to control the SCR system. Sampling cells are used to determine the amount of ammonia injected which depends on the amount of NO measured downstream of the catalyst bed. In the proposed standards for Stationary Spark Ignition Internal Combustion Engines, EPA states the following with respect to the installation of SCR on natural gas fired engines: "For SI lean burn engines, EPA considered SCR. The technology is effective in reducing NO_x emissions as well as other pollutant emissions, if an oxidation catalyst is included. However, the technology has not been widely applied to stationary SI engines and has mostly been used with diesel engines and larger applications thousands of HP in size. This technology requires a significant understanding of its operation and maintenance requirements and is not a simple process to manage. Installation can be complex and requires experienced operators. Costs of SCR are high, and have been rejected by States for this reason. EPA does not believe that SCR is a reasonable option for stationary SI lean burn engines." Consequently, this technology is not readily applicable to unattended oil and gas operation that do not have electricity.

There is very little information in the literature regarding the incremental NO_x emission reduction of SCR beyond lean burn technology for remote unattended oil and gas operations because there have been very limited installations of this technology for oil and gas compressor engines. Table 2 presents a summary of incremental SCR emission reductions and cost effective control estimates for SCR on a lean burn engine.³

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Table 2. Incremental Cost-Effectiveness Estimates (ICE) Control Techniques and Technologies

Engine Type	Control Comparison	Horsepower	Incremental NO _x Reduction (tons/year)	Incremental NO _x Cost-Effectiveness (\$/ton of NO _x Removed)
Lean Burn	From Low-Emission Combustion to SCR (96%)	300-500	3.3	8,800
		500-1000	6.6	10,300

There are several concerns regarding this information. First, it is not known if the emission reductions are based on actual performance tests or theoretical emission calculations. It is also not known what the reference basis is for the emission reduction of 6.6 tons per year of NO_x.

Review of California Air Resources Board (CARB) emission databases regarding NO_x engine emissions does not provide any data regarding actual installations of SCR on lean burn engines for oil and gas operations. There is some very limited performance testing on SCR with lean burn engines that operate on natural gas (as opposed to field gas) for cogeneration facilities. Such emission data for cogeneration facilities is not applicable to oil and gas compressor engines. This is because cogeneration facilities tend to operate at a continuous load and have personnel present to operate the equipment. The CARB databases also provide testing of SCR for high emitting 2 cycle engines (removal rates in the range of approximately 50 to 85 percent). These installations are not comparable to adding SCR to a well controlled engine.

Because of the limited application data for SCR on natural gas fired engines for oil and gas operations it is difficult to estimate the amount of potential emission reduction that could be achieved through the implementation of this technology. The assumption that this technology can achieve an emission limit of 0.1 g/hp-hr for oil and gas operations is unsupported by any field data. In addition, it is not clear how well this technology would perform in unattended remote applications. The limited data that does exist suggests that there may only be a small incremental reduction in NO_x emissions beyond lean burn technology and this reduction would result at a very high incremental cost. This technology should be considered an emerging technology and merits additional testing for this unique application.

Because of non-linear chemistry involved in photochemical reactions of ozone and secondary aerosols that result in a reduction of visibility, NO_x emission reductions estimated in this analysis may or may not result in equal improvement in ambient air quality levels. Also, excess ammonia slip within the discharge plume of an engine may accelerate the conversion of NO_x emissions into particulate nitrate.

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NSCR for Oil and Gas Emission Sources

Type of Mitigation	Estimated Cost of Mitigation	Environmental Liabilities	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures				
Application of nonselective catalytic reduction on drill rig engines and compressors	\$5,000 to \$25,000 per unit	Regeneration/disposal costs for catalysts.	As a result of the BACT process, average NOX emission rates for Wyoming compressor engines 100 hp or greater is 1.0 g/hp-hr; the application of nonselective catalysts may reduce the NOX emission rate to 0.7 g/hp-hr for some types of engines. Application to drill rig engines may result in substantial NOX reduction (although less reduction than with SCR).	Not applicable for lean-burn or 2-stroke engines.

Comments

Drilling Rigs

NSCR technology is not applicable to drilling engines because these engines are not rich burn engines.

Compressor Engines

Wyoming minor source BACT and the forthcoming New Source Performance Standards (NSPS) for Reciprocating Internal Combustion Engines (RICE) will require the use of NSCR on rich burn engines. In addition, typically larger engines in excess of 500 hp meet BACT levels using lean burn or clean burn engines. State of the art lean burn technology can approach an emission limit of 0.7 g/hp-hr (at full load). NSCR controls have not demonstrated this level of emission control on a continuous basis.

NSCR is applicable only to stoichiometric engines and they must operate in a very narrow air/fuel ratio (AFR) operating range in order to maintain the catalyst efficiency. Most AFR controllers utilize closed loop control based on the readings of an exhaust gas oxygen sensor to determine the air/fuel ratio.

An AFR controller will only maintain an operator determined set point. For the set point to be at the lowest possible emission setting, an exhaust gas analyzer must be utilized and frequently checked.

Some issues associated with current practice NSCR retrofits on existing small engines operating at reduced loads are:

- A problem maintaining sufficient flue gas inlet temperature for correct oxygen sensor operation and the resulting effectiveness of the catalysts;
- On engines with carburetors, there is difficulty maintaining the AFR at a proper setting;

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- On older engines, the linkage and fuel control may not provide an accurate enough air/ fuel mixture; and
- If the AFR drifts low (i.e., richer), ammonia formation will increase in proportion to the NOx reduction but not necessarily in equal amounts.

The following figure presents the effectiveness of NSCR technology for rich burn engines based on quarterly testing data from a Waukesha 7042 GSI, a rich burn engine of approximately 1200 hp that operates continuously at a relatively high load. This engine is equipped with a state of the art air fuel ratio controller, an oxygen sensor and an oversized catalyst bed. These data represent how well this technology performs under actual field applications.

BP has performed quarterly flue gas testing on this engine between October 2003 and February 2006. Figure 1 presents a graphical summary of the test results.

Figure 1. Test Results for Waukesha 7042 GSI



	Average Percent of Measurements Greater Than
Emission Levels	Wauk 7042 GSI
Greater than 2.0 g/hp-hr	9.09
Greater than 1.75 g/hp-hr	27.27
Greater than 1.5 g/hp-hr	27.27
Greater than 1.25 g/hp-hr	54.55
Greater than 1.0 g/hp-hr	54.55

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Greater than 0.75 g/hp-hr | 100.00

There are several important points regarding this data. First, this engine is capable of having emissions less than 1 g/hp-hr (approximately 50 percent of the time). However, approximately 10 percent of the time emissions are greater than 2 g/hp-hr. Second, it is important to note how these tests were conducted. One day before the test was to be conducted, the engine was tuned, the oxygen sensor was replaced and the AFR was adjusted. During the actual flue gas testing, additional adjustments were made to minimize emissions. Thus, the observed variation in emissions represents minimized emissions with the benefit of engine tuning. No data exists on how emissions vary over time between engine tuning. Further, no information exists on ammonia formation as a result of the air fuel ratio controller drifting.

From an operational perspective, there is an important difference between permit limits and actual emissions. Permit limits must be realistically established to minimize emissions but set at a level so that a source can demonstrate compliance and account for variations in emissions. For this engine, establishing an emission limit of 1 g/hp-hr would result in the source being out of compliance approximately 50 percent of the time. This is a well designed emission control system that undergoes aggressive preventative maintenance.

The following figure indicates how sensitive the NOx removal rate is to the air fuel setting. In addition, it has been demonstrated that if the AFR drifts rich, NOx removal is accomplished by producing NH3. From an air quality perspective, shifting from NO emissions to NH3 is not desirable.

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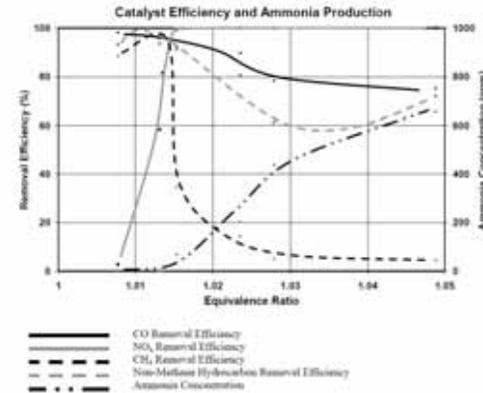


Figure 1. The efficiency and amount of ammonia production of the catalyst varies with the air fuel ratio. The traditional window of control is small and is centered at the point where NOx and CO efficiencies are equal (The E Point) which is located slightly rich of stoichiometric (1.017 phi).

As indicated in the above figure "During normal steady state operation, the catalyst behaved in a predictable manner. The plots of removal efficiency and ammonia production shown in figure one illustrate the control problem. The window of control for NOx and CO, even at only 80% removal efficiency is only about one percent of phi. In addition the NOx / Non-methane hydrocarbon window at 80% is half of that, and the NOx / Methane window is less than a quarter of a percent of phi. Also, ammonia formation rapidly increases as the air/fuel ratio moves rich of the E point. However, using very precise control of the air/fuel ratio, it is possible to achieve high removal efficiencies of both NOx and CO. At the E point, the efficiency of both constituents is close to 95%."³

³ "The Effect of Air-Fuel Ratio Control Strategies on Nitrogen Compound Formation in NOx Catalyst" Authors: Morgan DeJurel, Research Assistant Daniel Olson, Ph.D. Research Scientist Bryan Wilson, Ph.D. Director of Lab Research Engineer and Energy Conversion Lab Colorado State University Department of Mechanical Engineering.

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Utilize Compressors driven by Electric Motors

Type of Mitigation	Estimated Cost of Mitigation	Environmental Liabilities	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOx) and Carbon Monoxide (CO) Mitigation				
Utilize compressors driven by electrical motors.	Capital costs equal 40% of gas turbine costs, operating cost dependent on the location of high voltage power lines	Displaced air emissions from compressor units to electric generating stations (EGS).	May displace air emissions away from sensitive Class I areas; moderate emission reduction near compressor station. Also, typically emissions at an EGS are more heavily controlled than at individual compressor stations, so the displaced emissions are also lower than if emitted by a compressor station.	Requires high voltage power lines.

This mitigation option suggests that electricity for compressor engines would be produced from natural gas fired turbines. This assumption has no merit because it is unrealistic to assume that facilities would be financed, constructed (generating facility) and operated solely for the purpose of producing electricity for electric compressors. A more realistic assumption would be that electric compressors would obtain electricity from the power grid where electricity would be obtained from coal generation. In evaluating the changes in emissions for shifting from natural gas to electric (coal) powered compression, it is necessary to examine the emissions for each power source on an equivalent energy basis. Thus, for the same amount of energy consumption, the change in emissions from natural gas versus electricity must be considered. An analysis of shifting from natural gas fired compressors to electric was conducted for the Four Corners Area. Table 4 presents a summary of emissions from PNM, Xcel and Tri-State generation stations in the 4-Corners Region. This mix of facilities is assumed to reflect the "grid" average for the 4-Corners Region.

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Table 4. Summary of Emissions from Coal-Fired Generating Plants in 4-Corners Area^a

Owner	Generation (MWh)		Emissions in Tons					Emission Rates (lbs/MWh)							
	Total	Fossil Fuel	Coal	SO ₂	NO _x	CO ₂	Hg	SO ₂	NO _x	CO ₂	SO ₂	NO _x	CO ₂	SO ₂	NO
PNM Resources	10,301,726	7,434,239	7,235,445	9,554	16,581	7,684,272	0.21	1.8	3.2	1,492	2.6	4.5	2,067	2.6	4.5
Tri-State	10,928,949	10,927,196	10,858,096	8,194	19,446	12,485,729	0.13	1.5	3.6	2,285	1.5	3.6	2,285	1.5	3.6
Xcel	81,283,493	66,604,435	34,673,970	157,324	124,237	69,809,043	1.09	3.9	3.1	1,718	4.7	3.7	2,096	5.7	4.3
Total or Average	102,514,168	84,965,870	72,767,511	175,022	166,264	89,979,044	1	3.41	3.13	1,755	—	—	—	—	—

^aNatural Resources Defense Council (NRDC) "Emissions Data for 100 Largest Power Producers" 2004

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In this analysis, it was assumed that for visibility SO2 and NOx emissions are equivalent in terms of impacts because they cause approximately the same amount of visibility impairment. This is because the dry scattering coefficients for converting SO4 and NO3 concentrations into visual range are approximately equivalent.

As a first order approximation, 1 ton per year of SO2 emissions will result in the same amount of potential visibility impairment as 1 ton per year of NOx. In reality, because of the more complex and competitive reactions involving both SO4 and NO3, SO2 emissions may result in more visibility impairment than NOx emissions.

From an economic basis, conversion of natural gas-fired engines to electric compression is only practical for large engines and only in areas where electricity is already available within close proximity. This is because most locations do not currently have electrical power and it would not be cost effective to install power for small engines.

The energy consumption of a typical lean burn engine was calculated, converted into pounds per mega watt-hour and was compared to SO2 and NOx emissions from existing coal-fired power plants (Table 5). This was done assuming an emission factor between 1 g/hp-hr and 5 g/hp-hr. It was then assumed that the computed emissions per mega watt of power represented emissions for 1-hour and were converted into tons per year by multiplying by 8760 hours per year and dividing by 2000 pounds per ton.

As indicated in Table 5, a shift from natural gas to electric (coal) for an engine of 1 MWhr capacity (approximately 1,342 hp with an emission factor of 1 g/hp-hr would result in an increase of 117 tons per year of SO2 + NOx. With engine emissions of approximately 2.5 g/hp-hr there is no net change in overall emissions by shifting from natural gas to electric. For all cases, the shift from natural gas to electricity results in higher greenhouse gas emissions.

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Table 5. Change in SO2, NOx and Greenhouse Gas Emissions by shifting from Natural Gas Compression to Electricity

4 Corners Grid Average Emissions lbs/MWh		tons/MWh/yr
SO2	3.41	14.9
NOx	3.13	13.7
NOx + SO2	6.54	28.6
CO2	1,755	7686.9

Caterpillar 3608 LE Average Emissions lbs/MWh (equivalent)	Other NOx Emission Rates (g/hp-hr)					
SO2	0	0	0	0	0	0
hp/kw-hr	1,342	1,342	1,342	1,342	1,342	1,342
hp/mw-hr	1,342	1,342	1,342	1,342	1,342	1,342
Cubic feet gas/mw-hr	9,815	9,815	9,815	9,815	9,815	9,815

Caterpillar 3608 LE Average Emissions lbs/MWh (equivalent)	Other NOx Emission Rates (g/hp-hr)					
NOx Emission Rate gr/hp-hr	1	2	3	4	5	16
SO2 lbs/mw-hr	0	0	0	0	0	0
NOx lbs/mw-hr	3.0	5.9	8.9	11.8	14.8	47.3
CO2 lbs/mw-hr	1,138	1,138	1,138	1,138	1,138	1,138

SO2 tons/MWh/yr	0.0	0.0	0.0	0.0	0.0	0.0
NOx tons/MWh/yr	13.0	25.9	38.9	51.8	64.8	207.4
CO2 tons/MWh/yr	4985	4985	4985	4985	4985	4985

Delta SO2 tons/Mwh/yr	14.9	14.9	14.9	14.9	14.9	14.9
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Delta NOx tons/Mwh/yr	0.7	-12.2	-25.2	-38.1	-51.1	-193.7
Delta NOx +SO2 tons/MWh/yr	15.7	2.7	-10.2	-23.2	-36.2	-178.7
Delta CO2 tons/Mwh/yr	2702	2702	2702	2702	2702	2702
Delta SO2 tons/yr	15	15	15	15	15	15
Delta NOx tons/yr	-83	-180	-276	-373	-469	-1,533
Delta NOx +SO2 tons/yr	117	20	-76	-173	-270	-1,333
Delta CO2 tons/yr	20,149	20,149	20,149	20,149	20,149	20,149

Cat. 3608 Assumptions:
 9815 Btu/kw-hr
 "Sweet" Natural Gas
 NOx - 1 gr/hp-hr
 1 cu ft gas = 1,000 btu
 2285hp

While this example was for the Four Corners Area and not Wyoming, it does demonstrate that shifting from natural gas to electricity does not guarantee a reduction in emissions. This analysis is based on current levels of emissions from coal electric generating facilities, in the future emissions from such facilities may change as a result of Regional Haze SIPs at the present time there is insufficient data to accurately forecast the exact nature of EGU emission profiles.

Type of Mitigation	Estimated Cost of Mitigation	Environmental Liabilities	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures (Continued)				
Utilize wind-generated electricity to power compressors.	Capital costs are very large.	Visual impacts from generation equipment; increased mortality of birds, including raptors.	Reduced use of fossil fuels and associated emissions.	Location of wind-generation facilities is critical, requires consistent strong winds for economic operation and high voltage transmission lines between generation facility and compressor stations.

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This mitigation option suggests that electricity for compressor engines would be produced from wind generation. This assumption has no merit because it is unrealistic to assume that wind generation facilities would be financed, constructed and operated solely for the purpose of producing electricity for electric compressors. It is also important to note that electric power companies do not consider wind generation as base load capacity which means that even if such facilities were built, coal generation would likely provide the majority of the electricity.

Type of Mitigation	Estimated Cost of Mitigation	Environmental Liabilities	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures (Continued)				
Increased emissions monitoring	Minor to moderate	None	Allows better planning of when, and especially where to allow future emissions to occur and when/where to provide for additional emissions mitigation. The Wyoming DEQ AQD currently has an emission tracking agreement with the BLM. The <i>Amended Letter of Agreement for Tracking Nitrogen Oxide Emissions</i> dated April 2000 calls for annual reports, tracking changes in NOX emission beginning January 1, 1996.	The monitoring of emission sources provides improved information for estimating impacts, but does not necessarily reduce the magnitude of the impacts.

Increased emission monitoring should not be listed as a NOx and CO mitigation measure but should rather be included as a separate section.

The title of the first column above implies that this option will require additional emission measurements as opposed to simply tracking changes in emissions. This option is really the responsibility of WDEQ not BLM.

For BLM and WDEQ to make informed decisions regarding future oil and gas development, it is imperative that accurate estimates of changes (increases and decreases) in emissions be inventoried. In estimating future growth in emissions, it is important for BLM and industry to estimate the decline in existing emissions (as a result of reservoir decline) in addition to the growth in emissions from new development.

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Type of Mitigation	Estimated Cost of	Environmental	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures (Continued)				
Increased ambient pollutant monitoring	Moderate	None	Will measure impacts from pollutant sources of concern if correctly located.	

Increased ambient monitoring should not be listed as a NOx and CO mitigation measure but should be a separate section. For BLM and WDEQ to make informed decisions regarding future development in the region, it is imperative that accurate estimates of changes in ambient air quality be measured.

Type of Mitigation	Estimated Cost of	Environmental Liabilities	Environmental Benefit	Potential Limitations
Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures (Continued)				
Reduced rate of development	Short-term loss of state and federal royalties.	Emissions generated at a lower rate for a longer period.	Peak emissions and associated impacts reduced.	Economic limitations – A minimum production rate is required to cost-effectively develop the resource while maintaining the processing and transportation infrastructure.

Reducing the rate of development as an air quality mitigation measure should only be considered if: 1) measurable adverse air quality occurs; and 2) if no other cost effective mitigation option is available.

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Type of Mitigation	Estimated Cost of	Environmental Liabilities	Environmental Benefit	Potential Limitations
Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) Mitigation Measures				
Condensate tank vents, carbon canisters or other VOC capture to the vent discharge	Minor costs		Minor emission reduction	

The use of activated carbon as a control measure for condensate storage is not a viable mitigation option because there are considerable safety concerns using this control technology. Since condensate storage tanks operate at a maximum of 0.5 ounces of pressure, any plugging of the carbon canister could result in over pressuring the tank and result in a catastrophic failure. In addition, because of high volume flow, such controls may require frequent regeneration and maintenance. Rather, the use of a combustion chamber will result in lower emissions, less maintenance and a lower cost than activated carbon.

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00053

Barringer, Debra S.

From: Michele_Easley@blm.gov
Sent: Friday, October 12, 2007 11:08 AM
To: Barringer, Debra S.
Subject: Fw: Draft Kemmerer RMP

Michele Easley
Planning and Environmental Coordinator
BLM, Kemmerer Field Office
312 Highway 189 North
Kemmerer, WY 83101
307.828.4524
307.371.1005 (cell)
----- Forwarded by Michele Easley/KFO/WY/BLM/DOI on 10/12/2007 11:07 AM -----

Lynn
Harrell/KFO/WY/BLM/DOI
10/12/2007 08:10 AM
----- Forwarded by Michele Easley/KFO/WY/BLM/DOI on 10/12/2007 11:07 AM -----

To: Michele Easley/KFO/WY/BLM/DOI@BLM
cc: Lynn Harrell/KFO/WY/BLM/DOI
Subject: Fw: Draft Kemmerer RMP

It looks like you may not have gotten this message, so I'm forwarding it to you for the administrative record.

Lynn Harrell
Cultural Resource Specialist
Bureau of Land Management
Kemmerer Field Office
312 Highway 189N
Kemmerer, WY 83101
307-828-4515
----- Forwarded by Lynn Harrell/KFO/WY/BLM/DOI on 10/12/2007 08:09 AM -----

"Gail Robinson"
<gbrob@wyoming.com>
10/12/2007 06:41 AM
----- Forwarded by Lynn Harrell/KFO/WY/BLM/DOI on 10/12/2007 08:09 AM -----

To: "Lynn Harrell"
<lynn_harrell@blm.gov>
cc: Lynn Harrell/KFO/WY/BLM/DOI
Subject: Draft Kemmerer RMP

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Daer Ms. Mary Jo Rugwell

We value the land and the cultural resources B.L.M. manages. We thank you for that. We would like to submit a few comments on the revision of the Kemmerer RMP.

We support alternative B because it advocates multiple use of the land and cultural resources. Also these uses will be maintained and enhanced.

The areas encompassing the Corum and Hill graves and Emigrant Springs are particularly important and should include special management as well as Fossil Basin

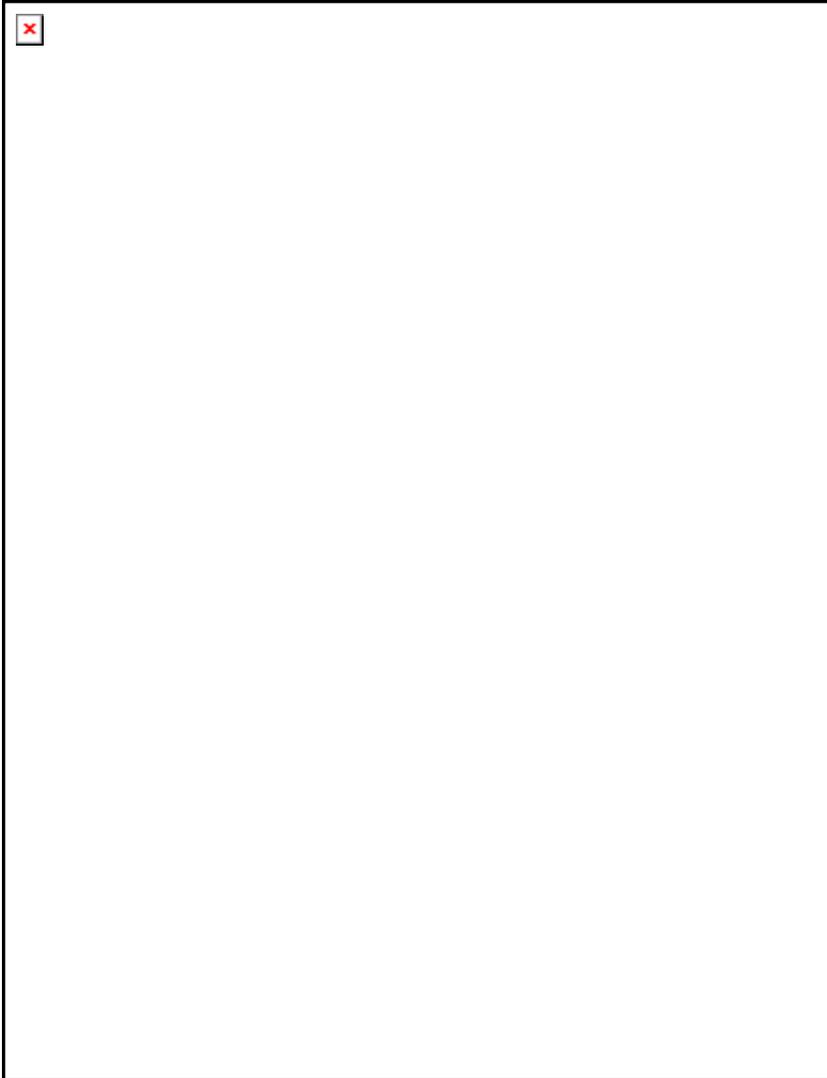
If you truly want the public input why do you make it so difficult to read and understand? Simplify, not complicate.

Thank you for your time.
Freinds of the trail- Gail & Bill robinson

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estate currently are leased and held by production in the planning area. It is unclear whether BLM intended to address only leases held by production or whether this is an error with respect to lease holdings.)

Comment and Recommendation: Given the fact that nearly 70 percent of the planning area is under lease, BLM must clearly state in the Final EIS that the new restrictions proposed in the Preferred Alternative will not apply to most of the KFO. **Moreover, it must be made clear that BLM has no authority to impose these new restrictions through Conditions of Approval (COA) on applications for permit to drill (APD) if they would abrogate the valid existing lease rights.** Such qualifiers are consistent with current rules and policies of the BLM and must be clearly disclosed in the planning documents.

EPCA

On Page 2-4 the DEIS acknowledges that *"The Energy Policy and Conservation Act (EPCA) Reauthorization of 2000, Public Law 106-469, directed the Secretary of the Interior to conduct an inventory of oil and natural gas resources beneath federal lands. The EPCA also directed the U.S. Department of the Interior (USDI) to identify the extent and nature of any restrictions to resource development."* As described in the report, EPCA was designed help BLM and other national policymakers *"make more informed decisions during the land use planning process. For example, it will help ensure that any constraints in place or proposed are the most appropriate and effective for managing all the resources of the area and not posing barriers to oil and gas production unless it is absolutely necessary for the preservation of other resources present on the land. The integration of EPCA inventory results into the BLM's planning process will also provide information for land management decisions and planning to take into consideration the need for energy-related infrastructure such as pipelines, power lines, and roadways as well as supporting Rights-of-Way."*

Nevertheless, the DEIS claims the results of the EPCA Inventory have been integrated into the DEIS and that the findings are common to all alternatives in this EIS and that *"the oil and gas resource inventory data are integrated into the RFD baseline scenario for oil and gas that predicts future oil and gas exploration and development within the planning area for the unconstrained scenario."*

This approach conflicts with the intent of the law and with Instruction Memorandum 2003-233, Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results into the Land Use Planning Process. The KFO is also required to review all current oil and gas lease stipulations to make sure their intent is clearly stated and that stipulations utilized are the least restrictive necessary to accomplish the desired protection. Moreover, the IM directs that stipulations not necessary to accomplish the desired resource protection be modified or dropped using the planning process. Since the purpose of integrating the EPCA results into planning is intended to determine whether existing resource protection measures are inadequate, adequate or excessive, it would be impossible for the findings to be the same under each alternative since each alternative has different goals and objectives.

Comment and Recommendation: Under EPCA BLM was required to identify impediments to oil and gas development, not develop new ones. It was the intent of Congress that access to energy resources be improved as indicated in the Energy Policy Act and Conservation Act of 2000 and the Energy Policy Act of 2005. This dichotomy needs to be further explained in the FEIS. Since the KFO does not have the luxury of deciding which BLM directives to follow, it is necessary, as part of the

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planning process, for BLM to clearly disclose in the planning revision how it reviewed all stipulations and conditions of approval to ensure their appropriate use by alternative.

In addition, BLM has ignored the findings of EPCA Phase II. This report, titled *Scientific Inventory of Onshore Federal Lands' Oil and Gas Resources and the Extent and Nature of Restrictions or Impediments to Their Development – Phase II Cumulative Inventory*, supersedes Phase I of the inventory. The report includes the Greater Green River basin and addresses additional impact of drilling permit conditions of approval, as required by Section 364 of the Energy Policy Act of 2005. Findings in that report show that nearly 80 percent of the lands within the Green River Basin are subject to significant restrictions which preclude or severely inhibit industry's ability to explore for and develop critically needed energy resources, i.e., nearly 53,458 BCF of natural gas. With respect to the Wyoming Overthrust Belt, the study found that 144 BCF of natural gas are unavailable for development due to severe constraints. These findings are also subject to the requirements of IM 2003-233 and the analysis must be part of the planning documents.

On page 3-22, Chapter 3, BLM states the majority of technically recoverable natural gas resources within the planning area are administratively UNAVAILABLE for leasing or available with significant leasing constraints. While approximately 30 percent of these resources are off limits, only 1 percent of these lands are statutorily withdrawn. The other 29 percent are administrative decisions of the KFO which must be reevaluated in accordance with EPCA Phase II and IM 2003-233 before a final plan is developed.

REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

Table 7-4 – Kemmerer Planning Area Conventional Oil and Gas Wells Well Number Estimates by Geologic Play

Geologic Play	Wells
Green River Basin (Moxa Arch)	1,740 wells
Absaroka Thrust	160 wells
Prospect-Darby-Hogsback Thrust	100 wells
Crawford-Meade Thrust	20 wells
Cretaceous Stratigraphic	20 wells
Total Wells Projected	2,040 wells

Sources: BLM 2006b; RMG 2003

Table 7-5 – Kemmerer Planning Area Coalbed Natural Gas Wells Well Number Estimates by Geologic Play

Geologic Play	Wells
Frontier-Adaville-Evanston	600 wells
Fort Union	40 wells
Total Wells Projected	640 wells

Sources: BLM 2006b; RMG 2003

Upon review of the RFDS, it is evident BLM has significantly underestimated the level of development expected to occur over the life of the Kemmerer Resource Management Plan (KRMP), i.e., BLM has projected that 2,040 conventional wells could be drilled over the next 20 years. However, according to our members, approximately 30 operators in the Moxa Arch field provided the KFO with an overview of their future development plans at the end of 2005. At that time, BLM was notified that in the Moxa Arch field alone, operators plan to drill 1,861 wells within the ten-year period following approval of the soon-to-be released Moxa Arch Area Infill Gas Development Project EIS. Therefore, it

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is of great concern that BLM has projected only 1,740 wells in the entire planning area over the next 20 years. Moreover, BLM indicates an average of 87 wells could be drilled per year in the Moxa Arch field despite the fact that industry projects 186 wells could be drilled per year over a 10 year period. The sizable difference between what industry has projected and what BLM has projected for the Moxa Arch field renders the entire RFDS inadequate.

Additionally, the projections for the Wyoming portion of the Overthrust Belt are low and have not utilized more recent information from recently initiated exploration activities. BLM has apparently not taken into account the activity that has occurred just across the state line into Utah where Wolverine made a huge discovery in its Covenant field. Companies are seeking the same types of success in the KFO, which must be acknowledged in the RMP RFDS.

Comment and Recommendation: Given the fact that BLM has apparently ignored recent data provided, the remaining projected wells and their associated disturbance also come into question. Retention of an inadequate RFDS will result in industry being required to needlessly prepare future development analysis because the cumulative effects analysis contained in the DEIS, should it be carried forward to the Final EIS and RMP, will become outdated in a short period of time. This would pose an untenable and irresponsible approach to planning on BLM's part. It is imperative for the agency to update the RFD to avoid needless costly and time-consuming subsequent NEPA analyses.

We strongly recommend that BLM revise the existing RFDS to comport with IM 2004-089, *Policy for Reasonably Foreseeable Development for Oil and Gas*, by including and analyzing all available data, including new exploration and production technologies; future development activities which could be derived from new discoveries; a more viable discussion of potential future unconventional development activities; and surface disturbance associated with existing wells as well as surface reclamation associated with plugged and abandoned wells. This could be easily accomplished if BLM were to work with KFO operators.

CATEGORICAL EXCLUSIONS

Despite the fact that Congress legislated five new statutory Categorical Exclusions (CX) as part of the Energy Policy Act of 2005, BLM fails to acknowledge them in the DEIS. CXs represent one of three possible avenues for fulfilling the requirements of the National Environmental Policy Act, the other two being Environmental Assessments (EAs) and Environmental Impact Statements (EISs). CXs have been in use for many years and are defined at 40 CFR § 1508.4:

"Categorical exclusion" means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations (§1507.3) and for which, therefore, neither an environmental assessment nor an environmental impact statement is required... Any procedures under this section shall provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect." [Emphasis Added]

Comment and Recommendation: CXs are an important tool used in BLM's administration of the federal oil and gas program. They are designed to facilitate the permit approval process by lessening needless paperwork and timeframes associated with these approvals. We recommend that the Final EIS fully examine and disclose the conditions under which they will be used.

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RANGE OF ALTERNATIVES

The current range of alternatives is inadequate by virtue of the inclusion of Alternative B. NEPA requires at 40 CFR 1502.14 that BLM include “reasonable” alternatives. However, even though the regulations may allow for alternatives outside BLM’s jurisdiction, each alternative must adhere to the law, i.e., current statutes, regulations and policies. As such, BLM does not have the legal authority to impose the excessive restrictions contained in this alternative making it “unreasonable.”

Comment and Recommendation: It would be illegal for BLM to incorporate many elements of Alternative B in any of the other alternatives, including the Preferred Alternative, because it would result in the abrogation of Valid Existing Lease Rights and illegally extends its authority over resource management held by other State and Federal agencies. As such, revisions to all the alternatives analyzed in detail must be made to remove all inappropriate management objectives identified in Alternative B. For example, BLM indicates it would consider under the Preferred Alternative a program developed under Alternative B to offset emissions proposed by the RMP. Since the RMP revision is a programmatic document that does not contain decisions for specific projects, it does not contain proposals for air emissions. As such, this proposed a program is outside the scope of the RMP revision because it is impossible for BLM to make such determinations without a specific project proposal. In addition, both Alternatives B and D explain they will attempt to reduce emissions from existing sources by using more stringent techniques such as those included in Best Available Control Technologies. Again, such decisions are the function of the State of Wyoming, which has been given primacy for administration of the air quality program by the Environmental Protection Agency (EPA).

These are but a couple of the issues that render Alternative B outside the scope of viability. Other areas where the Alternative goes beyond what is reasonable and outside the law involve water, biological, cultural, soil, and visual resources as well as many of the proposals for special designations or management.

WITHDRAWALS

Under Alternative D, BLM would make approximately 182,000 acres unavailable for oil and gas leasing. According to FLPMA, “withholding an area of Federal land from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of Federal land, other than “property” governed by the Federal Property and Administrative Services Act, as amended (40 U.S.C. 472) from one department, bureau or agency to another department, bureau or agency” constitutes a withdrawal.

Comment and Recommendation: The removal of these lands from availability for leasing constitutes a withdrawal. However, in accordance with FLPMA, only the Secretary of Interior is authorized to make a withdrawal of lands as described above. The Secretary is also required to provide notice of a proposed withdrawal in the *Federal Register*, to conduct public hearings on the proposal and to notify Congress of the proposal. Clearly, such a “withdrawal” cannot be made through the resource management planning process. Therefore, it is necessary for the KFO to either revise its Draft RMP or follow the procedures for withdrawal outlined in FLPMA.

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OFFSITE COMPENSATORY MITIGATION

Tucked away on page 2-52, Biological Resources, Management Actions Common to All Alternatives, BLM indicates it will “utilize appropriate voluntary offsite compensatory mitigation if necessary after all onsite mitigation has been accomplished or if onsite mitigation is not feasible.”

Comment and Recommendation: While we recognize many companies have offered to perform off-site mitigation, it is of concern that BLM states it will “utilize” this practice. We understand BLM may identify offsite mitigation opportunities; however, operators must not be required to “volunteer” such mitigation as a means of garnering permit approval. It is critical that the concept of offsite mitigation not become a routine requirement for oil and gas operators on public lands. We can foresee that BLM could adopt a policy that requires offsite mitigation to reduce impacts to a less than “significant” level under NEPA. Such a goal may be impossible to achieve in some cases, which could lead to the “assumption” that any action resulting in impacts would cause “unnecessary and undue degradation” of public lands.

It is our understanding that “unnecessary and undue degradation” would result only if surface disturbance greater than that which would normally result on other resources and land uses when a similar activity is undertaken by a “prudent” operator in the usual manner. 43 CFR 3802.0-5(l) directs, “Undue and unnecessary degradation means impacts greater than those that would normally be expected from an activity being accomplished in compliance with current standards and regulations and based on sound practices, including use of the best reasonably available technology.” Clearly, typical oil and gas operations conducted in compliance with existing laws and regulations are highly unlikely to meet the standard for unnecessary and undue degradation. The burden of proof would rest solely with BLM to demonstrate that new activities similar to those that have taken place in the KFO for decades would result in unnecessary and undue degradation.

As discussed in Instruction Memorandum 92-67, if one is to consider unnecessary and undue degradation of public lands, one must consider that there will also be necessary and due degradation of a site, albeit temporarily during the course of the project. In accordance with 43 CFR 3101.1-2, there are certain rights granted when a lease is issued. Clearly, valid existing lease rights would be compromised if BLM determines a development program cannot proceed without voluntary off-site mitigation. It must also be acknowledged by BLM that if the mitigation would render the proposed operation uneconomic or technically infeasible, such degradation may be considered necessary for the management of the resource.

We recommend that the proposed Kemmerer RMP clearly indicate that offsite compensation is entirely voluntary and that based upon the above discussion that it will only be sought to avoid unnecessary and undue degradation.

RESOURCE SPECIFIC COMMENTS

AIR QUALITY

PLA and PAW enlisted the help of BP in our review of the Air Quality portions of the DEIS. As such, BP conducted a review of the Air Quality Technical Support Document (Appendix J) and Mitigation Options (Appendix L) of the 2007 Draft Kemmerer Resource Management Plan (RMP). In the review, BP identified significant air quality issues that BLM must address before the RMP is finalized. Below

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is a summary of BP's findings. BP's entire set of comments on air quality issues are formally incorporated by reference into these comments.

- BP requested from BLM its air quality emission calculation spreadsheet. BLM was unable to provide this document in a timely manner and therefore BP was unable to review the emission calculations. Subsequent review of the emissions reported in the draft indicate that there are some important undefined assumptions regarding per well emission reductions in NOx and VOC from gas well operations. Before the draft is finalized, it is important that BLM fully disclose the emission calculation procedures and assumptions so that stakeholders can fully comment on them.
- Another finding was that the base year inventory of the RMP was 2001 and the first growth estimate was 2011. More current emission information is available to represent existing emissions through 2006 (5-years). Selecting a 2001 base year and a 2011 growth period means that half of the first 10-year period of growth has been already taken place. BLM needs to justify the selection of the 2001 base year and supplement the analysis with changes in emissions that have occurred between 2001 and 2006 or revise the analysis to represent a more accurate baseline and growth. We believe this is a significant issue that BLM cannot ignore.
- BP discovered that BLM assumed an undocumented and unjustified 3 percent decrease in NOx emissions from small heaters in 2011 and 2020 compared to 2001. The small heaters are less than 0.5 MMBtu/hr and further control is neither cost effective nor technically possible. In addition, emission estimates for small heaters are overstated by 50 percent because they only operate during the coldest winter months.
- BP also found that for VOCs, the DEIS assumes individual well emissions for Alternatives A, C, and D would be reduced by 44 percent in 2011 over the base case and also for these alternatives in 2020, emissions would be reduced by an additional 5 percent (49 percent relative to the base case). The RMP must provide additional documentation on these assumed reductions. For Alternative B the reduction in 2011 over the base case was 49 percent and in 2020 an additional reduction of 12 percent was assumed (total reduction of 62 percent was assumed over the 2001 base case). For Alternative B a higher level of emission reduction was assumed than for the other alternatives, however, no documentation or justification was provided. BLM must provide justification regarding the assumed emission reductions.
- It is necessary for BLM to estimate emissions on production, rather than simple well counts. This is important because production will decline and will require less equipment to produce the gas, which will result in lower overall emissions.
- The RMP document must place identified mitigation options in proper perspective regarding possible implementation. The analysis must stress that the need for such options will be based on demonstrated adverse air quality impacts rather than potential emission reductions. Demonstration of such impacts must be based on analysis of ambient monitoring data in conjunction with emission inventory data as well as appropriate air quality modeling. For modeling potential ozone concentrations, deposition and visibility photochemical grid models must be used. In this context, it is imperative that an evaluation of model accuracy be

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conducted. It is also important that adverse impacts be defined using appropriate definitions (e.g., NAAQS for ozone).

- The selection of a mitigation option must be developed based on environmental, economic (costs to control as well as capital costs), reliable and technical feasibility. It is important that industry has technical input into the determination of need for mitigation implementation, the data used to rank options and involvement in any ranking of options. Further, not all of the listed mitigation measures are appropriate for consideration since some of the technologies are not feasible, are unproven or may result in unsafe operations.

WATER QUALITY

In Section 4.1.3, page 4-17, Surface Water Quality, 2nd paragraph, the DEIS states "Beneficial impacts to surface water quality include actions that minimize, reduce, or prevent offsite erosion or the disposal of supplemental water that is of lower quality than the ambient water quality of the receiving water."

Comment and Recommendation: Impacts result from actions. Impacts are not intrinsically "actions" themselves. This sentence should be revised to state that "actions that minimize, reduce, or prevent offsite erosion or the disposal of water that is of lower quality than the ambient water quality of the receiving water would diminish adverse impacts to surface water quality."

In Section 4.1.3.2, page 4-21, Surface Water Quantity, 1st paragraph, the DEIS states "... activities, such as reclamation and proper grazing management, can improve vegetative cover and channel morphology, resulting in beneficial impacts."

Comment and Recommendation: The described activities, in fact, diminish adverse impacts rather than result in beneficial impacts. The confusion between the beneficial impacts and the mitigation of adverse impacts is of concern because it reflects a fundamental misrepresentation or misunderstanding of what actions may result in adverse impacts, what actions may result in beneficial impacts, and what actions may mitigate or diminish adverse impacts.

Surface Water

Alternative B

Table 2-3, page 2-41. Under Alternative B, BLM would "exclude surface-disturbing operations within ¼ mile of all wetlands, riparian areas, aquatic habitat, and 100-year floodplains."

Comment and Recommendation: Existing stipulations and BLM practices allow operations within 500 feet of wetlands and riparian areas. Given existing best management practices and construction techniques that protect surface water and riparian areas, in addition to limitations, mitigation measures, and permitting requirements imposed by the WDEQ and the Army Corps of Engineers under the Clean Water Act, the ¼ mile limitation is unreasonable and unnecessary.

Table 2-3, page 2-42 under Alternative B, BLM proposes unnecessarily prohibiting road crossings in all wetlands, riparian areas, or floodplains by stating: "No new permanent facilities, including road crossings, are allowed in floodplains, riparian areas, or wetlands."

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Comment and Recommendation: Such a restriction is unreasonable and unnecessary, especially given the extensive and adequate permitting and mitigation requirements imposed by the WDEQ and particularly the Army Corps of Engineers under Section 404 of the Clean Water Act.

Page 4-21 contains the following statement: “Surface dischargers of produced water from oil and gas wells are permitted by the WDEQ through a WYPDES permit that requires compliance with specific water quality standards to assure the produced water quality disposed of on the surface is suitable for beneficial uses, such as agricultural and livestock, and does not result in a violation of water quality standards in the receiving stream.”

Comment and Recommendation: We agree that the permitting process works to maintain surface water quality in the state and therefore, the constraint against the release of produced water on the surface must be removed from Alternative B for areas where state permit requirements are met. The BLM’s proposal to “Prohibit disposal of produced waters to streams or other flow-connected surface features” under Alternative B is unreasonable and unnecessarily restricts the BLM’s ability to manage operations in the future. It is important for BLM to retain as much flexibility as possible by reserving itself the possibility of authorizing surface discharge under the appropriate circumstances. It is foreseeable produced water within the planning area may actually benefit riparian areas, wildlife, or livestock.

Alternatives B and D

On Table 2-3, page 2-42, BLM proposes a management action under both Alternative B and Alternative D that would protect aquifer recharge areas. “Maintain aquifer recharge areas to protect groundwater and surface water quality through maintenance of the vegetative cover and soil structure that contributes to recharge and limitations to surface-disturbing activities.”

Comment and Recommendation: BLM has failed to identify or map “aquifer recharge areas.” As a result, it is impossible for operators to anticipate the impacts such limitations or restrictions may have on its operations. BLM must identify known aquifer recharge areas and delineate potential restrictions in said areas. Absent this information, an operator cannot ensure that its existing lease rights will be adequately protected, or understand how future operations may be impacted.

Groundwater

Table 2-3, page 42, Record 1036. Under Alternative D, BLM appropriately provides sufficient authority and flexibility for the agency to approve surface discharge of produce water, in connection with the WDEQ and State Engineer’s Office, on a case-by-case basis and depending upon site-specific conditions.

Comment and Recommendation: BLM must also acknowledge the central role the WDEQ plays in approving and monitoring surface discharge permits under the Clean Water Act.

Section 4.1.3.1 – Groundwater Quality and Quantity

Page 4-19, in the DEIS discussion of erosive soils in the planning area, it is noted that the locations of highly erosive soils have not been mapped. It is also stated that soils “must be determined on a

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project-specific basis” because erosive soils are difficult to protect through the implementation of standard BMPs.

Comment and Recommendation: We conclude that the decision implementing the new RMP will likely include a provision requiring oil and gas operators to conduct soils surveys throughout a project area. We do not agree that that a detailed soil survey would be needed to determine where erosive soils exist in project areas. Oil and gas development has occurred within the KFO for decades. Past development in the Moxa Arch area, for example, has provided oil and gas operators, as well as BLM, with evidence of the locations of erosive soils. Surveys conducted by a soil scientist are not needed for identification of those areas where erosion and sediment transport are more likely to occur. BMPs have been and will be determined and applied on a site-specific basis. Unlike administrative determinations of “grazing allotments,” neither the BLM nor operators need a map to inform them of the locations of erosive soils. A requirement to conduct a formal soils survey where samples would be taken and analyzed is not needed to protect soil or water resources.

Operators support the position taken under Alternatives A and D, where completed soils surveys and site observations would be utilized to address soil protection and develop mitigation. Level III soils surveys would not provide new any useful data that would measurably contribute to soils protection by minimizing erosion.

On page 4-19 of the DEIS, factors that affect the amount of sediment delivery are listed, including the amount of disturbed surface, soil type (erosive or not), overland flow characteristics, proximity of established channels, vegetation characteristics, and effectiveness of BMPs.

Comment and Recommendation: BLM has apparently failed to recognize that the site-specific BMPs designed during the onsite inspection, along with addition to the Storm Water Pollution Prevention Plans to comply with State of Wyoming requirements, fully address the factors listed above, resulting in minimal offsite impacts due to sediment delivery.

Page 4-19 of the DEIS contains contradictory text and requires clarification.

Comment and Recommendation: The DEIS seems to advocate the limited application of water to the surface to aid reclamation, but indicates there are limits to produced water disposal on the surface because produced water quality has high salinity. It is unclear what the source of water would be that BLM would recommend for use in reclamation. Since produced water is often transported by truck, it appears BLM may be considering trucking water into a location for reclamation purposes. The appropriateness of applying such a requirement or the circumstances when such a requirement may be justifiable is indeterminate. It is necessary for BLM to provide an explanation in the FEIS or delete this discussion altogether.

On page 4-19, the DEIS states that “mineral development is the primary activity with a potential to impact shallow groundwater.” On page 4-18, however, it is stated that “Direct impacts to groundwater quality and quantity could result from changes in the number of (water) wells, including water supply (wells), water disposal, oil and gas wells drilled, the condition and uses of existing (oil and gas) wells, the number of springs developed, water conservation efforts, and the amount of water that infiltrates the ground before flowing to the surface water system.” (The text in parentheses was inserted for clarification of the text in the DEIS.)

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Comment and Recommendation: Three of the listed factors that have the potential to impact groundwater are associated with oil and gas development: water disposal; oil and gas wells drilled; and the condition and uses of existing wells. With respect to oil and gas wells drilled, casing and cementing requirements are approved by the appropriate regulatory authority to ensure that no contamination of shallow fresh water zones would result. The procedures that regulate drilling an oil and/or gas well are strictly regulated by the BLM in Onshore Order #7 and by the State of Wyoming.

Fresh water encountered during drilling operations is reported to the BLM. Additionally, procedures that regulate disposal of produced water by subsurface injection in Wyoming are strictly regulated by the State of Wyoming and/or Environmental Protection Agency. Subsurface injection of produced water typically occurs in deep formations well below fresh water aquifers. Permit approval is thorough and arduous, ensuring that fresh water will not be contaminated. Therefore, the likelihood of contamination of groundwater from drilling new development wells or an injection well is remote. Cross-contamination of a water well has only been known to occur if the casing integrity of an older oil and gas well were compromised at shallow depth; therefore, groundwater contamination from oil and gas development is unlikely. The determination that “*mineral development is the primary activity with a potential to impact shallow groundwater*” is speculative and should be removed unless documentation can be provided within the text of the FEIS.

VISUAL RESOURCE MANAGEMENT (VRM)

Page 2-29 states that “*Alternative D updates the VRM classification system compared to Alternative A. Class I under Alternative D is the Raymond Mountain WSA. VRM Classes II, III, and IV comprise specific parts of the planning area as described in Table 2-3. To protect the viewshed within 3 miles of the Bridger Antelope Trap juniper fence, Alternative D identifies this area as unsuitable for ROW corridors or high-profile structures (higher than 12 feet) particularly wind power. Alternative D also protects the viewshed from high-profile structures within 3 miles of select archeological sites (see Table 2-3). Viewshed protection for NHT segments increases under Alternative D up to 3 miles (high management level segments), up to ½ mile (medium management level segments), and in accordance with the surrounding VRM class for low management level segments.*”

Table 2-3 identifies new areas for management under VRM Class II; and according to Chapter 4, these areas are specifically defined for management of sensitive cultural resources, including the northwest portion of the planning area north and east of U.S. Highway 30 and the federal section that contains the Bridger Antelope Trap along with the federal sections within 3 miles of the Bridger Antelope Trap.

More specifically, a “*visual corridor extending up to 1 mile will be imposed to protect these identified Class II visual resources, such as the Sublette Cutoff, the Slate Creek Cutoff, portions of the Oregon-California Trail, and part of the Oregon-Mormon-California Trail south of I-80 and east of Bigelow Bench. Other visual resources, such as the area from Slate Creek Ridge north and west of U.S. Highway 189 to U.S. Highway 233, the area of Oyster Ridge northeast of Kemmerer, the northeast portion of the planning area north and east of U.S. Highway 30, and the Star Valley area, also will be managed as VRM Class II. In addition, a 3-mile buffer on either side of State Highway 414 will protect other Class II values.*”

Comment and Recommendation: We question BLM’s ability to manage the above-identified areas as Class II VRM. Appendix N stipulates that “*surface disturbance will be prohibited in VRM Class I and II*

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areas,” but much of this area is already under lease for oil and gas. In addition, 100-foot transmission lines also cross the area. According to the BLM Manual, simply because area may have high visual values is not justification to assign it to the category it meets. According to IM 98-164, BLM must also recognize there are activities which impact visual resources that are not “discretionary,” such as those where valid existing rights are involved. Nevertheless, BLM has increased the application of VRM II under both Alternatives B and D by more than 300 percent. While measures may be developed to mitigate impacts to visual resources, all measures must be consistent with valid existing rights. Therefore, it seems ill-considered to impose VRM II in areas where BLM knows its management objectives may not be legally met.

Despite the fact the DEIS states on page 4-27 that new “*constraints will not affect existing leases*”, it is not disclosed how BLM intends to manage rights-of-way (ROW) required to exercise these valid existing rights when many of these ROWs will be off-lease. Clearly preventing leaseholders from obtaining essential ROWs will also affect valid existing rights, which would be construed to be a “taking” of these rights. We recommend that BLM include a discussion of how it will manage ROW activities in these areas with respect to valid existing rights.

NATIONAL HISTORIC TRAILS

Based upon the maps that accompanied the DEIS, it is virtually impossible to determine where special management is being proposed. More detailed maps of the NHT showing the various levels of protection proposed are needed before an adequate review can be accomplished. Nevertheless, we did our best to decipher BLM’s intended management.

On Page 2-93, Table 2-3, Preferred Alternative, the DEIS proposes to “*preserve the viewshed within 3 miles of high management level NHT segments north and east of U.S. Highway 30 and west of the Hams Fork river (Tunp/Dempsey Trail area)...Design ROW to preserve the visual integrity of the settings consistent with the BLM visual resources handbook and manual. The settings are not suitable for developments containing high-profile structures (higher than 12 feet), particularly wind power.*”

Comment and Recommendation: As displayed on Map 60, BLM’s proposed preservation will encompass nearly six entire townships, much of which is under existing oil and gas lease. Moreover, BLM has not demonstrated that the current 1/4 mile or line of sight buffer is insufficient to protect NHT scenic values. This is another case where BLM’s proposed management could abrogate existing lease rights. BLM has apparently failed to recognize that this area covers a significant part of the Wyoming Overthrust Belt where oil and gas exploration and development projects will occur. We are concerned that the imposition of a 6-mile preservation corridor along NHT could not only negatively impact future on-lease activities but could also negatively impact ROW access to existing leases as discussed above under VRM Resources, particularly when these two management decisions overlap. BLM needs to analyze these potential impacts before release of the FEIS. This analysis must also include the effects on oil and gas activities that would arise from imposition of a 6-mile NHT corridor with respect to the requirement for consultation with the State Historic Preservation Office when NHT viewsheds are involved.

Given the topography of this area, there are many opportunities to mitigate visual impacts without resorting to imposition of the ill-conceived 6-mile buffer along NHT. If BLM is to honor valid existing rights as well as reduce impediments to development of crucial domestic energy supplies, the

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agency is encouraged to reconsider its proposal and develop a new proposal involving less onerous and flexible mitigation measures.

A 12-foot high threshold on all structures in the area is also cause for great concern. While wind energy structures are singled out, this threshold could ostensibly apply to drill rigs which typically exceed 12 feet, even though temporarily. Establishment of this threshold would clearly impact oil and gas operations; but nowhere in the DEIS is this impact discussed. Moreover, BLM has failed to acknowledge the existence of the 100-foot high electrical transmission lines that traverse the area. Again, we recommend that BLM retain flexibility by allowing a project proponent the chance to develop appropriate mitigation measures to protect visual impacts, in accordance with existing rights, rather than relying upon an arbitrary threshold for which no justification has been provided.

EMIGRANT SPRINGS BACK COUNTRY BYWAY

According to [Table 2-3](#), BLM intends to designate an existing road as the “*Emigrant Springs Back Country Byway*” which encompasses a 4.5-mile primitive two-track and an 11-mile crowned and ditched gravel road. While the DEIS at page 4-228 provides that no special constraints are associated with the designation, page 4-229 directs that the road would “*remain a primitive four-wheel drive road and not be upgraded from current conditions*”.

Comment and Recommendation: The DEIS fails to disclose whether this is a BLM road or a county road. Obviously this is an important distinction that must be made. If it is a county road claimed under RS-2477, BLM has no authority to impose this designation. If the road is a BLM road, we are concerned the requirement that it must not be upgraded from current conditions would inhibit industry’s ability to access and develop existing leases in the area. Clearly, if the road is needed for such projects, it would be necessary to upgrade the road to accommodate truck traffic and transportation of heavy equipment. Moreover, it would be imprudent for BLM to expect a lessee(s) to construct a new road to access the same leases, particularly since the entire area is subject to VRM Class II.

WILDLIFE

4000 – Goals and Objectives – Page 2-51

[B:6.1](#) “*Manage habitat to support WGFD in the attainment of their big game herd unit objectives, strategic population plans, the Strategic Terrestrial Plan and the Aquatic Habitat Plan, and to achieve the stated purpose of designated Wildlife Habitat Management Areas.*”

Comment and Recommendation: We recognize that BLM manages wildlife habitat while the Wyoming Game and Fish Department manages wildlife populations. However, there are many cases where current wildlife populations exceed the targets established by the State agency. We encourage BLM to take this situation into account when determining best management practices for oil and gas activities along with Conditions of Approval (COA) that may be attached to a permit approval. We oppose highly restrictive protection measures in areas where wildlife populations are far beyond attainment objectives.

[BR:6.2/7.2/8.2](#) “*Ensure that no greater than 12.5 percent net loss of crucial habitat acres occurs in the planning area over the life of the plan in the absence of voluntary offsite mitigation.*”

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Comment and Recommendation: Crucial habitat, as shown on Map 22, covers a significant portion of the KFO planning area, including many currently leased areas. We could find no discussion that provides a rationale for how BLM determined that a 12.5 percent limit on crucial habitat loss is necessary or even appropriate. Nor can any evidence be found that BLM would consider the differences between long- and short-term activities and their potential for creating habitat losses. Clearly, current reclamation practices must be taken into account in making such a determination. BLM must fully disclose its justification for this apparently arbitrary goal by detailing how this figure was determined and how it will be implemented.

[BR:6.7/7.7/8.6](#) and [MA 4004](#) “*Capitalize on opportunities to maintain and enhance wildlife habitat capability and functionality, and provide adequate habitat, protection from disturbance, and barrier-free movements in identified wildlife migration routes and fish passages within the planning area.*” and “*Utilize appropriate voluntary offsite compensatory mitigation to reduce impacts if necessary after all onsite mitigation has been accomplished or if onsite mitigation is not feasible.*”

Comment and Recommendation: We do not object to practices to maintain or enhance wildlife habitat capability and functionality, provided BLM does not intend to place the burden of these activities on the shoulders of KFO oil and gas operators. While industry is amenable to helping the agency in certain improvement activities, such efforts must be associated with a specific project and must result in a benefit to the project operator. Moreover, all such activities conducted by industry must remain voluntary, as discussed in our comments on compensatory off-site mitigation.

[Page 2-62](#) BLM states it will “*Avoid habitat fragmentation through attenuation, siting, and consolidation of roads, energy facilities, and other developments in identified special status species habitat, unless appropriate mitigation is initiated.*”

Comment and Recommendation: We recommend this statement be revised as follows, “*Avoid habitat fragmentation through reasonable attenuation, siting, and consolidation of roads, energy facilities, and other development, with consideration for engineering feasibility and safety, in special status species habitat, unless appropriate mitigation is initiated.*”

Map 26 must be revised to delineate all special status species habitat. As it now stands, there is no way for the public or industry to understand where this requirement would be implemented.

[Page 2-62](#)

- Greater sage-grouse leks: (1) Avoid surface disturbance or occupancy within ¼ mile of the perimeter of occupied greater sage-grouse leks; (2) Avoid human activity between 8 p.m. and 8 a.m. from March 1 through May 15 within ¼ mile of the perimeter of occupied greater sage-grouse leks.
- Greater sage-grouse nesting and early brood-rearing habitats: Avoid surface-disturbing and disruptive activities in suitable greater sage-grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified greater sage-grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 through July 15.

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- Greater sage-grouse winter habitat: Avoid surface disturbance and disruptive activities in occupied greater sage-grouse winter habitats from November 15 through March 14. Exceptions to CSU and timing restrictions will continue to be considered on a case-by-case basis.

Comment and Recommendation: We can find no analysis in the DEIS that demonstrates these new restrictions are justified. It is also unknown whether these seasonal restrictions would also apply to maintenance and operations of existing facilities or only to new construction and new drilling. We oppose application of these restrictions on operating wells due to safety issues, not to mention the loss of production. BLM must include an analysis and justification in the FEIS or eliminate the new constraints.

- “Locate facilities or reduce noise levels to 49 dB or less as measured 900 feet from the noise source to minimize the impacts of continuous noise on species relying on aural cues for successful breeding.”

Comment and Recommendation: We can find no analysis or justification for this new constraint and we oppose its inclusion in the DEIS because it is overly restrictive. There is no information on how BLM determined that 900 feet and 49 decibels are the magic numbers. Moreover, BLM fails to provide information regarding how it intends to quantify background noise levels to determine whether or how noise levels have been impacted by a new facility.

- Avoid new high-profile structures (higher than 12 feet) within 1 mile of occupied sagebrush obligate habitats unless anti-perch devices are installed.
- Prohibit new high-profile structures relying on guy wires for support in these habitats. Exceptions can be made if NEPA analysis shows little or no impact to sagebrush obligate species.

Comment and Recommendation: We oppose this new restriction because it would eliminate the use of all drilling rigs, even though they are only temporary facilities. Clearly, this would be in violation of all existing lease rights and would prevent any future drilling activity on new leases. This new requirement must be eliminated from the FEIS because it would have a detrimental impact on energy activities. Furthermore, it would create a needless impediment to the recovery of energy sources which is in direct conflict with the President’s Energy Policy and EPCA.

[Page 2-64](#)

- Surface-disturbing and disruptive activities to nesting raptors are prohibited within the following distances from an active nest from February 1 through July 31 with the exception of burrowing owl (April 1 through September 15, or whenever the young have fledged) and northern goshawk (April 1 through August 31):

Comment and Recommendation: BLM has failed to provide any justification for the one-month extension of the seasonal restriction for the burrowing owl. BLM must provide scientific data that demonstrates this new restriction is necessary in the FEIS or eliminate it from the proposed RMP. With respect to the Northern Goshawk, this is an entirely new restriction. As previously stated BLM must provide scientific justification for this new restriction or eliminate it from the proposed RMP.

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We are concerned that the seasonal restriction for burrowing owl would not be limited to active raptor nests, but could be applied in any “potential” habitat for burrowing owls. We object to the protection of potential habitat because it is an unknown quantity. BLM’s management must be limited to known and documented habitat. Otherwise, this restriction could be broadly and arbitrarily applied in an attempt to limit surface activities, such as those associated with valid existing lease rights. We request that this distinction be made in the FEIS.

- April 1 through July 31: osprey, merlin, sharp-shinned hawk, kestrel, prairie falcon, northern harrier, Swainson’s hawk, Cooper’s hawk

Comment and Recommendation: The same comments iterated above apply to the expansion of the seasonal restriction for the Prairie Falcon. BLM must provide scientific data that demonstrates this new restriction is necessary in the FEIS or eliminate it from the proposed RMP.

- Prohibit surface-disturbing activities in identified pygmy rabbit habitats.
- Avoid activities that could result in collapse of burrows in occupied white-tailed prairie dog colonies or complexes 200 acres or greater, unless appropriate mitigation occurs.

Comment and Recommendation: These new restrictions have not been discussed or justified. Neither of these species warrants a classification of “special status.” The mere fact that someone nominated these species for listing on the Endangered Species list does not validate BLM’s proposal to classify them as having special status. The fact remains the Fish and Wildlife Service found that neither of these species qualifies special status. Clearly BLM must consider these determinations in deciding special protection measures. Obviously, these do not and BLM’s proposed management must be removed from the FEIS.

- Identify and develop management for traditional migration and travel corridors for special status species.

Comment and Recommendation: This proposal is confusing for a number of reasons. First, there is confusion between big game and special status species. We are unaware of any big game as being categorized as a special status species. This reference must be removed from the document. Second, no details on when and how BLM intends to identify these corridors are provided. No map has been included in the DEIS showing potentially where these migration and travel corridors exist. Absent this information, neither the public nor industry has any idea of what BLM intends under this direction.

CHAPTER FOUR – ENVIRONMENTAL CONSEQUENCES

General

Kudos are in order with respect to the way this chapter was written in terms of the discussions of mitigation that could be used to reduce impacts on other resources from oil and gas activities. The historical lack of this type of discussion in RMPs has been a major sore point to PLA. Nevertheless, we have identified several concerns as noted below.

[Pages 4-27-28, Methods and Assumptions](#)

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Comment and Recommendation: We strenuously object to the DEIS's practice of combining stipulations into the categories of moderate and major. We strongly recommend that each individual lease stipulation be identified and mapped by alternative in the FEIS, i.e., No Surface Occupancy (NSO), Timing Limitations (TL), Controlled Surface Use (CSU). As this information is currently portrayed, it is impossible to determine how existing and future leases will be impacted by the RMP. It is critical for BLM to recognize that companies refer to the RMP when evaluating lands for potential lease nominations, lease acquisitions and project level decisions.

Page 4-29, *Impacts from moderate constraints, while adverse, are typically indirect and not as severe as those resulting from major restrictions. Moderate constraints may limit the timing of development activities or require specific mitigation, but they do not necessarily remove the acreage from development or require directional drilling.*

Comment and Recommendation: These assumptions underestimate the impacts of wildlife timing limitations when they overlap with a number of different seasonal restrictions for a number of species. They also fail to take into account that restrictions in most areas are not limited to seasonal wildlife restrictions. Other restrictions identified in the DEIS involve ROW avoidance areas, VRM classifications, cultural resource and National Historic Trails restrictions as well as other restrictions designed to protect other resources. BLM must recognize that the combination of stipulations in a given area will result in highly severe impacts on oil and gas operators. It is unclear whether this combination was taken into account when determining impacts on future oil and gas operations.

Page 4-50, *Habitat Fragmentation and Biological Diversity, "...large blocks of contiguous habitat with low oil and gas development potential are administratively unavailable for oil and gas leasing in alternatives B and D."*

Comment and Recommendation: No map that specifically identifies these large blocks is included in the DEIS. This must be remedied in the FEIS. We do not understand the rationale for making large blocks of land administratively unavailable for leasing. We assume that these areas have low potential for development because they have low potential for oil and gas. This should be clarified in the FEIS. Otherwise, the areas would have low potential for development because they will not be made available for lease. Nevertheless, it is evident BLM has decided that it wants to ensure these areas are not developed. However, it must be recognized that even areas with low geologic potential can contain viable resources that have yet to be discovered. Since industry has demonstrated its willingness to work with the agency to minimize impacts from oil and gas operations, it is unnecessary to arbitrarily withhold lands from leasing.

Page 4-103, *"Alternative D closes four big game crucial winter ranges to motorized vehicles annually from January 1 to April 30, although exemptions apply."*

Comment and Recommendation: We can locate no maps that identify these areas. Nor can we find any reference to the types of exemptions that may be granted. Again, we are concerned that these seasonal closures would impact well maintenance activities. We are also concerned that the DEIS fails to quantify the potential effects such closures would have on existing lessees and current or future activities. It is essential that the FEIS identify these seasonal closure areas along with the types of exemptions that may be allowed.

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Page 4-126, *Section 4.4.8.2 – Special Status Species Wildlife (Sage Grouse) – "Specifically, mineral and energy development has been identified as a potential cause of declining greater sage-grouse populations (Wyoming Sage-Grouse Working Group 2003)."*

Comment and Recommendation: While we acknowledge that unchecked development can have a detrimental impact on sage-grouse populations, preliminary results of research conducted by R.C. Taylor, et al. (in prep.) indicates that Greater Sage-grouse continue to attend leks within existing gas fields in southwestern Wyoming even after more than 30 years of development and production activity (specifically the Moxa and Wamsutter gas fields). Ten generations of males would not continue to attend leks if females were not present in the area. Taylor used the WGFD Greater Sage-grouse and the Wyoming Oil and Gas Commission databases as the source of information for her work and compared impacted and un-impacted lek average male attendance in developed fields with differing densities, intensities and types of oil and gas production throughout the state and found that while Greater Sage-grouse appear to displace from high density development areas into less developed areas they continue to attend leks with up to 8 wells drilled per section (80 acre spacing). Male attendance was lower on impacted (>10 wells in the 2 mile radius) leks than on un-impacted leks. Avoidance of development within the 0.25 lek radius appeared to be critical to continued lek use. Population trend lines are similar on impacted and un-impacted leks, the WGFD management area and statewide, indicating that, while male attendance is lower on impacted leks, extirpation is not occurring and oil and gas development is not controlling Greater Sage-grouse populations on a field wide or population level.

We urge BLM to carefully consider its proposed mitigation of Sage-grouse to take into account all data that has been provided to the agency.

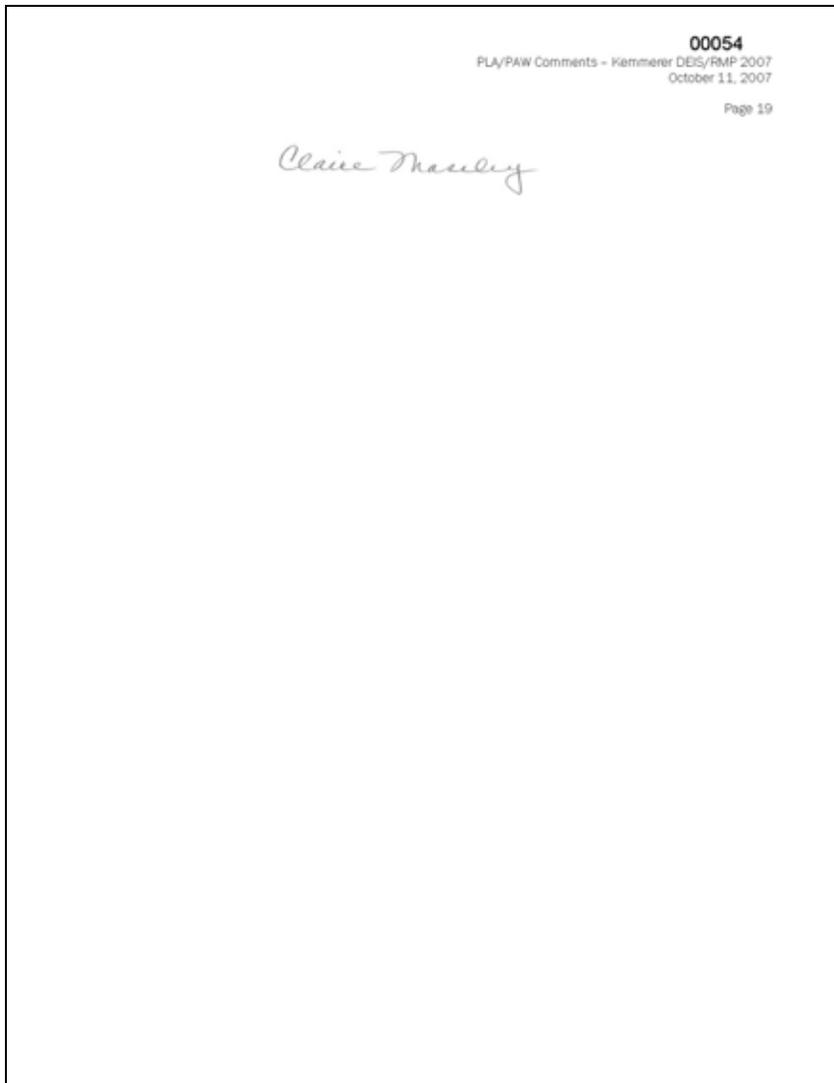
CONCLUSION

PLA and PAW are concerned by the significant flaws in the DEIS as detailed in our comments. Maps that accompanied the DEIS are inadequate or completely missing making it extremely difficult to analyze the impacts of the proposals on existing and future oil and gas activities. The RFDS does not consider information presented to the KFO regarding in-fill development in the Moxa Arch area nor does it comport with IM 2004-089, *Policy for Reasonably Foreseeable Development for Oil and Gas*. The DEIS and Draft RMP also contains hugely significant increases constraints without any supporting data and clearly fails to meet the intent of EPCA and IM 2003-233, *Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results into the Land Use Planning Process*, which directs the agency to utilize the least restrictive measures needed to protect other resource values. BLM has also arbitrarily extended viewshed protection buffer zones without taking into account how these new designations will impact valid existing lease rights or whether they are actually needed due to much of the topography in the area. We urge BLM to make significant improvements to the DEIS as outlined in these comments before it is released as a final EIS and RMP.

We appreciate this opportunity to provide you with our views and concerns. Please do not hesitate to contact us if you would like to discuss our concerns in greater detail.

Sincerely,

Appendix B – Public Response Documents



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