

Walker-Smith, Antoinette

From: Greg Hiatt [Greg.Hiatt@wgf.state.wy.us]
Sent: Monday, October 05, 2009 3:29 PM
To: Moore, Johari
Subject: Re: Antelope and JAB Uranium Project - NRC Info Request
Attachments: wer 11839 Antelope-JAB Uranium explore scoping.doc; wer 11839 DEQ_JAB-AntelopeInSituU20090629.doc; wer 11839 DEQ_JAB-AntelopeInSituU20090630.doc

Hello Johari,

Sorry for the delay in getting these documents to you. I have attached three different internal Game & Fish memos I submitted regarding impacts of these projects on important wildlife species. I hope you find them helpful.

Holler if you have questions,

Greg

Greg Hiatt
Wildlife Biologist
Wyoming Game and Fish Department
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Sinclair, Wyoming 82334
office 307-324-2116
home (b)(6)

>>> "Moore, Johari" <Johari.Moore@nrc.gov> 10/1/2009 8:03 AM >>>
Hi Greg,

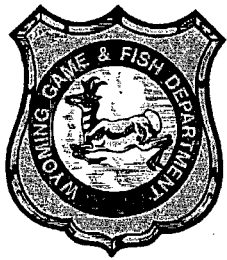
When you get a chance, please reply to this email and attach a copy of the comments you provided to BLM and WY-DEQ for Uranium One's proposed Antelope and JAB Uranium Project. The NRC has received an application from Uranium One for this project and we are preparing a Supplemental Environmental Impact Statement. I'd like to be able to ensure that we address your concerns early on as we prepare the draft document.

Thanks,

Johari A. Moore
Environmental Review Project Manager
U.S. Nuclear Regulatory Commission
FSME/DWMEP/Environmental Review Branch
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EX. 6

E/9



WYOMING GAME AND FISH DEPARTMENT

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27 October 2008

MEMORANDUM

TO: Tom Ryder, Wildlife Management Coordinator

FROM: Greg Hiatt, Wildlife Biologist

COPY TO: Stan Harter, Kim Olson, Andrea Cerovski, Scott Gamo, file

SUBJECT: WER 11839, BLM, Scoping, Antelope-JAB Uranium explore/drill

The wildlife species most likely to suffer negative impacts from this project would be greater sage-grouse. The proposed project encompasses a major portion of the South Pass Core Breeding Area for this species, and contains some of the largest leks within the Red Desert. Habitat fragmentation, which would result from the construction of roads, pipelines and powerlines accessing the high density of exploratory drill holes proposed for this project, has been identified as a major habitat problem for this species. The EA should evaluate not only direct habitat losses due to exploration activities, but also the resultant fragmentation of remaining sagebrush habitats and their reduced ability to support viable sage-grouse populations.

A major threat to sage-grouse from this project would be loud, continuous noises associated with both drilling over 300 wells and additional traffic associated with exploration for uranium. As with other lekking grouse species, sage-grouse courtship behaviors can be interrupted and disturbed by loud noises during strutting periods. Judging from leks apparently abandoned in the Continental Divide gas fields, noises from drilling and compressors have been loud and continuous enough to affect courtship displays. Since the males use strutting noises to attract the females to their courtship grounds, the courtship sounds need to be audible throughout the occupied sagebrush habitats, not just on the lek sites themselves. Spacing of leks in the local area would suggest courtship sounds need to be audible to hens over a range of two to four miles.

To reduce potential impacts of project noises to sage-grouse, the EA should consider mitigations to avoid drilling and other exploration activities during sage-grouse breeding periods. Stipulations to protect courtship activities of sage-grouse in this area should take effect from at least 1 March through 20 May each year. Since male sage-grouse often approach lek sites and begin strutting around sunset, particularly in periods with moonlight, drilling and other noise generating activities should be avoided from 6 PM until 9 AM within two miles of strutting grounds.

Measurements of predevelopment, ambient noises provide guidance on volume of noises that may be interruptive to sage-grouse, but even natural noises may cause brief cessation of

strutting activity. Mitigations on noise levels to attain with this project should be based on reducing human and mechanical noises to average ambient noise levels measured during nighttime and early morning periods when strutting occurs, not the maximum natural noise levels that may occur. We recommend this mitigation level should be attained at no more than 200m from the noise source.

Sage-grouse are known to avoid tall structures, for both breeding, nesting and brood-rearing. This is presumably an instinctive response to possible use of those structures by avian predators, and, based upon abandonment of leks near powerlines in the Red Desert, is not ameliorated by devices that inhibit use of those structures by raptors. The EA should evaluate expected impacts and habitat avoidance from structures related to this project, particularly powerlines, and consider alternatives or mitigations where such facilities are buried, rather than above ground.

While status of many of the known sage-grouse leks within the Antelope-JAB project area has been monitored annually, sage-grouse are known to establish new display sites as populations fluctuate and existing sites are disturbed. With the intense development proposed in this project, surveys for new or undiscovered leks should be conducted annually within the project area and a suitable buffer of at least two miles to ensure developments do not impact the populations dependant upon those unmapped leks.

The project area may contain colonies of white-tailed prairie dogs, as well as habitats that support scattered numbers of this species. These prairie dog towns support numerous other species of high interest, particularly mountain plover and burrowing owl, with the possibility of black footed ferret and kit fox. Kit fox have been documented in the Red Desert, within 10-15 miles of this project. The EA for this project should evaluate expected and potential impacts to each of these species, as well as the prairie dogs on which they depend.

Portions of the project appear suitable for pygmy rabbit, and the EA should address the possible impacts to this species.

Raptor nests, including for ferruginous hawks and Northern harriers and are found in or near the project area. The EA should evaluate potential impacts on nesting by these species, as well as loggerhead shrikes, which also nest in the project area. Mitigations should be evaluated, including temporal restrictions, relocation of project facilities, and installation of artificial nesting platforms away from project facilities.

Big game movements within the Antelope-JAB project area are not well documented. Both daily and seasonal movements may be affected by the high density of drill pads and roads proposed by this project. A network of plowed roads with berms of deep snow may significantly alter migrations of big game through and within this project area, particularly for pronghorn. Mitigations to prevent animals from becoming entrapped on busy roadways or stranded on isolated drill pads should be identified and implemented. Fencing of project sites and roads could have serious impacts on pronghorn movements and mitigations to minimize or bar fencing should be considered. The EA should evaluate potential impacts to the big game herds and their movements, and identify means or mitigations to minimize impacts.

Water produced by the *in situ* process can have both negative and positive impacts. The EA should evaluate possible impacts of expected water production, evaluating both expected quantity and quality of produced waters. The EA should evaluate alternatives of requiring re-injection of produced water, impoundments of those waters, or discharge of those waters into existing watersheds or basins. Expected erosion of existing water courses from the additional flows should be evaluated, with mitigations identified. Of particular concern would be potential dewatering of the water table that supports the Chain of Lakes and associated wetlands to the south of Antelope-JAB.

In past decades, the project area has supported high densities of outdoor recreation, particularly hunting. The project area contains significant amounts of public lands with public access and the potential for recreational use is high in the area. The EA should evaluate how this project would affect future recreational use of wildlife resources in the Antelope-JAB project area.



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29 June 2009

MEMORANDUM

TO: Tom Ryder

FROM: Greg Hiatt

COPY TO: Stan Harter, Andrea Orabona, Carrie Dobey, Kim Olson, file

SUBJECT: WER 11839, DEQ, In Situ Leaching Uranium Permit Applications, Red Desert

This is the same *in situ* uranium mining project we provided comments on to the BLM during scoping in October 2008. All of my comments submitted at that time would still stand in this response to DEQ. In addition, I have a couple additional comments.

Based upon existing *in situ* uranium mining occurring to the south of this project and activities that have already occurred in this project, surface disturbance appears to be quite high with this industry, producing a tightly gridded road network. The habitat fragmentation resulting from this extensive road network would be expected to have major negative impacts on sage grouse, particularly during the critical early brood-rearing period. These two project areas lie within the South Pass core area for this species and mitigation or avoidance of sage grouse habitats should be given priority in this area.

Applying the recommended three-mile buffer around leks, this project could affect sage grouse populations attending at least 11 separate leks. A couple of these leks have not had grouse strutting on them for several years, due to a powerline and substation constructed in 1989, but the other nine include some of the largest within that core area. Three leks had documented attendance by more than a hundred males during the past three years. Data for 2009 are not yet compiled, but the peak number of males on these 11 leks during the previous three seasons exceeded 700 males. This represents a significant portion of the state's breeding population, and a major portion of the population in the South Pass core area.

We are also worried about cumulative effects of these projects, particularly on sage grouse. In addition to the existing 1989 powerline, natural gas wells, several pipelines, and an *in situ* uranium mine to the southeast, other *in situ* uranium mines are proposed immediately south and east of this project. Test coalbed methane wells have been drilled

in the project area, and drilling for this resource would be expected to resume once prices for natural gas recover. A proposal to mine uranium on Green Mountain and haul ore to the Sweetwater Mill would bisect these two projects, adding to habitat loss, fragmentation and impacts to this sage grouse within this core area. These would be in addition to impacts expected from proposed fencing and changes in grazing within the Green Mountain Incommon allotment. The large number of habitat-altering activities occurring within and adjacent to this proposal suggests that a full EIS analysis would be more appropriate.

Discharge of air pollutants, particularly during drilling, would aggravate air quality concerns arising from gas fields southwest (upwind) of this project. Given the large amount of drilling and road traffic that would be expected to occur with this proposal, we are also concerned about generation of dust. Deposition of dust along service roads has become a major concern in gas fields south of this project, and would be expected to arise here as well. Degradation to vegetation resources alongside roads due to dust may be greater than the direct losses to the roads themselves, and would affect all sagebrush obligate species in the project areas.

Given the potential for coalbed methane development within and adjacent to these uranium project areas, we are concerned about the potential for cross-contamination of water tables. Since coalbed methane can only be produced by massive dewatering of subsurface strata, this would appear to provide an avenue for underground water movements that would not typically be seen in normal *in situ* uranium mines. Are there existing, overlapping *in situ* uranium and coalbed methane projects that provide models of how water table interchange will differ under these conditions? If not, is there intent to test and monitor for contamination due to coalbed dewatering?



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FRED LINDZEY

30 June 2009

MEMORANDUM

TO: Tom Ryder

FROM: Greg Hiatt

COPY TO: Matthew Fry, Stan Harter, Andrea Orabona, Carrie Dobey, Kim Olson, file

SUBJECT: WER 11839, DEQ, In Situ Leaching Uranium Permit Applications, Red Desert

After a quick review of two of the chapters in the 2008 License Application for this *in situ* uranium project that I received today, I have a few specific comments to add on to those I provided yesterday on that document. Hopefully there is still time to incorporate these into the Department's comments.

Sec 2.8.7.3, P2 and P4: The license application claims the 0.5 miles distance between this project and the only known ferruginous hawk nest is an adequate buffer. However, the Rawlins Field Office of the BLM has long used ¾-mile for a protective buffer for nests of species of hawk and the recently signed Rawlins RMP calls for a buffer of at least 1.0 miles for ferruginous hawk nests. If this application assumes a 0.5-mile buffer is adequate, its conclusions on anticipated impacts (Sec 2.8.7.4.1 P7) to nesting raptors are probably incorrect.

Sec 2.8.7.3, P3: Only six sage grouse leks were monitored during baseline and supplemental surveys for this project, those leks either in the project boundaries or within a 2-mile buffer. But the entire project lies within a sage grouse core area, where buffers of 3 miles should be applied. That expands the number of leks potentially affected by this project to 11.

Sec 2.8.7.10.1.5 Proposed Action: We are concerned that full development of this project would effectively disturb 10% of the total permit area. This level of disturbance is *high*, not "low" as claimed in this document. While less than would be lost by a surface mine, this disturbance would be roughly 3 to 4 times greater than that seen in gas fields with well densities approaching 4-8 wells per section. With this level of disturbance, impacts to wildlife, particularly sage grouse, would be expected to be significant.

Sec 2.8.7.10.1.5 Sage Grouse: As noted earlier, because the project lies in a sage grouse core area, we recommend the companies suspend drilling operations within 3 miles of active leks like the Harrier lek, not just 2 miles. And that protective period should be applied to lands within *any* of the known leks around this project, not just the Harrier lek. And while statewide recommendations call for a protective period of March 15 through June 15, lek data for the Lander Region documents hens attending leks as early as the first week in March. Within the Rawlins Field Office of the BLM, the applied protection period for sage grouse is March 1 through June 15, and we recommend that period be applied consistently to all of this project.

Sec 2.8.7.10.1.5 Mountain Plover: As noted in their original “belated” request for comments, this document has been effect for almost a year. The license application mentioned drilling operations could potentially extend into the 2009 breeding season for mountain plover and sagebrush obligate species, which should trigger “additional surveys” to determine presence or absence of those species. The question arises, did drilling in 2009 extend into breeding season for any of those species, and were the appropriate surveys completed prior to drilling?

Table 6-4: Given the potential of this project to disturb 10% of the project area, we are concerned the proposed seed mixture for reclamation of disturbed sites is 85% grasses. Given the value of forbs to sage grouse for egg-laying and brood-rearing, we recommend a significantly larger proportion of palatable forb species be included in this seed mixture, similar to those used in gas fields further south. Reclamation is still problematic in low precipitation habitats, and we recommend tailoring seed mixtures to soil types, slopes, etc.. We also recommend monitoring extend for at least five years past reseeding to ensure adequate ground cover and production is achieved. Based on history with gas fields nearby, extensive management of weeds may also be necessary to achieve adequate reclamation of disturbed areas.