United States Department of the Interior

FISH AND WILDLIFE SERVICE
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July 2, 2007

Cons. #22420-2004-F-0356

Memorandum

To: Regional Director, Navajo Regional Office, Bureau of Indian Affairs, Gallup, New Mexico

From: Supervisor, New Mexico Ecological Services Field Office, U.S. Fish and Wildlife Service, Albuquerque, New Mexico

Subject: Information Necessary for Formal Consultation on the Desert Rock Energy Project

This memorandum acknowledges the U.S. Fish and Wildlife Service's (Service) June 4, 2007 receipt of your April 30, 2007, letter requesting initiation of formal section 7 consultation under the Endangered Species Act of 1973, as amended (Act). The consultation concerns the possible effects of the proposed Desert Rock Energy Project on the endangered Colorado pikeminnow (*Ptychocheilus lucius*), the endangered razorback sucker (*Xyrauchen texanus*), the endangered Mancos milkvetch (*Astragalus humillimus*), the threatened Mesa Verde cactus (*Sclerocactus mesae-verdae*), the endangered southwestern willow flycatcher (flycatcher; *Empidonax traillii extimus*), the threatened bald eagle (*Haliaeetus leucocephalus*) and critical habitat of the Colorado pikeminnow and the razorback sucker.

The Service has not received all of the information necessary to initiate formal consultation on the Desert Rock Energy Project as outlined in the regulations governing interagency consultations 50 CFR § 402.14. To complete the initiation package, we will require the following information:

1. A map and description of the "action area"; the "action area" is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Areas that may be affected by the proposed action, should also include surface waters that support endangered species (e.g., San Juan River, Devils Wash, Lake Powell, etc.). The Service requests information that the area of potential direct, indirect or cumulative effect does not have any connection to these surface waters (e.g., through runoff or deposition) in order to support a finding that the potential effects to surface water habitats are insignificant, discountable or immeasurable.

2. Page 5. There is a discrepancy in the amount of water estimated to be consumed by the project. On page 4 it states that there will be 4,500 acre-feet per year, where on pages 21 and 32 the Biological Assessment (BA) states 4,950 acre-feet per year. Please clarify the amount of water estimated to be consumed by the project.

3. Page 6. The BA states that BHP Navajo Coal Company (BNCC) has a permit to divert 51,600 ac ft per year with a consumptive right of 39,000 acre-feet for water drawn from the San Juan. Please provide the information on the amount of water that is currently being used and consumed under this permit.

4. Page 6. The BA states that additional 600 acre-feet of water will be used in association with the expansion of the surface mining operations at the Navajo Mine. How will this water be used? Is there any associated runoff with the use of this water? Is their any generation of contaminated waste water? If so, how is it treated? What are the impacts associated with expansion of the mine into Areas III and IV? The Draft Environmental Impact Statement (DEIS) is cited but since we have not been provide the DEIS it is hard to evaluate this part of the action.

5. Page 16. The BA discusses how emissions of selected pollutants will increase over existing conditions. However, you do not provide these figures for mercury or H2SO4. In addition, you provide the criteria that are being met are for airborne pollutants as they relate to human health. These criteria do not necessarily translate to wildlife health especially when bioaccumulation occurs. Please provide an analysis of the effects of the airborne pollutants as they relate to the threatened and endangered species and their habitats.

6. On page 18 (and 20) the BA states there are no risks to avian herbivores but fails to evaluate the surface water and sediment pathway of exposure to aquatic life (e.g., fish, amphibians, aquatic invertebrates, etc.) and those wildlife that consume fish and aquatic life (e.g., bald eagle, flycatcher). Please provide a quantitative assessment of risks specific to the threatened and endangered species and their habitats. For aquatic and aquatic dependant species, we generally recommend calculating contaminant concentrations in surface water for all supporting water bodies to evaluate in a risk assessment. Specifically, those water bodies that are potential sources for the drinking water and/or fish ingestion exposure pathways. Mechanisms we suggest considering in determining contaminant loading of the water column include: 1) direct deposition; 2) runoff from impervious and pervious surfaces within the watershed; 3) soil erosion over the total watershed; 4) direct diffusion of vapor phase contaminants into the surface water, and 5) internal transformation of compounds chemically or biologically.

7. Page19. Testable Hypothesis 4 –This assessment needs to specifically include a risk assessment for razorback sucker.

8. Page 19. Testable Hypothesis 5 – This risk assessment needs to specifically address Colorado pikeminnow. In addition, the red-tailed hawk is not a suitable surrogate for bald eagle because red-tailed hawk primarily feed on mammals, whereas bald eagle

will primarily feed on fish from surface waters of the San Juan River Basin. Page 20, second paragraph. The BA states "BCFs for plants and the six metals of interest were calculated..." However, it does not state what the six metals were and the results for only selenium and mercury are provided. Please list all the metals that were analyzed. If all of the other metals were not significant they can be provided in an appendix.

9. Page 21, Table 6.2. We suggest a new title to reflect this table's content. It would be preferable if the carnivore and insectivore results were presented together (the same as the herbivores); otherwise we are unsure if the numbers presented match the labels. A quantitative risk assessment needs to be extended to individual bald eagle, Colorado pikeminnow, and razorback suckers and should include the surface water and sediment exposure pathways.

10. Page 22. Air Quality Effects. Chemical pollutants and toxicants associated with the Desert Rock Power Plant need to be presented and analyzed in the BA, not through a separate consultation with Environmental Protection Agency (EPA). Please spell out the acronym "ENSR" upon first use.

11. Page 22. Power Plant Site. Please define "PM10 "when first used.

12. Page 24. Last paragraph. For each compound listed, a different time-frame for analysis is given; for example, SO2 (annual), CO (1 hr and 8 hr), PM10 (24 hr and annual). Please provide the results for the maximum predicted ambient concentrations in a Table that includes all the pollutants, all the time-frames, and distances analyzed, or explain why different time-frames were given for the various compounds. Page 28. Table 6-5. What distance from the power plant would the deposition of contaminants be occurring? Page 8 indicates the action area to be 31 kilometers (km); however, several analyses evaluate impacts only within 10 km. The "action area" should include all areas that may be affected directly, indirectly or cumulatively by proposed action and not merely the footprint of the construction or local deposition. If the action area is indeed 31 km wide, it may need to include additional evaluation species such as the California condor (*Gymnogyps californianus).*

13. Page 30, second paragraph. Please quantify the amount of mercury deposition that could eventually enter the San Juan River Basin (including Lake Powell) and or Morgan Lake (or other surface waters) that will be exposed directly or indirectly through runoff. The U.S. Environmental Protection Agency provides examples of such calculations for loading to a water body from its associated watershed using a dynamic modeling framework (e.g., Exposure Analysis Modeling System [available on-line at the webpage link http://www.epa.gov/athens/research/modeling/exams.html or Water Quality Analysis Simulation Program available at http://www.epa.gov/athens/wwqtsc/html/wasp.htm]). Please quantify the effects of mercury (or other contaminants of concern) that are deposited and/or runoff into the San Juan River System.

14. Page 30. The BA states "However, **unlike mercury** (emphasis added), concentrations of selenium do not increase significantly (biomagnify) in animals at each level of the food chain going from prey to predator (USEPA 2004)." We recommend calculating contaminant concentrations in surface water for all supporting water bodies to evaluate in a risk assessment. Specifically, those water bodies that are potential sources for the drinking water and/or fish ingestion exposure pathways. Mechanisms we suggest considering in determining contaminant loading of the water column include: 1) direct deposition; 2) runoff from impervious and pervious surfaces within the watershed; 3) soil erosion over the total watershed; 4) direct diffusion of vapor phase contaminants into the surface water, and 5) internal transformation of compounds chemically or biologically, which includes bioaccumulation and biomagnifications.

15. Page 31, first paragraph. We recommend calculating contaminant concentrations in those water bodies that provide habitat and include water, sediment and prey ingestion exposure pathways to evaluate the risks to Colorado pikeminnow and razorback sucker. The comparison of contaminant concentrations to New Mexico Water Quality Standard does not sufficiently address these pathways of exposure. Additionally, the mercury concentrations reported (0.1 to 0.3 micrograms per liter [ug/L]) appear to exceed the Navajo Nation Water Quality Standards designed to protect aquatic life (0.012 ug/l), human health during fish consumption (0.15 ug/L), or livestock and wildlife watering (0.012 ug/L)uses.

16. Page 32. The assumption is made that because the well field will be 10 miles from the San Juan River, no effects on stream flow are expected. Support for this assumption should be provided. Please provide the hydrologic analysis used to determine that there will be no long term effect on endangered species and their habitat in the San Juan River.

17. Page 32. The BA states ". . . incremental increase in mercury and selenium would potentially affect different aquatic species, or those species which primarily feed on aquatic wildlife or vegetation, is difficult to quantify. Species would differ in the amount and pathway of heavy metals ingested, the rate of tissue bioaccumulation, and in what, if any, potential effects to growth, reproduction or longevity may occur." Please provide a quantitative evaluation of risks to the Colorado Pikeminnow, razorback sucker, flycatcher and bald eagle through appropriate exposure pathways and endpoints of concern (water, sediment and prey ingestion, bioaccumulation, and evaluate the potential for adverse effects to endangered species and their habitats).

18. Page 37, Project Effects to Bald Eagle. The BA should specifically address the bioaccumulation of mercury (and other contaminants) on bald eagle, including the effect of mercury compounds on embryo mortality and reproductive success. The bioaccumulative effects of mercury and selenium or other contaminants, and possibly acidification of local lakes and rivers, needs to be addressed in a quantitative evaluation of effects of the proposed action.

19. Page 37, Recommended Conservation Measures. Please clarify if these recommendations are part of the proposed action, and will be implemented as part of the project. If agreements have been reached to reduce the emission of mercury or other contaminants in the action area, these should be quantified separately in your evaluation.

20. Page 39, Project Effects to southwestern willow flycatcher. In this section and in the Recommended Conservation Measure section, several recommendations are made to avoid impacts to southwestern willow flycatcher. Please clarify if these recommendations are part of the proposed action, and will be implemented as part of the project.

21. Page 42 – 43. The BA states "The power plant would result in the deposition of incremental quantities of mercury and selenium in the San Juan River" and that "The cumulative impact to surface water quality from the deposition of mercury and selenium may result in adverse effects to the reproductive success of this species." Please provide additional information on the amount of deposition expected to occur and more detailed information on the effects of mercury and selenium (and other contaminants) on the reproductive success of endangered fish species and to the degree that this effect will impair recovery of these species in the San Juan River.

22. Page 44 – 45. The BA states "The power plant would result in the deposition of incremental quantities mercury and selenium in the San Juan River" and that "The cumulative impact to surface water quality from the deposition of mercury and selenium (and other contaminants) may result in adverse effects to the reproductive success of this species (razorback sucker)." Please provide additional information on the amount of deposition expected to occur and more detailed information on the effect of mercury and selenium on the reproductive success of razorback sucker and to the degree that this effect will impair recovery of the species in the San Juan River.

23. Page 53. There is no analysis of the effects of the project on the primary constituent elements for either the Colorado pikeminnow or razorback sucker's critical habitat in the BA; however, a determination of "no adverse modification" for both species was made. Please provide an analysis of the proposed project on the primary constituent elements of Colorado pikeminnow or razorback sucker Critical Habitat. "No Adverse Modification" is not the appropriate conclusion for the action agency to make. "Not Likely to Adversely Affect" or "Likely to Adversely Affect" are the appropriate determinations.

24. Cumulative Effects, Page 53. The BA recognizes that this power plant will be in close proximity to two existing coal power plants and two additional proposed coal power plants. The BA concludes that that the Desert Rock Power Plant has the potential to increase all sources of disturbance discussed in the previous sections, including increases in mercury and selenium (and other contaminants) which may contribute to adversely impacting razorback sucker and Colorado pikeminnow reproductive success and recovery efforts. However, there is no analysis provided.

Please provide the analysis of the cumulative effects of airborne pollutants, specifically those of mercury and selenium.

25. There is no information provide in the BA on the management, handling, and disposal of ash and sludge produced by the power plant. Please analyze whether wastes produced by the proposed action will affect the listed species. If so, describe: a) the amount of ash and sludge waste produced by the power plant; b) an analysis of the composition of the ash and sludge produced; c) the location, disposal method(s) and waste management operations for waste management.

26. The proposed power plant will emit criteria pollutants, including particulates and gaseous pollutants (sulfur dioxide, carbon dioxide and nitrogen oxides) that form aerosols in the atmosphere. Although measurable concentrations of emissions from the proposed power plant would likely extend less than hundred kilometers from the facility, due to global wind patterns, minute quantities of these chemicals could eventually be dispersed across a wider area (DEIS Appendix K 2007). The estimated annual carbon dioxide emission is 12.7 million tons. Greenhouse gases, which also include methane, nitrous oxides, chlorofluorocarbons and other chemicals, play a role in maintaining the temperature of the earth's atmosphere, by allowing some sunlight to pass through and heat the surface of the earth and then absorbing a portion of the infrared heat reflected or transmitted from the ground. It is now well established that climate change is occurring and that humans are primarily responsible. The recently released summary of the United Nation's Intergovernmental Panel on Climate Change 4th assessment report calls the evidence of climate warming "unequivocal" and expresses over 90% confidence that most observed warming is due to human influence. Because this project directly and cumulatively contributes to increased concentrations of green house gases which have been identified a principle driver of climate change, please provide an analysis of a) the potential effects of climate change on the hydrology and water resources of the San Juan River basin; specifically address in your analysis the results of modeling of future water availability; and b) the effects of any changes in hydrology and water resources of the San Juan River basin on Colorado pikeminnow, razorback sucker, bald eagle, and Southwest willow flycatcher.

27. General Comment for Surface Water Quality Section. Although potential effects of acid rain on terrestrial plants and wildlife are briefly discussed under the Emissions section, acid rain is not mentioned under Surface Water Quality. The potential for acidification of local surface waters should be assessed. A discussion of acid rain is particularly important because mercury accumulation is more pronounced in waters that are acidified. Additionally, an evaluation of the effects of acid and other contaminant deposition needs to be conducted for the Mesa Verde cactus and Mancos milkvetch. The BA could also identify how the selected plant species used in the evaluation of effects to vegetation are representative (or not) of these plants and their life histories.

We will initiate formal consultation for the project when we receive all of the information, or an explanation why the information cannot be made available. We look forward to working with you on this consultation.

If you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact me or Dave Campbell of this office at (505) 761-4745.

Wally Murphy

cc:
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