StrataRossLAPEm Resource

From: Ben Schiffer [bschiffer@wwcengineering.com]
Sent: Monday, August 29, 2011 12:16 PM
To: Amanda Losch
Cc: Bud Stewart; Scott Gamo; Bennett, Miles; Bjornsen, Alan
Subject: Ross ISR Project, Permit to Mine Application (TFN 5 5/217), USF&WS & WG&F Comment/Response Package
Attachments: Ross ISR_USF&WS_WG&F_1st_rnd_Response.pdf; Ross ISR_G&F_Responses.pdf; Ross ISR_USF&WS_Responses.pdf

Amanda--
Thanks for the follow-up call. As we discussed, please see the attached pdf detailing comments received in May from the G&F and USF&WS. The responses were provided to the WDEQ/LQD and NRC on June 30, 2011 while the G&F & USF&WS were sent their copies on July 1, 2011 (see attached transmittal letters). I'll get shapefiles of the Ross permit boundary along with proposed disturbances to you either today or tomorrow. Let me know if you have any additional questions.

Ben
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Subject: Ross ISR Project, Permit to Mine Application (TFN 5 5/217), USF&WS & WG&F Comment/Response Package
Sent Date: 8/29/2011 12:16:12 PM
Received Date: 8/29/2011 12:16:36 PM
From: Ben Schiffer

Created By: bschiffer@wwcengineering.com

Recipients:
"Bud Stewart" <bud.stewart@wyo.gov>
Tracking Status: None
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Tracking Status: None

Post Office: wwcengineering.com

Files	**Size**	**Date & Time**
MESSAGE	641	8/29/2011 12:16:36 PM
Ross ISR_USF&WS_WG&F_1st_rnd_Response.pdf	179097	
Ross ISR_G&F_Responses.pdf	32361	
Ross ISR_USF&WS_Responses.pdf	32365	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Wyoming Game and Fish Department Comments

Amphibians and Reptiles

We recommend that surveys for the northern leopard frog be completed. The protocol outlines below is very broad and we encourage you to contact Zack Walker, Herpetologist, regarding specific protocols.

1. Perform aural surveys for amphibians during periods of spring breeding. Surveys should be conducted at least three times during the northern leopard frog breeding season. Survey locations should be spaced at least .5 miles apart, and incorporate some form of calling index. All amphibians heard during surveys should be documented.
2. Perform visual encounter egg mass surveys on a subsection of breeding habitat. This should focus on areas where egg deposition is likely to occur. While performing egg mass counts, all like stages of amphibians should be documented. Egg mass surveys should immediately follow aural surveys. If egg mass surveys cannot be conducted due to time constraints, later tadpole surveys could be substituted.

Response: Surveys for reptiles and amphibians (including northern leopard frogs) were completed, as discussed in Mine Plan Appendix D9. Methods for the leopard frog surveys, which were approved by Wyoming Game and Fish Department, are included in Mine Plan Addendum D9-1-B and results are provided in Mine Plan Addendum D9-1. No changes to the document were made.

USFWS Comments

General Comments

The permit application for the ISR project should specify that the wildlife monitoring and mitigation plan will be developed prior to impacts occurring and not after impacts have occurred. Land application of the permeate should be further assessed to determine the risks of selenium bioaccumulation in the terrestrial food chain and impacts on migratory birds.

Response: Responses to these comments are included in responses to specific comments, below.

Specific Comments:

Mine Plan, Vol 5, Page 9-14, Section 9.4.7.1 Federally Listed Species: According to the wildlife technical report (Report), there are no sage-grouse leks within the ISR project area. Additionally, the report states that the mountain plover (*Charadrius montanus*) was not observed during wildlife surveys conducted during November and December 2009 and January through September 2010. Surveys for Ute ladies' tresses (Spiranthes diluvialis) were conducted on August 11, 12, and 13, 2010 and no orchids were found.

Response: No response required.

<u>Mine Plan, Vol 5, Page 9-15, Section 9.4.8 Wildlife Mitigation:</u> Mitigation listed in this section includes:

- a Monitoring and Mitigation Plan,
- relocation of active and inactive raptor nests,
- establishing buffer zones to protect raptor nests,
- reestablishing ground cover to attract and sustain a suitable raptor prey base, and
- required use of raptor-safe construction for overhead power lines.

This section states that "if direct impacts to raptors or migratory bird species of management concern result from ISR development and operations" a monitoring and mitigation plan must be prepared. The monitoring and mitigation plan (Plan) should be in place before impacts occur. The Plan should include steps that will be taken if ISR development and operations are likely to impact raptors or migratory bird species of management concern. The Plan should also specify that active raptor nests should be avoided. A permit from the Service's Migratory Bird Permit Office in Denver will be required to relocate an active nest. The Service's Migratory Bird Office in Denver can be contacted at 303-236-8171. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur. The Plan should address how raptor nest sites will be managed to ensure that violations of the MBTA and BGEPA do not occur. Additionally, threats to migratory birds from project operations should be listed along with proposed mitigation to address those threats. The Plan should also specify how ground cover will be reestablished (vegetative species, targeted cover endpoint, desired prey base) to support native avian communities.

The MBTA, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations, and does not require intent to be proven. Section 703 of the MBTA states, "Unless and except as permitted by regulations … it shall be unlawful at any time, by any means or in any manner, to … take, capture, kill, attempt to take, capture, or kill, or possess … any migratory bird, any part, nest, or eggs of any such bird…" The BGEPA prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which included collection, molestation, disturbance, or killing.

Response: Mine Plan Section 9.4.8 (Wildlife Mitigation) will be revised to include a commitment to conduct topsoil stripping to reduce impacts to nesting migratory birds and a commitment to formulate a USFWS approved wildlife monitoring and mitigation plan prior to impacts. The list of information included in the plan will be revised to include steps taken if ISR development impacts raptors or migratory birds of management concern, as discussed above.

Mine Plan Section 9.4.8 (Wildlife Mitigation) will be revised to include a commitment to conduct activities in accordance with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA).

Mine Plan, Vol 5, Page 2-8 through 2-11, Section 2.8 Lined Retention Ponds: Lined retention ponds will be constructed to store permeate and brine resulting from processing ISR fluids. This section states that potential impacts to avian wildlife will be reduced by the use of deterrents such as netting and audio/visual deterrents, or "stretch wire." We are unclear as to what a "stretch wire" entails. Wires stretched across the retention ponds can present a hazard to birds attempting to land in the pond as the birds can become entangled in the line or they could suffer injury if they strike the wire (Terry 1987). This is possible if the visibility is poor and birds cannot see the "stretch wire."

Response: The phrase "and stretch wire" will be removed from the text in Section 2.8. This aversion technique is not appropriate for this site and will not be use.

Mine Plan, Vol 5, Page 7-13 through 7-15, Section 7.2.2.1.3 Land Application: Land application of excess permeate through center pivot irrigation or subsurface drip irrigation is proposed. According to Table MP.7-1, Anticipated Permeate Water Quality, maximum selenium concentrations in permeate are expected at 0.1 mg/L (parts per million) or 100 ug/L (parts per billion). We have concerns with the land application of permeate with elevated selenium concentrations. In 1998, the Service conducted a study of grassland irrigated with wastewater from an in situ uranium mine and found that selenium was mobilized into the food chain and bioaccumulated by grasshoppers and songbirds (Ramirez and Rogers 2002). Disposal of the in situ wastewater through irrigation is not recommended by the Service due to the potential for selenium bioaccumulation in the food chain and adverse effects to migratory birds. Additionally, land application may result in the contamination of groundwater and eventually seep out and reach surface waters. Additionally, the selenium-contaminated groundwater could seep into low areas or basins in upland sites and create wetlands which would attract migratory birds and other wildlife. The Sodium Absorption Ratio (SAR) of the permeate should be considered as well as potential impacts on the soils irrigated with the permeate. The impacts of permeate disposal using irrigation should be assessed to determine the risk of surface and ground water contamination.

Land application of the permeate through irrigation or other disposal methods should not be allowed if this disposal option presents a risk for selenium bioaccumulation in the food chain and adverse effects to migratory birds, and a risk for soil, surface water and ground water contamination.

Land application of the permeate could impact the black-tailed prairie dog (*Cynomys ludovicianus*). Land application of the permeate would saturate the soil and render the area uninhabitable to prairie dogs inhabiting the area. We encourage the conservation of prairie dog colonies for their value to the prairie ecosystem and the many species that rely on them. Prairie

dogs serve as the primary prey species for the black-footed ferret and several raptors, including the golden eagle and ferruginous hawk. Prairie dog colonies and burrows also provide shelter or nest sites for species like the mountain plover and burrowing owl.

Response: Liquid wastes from the ISR process will be processed using two phases of reverse osmosis (RO), which produces a permeate with high water quality. According to Mine Plan Table MP.7-1 (Anticipated Permeate Water Quality), the typical selenium value for permeate water after reverse osmosis treatment is anticipated to be 0 µg/L. While not the norm, selenium values in the permeate of up to 100 µg/L could be experience. As discussed in Skorupa and Ohlendorf (1991), which was referenced in the Ramirez and Rogers study, to protect waterfowl, shorebirds, and other wildlife from adverse effects, waterborne selenium concentrations should be <2 µg/L. As such, Mine Plan Section 7.2.2.1.3 (Land Application) will be revised to include a discussion of selenium, including a commitment to evaluate the potential for selenium bioaccumulation as part a site-specific land application plan. This plan will be submitted to WDEQ/LQD, USFWS, and NRC for regulatory approval prior to applying any permeate to soils in the permit area in a land application system.

Regarding contamination of surface waters, as discussed in Mine Plan Section 7.2.2.1.3 (Land Application), excess permeate utilized in land application will be applied at optimum irrigation rates that would prevent runoff into stream channels. Mitigation measures such as agronomic water application rates, surface runoff controls, and contingencies for reducing or stopping the irrigation system in the event of surface runoff would be addressed in a site-specific land application plan submitted to WDEQ/LQD and NRC for regulatory approval prior to constructing a land application or subsurface drip system. No changes to the document were made as a result of this comment.

As stated in Mine Plan Section 9.2.3 (Soil Salinity Mitigation Measures for Land Application), soil salinity (including SAR) mitigation measures for land application of permeate will be addressed in a site-specific land application plan. This plan will be submitted to WDEQ/LQD and NRC for regulatory approval prior to applying any permeate to soils in the permit area in a land application system. The land application plan will include an analysis of baseline soil salinity and proposed soil and/or water amendments to maintain the soil infiltration rate and prevent salt buildup from insufficient leaching. A land application system would likely include the application of soil or water amendments to reduce infiltration risks to clay soils. No changes to the document were made as a result of this comment.

According to Mine Plan Table MP.7-1 (Anticipated Permeate Water Quality), the typical selenium value for permeate water after reverse osmosis treatment is anticipated to be 0 mg/L. Irrigated crops would be selected for compatibility with the irrigation water and would likely include alfalfa, wheat, or native grass hay and areas selected for irrigation would likely be areas currently farmed and not occupied by prairie dog colonies. As stated in Addendum D9-1, no active or historic prairie dog towns exist on or within one mile of the permit area. Therefore, the

impact of selenium on prairie dog colonies is not an issue at the proposed Ross ISR Project. No changes to the document were made as a result of this comment.

References included in this response:
Skorupa, J.P. and H.M. Ohlendorf. 1991. Contaminants in drainage water and avian risk thresholds. Pages 345-368. In A. Dinar and D. Zilberman, eds., The Economics and Management of Water and Drainage in Agriculture. Kluwer Academic Publishers. Norwell, Massachusetts.

Mine Plan, Vol 5, Page 7-15, Section 7.2.2.1.3 Land Application: The page lists information that Strata will provide to the WDEQ and the Nuclear Regulatory Commission for approval of land application of the permeate and includes: an irrigation plan, site description, water balance, geologic description, hydrogeologic description, water quality evaluation, baseline soil conditions, fate of crops produced, water treatment and soil amendment plans, a monitoring program, and a reclamation plan. If center pivot irrigation is implemented, the monitoring program should also include monitoring selenium concentrations in the terrestrial food chain (soil, vegetation, insects) and migratory birds using the center pivot irrigation area. The monitoring plan should be coordinated with our office.

Response: John

See above response.

Mine Plan, Vol 5, Page 7-22, Section 7.2.3.1 Wellheads and Pipelines: The first paragraph states that automatic controls will stop operating equipment (primary pumps); however, it is not clear if this will stop flows at the wellhead in the event of a leak. We are concerned with spills of mining solutions reaching the Oshoto Reservoir, and the Little Missouri River.

Response: John

Mine Plan Section 7.2.3.1 includes a thorough discussion of procedures that include periodic inspections to prevent spills and leaks and methods to detect, confine, and mitigate spills and leaks at a wellhead or pipeline, in the unlikely event they occur. As stated in Mine Plan Section 7.2.3, the potential for liquid waste pollution will be minimized by adhering to NRC, WDEQ/LQD, and WDEQ/WQD design criteria for ISR facilities, designing adequate spill containment and leak detection systems, training employees on how to monitor process parameters and recognize potential upset conditions before leaks or spills occur, frequently inspecting waste management systems and effluent control systems, and training employees in spill containment and clean up procedures. No changes to the document were made as a result of this comment.

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LETTER OF TRANSMITTAL

DATE July 1, 2011	JOB NO 2009142
ATTENTION **Mr. Mavrakis**	
RE **Responses to comments**	

TO **John Emmerich, WG&F**
Deputy Director

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	6/30/11		Responses to USF&WS and WG&F comments to Ross ISR Project
			Permit (TFN 5 5/217)

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 20____ ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks: **Please find the enclosed responses to the Ross ISR Project, Permit to Mine Application. If you have any questions please let me know.**

Ben Schiffer

Copy to: *Miles Bennett, WDEQ/LQD/D3*

WWC ENGINEERING
1849 Terra Avenue
Sheridan, Wyoming 82801
(307) 672-0761 • fax (307) 674-4265
wwcengineering.com

LETTER OF TRANSMITTAL

DATE July 1, 2011	JOB NO 2009142
ATTENTION **Mr. Pete Rameriz**	
RE **Responses to comments**	

TO **R. Mark Sattelberg, USF&WS**
Field Supervisor
Wyoming Field Office

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

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Ben Schiffer

Copy to: *Miles Bennett, WDEQ/LQD/D3*