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WER 6425.04
Bureau of Land Management
Kemmerer Field Office
Draft Environmental Impact Statement
Moxa Arch Area Infill Gas Development
Sweetwater, Lincoln and Uinta Counties

Michele Easley
Bureau of Land Management
Kemmerer Field Office
312 Highway 189 North
Kemmerer, WY 83101

Dear Ms. Easley:

The staff of the Wyoming Game and Fish Department has reviewed the Draft Environmental Impact Statement for the Moxa Arch Area Infill Gas Development in Sweetwater, Lincoln and Uinta Counties. We offer the following comments.

Thank you for including many of our past comments into the current draft of the document.

## GENERAL COMMENTS

### Assurances and Performance-based Planning

We recommend a performance-based approach to the Moxa Arch development be used in the eventual preferred alternative. The document needs to provide assurances that the preferred alternative and eventual ROD will be implemented properly. This will necessarily include compliance by all individual operators so that the appropriate wildlife and habitat impact avoidance, mitigation, and reclamation measures will be implemented and provide functional results throughout the entire development area. Since compliance has been problematic in the past, and this development covers a large area with a complex variety of natural resource issues, we feel this approach would help assure adequate implementation would occur, and that it would occur at the necessary landscape scale.

Toward this end, we recommend the FEIS and eventual ROD include and specifically state the performance-based objectives that would help provide the necessary assurances. Many

of these can be described by specifically stating the intentions already outlined in the DEIS, and quantifying them as appropriate.

We further recommend that State Cooperators be included in the implementation process for the eventual ROD, so that we can track the development's progress and affects and provide adaptive management input for the State-owned and managed wildlife resources on BLM land for the LOF.

One significant item that would provide a "fail-safe" type assurance on impacts would be to place acreage or other disturbance caps on the development, in order to assure that impacts would not exceed some maximum amount. This would need to be done on an Operator-by-Operator basis, so that all Operators were under the same restriction, probably based on a percentage of their respective lease or operational areas. This would provide a known quantifiable limit for impacts on specific sensitive resources (such as crucial winter ranges).

**Monitoring and Mitigation**

Monitoring is necessary to determine whether performance-based objectives are being met, whether mitigation and reclamation measures are adequate, and to provide the basis and direction for future development during the LOF. Monitoring methodologies need to be further outlined in the preferred alternative, along with the flexibility to change methodologies during the LOF as both data needs and science develops further.

There is a lack of baseline data for some resources in the MAA, and this prevents an adequate analysis of potential impacts in the DEIS. An additional advantage of the monitoring required for a performance-based approach is the collection of data necessary to support the proper development of the MAA.

Monitoring would also indicate when mitigation thresholds are reached that would trigger appropriate mitigation responses. We recommend our Department's document *"Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats"* be referenced as an additional source of potential mitigation responses.

**Reclamation Plan**

The Operators have committed to a performance-based evaluation of interim and final reclamation in their Proposed Action, but there needs to be considerable detail added in order to provide adequate assurances of functional post-development reclamation. The reclamation plan needs specific success standards in order to help assure that revegetation efforts provide adequate habitat for wildlife and other vegetation results, and in a timely manner. The draft plan in the DEIS does not provide the quantitative means to describe successful reclamation or time frames for achievement of desired results.

**Preferred Alternative Components**

In summary, we recommend the eventual preferred alternative include the following:

- A performance-based approach and objectives
- State Cooperator involvement in development implementation
- Specific monitoring efforts and methods
- Mitigation triggers and additional potential mitigation options
- A more quantified reclamation plan
- A commitment to utilize horizontal drilling as the technology develops, and to pipe condensate and water as centralized production facilities develop
- Minimize and share roads, and restrict unnecessary traffic

## SPECIFIC COMMENTS

In addition to the major changes above, the following are some comments and recommendations for the DEIS as currently written. Due to their length, it was easier and took much less space to write them in text form rather than using the comment matrix.

### Chapter 2

Chapter 2, Section 2.1, page 2-1, 2nd paragraph and Table 2-2: The document lists disturbance by total acreage; we recommend disclosing the acres of disturbance by habitat type.

Chapter 2, Section 2.3.1, page 2-3, 2nd paragraph: It may prevent some habitat loss if new compressors could be communally located with existing facilities.

Chapter 2, page 2-23, Table 2-6, Big Game: It should be noted that listing 5% and 10% of total acreage disturbed does not adequately cover the indirect impacts that also occur at farther distances from the actual ground disturbance. Both direct and indirect impacts should be addressed in the FEIS.

### Chapter 4

Chapter 4, Section 4.7 and Section 4.7.4, Vegetation and Wetlands: Section 4.7 and Section 4.7.4 do not agree with each other. The text description of significance of vegetation impacts in Section 4.7.1.3.1, Section 4.7.1.3.3, and Section 4.7.1.3.4 all clearly indicate that vegetation/sagebrush impacts will be significant. Yet Section 4.7.4, in addressing the affects of removal of vegetation for wildlife habitat, states that only Alternative C would have substantial impacts and all other alternatives are not anticipated to be significant. These conflicting conclusions are also a problem in Table 2-6, which waffles between the two by either indicating "possible" significance or comparing levels of impact relative to other alternatives and avoiding significance altogether. It is obvious from the description of acreages and habitats involved that all action alternatives will have a significant impact of vegetation, in terms of wildlife habitat, and this should be clearly stated throughout. Because of the recognized time for re-growth of shrubs (up to 30 years, as stated in Section 4.7.1.5), these impacts will also certainly be residual in all action alternatives.

Chapter 4, Section 4.8.2.2, page 4-41, Significance Criteria: We do not agree with the third Significance Criteria for raptors (more than 5% of area within the 0.5 miles buffer around the nest as a measure of potential forage loss). As far as we know, there is no basis for this as a criterion, and no explanation is provided. Raptors forage over areas that are highly variable in size and shape, and a description of forage availability near a nest is not nearly as likely as the other disturbance factors to describe impacts for a given nest.

Chapter 4, Section 4.8.2.3, pages 4-41 to 4-42, Direct and Indirect Impacts: This raptor impact section does not identify clearly whether impacts are significant, or whether they are significant for the LOF. We agree that seasonal stipulations provide protection that may be sufficient for the development phase of the LOF. However, the impacts to raptor nests will continue during the much longer production phase, given the predicted density of well pads and the human activity that will take place during that phase. The distances from producing wells to nests will most often be considerably less than the standard stipulation distances that will be provided during drilling (assuming an average of 8 well pads/section), and especially in those areas where well densities will be as high as 12/section. We expect abandonment, or continued abandonment, of some nest sites because of the disturbance during production, and of these, some nests will likely move to nearby alternate sites and some will simply be lost. Also, this DEIS analyzes the impacts on private/state lands as well as on federal lands, and there will certainly be less knowledge about locations of raptor nests and less adherence to seasonal buffers on non-federal lands. Since any "take" of raptors will be considered significant (as noted in the criteria in Section 4.8.2.2), and it highly unlikely all raptor "takes" will be avoided, it seems apparent that raptor impacts must be considered significant.

Chapter 4, Section 4.8.2.4, page 4-42, Mitigation: Raptor mitigation should include providing artificial nest sites so that nests can be moved out of the path of development, and for providing additional nest sites in more undisturbed areas that lack the necessary habitat structure for a natural nest. Mitigation should also include enhancing prey habitat (grasses, forbs, and young shrubs) to support raptors in less densely developed areas, or off-site. These areas can be distributed widely over the MAA and in areas adjacent to the MAA, and would also have the additional benefit of improving habitat for other impacted wildlife species. Obviously, artificial nests should not be provided in area where other sensitive wildlife would be detrimentally affected (e.g., near sage grouse leks).

Chapter 4, Section 4.8.3.3, pages 4-46 to 4-49, Direct and Indirect Impacts: We disagree with the statements that pronghorn and elk impacts are not significant in the core area in the Proposed Action, or "could" be significant in Alternatives B and C. The action Alternatives assume an average density of eight wells per section (one well per pad) over the entire MAA core area, with some areas having as high as one well per 53 acres. As noted in Table 4-7, the 80-acre spacing is a "high" impact, the 53-acre spacing is nearly into the "extreme" impact category, and the 80-acre spacing is an "extreme" impact for pronghorn migration routes, and the 80-acre spacing is well into the "extreme" impact category for elk.

For all alternatives, there will be significant habitat fragmentation and human disturbance associated with the level of activity across the landscape in both the development and production phases of the field. This will result in substantial loss of habitat function and substantial

disruption and likely abandonment of vital value habitats, and since this a significance criteria listed in Section 4.8.3.2, we recommend the impacts to pronghorn and elk crucial winter ranges be stated in the FEIS as significant for all action alternatives throughout the life of the field.

Chapter 4, Section 4.8.3.4, page 4-49, Mitigation: Mitigation for pronghorn and elk crucial winter ranges should include avoidance of development impacts, use of seasonal stipulations during development, and both on-site and off-site habitat enhancements. It should be noted that seasonal stipulations, while valuable for protecting habitat during the crucial winter period, do not preclude development of crucial habitats during other times of the year, and thus cannot by themselves prevent significant impacts.

Most of the MAA is a checkerboard ownership, making large-area development timing difficult. However, the north end is a block of federal ownership, and this area contains both elk and pronghorn crucial winter ranges. Along with continuation of winter stipulations, we recommend consideration of a planned progression of development on this area, where a tightly-spaced cluster development area would move across the area, impacting as little of the total area as possible at any point in time. This would result in "high" or "extreme" impacts to pronghorn and elk in the area being developed, but the impacts would be confined to a small area, allowing undisturbed use of the majority of the crucial winter range. A centralized gathering system should especially be evaluated for this area to minimize truck traffic and human disturbance for maintenance activities during the long production phase. The progressive development schedule across the more compact development area should allow a more efficient and minimal road system to be constructed as development moves across the area. Interim reclamation should immediately follow development so that the maximum possible amount of disturbed area can provide, more quickly, some level of habitat use until final reclamation was finished.

For pronghorn crucial winter ranges in checkerboard ownership, we recommend consideration of continuing the zone system for crucial big game ranges, as in the current ROD. Under this system, we recommend a decreased pace of development for the federal ownership. This would of course include continuation of the pronghorn winter stipulations, and we would also recommend that drilling in the core area be limited at any point in time to the number of well pads within the "moderate" impact level as noted in Table 4-7. We realize the private lands within the checkerboard will likely have proportionately more drilling during winter, but at least the half of the checkerboard that are federal lands in these large and significant winter range areas will continue to provide an increased level of habitat function during the most disruptive stage of the life of the field (drilling). We also recommend habitat enhancements for the undisturbed areas to increase the carrying capacity of the remaining available habitat, as well as a very quick interim reclamation following initial development activities. The combination of providing larger habitat fragments during the most intense disturbance period and an increased productivity of those fragments and disturbed areas throughout the life of the field would be the most effective combination for maintaining pronghorn on these traditional crucial habitats.

More specific options for habitat enhancements are found, and should be referenced in the ROD as available, in Appendix C of our Department's *"Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats"*.

Chapter 4, Section 4.9.2.1.2, page 4-54, Greater sage grouse: It is stated that there likely has already been significant impacts to leks and breeding/nesting habitat in the MAA. We agree, and with the Significance Criteria listed and the certainty of those criteria being met with any action alternative, we recommend also stating clearly that significant impacts will continue to occur. It should be disclosed that leks within the Moxa Arch development have declined in male attendance or resulted in abandonment, while peripheral leks have shown no similar declines.

In addition to leks and breeding/nesting habitat, identified winter concentration areas should be protected, and long-term surface disturbances that would impact these areas year-round should be avoided.

Chapter 4, Section 4.9.2.1.3, page 4-55, Sagebrush Obligate Birds: Several times in this document, analysis of impacts has been skirted since "it cannot be determined how wells will be distributed across the MAA." It is fair to say, at least qualitatively, that impacts to sagebrush obligates of all species will be significantly impacted in the MAA given the expected intensity of development.

Chapter 4, Section 4.9.2.4, page 4-58, Mitigation: Mitigation for sage grouse nesting and brood-rearing habitat and for habitat losses for the other sensitive sagebrush species should include habitat enhancements that would improve the quality of undisturbed habitats within and adjacent to the MAA. Habitats for these species are widespread across the MAA and the availability of enhanced quality habitat through the development and production phases of the MAA will be necessary to compensate for impacted habitat.

For sage grouse habitat enhancement, the eventual ROD should refer to the current version of Wyoming's sage grouse comprehensive plan for providing a diverse vegetative habitat for sage grouse, and by inclusion, a number of native wildlife species, including the sensitive sagebrush species affected by MAA development.

Additional specific options for habitat enhancements are found, and should be referenced in the EIS as available in Appendix C of our Department's *"Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats"*.

**Appendix A**

Appendix A, Section 3.2, page A-2, Raptor Nests: This section uses a 0.75 mile radius buffer for raptors, while Section 4.8.2 in Chapter 4 uses a 0.5 or 1.0 mile radius. This should be corrected so that the entire document uses the standard radius figures (which are 0.5 and 1.0 miles).

Appendix A, Section 3.3, page A-2, Greater Sage-Grouse: The sage grouse stipulations are incorrectly worded. Corrections should be made as follows:

"No activity or surface disturbance will be allowed within 0.25 mile of ~~a sage grouse lek center~~ *the perimeter of a sage grouse lek* from March 15 through May 31."

~~"Surface disturbance may be allowed when a field exam determines the specific area used for strutting. In this case, the restriction would be applied only to the actual lek site and a 500-foot buffer around the perimeter."~~ This addresses the same thing as previous sentences, but the restriction is different and thus confusing. The previous sentences are the correct wording for this standard stipulation.

"~~Activities which do not disturb the surface may be allowed any time from June 1 through March 14.~~ Activities which do not disturb the surface may be allowed from March 15 through May 31 *between 8AM and 8PM* ~~from five hours after sunrise until two hours before sunset.~~" The first sentence is stated previously. The second sentence needs the indicated change to be in line with the current statewide stipulation.

The following stipulations need to be added (they are standard statewide stipulations):

*"Avoid surface disturbing activities in suitable sage grouse nesting and early brood-rearing habitat within 2 miles of an occupied lek or in identified sage grouse nesting and early brood-rearing habitat outside the 2-mile buffer from March 15-July 31."*

*"Where it has been designated, avoid human activity in sage grouse winter habitat from November 15-March 14."*

Appendix A, Section 5.0, page A-7, Mitigation Measures: There are a number of specific wildlife mitigations, both operational and biological, that may be applicable to the MAA during the life of this document. Rather than try to list them all individually or species-by-species, we recommend the following statement be included in this section: *"The WGFD document "Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats" can be used as a reference for mitigation options for fish and wildlife and their habitats".*

Appendix A, Table A-1, page A-10: Under Fisheries and Wildlife Mitigation, item 5, we recommend the following change: "Development, *in collaboration with the Wyoming Game and Fish Department and Wyoming Department of Agriculture,* of a supplemental Wildlife and Livestock Mitigation document that will identify specific mitigations to be applied both onsite and offsite." This would include State input for ongoing development efforts and help assure that State resources were being managed optimally throughout the LOF.
Under Vegetation/Wetlands, Mitigation #1 should specifically state that reclamation will take place *"within the first growing season"* instead of "immediately following construction", in order to specifically clarify the time frame.

Appendix A, (additional Section on Monitoring): Monitoring of reclamation is included in Section 4.1, but there is no monitoring requirement described for either BMPs or mitigation measures. Monitoring results are necessary to determine results of those measures and provide indications or triggers for initiating mitigation measures. We recommend an additional Section in Appendix A for Monitoring, and to include the following in it:

*"Operators will be required to annually monitor big game, raptors, sage grouse, and sensitive species to determine impacts, and to determine success of mitigation for impacts. Annual meetings will be held with WGFD to review annual monitoring needs and results, and formulate mitigation responses as necessary to respond to unavoidable impacts."*

*"Vegetation enhancement is a viable mitigation measure and will begin immediately upon approval of the ROD for foreseeable impacts, and not wait for those impacts to occur, in order to avoid the time lag between impacts and availability of enhanced vegetation".*

**Appendix E**

Appendix E, Section 1.0, page E-1, Introduction: We strongly recommend including a formal annual review process involving State Cooperators for reclamation and mitigation efforts. This would allow State Cooperators to both monitor the progress and provide input into the actions involving the management of State resources, and provide a means for including their expertise on an ongoing basis throughout the LOF. We specifically recommend the development of an annual review process that would provide a summary of past years' reclamation and mitigation activities, the monitoring results of those efforts, and the opportunity to provide input into future efforts. This would result in an ongoing adaptive management approach to reclamation and mitigation that would comprehensively include involved stakeholders with responsibility for management or use of affected resources (BLM, Operators, and the State).

Appendix E, Section 3.1, page E-3, Clearing, Topsoil Removal, and Storage: It should be stated that stockpiled topsoil will be seeded with native perennial grasses or an appropriate cover crop, and that soil will be reapplied to a reclaimed area while the soil is still viable, if at all possible, usually within 2-5 years.

Appendix E, Section 11.1, page E-19, Specific Performance Standards: The stated standards for the vegetation component deal only with seedling density, cover, and dominant species, and lack the quantitative specificity and time requirements that would assure adequate and functional revegetation. Additional criteria are needed to adequately describe successful revegetation, and to accomplish this in a timely manner. We recommend the following be substituted for the short-term (interim) and long-term (final) reclamation components (these closely parallel the final Jonah and currently proposed Pinedale Anticline standards):

***Interim or Final Reclamation Criteria:***

*A sample representation of the vegetative population will be used to collect the vegetative data on the reclamation and reference site. The reference site location will represent the ecological characteristics of the well pad prior to disturbance.*

*Successful reclamation to facilitate restoration of habitat function will be measured in stages as follows:*

> *Within 1 year of initiation of interim or final reclamation sites will demonstrate the establishment of a viable desirable seedling density or frequency. Desirable seedling*

*density or frequency, compared to reference site, shall consist of a vigorous, diverse, native (or otherwise approved) plant community or ecologically comparable species as approved by BLM Authorizing Officer.*

***Vegetative Criteria for Successful Interim Reclamation***

***a. Native Forbs:*** *The average density or frequency of desirable forbs must be a minimum of 75% of the reference site within 5 years. Diversity of forbs on a reclaimed site must be equal to or greater than the reference site within 5 years.*

***b. Native Shrubs:*** *The average density or frequency of the shrub component must be at least 50 % of the reference site within 5 years. This includes both shrubs and half shrubs (e.g. winterfat, fringed sage, etc.). At least 15 % density or frequency of the shrub component must be by the dominant species from reference site. The diversity of shrubs must be equal to or greater than the reference site.*

***c. Native Grasses:*** *Reclaimed sites must have a minimum of 3 native perennial grass species present, 2 of which must be bunch grass species. These are to be planted at rates appropriate to achieve abundance and diversity characteristics similar to those found on the reference site.*

***d. Non-Native Weeds:*** *Sites must be free from all species listed on the Wyoming and federal noxious weed lists. All state and federal laws regarding noxious weeds must be followed. Other highly competitive invasive species such as cheatgrass and other weedy brome grasses are also prohibited in seed mixtures and will actively treated if are found in the reclaimed areas,*

***e. Plant Vigor****: Plants must be resilient as evidenced by well-developed root systems, flowers, and seed heads. All sites must exhibit the sustainability of the above desired attributes after the removal of external influences. A minimum of 1 growing season without external influences (irrigation, mat pads, fences, etc.) may satisfy this requirement.*

***Vegetative Criteria for Successful Final Reclamation***

***1. Ground Cover & Ecological Function****:*

*To ensure soil stability and nutrient cycling, ground cover must be equal to or greater than the reference site and vegetative litter must be decomposing into the soil.*

***2. Vegetative Criteria:***

***a. Native Forbs:*** *The average density or frequency and total diversity of forbs must be equal to or greater than the reference site within 8 years*

***b. Native Shrubs:*** *The average density or frequency of the shrub component must be at least 80% of the reference site within 8 years. This includes both shrubs and half shrubs (e.g. winterfat, fringed sage, etc.). At least 25% density or frequency of the*

*shrub component must be the dominant species from the reference site. The diversity of shrubs must be equal to or greater than the reference site.*

***c. Native Grasses:*** *Reclaimed sites must exhibit grass production equal to the reference site. A minimum of 3 native perennial species must be included with at least 2 bunch grass species.*

***d. Non-Native Weeds:*** *Sites must be free from all species listed on the Wyoming and Federal noxious weed list. All state and federal laws regarding noxious weeds must be followed. Other highly competitive invasive species such as cheatgrass and other weedy brome grasses are also prohibited.*

***e. Plant Vigor:*** *Plants must be resilient as evidenced by well-developed root systems and flowers. Shrubs will be well established and in a "young" age class at a minimum (e.g. not comprised of seedlings that may not survive until the following year.*

Thank you for the opportunity to comment.

Sincerely,

for JOHN EMMERICH
DEPUTY DIRECTOR

JE:VS:gfb

cc: USFWS