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Jim Ruby, Executive Secretary  
Environmental Quality Council

Department of Environmental Quality  
Land Quality Division  
ATTN: Craig Hults  
122 West 25<sup>th</sup> St.  
Herschler Building – 3W  
Cheyenne, WY 82002

January 13, 2009

**Re: Comments on Rule Package 1-S, Revegetation Success Performance Standards**

Dear Mr. Hults,

The Wyoming Outdoor Council is grateful for this opportunity to provide comments on the above-referenced rule package. We are generally supportive of the proposed rule changes. We would like to emphasize that maintaining both shrub species diversity and shrub species composition is critical to restoring habitats to pre-mining conditions so as to maintain the ecological function of Wyoming's increasingly threatened landscapes. In particular, we respectfully urge the Land Quality Division (LQD) to ensure that difficult-to-reclaim habitats such as sagebrush, which may require many years to return to its pre-mining condition, are adequately reclaimed and at a minimum meet the 20% shrub density standard.

In addition, we offer the following specific comments on various chapters, sections, and subsections of the proposed regulations.

Chapter 1

*Definitions*

In general we appreciate the revisions and redefinitions in Chapter 1, particularly those that more precisely define biological and rangeland concepts. However, we are concerned with the redefinition of "husbandry practices." While the current definition appears to be more precise, it eliminates the prior definition's assurance that permanent

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vegetation success would be maintained after the bond-responsibility period ended. The new definition should be amended to state that permanent vegetation success is required.

We support the amended definition of pastureland that ensures that pastureland with a full shrub density equal to or greater than one full shrub per square meter is considered "eligible land" and subject to shrub reclamation under new permits. Given the threats to and decrease in shrubland habitats in Wyoming and throughout the West, maintaining pre-mine shrub densities in areas used as pasturelands may be critical to sustaining Wyoming's biological diversity and the ecological function of its shrubland ecosystems. This may be especially true for sagebrush habitats, particularly because of the precipitous declines experienced by many sagebrush obligate species. In particular, a decision on whether or not to list the greater sage-grouse under the Endangered Species Act is currently under review by the U.S. Fish and Wildlife Service and the impacts of energy development, grazing, and mining on the species are receiving increased scrutiny and attention. Wyoming's Governor Freudenthal recently (August 2008) underscored the importance of implementing protective measures for sage-grouse in an Executive Order protecting sage-grouse habitat. Therefore, the proposed regulations should contain provisions that ensure the adequate reclamation of pastureland habitats that contain sagebrush and shrubland components, since such measures will be essential to maintaining healthy populations of sage-grouse and of other sagebrush obligates as energy development pressures increase across Wyoming's landscapes.

We also support the provision in the definition of pastureland that the relative cover of introduced perennial forage species must be greater than 40% of the relative cover of total vegetation in order for the land to be pastureland. Areas that are deemed pastureland should truly be pasture and native habitats should not be swept into any definition of pastureland.

Finally, we support the definition for species lacking creditable value and commend the LQD for ensuring that noxious weeds will not be credited or counted towards meeting the revegetation success standards for cover, production, species diversity, and species composition. This is an important provision that will help ensure that only lands that are comprised of native, undisturbed plant communities will be viewed as having been successfully reclaimed. Invasive and noxious plant species are increasingly reducing the ecological function of native plant communities and reducing their ability to sustain healthy wildlife populations as well as historic land uses and values. We support the LDQ taking strong steps to ensure that the spread of non-native exotic species is neither accepted nor promoted.

## Chapter 2

### *Section 3*

We commend the Land Quality Division for the inclusion of this very important section on establishing guidelines for baseline vegetation studies in Chapter 2 of the regulations.

While some of the methodologies outlined here were formerly detailed in an appendix, their inclusion in this Chapter underscores the importance of these baseline studies in determining the extent of future impacts from mining and the subsequent success of future reclamation efforts.

*Section 3 (g)*

Although we support and appreciate the commitment of Operators to achieving the maximum shrub reestablishment performance standard (of one full shrub per square meter within shrub patches distributed over 20 percent of the eligible land), we urge the LQD and future Administrators to ensure compliance with achieving this standard, which may be difficult to enforce. Appropriate reclamation of sagebrush habitats may be particularly difficult to enforce since sagebrush may take many years to regenerate. Lengthy time frames are not mentioned in the proposed post-reclamation monitoring regulations, but must be kept in mind when determining compliance with and success of reclamation standards.<sup>1</sup>

We also remain concerned that inadequate shrub densities could be allowed under the guise of compliance with the 20% shrub density standard. If shrubs are seeded sparsely over large areas and more intensive concentrations of shrubs are seeded in smaller patches, measurements of these smaller patches would suggest compliance with the 20% shrub density standard, when in fact the larger-scale, landscape-level shrub density standards are not being met. Such a possibility underscores the importance of randomized vegetation sampling and using scientifically defensible measures for determining compliance to shrub density standards on a project-wide basis. The standard for successful revegetation must be a plant community that reflects the composition and structure (as well as function) of the original community over the long-term, and the shrub density standard must ensure that this is the case.

*Section 6 (b)(iv) (F)*

We urge the Administrator to ensure that reclamation of pasturelands includes reclamation of baseline shrub densities and that such reclamation adheres to established shrub density standards. Given the importance of shrub habitats in Wyoming and the escalating threats to these ecosystems and the wildlife and plants they support, we feel that it is critical to restore former shrub components of pasturelands and ensure that the pastureland designation is not used and manipulated to avoid meeting designated shrub density standards.

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<sup>1</sup> We suggest that the LQD consider the following publications regarding sagebrush ecology as it develops this rule. Welch, B.L. and C. Criddle. 2003. Countering Misinformation Concerning Big Sagebrush. U.S.D.A. Forest Service, Rocky Mountain Research Station, Research Paper RMRS-RP-40. Welch, B.L. 2005. Big Sagebrush: A Sea Fragmented into Lakes, Ponds, and Puddles. U.S.D.A. Forest Service, Rocky Mountain Research Station, General Technical Report RMRS-GTR-144. In addition Dr. Carl Wambolt of Montana State University has published dozens of papers regarding sagebrush ecology and we encourage the LQD to consider his work.

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## Chapter 4

### *Section 2 (d) (i)*

We support the addition that “all planted trees must have been in place at least two growing seasons.” Given the difficulty of successfully regenerating trees in many Wyoming habitats, we appreciate that the LQD will require more rigorous assurance that trees have been adequately re-established as evidenced by having survived multiple growing seasons.

### *Section 2 (d) (i)*

We support the added provisions that establish acceptable husbandry practices on reclaimed land and agree that such practices should not restart the minimum ten-year bond-responsibility period for re-establishing vegetation. However, we urge the LQD to ensure that discontinuing management measures identified as “normal” husbandry practices after the bond responsibility ends will not reduce the probability of permanent vegetation success.

### *Section 2 (d) (ii)(B)(I)(1)*

We appreciate that reclamation on grazinglands and pasturelands will be deemed complete only when both species diversity and species composition are deemed suitable for the approved post-mining land use, since both species diversity and composition are critical measures to determining suitable restoration of affected ecosystems. Nevertheless, we believe that species diversity and composition should be compared to a selected reference area or technical standard as with the other determinants of restored vegetation (vegetation cover, annual herbaceous production), rather than just determining that species and composition are suitable for the approved postmining land use. Furthermore, we urge the LQD to reconsider whether vegetative cover is a suitable replacement for total ground cover. The LQD should fully consider whether such non-vegetative components of ground cover as litter and rocks make important contributions to ecological function that would not be fully duplicated by vegetative cover alone.

### *Section 2 (d)(ii)(B) (II)*

We support the shrub density standard that applies to lands affected after August 1996 and is a requirement for bond release. The shrub density standard is an essential measure for assuring successful post-mining vegetation reclamation. Species diversity and composition are key elements in defining the shrub density standard.

Species diversity is not mentioned in *Section 2 (d)(ii)(B) (II)*. We believe that shrub species diversity as well as shrub species composition, density, and distribution should be included in the shrub standard for grazinglands post-mining. Restoring plant species diversity post-mining will play an important role in facilitating the recolonization of those species that used the grazingland component of the project area prior to mining activity.

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Therefore, grazinglands should be restored to ensure that post-mining biodiversity mirrors pre-mining biodiversity.

*Section 2 (d)(ii)(B) (II)(2)*

We believe that the proposed regulations should include provisions for restoring shrub patches to pre-mining shrub species diversity and composition. The species diversity and composition are not mentioned in this requirement, so presumably restored shrubs could consist of species that grow more quickly and are easier to reclaim than sagebrush. Without specifying that a similar species diversity and composition must be maintained in the restored shrub patches, the proposed regulations tacitly allow Operators to convert sagebrush areas, which may take many years to regenerate, to non-sagebrush areas. Given the considerable development pressure currently being experienced by sagebrush habitats and their associated sagebrush obligate species, we feel that the LQD should take every opportunity to ensure that Operators reclaim disturbed areas to their pre-mining vegetative type and condition.

*Section 2 (d)(ii)(B) (II)(2)(a)*

We support the LQD's requiring a 90% statistical confidence interval to demonstrate achievement of the standard since a more liberal confidence interval (such as 80%, which appears to have been required formerly) would fall below scientifically accepted methods of analysis. Furthermore, we support the "80-60" rule and the requirement that all planted shrubs be in place for at least two years prior to the end of the bond-responsibility period. Such measures ensure that reclamation is in fact succeeding and can be expected to continue beyond the bond-responsibility period.

*Section 2 (d)(ii)(D) and (E)*

We support and appreciate the additional provisions for wildlife habitat and post-mining wetlands.

*Appendix 4-A*

*Sections IV. A. and IV. B.*

We support the species diversity and composition standard and believe that the two components comprising this standard are essential to determining the efficacy of post-mining vegetation reclamation. We similarly support the LQD's provisions for the new species diversity and composition standard. However, we believe that the provisions outlined in these sections and their respective subsections for species diversity and composition in reclaimed areas should be determined by the Administrator *based on biologically and scientifically accepted comparisons with nearby undisturbed reference areas*. We feel that the italicized text that we included in the previous sentence should be added to the proposed regulations to ensure objectivity in making determinations of reclamation adequacy. This addition should be added to pastureland designations (Section V) as well as to grazingland and fish and wildlife habitat designations. We believe it is crucial that biologically and scientifically accepted methods be used in

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determining that reclaimed lands exhibit a plant species diversity and composition that is equivalent to the pre-selected reference areas, since this is the only means of assuring the adequate restoration of disturbed habitat and ecological function. Allowing the Administrator some flexibility to determine what constitutes acceptable diversity in a particular area is appropriate, but these determinations should be based on biologically and scientifically accepted methodologies.

*Section VI.*

We strongly object to the provisions in Section VI allowing the calculated placement of additional 100 square meter transects if randomly located transects do not show acceptable diversity in pasturelands. This provision wholly undermines the established and accepted scientific basis for using a randomized design to sample vegetation and to make an objective and defensible assessment of habitat quality and condition. Allowing the calculated placement of additional transects facilitates arriving at a *predetermined* outcome rather than providing an objective evaluation. If the number of randomly placed transects is deemed insufficient to provide an accurate assessment of pastureland habitat condition, the sample size of randomly located transects should be increased accordingly. That is accepted scientific practice.

*Appendix 4-B*

We commend the LDQ for including grazinglands and pasturelands with full shrub densities greater than one shrub per square meter as “eligible” lands for the shrub density standard. Reclaiming lands with significant shrub components (no matter their designation) is critical to preserving shrubland habitats and their ecological function in Wyoming, particularly since these ecosystems are facing ever-increasing development pressures.

We thank the Land Quality Division for considering our comments and for its continued efforts to ensure successful reclamation from coal mining in Wyoming.

Sincerely,



Sophie Osborn

Wildlife Program Manager, M.S. Organismal Biology and Ecology

and

Bruce Pendery

Staff Attorney and Program Director, M.S. Range Science

cc: Ryan Lance

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