

Gallagher, Carol

Subject: FW: Ross ISR DSEIS, WY - DOI Comments
Attachments: Ross ISR DSEIS - DOI Comments.pdf

3/29/2013

78 FR 19330

From: Robert Stewart [mailto:robert_f_stewart@ios.doi.gov]
Sent: Wednesday, May 08, 2013 10:22 AM
To: Bladey, Cindy
Cc: Moore, Johari
Subject: Ross ISR DSEIS, WY - DOI Comments

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PLEASE ACKNOWLEDGE RECEIPT BY REPLY TO THIS MESSAGE

The Department of the Interior's comments on the subject document are attached.

If you require paper-copy or word-processor version, please so advise.

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United States Department of the Interior



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May 8, 2013

In Reply Refer To:
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ER 13/0193

Cindy Bladey
Chief, Rules, Announcements, and Directives Branch
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001.

Subject: Ross In-Situ Leach Recovery (ISR) Project, Supplement to the Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities, Crook County, Wyoming (NUREG-1910, Supplement 5)

Dear Ms. Bladey,

The Department of the Interior has reviewed the Draft Supplement Environmental Impact Statement (DSEIS) for the Ross In-Situ Leach Recovery (ISR) Project. The U.S. Fish and Wildlife Service (USFWS) and National Park Service (NPS) provide the following comments.

GENERAL COMMENTS OF USFWS

As part of the Proposed Action, surface impoundments may be used to manage liquid byproduct material, which is a combination of permeate and brine. During the process of uranium milling, water to which chemicals have been added (lixiviant) is injected into the ore zone to dissolve the uranium. This solution is then returned to the surface to recover the uranium. However, during its residence time in the aquifer, the lixiviant picks up salts and selenium that may be stored in the surface impoundments. Both of these constituents can pose threats to wildlife that use the surface impoundments. As background, we provide the following information:

Salts--Saline water can often have high concentrations of invertebrates that encourage wildlife use (U.S. DOI 1998). However, salt toxicosis can occur when high levels of the sodium ion are ingested without drinking enough freshwater to flush the salt accumulation from the body (Osweiler et al. 1976). Windingstad et al. (1987) documented salt toxicosis in adult waterfowl in a North Dakota lake with sodium concentrations over 17,000 mg/L. Furthermore, an increase of

sodium and conductivity to levels above 2,550 mg/L and 20,000 $\mu\text{S}/\text{cm}$, respectively, can cause duckling mortality, especially if an abrupt change from freshwater to saline water occurs (Mitcham and Wobeser 1988).

Salt toxicity in wild aquatic birds can also occur when they are forced to use saline water during drought conditions or during the winter when freshwater is frozen. The scarcity of freshwater in semi-arid environments aggravates the risk of salt toxicity to aquatic birds using impoundments characterized by saline and especially hypersaline conditions as the affected birds cannot easily move to fresher water to mitigate their ingestion of hypersaline water. Additionally, aquatic birds using hypersaline ponds are susceptible to mortality from salt encrustation. Sodium in the hypersaline water can crystalize on the feathers of birds landing in these waterbodies. The sodium crystals destroy the feathers' thermoregulatory and buoyancy functions causing the bird to drown or die of hypothermia. Salt encrustation on birds has been documented in industrial wastewater ponds with TDS > 200,000 mg/L (Meteyer et al. 1997).

Selenium--High selenium concentrations can occur in wastewater from in-situ mining of uranium ore as uranium-bearing formations are usually associated with seleniferous strata (Boon 1989). Boon (1989) reported that uranium deposits in Converse County, Wyoming can contain up to 4,500 $\mu\text{g}/\text{g}$ (ppm) of selenium. In-situ mining of uranium is done by injecting a leaching solution of native ground water containing dissolved oxygen and carbon dioxide into the uranium-bearing formation through injection wells. The leaching solution dissolves selenium present in the formation. The disposal of this wastewater can expose migratory birds to selenium, which is known to cause impaired reproduction and mortality in sensitive species of birds such as waterfowl.

In-situ mining wastewater disposed of into large impoundments allows selenium to become further concentrated due to evaporation of the wastewater. Waterborne selenium concentrations $\geq 2 \mu\text{g}/\text{L}$ are considered hazardous to the health and long-term survival of wildlife (Lemly 1996). Additionally, water with more than 20 $\mu\text{g}/\text{L}$ (ppm) is considered hazardous to aquatic birds (Skorupa and Ohlendorf 1991). Chronic effects of selenium manifest themselves in immune suppression to birds (Fairbrother et al. 1994), which can make affected birds more susceptible to disease and predation. Selenium toxicity will also cause embryonic deformities and mortality (See et al. 1992; Skorupa and Ohlendorf 1991; Ohlendorf 2002)

If submerged aquatic vegetation or aquatic invertebrates occur in evaporation ponds with high waterborne selenium concentrations, aquatic migratory birds may be exposed to extremely high dietary levels of this contaminant. Ramirez and Rogers (2000) documented selenium concentrations ranging from 434 to 508 $\mu\text{g}/\text{g}$ in pondweed (*Potamogeton vaginatus*) collected from a uranium mine wastewater storage reservoir that had waterborne selenium concentrations ranging from 260 to 350 $\mu\text{g}/\text{L}$.

Accidental releases/spills of uranium in-situ production water can result in the ponding or pooling of this production water, which could be ingested by wildlife, including migratory birds thus exposing them to uranium, radionuclides, and selenium. Spills or releases of production water could also reach surface waters, which could impact aquatic organisms inhabiting the affected waters.

SPECIFIC COMMENTS OF USFWS

Spill Control/Response: At several places in the DSEIS there is mention of Strata Energy Inc. implementing spill control, containment and clean up measures. The DSEIS states that appropriate spill-control Best Management Practices (BMPs) will be defined in the Nuclear Regulatory Commission (NRC) license and will be implemented.

Comment: USFWS recommends that the spill contingency plan be made available to reviewing agencies and other reviewers to help insure the prescribe measures will be protective of fish and wildlife resources in the event of spills or leaks.

2.1.1.1 Ross Project Construction/Ross Project Wellfields, Page 2-21, Lines 44-48: The text states, “The Applicant expects that the water produced during well development would meet Wyoming’s temporary Wyoming Pollution Discharge Elimination System (WYPDES) discharge standards, which would allow this water to be discharged directly to the ground surface.”

Comment: We recommend that the Final SEIS describe how the water will be stored or disposed of if the water quality does not meet WYPDES discharge standards. Water quality parameters should include analysis for selenium and salinity to ensure that such constituents do not accumulate on the ground surface or be carried in overland flow in high concentrations that could impair surface waters. This is particularly important for selenium because the Project is located in the upper Cretaceous Lance and Fox Hill formations which are high in selenium.

Surface Impoundments: At several places, the DSEIS discusses the surface impoundments that would be included in the Proposed Action: At section 2.1.1.1 Ross Project Construction/Ross Project Facility, Page 2-15, Lines 20-50, the text states, “The Proposed Action would also include the construction of two double-lined surface impoundments (retention ponds) over a 6.5 ha [16 ac] area; these impoundments would be used for process-solution and waste-water management...At full capacity the impoundments’ surface area would be about 5.3 ha [13.2 ac]...The primary purpose of the surface impoundments would be to manage liquid, byproduct material (i.e., the permeate and brine described above) to optimize disposal techniques, and to provide capacity for liquid-waste storage in the event of “upset,” or accident, conditions. In addition, the impoundments would provide some evaporation of stored brine;” section 2.1.1.2 Ross Project Operation/Uranium and Vanadium Processing, Page 2-32, Lines 7-12, the text states, “The water quality of permeate that is anticipated by the Applicant is provided in Table 2.2. Most of the permeate from the RO system would be recycled back to the wellfield as lixiviant. The lined surface impoundments within the facility would be used to store and manage excess permeate and brine. Permeate and brine would be managed as radioactive byproduct materials. Brine would be disposed in the deep-injection wells; and, section 2.1.1.5 ISR Effluents and Waste Management/Solid Effluents, Page 2-42, Lines 17-18, the text states, “Applicant proposes onsite disposal contaminated laboratory reagents in the lined retention impoundments and deep-well injection.”

Comment: We understand the impoundments will be fenced and will hold wastewater (a mixture of permeate, brine, and laboratory reagents) that is expected to contain concentrations of arsenic, selenium, vanadium, molybdenum, uranium, salts, and potential other constituents or chemicals.

Evaporation expected to occur from impoundments will increase the concentrations of these chemicals and salt.

We recommend that the Final SEIS discuss whether poor water quality in these impoundments would present a risk to migratory birds or bats feeding on insects emerging from the impoundments. If such risks exist, the Final SEIS should discuss what preventative measures will be taken to reduce impacts to wildlife and migratory birds. Of specific concern are those risks that selenium and salts pose to migratory birds (see General Comments for Salts and Selenium). Furthermore, if the sides of the impoundments are expected to be steep, additional preventative measures such as the installation of ladders to allow birds or other small wildlife that have entered through the fence to escape should be discussed.

In addition, the DSEIS does not indicate whether herbicides will be applied around the impoundments to control terrestrial vegetation, or applied to stored wastewater to control algae or other aquatic vegetative. The Final SEIS should state whether vegetation controls will be likely be necessary, and identify the herbicides or other control measures that will be used. If aquatic vegetation will not be controlled, then annual monitoring of the impoundments should be conducted to determine waterborne selenium concentrations and to determine if submerged aquatic vegetation and/or aquatic invertebrates are present and provide a pathway for selenium bioaccumulation by birds using the evaporation ponds. If submerged aquatic vegetation and/or aquatic invertebrates are present and waterborne selenium is $> 2 \mu\text{g/L}$, please contact our office for further guidance.

3.6.1.4 Protected Species, Page 3-57, Lines 5-21: Text states, “The mountain plover (*Chariadrius montanus*) is Federally proposed as threatened and is a Wyoming Species of Greatest Conservation Need”.

Comment: The proposed listing for the mountain plover was withdrawn on May 12, 2011 (76 FR 27756) and the phrase “Federally proposed as threatened” should be removed from the description of mountain plover in the Final SEIS.

3.6.1.4 Protected Species, Page 3-57, Lines 23-25: Text states, “Table 3.13 lists species that occur in Crook County and that are Federally listed under the Endangered Species Act (ESA), State-listed under the Final Comprehensive Wildlife Conservation Strategy for Wyoming, or are listed as a BLMSS”.

Comment: Table 3.13 is confusing. The text states that the table lists “species that are Federally listed under the ESA,” however the table shows, “USFWS species of management concern.” Correct the descriptions so that the text and table are consistent.

It appears that the column in the table labeled “USFWS Species of Management Concern (Level)” actually shows “Birds of Conservation Concern.” When we compared the table with the Birds of Conservation Concern (2008) list, there are many similarities however there were several discrepancies and omissions as well. We therefore suggest that the table be updated by reviewing information on Birds of Conservation Concern located at

<<<http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf>>>.

Page 3-63, Lines 1-8: Table 3.13 lists the level of conservation need with an “NL” where applicable.

Comment: Please define the abbreviation of “NL” in the notes for Table 3.13 on page 3-63.

4.6.1.1 Ross Project Construction/Protected Species, Page 4-51, Line 6: Text states, “Mitigation measures to prevent or further reduce impacts to wildlife would include one or more of the following...If direct impacts to raptors or migratory-bird SMC result from construction, a monitoring and mitigation plan (MMP) for those species would be prepared and approved by the USFWS...”

Comment: We recommend that indirect impacts to raptors and migratory birds be included in this section, so that nearby active nests may also be buffered from noise and visual impacts during construction activities. As the mitigation is currently written, only nests that would be directly impacted would require the preparation of an MMP, but we recommend that an MMP be prepared for raptor and migratory bird nests that may be directly or indirectly affected by the Project. Please also see Section 4.6.1.2 (Page 4-53, Lines 44-46) that references the same mitigation for Ross Project Operation.

5.8.3 Protected Species, Page 5-29, Lines 40-42: The text states, “There are Federally listed protected species within the Powder River Basin, including the Ute ladies’-tresses orchid, the Preble’s Meadow Jumping Mouse, the Boreal Toad and the Mountain Plover (BLM, 2003)”.

Comment: Information on federally listed species should be revised and updated. Preble’s meadow jumping mouse, the boreal toad and the mountain plover should be removed from the Final SEIS list of federally listed species that may occur in the project area. The only federally listed species that may occur in the project area is Ute ladies’-tresses orchid (threatened). However, the Greater sage-grouse is designated as a candidate for Federal listing, and may occur in the project area

The proposed listing for the **mountain plover** was withdrawn on May 12, 2011 (76 FR 27756). The **Preble’s meadow jumping mouse** was reinstated as threatened in Wyoming on August 6, 2011 (76 FR 47490), however, it is not known to occur in northeast Wyoming where the proposed project is located. The USFWS has completed a 90-day finding for the Eastern population of the **boreal toad**, and determined that there is substantial information in the petition and in our files that the Eastern population may qualify as a distinct population segment (DPS) and that listing may be warranted. The USFWS is moving forward with a 12-month finding, but at this time the boreal toad is not federally listed. .

If you have any questions regarding USFWS’ comments, please contact Pauline Schuette in the USFWS’ Ecological Services Field Office, in Cheyenne, Wyoming, at telephone (307) 684-1069.

GENERAL COMMENTS OF THE NATIONAL PARK SERVICE

The NPS appreciates the analyses included in the DSEIS of potential impacts on Devils Tower National Monument. Comments and recommendations follow for the protection of resources at Devils Tower NM.

The NPS finds certain aspects of Alternative C, North Ross Project site, preferable to the other alternatives. The enhanced protection of surface water, ground water, and visual and scenic resources are all concerns for Devils Tower NM. If Alternative C is not selected in the Record of Decision, the NPS recommends mitigation measures be applied to the chosen alternative to match the level of resource protection described in Alternative C.

In attempting to analyze impacts to groundwater, including the potential for migration in the 50-year and greater time spans, NPS was unable to determine from the DSEIS the total amount of liquid likely to be placed in deepwater injection wells. The NPS recommends that the total estimated liquids for deepwater injection be included in the Final SEIS.

The NPS is also concerned about cumulative impacts related to light pollution, air pollution (including fugitive dust) and visual and scenic impacts, particularly if potential satellite areas in the Lance district (including the proposed Kendrick, Richards, and Barber production units) are under construction and/or operation in conjunction with the Ross project area.

Natural Sounds and Night Skies

The NPS is tasked with managing, protecting and restoring resources, including the acoustic and photic resources in units of the Park Service. These have also been referred to as the soundscape and natural night skies of the parks. The NPS manages soundscapes and natural night skies based on the 2006 Management Policies, which include Soundscapes Management in Section 4.9 and Lightscape Management in 4.10. The policies state: "The Service will restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts." In addition, "The Service will preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human-caused light." While the light and noise pollution impacts of the project are discussed in the DEIS with respect to nearby residences, the Devils Tower NM is also sensitive to the effects of anthropogenic light and noise and should be included in the analysis.

Anthropogenic Sounds and Noise

Anthropogenic noise from construction equipment, machinery and traffic, can affect human environments, visitor experience and wildlife species. There are ample studies that show increases in noise can negatively affect mating, nesting, predation and other behaviors in a variety of wildlife species. Other studies show noise levels can affect the experience of park visitors and lead to a variety of social, psychological, and physiological changes. The proposed project includes several activities (site preparation, construction, and operations) that could increase the low frequency noise in and around the park. Low frequency sounds, like those typical of a trucks, industrial equipment and machinery, travel further from the site of origin than other sounds. While the DEIS acknowledges noise levels from specific sources, it should address

the cumulative effects of all of the sources together or of all the sources that may be in operation simultaneously. Further information on cumulative noise increases, their anticipated measurements within the Devil's Tower NM boundary and potential mitigation strategies should be provided and analyzed.

Efforts to reduce noise from operation of the facility and ancillary equipment (e.g. power tools, construction equipment, and other machinery associated with the facility) should be implemented and noise reducing treatments (barriers, curtains, enclosures, silencers, mufflers, etc.) should be used where appropriate. Please refer to the National Park Service Acoustical Toolbox for recommendations for reducing noise impacts during these activities. This document recommends tools and technology for construction, maintenance and operation that reduce noise outputs. Additional information and assistance concerning anthropogenic sounds and noise can be obtained by contacting Lochen Wood, NPS Environmental Protection Specialist, by email at lochen_wood@nps.gov or by telephone at (970) 267-2121.

Anthropogenic Light and Light Pollution

Due to the large area potentially affected by the project, the close proximity to Devils Tower NM, and the lighting associated with primary and ancillary installations, this project has the potential to adversely impact the photic environment and naturally dark skies of the nearby national park. The NPS acknowledges that significant attention is given to light pollution and mitigation strategies in chapter 4 of the document. We agree with the mitigation strategies on p. 4-76. We recommend that all mitigation strategies listed in section 4.10.1.1 be extended to include all portions of the project including the CCP, well-fields, roads, and structures. The strategies should also be extended to the operation and restoration phases of the project. We are available to discuss recommendations we are providing in our comments.

A few additional actions are recommended in order to better address and mitigate artificial lighting. The discussion in the DSEIS focuses on the glare of light in the direct vicinity of the central processing plan (CPP). Light pollution can also occur from sky glow which has broader environmental implications. Sky glow (also known as artificial sky glow, light domes, or fugitive light) is the brightening of the night sky from human-caused light scattered in the atmosphere. This glow can greatly detract from the overall darkness of the night sky and can inhibit people's ability to view celestial objects in the night sky. In a remote and dark environment, impacts can be detected at distances over 100 miles.

The NPS is pleased that the applicant would address light pollution by conducting baseline monitoring for potential light pollution at eight sites near the project area. We support the applicant's proposal to prepare a light-pollution monitoring plan and the multiple mitigation measure proposed. The NPS encourages the highest level of light pollution mitigation possible, and requests opportunity to cooperate on the final light-pollution plan, and mitigations to be used, based on information obtained in baseline monitoring. Because the night sky is such a valuable resource at Devils Tower, and to insure that the resource is protected, we request the applicant conduct or sponsor light pollution and night sky monitoring at Devils Tower National Monument in addition to the proposed eight sites, or in substitution for one or more of the currently proposed sites. The applicant or NRC can contact the park to identify optimum

monitoring locations and protocols to reflect potential impacts on the night sky and the visitor experience.

Visual Effects

Daytime visual impact is also a concern for Devils Tower NM. The main feature of the Monument is the 867 foot rock monolith, Devils Tower. The rock formation is sacred to many Native American tribes and climbed by 5,000 to 6,000 rock climbers a year.

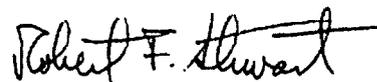
The viewshed impact analysis for Devils Tower shows that visitors at ground level will not be able to see the CPP. However, climbers on Devils Tower would be able to see the CPP. Few structures are visible from the tower; the CPP may impact the visitor experience to climbers on the Tower.

The NPS supports the multiple mitigation measure proposed by the applicant, including painting some of the infrastructure to match the surrounding environment, planting trees, and using the topography and landscape to create a visual buffer. Painting the buildings or using colored building materials (including on rooftops) to match the surrounding landscape could help mitigate this issue. In addition, night time activity and lighting should be reduced to the minimal amount possible during the typical climbing season of May - October. The impacts to Visual and Scenic resources during Operation are considered "SMALL" (not detectable) in the DEIS. Given climbers may be able to see the CPP and lights from the summit of the tower, unless mitigated, the Monument feels the impacts would be "MODERATE" (sufficient to alter noticeably).

Fugitive dust during construction is a concern for both air quality and visual resources. Given dry, windy conditions, windblown fugitive dust could reach a 50-mile radius of the project site, including Devils Tower National Monument. The NPS recommends monitoring and adaptive management of fugitive dust minimization measures to ensure minimal impacts on local and regional air quality and visual resources.

If you have any questions regarding NPS' comments, please contact Lara Rozzell, by email at lara_r_rozzell@nps.gov or by telephone at (303) 969-2527.

Sincerely,



Robert F. Stewart
Regional Environmental Officer

cc: Johari Moore

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