

ATTACHMENT 1

Biological Opinion

for

**SeaWest/PacifiCrop
Windpower Project**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region



IN REPLY REFER TO:

FWS/R6
MT/WY
6-WY-95-F-006

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228-1807

JUN 30 1997

Memorandum

To: District Manager, Bureau of Land Management, Rawlins, Wyoming
From: Geographic Assistant Regional Director, Montana/Wyoming
Subject: Biological Opinion for SeaWest/PacifiCorp Windpower Project

This document constitutes a revision to our March 18, 1996, biological opinion concerning the proposed KENETECH Windpower project. Since that date, KENETECH Windpower, Inc., filed for chapter 11 bankruptcy, and SeaWest Energy Corporation purchased the assets of the proposed windpower project, which is located in Carbon County, Wyoming. The change in ownership and project design modifications resulted in your June 17, 1997, letter to Mr. Chuck Davis of my staff requesting reinitiation of consultation. Enclosed with that letter was a final report entitled *SeaWest/KENETECH Windfarm Comparison, Carbon County, Wyoming* (June 1997).

The authority for this consultation is contained in section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The Bureau of Land Management requested formal consultation as lead Federal agency on March 24, 1995. Your letter of July 28, 1995, acknowledged that consultation on facility design was still underway and agreed to extend the consultation period past the 135-day period. The March 1996 opinion was based on the information contained in the Biological Assessments, the Environmental Impact Statement for the project, and several meetings involving, at various times, your agency, the project proponents and their consultants, and the Wyoming Game and Fish Department. On May 25, 1995, Mr. Davis, then Wyoming Field Supervisor, and Mike Jennings of his staff attended an onsite meeting with your agency; the applicant and its consultants; and John Cornely, U.S. Fish and Wildlife Service Regional Migratory Bird Coordinator.

In December 1995 the Bonneville Power Administration, a cooperating agency on the EIS, notified Mr. Davis that it also was seeking compliance with section 7 on this project. The BPA proposes to execute a power purchase agreement with PacifiCorp in conjunction with the windpower project. The BPA contracted for an update of the BA, transmitted to the Wyoming Field Office on March 6, 1996, which contained updated information on species observations. The updates did not modify the conclusions presented in the October opinion.

In a related matter, a meeting was held on February 12, 1996, in Denver with Mr. Davis; Mr. Cornely; Service Assistant Regional Director for Law Enforcement Terry Grosz; Tom Graf of the Department of the Interior Solicitor's Office; Bureau and BPA personnel; and project proponents KENETECH, PacifiCorp, Tri-State Generation and Transmission Association, Inc., Public Service Company of Colorado, and Eugene [Oregon] Water and Power, to discuss compliance with Federal wildlife laws pertaining to avian mortalities. Tri-State and Public Service have since withdrawn from the project.

The updated BA and new Service guidance concerning integration of compliance with the ESA, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act were included with the revised opinion issued on March 18, 1996.

All BA's developed for this project addressed potential impacts to the endangered American peregrine falcon (Falco peregrinus anatum) and the threatened bald eagle (Haliaeetus leucocephalus). The endangered black-footed ferret (Mustela nigripes) may exist in the project area, due to the project's proximity to the ferret Primary Management Zone established for the Shirley Basin experimental release site. However, the ferrets released in Shirley Basin have been designated as "nonessential," and in a March 20, 1995, memorandum we concurred with your determination that the proposed project is not likely to adversely affect the ferret.

The mountain plover (Charadrius montanus), a candidate species, nests on the project site and may soon be proposed for listing. If the Bureau determines that a proposed species may be jeopardized by the project, the agency should request a conference with the Service. Therefore, we have not addressed the impacts of Phase I development on this species, but we have provided recommendations regarding the plover that are included in the EIS for this project.

BIOLOGICAL OPINION

It is the biological opinion of the Service that the implementation of the proposed SeaWest/PacifiCorp Windpower Project near Arlington, Wyoming, is not likely to jeopardize the continued existence of the endangered American peregrine falcon or the threatened bald eagle.

DESCRIPTION OF THE PROPOSED ACTION

Based on the Bureau's request and supporting documentation dated June 21, 1995, and the comparison report enclosed with your June 17, 1997, request for reinitiation, this opinion specifically addresses only the first phase of the proposed project, as described below. This approach requires that the Bureau reinitiate consultation prior to authorization of each subsequent phase in the future.

The entire project would consist of a 500-megawatt (MW) windfarm in the Foote Creek Rim-Simpson Ridge area between the towns of Hanna and Arlington, in Carbon County, southeastern Wyoming. The project would require 60,619 acres of land, consisting of 28 percent Federal, 10 percent State, and 62 percent private ownership. The Bureau proposes to issue a 36-year renewable right-of-way permit to SeaWest Energy Corporation for construction of the full 500-MW windfarm, and a ROW grant to PacifiCorp, Inc., to construct a 230-kilovolt (kV) transmission line along one of three alternative routes. The BPA would purchase a portion of the power produced by the Windfarm and is a cooperating agency with the Bureau on the EIS.

The windfarm (including turbines and operations, maintenance, communications, and transmission facilities) would be developed in phases, beginning with 91-136 wind turbines to generate approximately 68 MW along Foote Creek Rim and a 230-kV transmission line from Foote Creek Rim to the existing Miner's substation near Hanna. This opinion addresses this first phase. Additional turbines and facilities would be constructed in phases of varying size (averaging 50-70 MW) over the next 10-12 years in the Foote Creek Rim and Simpson Ridge areas as electrical power demands increase. The Bureau has agreed to continue the consultation process through all phases of development. The complete windfarm would consist of approximately 200-300 turbines on Foote Creek Rim and 467-700 turbines at Simpson Ridge.

SeaWest proposes to purchase turbines from one of several companies that specialize in wind turbine manufacturing. Only one turbine type (in the range of 500 to 750 KW) will be used during Phase I development. The final site plan and number of turbine strings will be governed, in part, by the maximum output of the selected turbine. The turbines proposed by SeaWest will be supported by tubular steel towers that will provide no perchable surfaces for birds. The towers will be 131 to 151 feet tall, as opposed to the 80- to 120-foot-tall towers in KENETECH's proposal. Because the SeaWest turbines will have larger capacity, there will be fewer machines, rotor diameters will be larger, and rotor tip speed will be slower than the KENETECH Model KVS-33. SeaWest proposes 6 to 8 Phase I turbine strings, as opposed to the 12 strings proposed by KENETECH.

The project would be constructed in the grass/sagebrush habitat north of Interstate 80. Trees in that area are confined to ravines, slopes protected from the intense winds, and along water courses. As stated in the EIS, the mixed grass/sagebrush vegetation type covers 3,070 acres (61 percent) of the eastern and western slopes of Foote Creek Rim. The top of the rim is composed of a cushion plant community occupying 1,300 acres (26 percent), and approximately 150 acres (3 percent) of aspen woodlands are found on the eastern slope of the rim that is protected from the predominate westerly winds. There are approximately 420 acres (8 percent) of isolated patches of mountain shrubs on ridges with shallow soils. The remainder of the Foote Creek Rim area (2 percent) consists of isolated inclusions of ponderosa pine, meadow/riparian, and grassland.

STATUS OF THE SPECIES

American peregrine falcon--The decline of the endangered American peregrine falcon is attributed mostly to the pesticides DDT, and its metabolite DDE, and dieldrin. These compounds bioaccumulated through the food chain resulting in thin egg shells and a dramatic decline in peregrine nesting success. There has been an overall increase in peregrine populations in recent years, aided by nationwide efforts at establishing new eyries. Some of the success has been in urban areas, where tall buildings provide secure nesting habitat similar to natural cliffs, and pigeon populations provide a dependable food source.

The Service has initiated a status review for this species, in preparation for a possible delisting (Federal Register, Vol. 60, No. 126, June 30, 1995). Wyoming peregrines are considered part of the Southwest/Rocky Mountain population, which according to 1994 surveys, consists of 559 breeding pairs. This surpasses the recovery objective by 376 pairs (U.S. Fish and Wildlife Service 1984).

Falcons hunt mainly birds, and the flying prey is struck from above at high speed. Preferred hunting habitats include cropland, meadows, river bottoms, marshes, and lakes that attract potential bird species. The preferred sites for nesting are mountain cliffs and river gorges (U.S. Fish and Wildlife Service 1984).

Bald eagle--The bald eagle suffered a precipitous population decline similar to the peregrine, because of DDT and other toxins in the food chain. This species also has staged a comeback, and its status was upgraded from endangered to threatened on August 11, 1995 (50 CFR 17). In the Pacific Recovery Region, which includes Wyoming, delisting goals have been met in all categories except distribution in zones with nesting targets. According to the Greater Yellowstone Bald Eagle Working Group the number of breeding areas in Wyoming has increased from 5 in 1982 to 25 in 1995.

Bald eagles need cliffs and/or tall trees for nesting and roost sites. They also prefer sites near large water bodies that provide concentrated food sources, such as waterfowl and fish. Bald eagles forage widely during the nonnesting season and will scavenge on animal carcasses such as deer and elk (Mariah Associates, Inc., 1995).

ENVIRONMENTAL BASELINE

Bald eagle use of the habitats in the project area have been documented in the Bureau's biological assessment. Thirty-six bald eagles observations were made within the Foote Creek Rim area between March and November 1994. According to the June 1997 comparison report, very few bald eagles were observed during the 1995-1996 surveys. The majority of the use was in the western and northern portions of the rim, although eagles will use the entire rim for foraging, probably throughout the year. Forty-eight percent of the eagles were observed in flight patterns that would be at elevations within the sweep of turbine rotors. No communal roosts are known to occur in the study area, and one nest was active 2 miles south of Simpson Ridge in 1994.

Twenty-seven observations of peregrine falcons were made at Foote Creek Rim between February 1994 and March 1995. Approximately 65 percent of the observations were along the western side of the rim, and 70 percent occurred directly over the rim (these percentages do not sum to 100 percent as some birds were observed crossing several parts of the rim) (Mariah Associates, Inc., 1996). Seventy-eight percent of the falcons were at rotor blade altitude (26-184 feet) during 1994 observations. Due to the number of sightings, it is possible that peregrine falcons nest somewhere near Foote Creek Rim, possibly several miles to the south in Rock Creek Canyon. Ponds and lakes immediately east of the rim provide a waterfowl and shorebird food source that could attract wintering or migrating falcons to the area. Very few peregrine falcons were observed during the 1995-1996 surveys.

Effects of the Action

Phase I of the project would result in construction of roads, turbine strings, and power lines that would at least temporarily reduce foraging areas for bald eagles and peregrine falcons. The turbine strings in particular will displace potential foraging activities on Foote Creek Rim. The cushion plant community on top of the rim provides habitat for raptor prey species such as voles and white-tailed prairie dogs, but the project should have minimal effects on prey populations.

Collisions with Turbine Blades--The placement of 91 to 136 wind turbines on Foote Creek Rim will produce the potential for avian collisions with turbine blades. Both bald eagles and peregrine falcons have been observed in flight patterns on the rim at blade sweep elevation (Mariah Associates, Inc., 1994 and 1997). Raptors appear to be more susceptible than many other species to turbine blade mortality (Orloff and Flannery 1992).

Collisions with Wires--Brown (1993) found that avian collisions with utility wires are likely to occur when the lines transect a daily flight path. High velocity winds, very common on Foote Creek Rim, may push birds into power lines. Orloff and Flannery (1992) found an 11 percent raptor mortality caused by collisions with wires in the Altamont Pass wind farm in California. The BA recognizes the likelihood of mortality to bald eagles and peregrine falcons due to collisions during the life of the project. Although there are no studies extant that might help estimate potential mortalities for the subject species, Olendorff and Lehman (1986, as referenced in Orloff and Flannery 1992) documented 15 confirmed cases of bald eagles colliding with utility lines. The same report indicates that peregrine falcons are more vulnerable to collision with wires than other raptors.

Electrocution--In the wind farm at Altamont Pass 8 percent of all raptor deaths are from electrocution. Seventy-seven percent of all electrocution deaths occurred at riser poles, probably because those structures provide more electrical contact points (Orloff and Flannery 1992). Larger birds, such as golden eagles, buteos, and ravens, were impacted by electrocutions, and smaller birds were not. Thus, there is a potential for bald eagle electrocution mortalities, but, due to their small size, peregrine falcons are not considered vulnerable to this type of accident.

SeaWest proposes to mitigate the potential impact of electrocution and power line collisions by placing all lines in the windfarm underground.

Cumulative Effects

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

The windfarm project would be located in an undeveloped rural area. The Service is not aware of any potential actions in this category, other than the subject project, that would affect the environmental baseline. Further development of Federal coal resources in the area may occur, but this will require additional Federal involvement that will trigger section 7 consultation.

CONCLUSION

It is the biological opinion of the Service that the implementation of the proposed SeaWest/PacifiCorp Windpower Project near Arlington, Wyoming, is not likely to jeopardize the continued existence of the endangered American peregrine falcon or the threatened bald eagle. However, the proposed project is expected to adversely affect those species, and incidental take of individuals is likely to occur. Therefore, reasonable and prudent measures to minimize incidental take are provided in this document.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA prohibits taking of a listed species without special exemption. The term "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm is further defined under 50 CFR 17.3 as "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." Harass is further defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering." Under the terms of sections 7(b)(4) and 7(o)(2), taking that is incidental to, and not the purpose of, the agency action is not considered prohibited taking within the bounds of the ESA, provided that such taking is in compliance with the terms and conditions of this incidental take statement. Furthermore, the Service must conclude that such taking could occur without violation of section 7(a)(2) of the ESA (jeopardy to the species or critical habitat).

Based on the best information available on the use of the project site by bald eagles and peregrine falcons, the Service anticipates that one individual of each species could be taken as a result of this proposed action. The incidental take is expected to be lethal and caused by electrocution or collision with power lines or wind turbine rotor blades.

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of bald eagles and peregrine falcons:

1. Develop the project in phases, with incremental section 7 consultation.
2. Continue pre- and post-construction monitoring of bald eagle and peregrine use of the project area, in accordance with the study plan identified in the EIS.
3. Reduce the risk of take from collisions and electrocution through placement and design of project structures.

In order to be exempt from the prohibitions of section 9 of the ESA, the Bureau must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

- 1.a. The Bureau has requested incremental consultation, and this opinion is based on the design of the first phase of facilities at Foote Creek Rim only. The Bureau will request reinitiation of consultation prior to formulating its decision to permit subsequent phases of this project.
- 1.b. As proposed by the project operators, establish a project technical committee to review biological monitoring and study results and to make recommendations on study design and project operation. The team will meet at least quarterly (conference calls may suffice) and will consist of representatives from the Bureau, Service, and Wyoming Game and Fish Department. All biological monitoring reports will be submitted to this group, and the Service will utilize this committee to evaluate the impacts of Phase I on bald eagles and peregrine falcons.
- 2.a. In the case of peregrine or bald eagle take, the project operators shall secure any carcass or other pertinent materials at the scene. This includes protecting a carcass on site in a manner safe from predators and others forms of disturbance. The project operators shall immediately telephone a report of the take to the Wyoming Ecological Field Supervisor, or the nearest available Service special agent. The reporting party shall leave a voice

mail message to document the time of the report, if Service personnel are not available. If the Service is unable to respond soon enough to prevent deterioration of the carcass, the operators should contact a Wyoming Game and Fish Department law enforcement officer for assistance. If the operators determine that a delay in response of the agencies would result in deterioration of a carcass, this term and condition provides authority for removal and further protection of the bird(s), in accordance with the operators' Federal and State salvage permits.

- 2.b. Continue to perform, in coordination with the project technical committee, monitoring studies as outlined in the Bureau's EIS. This includes raptor relative use and density, raptor nest census, territory identification, breeding pair productivity, and raptor mortality.
- 2.c. Retrofit to the extent practicable existing towers and other project structures based on measures found to reduce raptor mortality.
3. Locate turbine strings as far as feasible from the edge of Foote Creek Rim, to reduce the likelihood of soaring eagles or falcons colliding with turbine blades.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures, the Service believes that no more than one bald eagle and one American peregrine falcon will be incidentally taken during Phase 1. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take represents new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

To the extent that this statement concludes that take of any threatened or endangered species of migratory bird will result from the agency action for which consultation is being made, the Service will not refer the incidental take of any such migratory bird for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 USC 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 USC 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein. Because the golden eagle is not a listed species under the ESA, the preceding sentence does not apply to golden eagles. The Service has issued a special purpose permit under the Migratory Bird Treaty Act and 50 CFR 21.27 for this project which covers the take of migratory birds except for ESA listed species and bald and golden eagles.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of listed species. These are suggestions by the Service regarding discretionary measures to minimize and avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or develop information. The Service offers the following conservation recommendations.

1. Evaluate artificial perch structures in areas away from Foote Creek Rim, in coordination with the project technical committee.
2. The Bureau and project sponsors should assist in the development and operation of a worldwide central clearinghouse for reports and other data relating to avian impacts of windpower. The U.S. Department of Energy's National Renewable Energy Laboratory may be advancing the clearinghouse concept in the near future.

This concludes formal consultation on the first phase of the SeaWest/PacifiCorp Windpower Project. The Bureau has agreed to initiate a request for formal consultation on the next and subsequent phases of this project prior to permitting expansion. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that caused an effect on the listed species that was not considered in this opinion; or, (4) a new species is listed or critical habitat designated that may be affected by the proposed action.

If you have any questions regarding this biological opinion, please contact the Wyoming Field Supervisor at 307-772-2374, or Mr. Chuck Davis of my staff at 303-236-7400, extension 235.

Paul E. Gentler

cc: Director, Wyoming Game and
Fish Department, Cheyenne, WY
Bonneville Power Administration,
Portland, OR

Literature Cited

- Brown, W.M. 1993. Avian collisions with utility structures: biological perspectives. In Proc. intl. workshop on avian interaction with utility structures, September 13-16, 1992, Miami, Florida. Electric Power Research Institute and Avian Powerline Interaction Committee, Palo Alto, California.
- Mariah Associates, Inc. 1994. Unpublished wildlife observation data for the KENETECH/ PacifiCorp Windpower Project. Available at Mariah Associates, Inc., Laramie, Wyoming.
- _____. 1995. Biological assessment for the KENETECH/PacifiCorp Windpower Project threatened, endangered, and candidate species. Prepared for the Bureau of Land Management, Rawlins District, Wyoming.
- _____. 1996. Biological assessment for the KENETECH/PacifiCorp Windpower Project threatened, endangered, and candidate species. Prepared for the Bonneville Power Administration, Portland, Oregon.
- _____. 1997. Final SeaWest/KENETECH windfarm development comparison, Carbon Co., Wyoming. Prepared for the Bureau of Land Management, Rawlins District, Wyoming.
- Orloff, S., and A. Flannery. 1992. Wind turbine effects on avian activity, habitat use, and mortality in Altamont Pass and Solano County Wind Resource Areas, 1989-1991. Final report. Prepared for the Planning Departments of Alameda, Contra Costa, and Solano Counties and the California Energy Commission.
- U.S. Fish and Wildlife Service. 1984. American Peregrine Falcon Recovery Plan (Rocky Mountain Southwest Populations). Prepared in cooperation with the American Peregrine Falcon Recovery Team. U.S. Fish and Wildlife Service, Denver, Colorado.

ATTACHMENT 2

Migratory Bird Special Purpose Permit

for

**SeaWest/PacifiCrop
Windpower Project**



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mountain-Prairie Region

IN REPLY REFER TO:

USFWS/PERMITS
MAIL STOP 69400

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228-1807

Mr. Dino J. Pionzio, Jr.
Chief Executive Officer
Seawest Energy Corporation
1455 Frazee Road - Ninth Floor
San Diego, California 92108

APR 8 1997

Dear Mr. Pionzio:

You and those authorized under the attached Migratory Bird Special Purpose Permit, PRT 808690, are authorized to daily salvage, possess, and transport, bald or golden eagle remains, carcasses, or parts located in the applications described windpower site. Such remains will be tagged and retained in accordance with instructions contained in the Migratory Bird Special Purpose Permit. Furthermore, such remains are also subject to the recording/reporting requirements in accordance with instruction contained in the Migratory Bird Special Purpose Permit. Such remains shall only be surrendered to the Casper Special Agent or his designee. Employees salvaging eagles will be held strictly accountable for said collected eagles.

Such activities, as described in the paragraph above, will not be used as the basis for allegations of violations of 16 U.S.C., 668, prohibiting the possession or transportation of any bald or golden eagle. Provided, however, that nothing herein shall be construed as relieving the permittee from allegations of other actions prohibited by 16 U.S.C., 668, including, but not limited to, take and possession/transportation of eagles or their parts thereof when such eagles or parts thereof are not surrendered to authorized agents of the Fish and Wildlife Service.

The term of this Letter of Authorization shall be that of the Special Purpose Migratory Bird Permit.

Sincerely,

John E. Cornely
Migratory Bird Coordinator
Region 6



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(10/86)

FEDERAL FISH AND WILDLIFE PERMIT

AMENDMENT # 1

1. PERMITTEE

SEAWEST ENERGY CORPORATION
1455 FRAZEE ROAD
NINTH FLOOR
SAN DIEGO CA 92108

2. AUTHORITY-STATUTES

16 USC 703-712

REGULATIONS (Attached)

50 CFR Part 13
50 CFR 21.27

3. NUMBER

PRT-808690

4. RENEWABLE

YES
 NO

5. MAY COPY

YES
 NO

6. EFFECTIVE

3/21/97

7. EXPIRES

12/31/97

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

CHIEF EXEC OFFICER
DINO J. PIONZIO

9. TYPE OF PERMIT

SPECIAL PURPOSE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

FOOTE CREEK RIM AND SIMPSON RIDGE AREA BETWEEN ARLINGTON AND HANNA IN
CARBON COUNTY, WYOMING

****AMENDMENT #1** CHANGED OWNERSHIP NAME AND MAILING ADDRESS.**

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

And any other person(s) under the direct control of, employed by or under contract to the permittee only to the extent necessary in accomplishing the purpose authorized below.

D. Permittee, and any other person(s), is authorized to take, transport and temporarily possess those migratory bird species as specified in Attachment A.

E. Permittee is NOT authorized to take Bald or Golden eagles under the terms and conditions of this permit. Permittee is NOT authorized to take Threatened or Endangered species under the terms and conditions of this permit unless accompanied by the appropriate permits issued under the Endangered Species Act. For the salvage, collection, transport and possession of Bald and/or Golden eagles or their parts, see the attached Letter of Authorization.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ON REVERSE ALSO APPLY

12. REPORTING REQUIREMENTS

FIRST ANNUAL REPORT DUE 1/31/98
ANNUALLY BY JANUARY 31 FOR THE PRECEDING CALENDAR YEAR ENDING
DECEMBER 31 AS OUTLINED IN 50 CFR 21.27(C)(1).

ISSUED BY

John E. Lornely
ORIGINAL

TITLE

MIGRATORY BIRD COORDINATOR R-6

DATE

3/21/97

US FISH & WILDLIFE SERVICE
MIGRATORY BIRD PERMIT OFFICE
P.O. BOX 25486, DFC (69400)
DENVER, CO 80225-0486

F. Permittee shall collect all migratory bird carcasses or parts discovered on the windpower site described in Item 10 on the face of this permit and tag such specimens. Each tag shall have the following information: 1) date and location the bird was collected; 2) full printed name of the person who collected the specimen; 3) permit number under which the specimen was collected; and 4) any other information germane to the collection.

G. Permittee shall immediately freeze all tagged specimens and contact the Casper Special Agent at (307) 261-5796, WITHIN 24 HOURS. The Casper Special Agent will provide storage or disposal instructions. In the event a significant or large migratory bird kill occurs on the windpower site, the permittee shall notify the Casper Special Agent IMMEDIATELY. In the event an injured or

otherwise incapacitated migratory bird is discovered on the windpower site, the permittee shall notify the Casper Special Agent IMMEDIATELY.

H. Permittee, and any other person(s), shall carry a copy of this permit, Attachment A and Letter of Authorization whenever exercising its authority.

I. Permittee shall supply interim or completed information relative to the project to the Region 6 Migratory Bird Coordinator upon reasonable request.

J. In the event significant or unanticipated levels of mortality or harm to protected species populations which the U.S. Fish and Wildlife Service deems unacceptable, and an agreement cannot be immediately reached on appropriate equipment modifications or other response measures, the U.S. Fish and Wildlife Service may amend, modify or suspend

the permit pending corrective action by the permittee.

K. Permittee shall maintain records as required in 50 CFR 13.46 and 50 CFR 21.27(c)(1)(2).

L. Permittee shall submit an annual report to the Region 6 Migratory Bird Coordinator which shall include the following information: 1) date and location specimen was collected; 2) species and number collected; 3) full name of person who collected the specimen; and 4) date and method of final disposition. Said annual report shall be due by January 10 for the preceding calendar year.

M. This permit, Attachment A and Letter of Authorization is contingent upon acquisition of appropriate State, County, City or other municipal authorization.

PERMIT INVALID WITHOUT ATTACHMENT A AND
LETTER OF AUTHORIZATION.

Permittee: Seawest Energy Corp
Exp. Date: 12/31/97
PRT#: 808690

US FISH & WILDLIFE SERVICE
MIGRATORY BIRD PERMIT OFFICE
P.O. BOX 25486, DFC (D0400)
DENVER, CO 80225-0486

ATTACHMENT A.

Take for the avian species on the following list is restricted to no more than 10 individuals per species per annum.

Take for all other avian species, except Endangered or Threatened and Golden Eagles, is limited to no more than 100 individuals per species per annum.

ENGLISH NAME	ZOOLOGICAL NAME
1 Red-throated Loon	<i>Gavia stellata</i>
2 Pacific Loon	<i>Gavia pacifica</i>
3 Common Loon	<i>Gavia immer</i>
4 Homed Grebe	<i>Podiceps auritus</i>
5 Red-necked Grebe	<i>Podiceps grisegena</i>
6 American White Pelican	<i>Pelecanus erythrorhynchos</i>
7 American Bittern	<i>Botaurus lentiginosus</i>
8 Least Bittern	<i>Ixobrychus exilis</i>
9 Snowy Egret	<i>Egretta thula</i>
10 Green Heron	<i>Butorides virescens</i>
11 Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>
12 White-faced Ibis	<i>Plegadis chihi</i>
13 Trumpeter Swan	<i>Cygnus buccinator</i>
14 Harlequin Duck	<i>Histrionicus histrionicus</i>
15 Oldsquaw	<i>Clangula hyemalis</i>
16 Northern Harrier	<i>Circus cyaneus</i>
17 Northern Goshawk	<i>Accipiter gentilis</i>
18 Broad-winged Hawk	<i>Buteo platypterus</i>
19 Swainson's Hawk	<i>Buteo swainsoni</i>
20 Ferruginous Hawk	<i>Buteo regalis</i>
21 Rough-legged Hawk	<i>Buteo lagopus</i>
22 Gyrfalcon	<i>Falco rusticolus</i>
23 Prairie Falcon	<i>Falco mexicanus</i>
24 Snowy Plover	<i>Charadrius alexandrinus</i>
25 Mountain Plover	<i>Charadrius montanus</i>
26 Upland Sandpiper	<i>Bartramia longicauda</i>
27 Long-billed Curlew	<i>Numenius americanus</i>
28 Wilson's Phalarope	<i>Phalaropus tricolor</i>
29 Franklin's Gull	<i>Larus pipixcan</i>
30 Black Tern	<i>Chlidonias niger</i>
31 Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
32 Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
33 Barn Owl	<i>Tyto alba</i>
34 Burrowing Owl	<i>Athene cunicularia</i>
35 Short-eared Owl	<i>Asio flammeus</i>
36 Lewis' Woodpecker	<i>Melanerpes lewis</i>
37 Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
38 Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>
39 Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>
40 Olive-sided Flycatcher	<i>Contopus borealis</i>
41 Willow Flycatcher	<i>Empidonax traillii</i>
42 Hammond's Flycatcher	<i>Empidonax hammondii</i>
43 Gray Flycatcher	<i>Empidonax wrightii</i>
44 Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>
45 Purple Martin	<i>Progne subis</i>
46 Violet-green Swallow	<i>Tachycineta thalassina</i>

47 Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
48 Bank Swallow	<i>Riparia riparia</i>
49 Rock Wren	<i>Salpinctes obsoletus</i>
50 Canyon Wren	<i>Catherpes mexicanus</i>
51 Bewick's Wren	<i>Thryomanes bewickii</i>
52 Golden-crowned Kinglet	<i>Regulus satrapa</i>
53 Veery	<i>Catharus fuscescens</i>
54 Wood Thrush	<i>Hylocichla mustelina</i>
55 Gray Catbird	<i>Dumetella carolinensis</i>
56 Northern Mockingbird	<i>Mimus polyglottos</i>
57 Sage Thrasher	<i>Oreoscoptes montanus</i>
58 Sprague's Pipit	<i>Anthus spragueii</i>
59 Northern Shrike	<i>Lanius excubitor</i>
60 Loggerhead Shrike	<i>Lanius ludovicianus</i>
61 Solitary Vireo	<i>Vireo solitarius</i>
62 Red-eyed Vireo	<i>Vireo olivaceus</i>
63 Orange-crowned Warbler	<i>Vermivora celata</i>
64 Virginia's Warbler	<i>Vermivora virginiae</i>
65 Black-throated Gray Warbler	<i>Dendroica nigrescens</i>
66 Ovenbird	<i>Seiurus aurocapillus</i>
67 Lazuli Bunting	<i>Passerina amoena</i>
68 Dickcissel	<i>Spiza americana</i>
69 Green-tailed Towhee	<i>Pipilo chlorurus</i>
70 Cassin's Sparrow	<i>Aimophila cassinii</i>
71 Clay-colored Sparrow	<i>Spizella pallida</i>
72 Vesper Sparrow	<i>Pooecetes gramineus</i>
73 Black-throated Sparrow	<i>Amphispiza bilineata</i>
74 Baird's Sparrow	<i>Ammodramus bairdii</i>
75 Grasshopper Sparrow	<i>Ammodramus savannarum</i>
76 McCown's Longspur	<i>Calcarius mccownii</i>
77 Chestnut-collared Longspur	<i>Calcarius ornatus</i>
78 Bobolink	<i>Dolichonyx oryzivorus</i>
79 Scott's Oriole	<i>Icterus parisorum</i>
80 Hoary Redpoll	<i>Carduelis homemanni</i>

ATTACHMENT 3

Eagle Management Plan

for

**SeaWest/PacifiCrop
Windpower Project**

STOEL RIVES LLP

ATTORNEYS

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July 1, 1997



BARBARA D. CRAIG

Direct Dial
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bdcraig@stoel.com

VIA FEDERAL EXPRESS

Mr. Chuck Davis
U.S. Fish and Wildlife Service
4000 Morrie Avenue
Cheyenne, WY 82001

Re: Eagle Management Plan for the SeaWest/PacifiCorp Windpower Project

Dear Chuck:

Enclosed is the Eagle Management Plan ("Plan") for the SeaWest/PacifiCorp Windpower Project. The Plan is a compilation of the substantial commitments to mitigation and monitoring of bald and golden eagles during project development, operations and maintenance contained in the draft and final environmental impact statements and the biological assessment and the SeaWest/Kenotech Comparison Report. SeaWest has reviewed the Plan and believes the Plan accurately reflects SeaWest's commitments to conservation measures identified during the development of this Project. This Plan was developed in consultation with the Bureau of Land Management, the Bonneville Power Administration and the U.S. Fish and Wildlife Service, presents the best available scientific information to date and provides for extensive monitoring as well as project modification as additional information becomes available. The Plan measures provide to the maximum extent practicable the avoidance of take of bald and golden eagles. We appreciate your assistance and look forward to a continued cooperative working relationship.

Sincerely,

Barbara D. Craig

Enclosure

cc (w/encl.): Mr. Walt George, Bureau of Land Management (via Federal Express)
Mr. Michael Azeka, SeaWest Energy Corporation (via Federal Express)
Ms. Sarah McNary, Bonneville Power Administration (via messenger)
Mr. Tom Graf, Solicitor's Office (via Federal Express)
Mr. Alan Larsen, Eugene Water & Electric Board (via messenger)
Ms. Gail Miller, PacifiCorp (via messenger)
Mr. Monte Garrett, PacifiCorp (via messenger)

Eagle Management Plan
SeaWest/PacifiCorp Windpower Project
Carbon County, Wyoming
July 1, 1997

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I. INTRODUCTION

SeaWest Energy Corporation (SeaWest) proposes to construct a 500-megawatt (MW) windpower facility (Windfarm) in the Foote Creek Rim (FCR) and Simpson Ridge (SR) areas between the towns of Hanna and Arlington, in southeastern Wyoming. SeaWest has applied for a right-of-way (ROW) grant from the Bureau of Land Management (BLM) to construct and access wind turbines and associated facilities on approximately 60,619 acres of federal, state, and private land. Currently, one transmission line is proposed to connect the Windfarm to existing transmission grids to transport the power to buyers in the Pacific Northwest and Rocky Mountain regions. PacifiCorp has applied for a ROW grant to construct a 230-kilovolt (kV) transmission line from the proposed Windfarm at FCR to the existing Miner's substation near Hanna. The SeaWest/PacifiCorp Project Area (SPA) consists of the FCR and SR areas, plus three alternate transmission line routes.

The proposed Windfarm would be constructed in phases. Phase I would consist of approximately 91 - 136 turbines located on top of FCR north of Arlington and would have a generating capacity of up to 68.25 MW. The Bonneville Power Administration (BPA), which proposes to buy a portion of the power from Phase I, is a cooperating agency with the BLM in analyzing the environmental impacts associated with the proposed Windfarm.

In 1995, the BLM, in cooperation with the BPA, prepared draft and final environmental impact statements (EIS) pursuant to the National Environmental Policy Act (NEPA). During the NEPA process, the concern over the potential for birds to collide with wind turbine generators (WTGs) and other Windfarm facilities, and other potential sources of bird mortality related to Windfarm operation and maintenance (O&M), were identified as potentially significant adverse impacts of Windfarm development. Of particular concern were impacts to bald and golden eagles. The objective of this Eagle Management Plan is to summarize actions planned to minimize Windfarm impacts to eagles and other large birds.

During the scoping process, Kenetech Windpower Inc. ("Kenetech") proposed elements in the project design to mitigate Windfarm impacts. SeaWest, in cooperation with the agencies, has made additional changes for mitigation and monitoring during project development and O&M. Potential impacts and mitigation measures are described in detail in the draft and final EIS for the project (BLM 1995a, 1995b), the Biological Assessment (TRC Mariah Associates 1995), and the SeaWest/Kenetech Comparison Report (TRC Mariah Associates 1997).

The bald eagle is listed as a threatened species in the coterminous states of the United States under the federal Endangered Species Act (ESA) (16 USC §§ 1531-1544). Pursuant to the ESA, the BLM and the BPA completed formal consultation with the U.S. Fish and Wildlife Service (USFWS) concerning potential project impacts to the bald

eagle.¹ The USFWS issued a "no jeopardy" biological opinion with an incidental take statement.

All native species of migratory birds in the United States, including bald and golden eagles, are protected under the Migratory Bird Treaty Act (MBTA), 16 USC §§ 703-712. On November 13, 1995, the USFWS issued a special purpose permit to Kenetech (pursuant to 50 CFR § 21.27 and the MBTA), which authorizes the take of up to 10 individuals per year of each species identified in Attachment A of the MBTA permit.² Take of all other migratory avian species, except threatened or endangered species and golden eagles, is limited to no more than 100 individuals per species per year.

Bald eagles and golden eagles are also protected under the Bald and Golden Eagle Protection Act, 16 USC § 668. The Eagle Management Plan consolidates information from the draft and final EIS for the project (BLM 1995a, 1995b), the Biological Assessment (TRC Mariah Associates 1995), the Final Biological Opinion (USFWS 1995), 1995-1996 monitoring studies (West 1997), and the comparison report (TRC Mariah Associates 1997) regarding the conservation measures that should avoid to the maximum extent practicable the take of bald and golden eagles. Commensurate with analysis presented in the EIS, this Eagle Management Plan focuses on Phase I impacts and mitigation measures based on data collected through March 1996. As monitoring progresses and more data are collected, the Eagle Management Plan will be modified to reflect new information and additional mitigation measures may be recommended for future phases of development. Any modifications would be consistent with future NEPA documents, which would be prepared as additional phases are proposed. This Eagle Management Plan was developed in consultation with the USFWS, presents the best available scientific information to date, and provides for extensive monitoring as well as project modification as additional information becomes available.

II. TAXONOMY, LIFE HISTORY, AND HABITAT OF THE BALD AND GOLDEN EAGLE

A. Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) are widely distributed throughout North America and are often associated with large bodies of water (Newton 1979:52). Bald eagles typically build their nests on prominent features that overlook aquatic foraging areas and usually migrate during the winter months in response to prey availability (Stalmaster 1976, Swenson et al. 1986). This species is characterized by opportunistic foraging behavior and

¹ In addition, the BLM and the BPA consulted with the USFWS regarding potential impacts to the peregrine falcon, an endangered species protected under the ESA.

² On December 16, 1996, the U.S. Bankruptcy Court for the Northern District of California ordered the sale of the Wyoming windpower project and all associated assets and permits from Kenetech to SeaWest, including the MBTA permit. The USFWS revised the MBTA permit on March 21, 1997 to reflect that SeaWest is the designated permittee.

frequently scavenges for animal carcasses such as elk and deer during winter migrations. Population declines of bald eagles are related to habitat destruction, shooting, and environmental pollutants (Sprunt et al. 1973, Wiemeyer et al. 1984, Anthony et al. 1982, 1994). Due to recovery efforts, the bald eagle was reclassified in 1995 from endangered to threatened throughout the lower 48 states (FR 60 (133): 36000-36010). Most recovery goals for bald eagles are directed toward the breeding population. The number of breeding areas in Wyoming has increased from five in 1982 to 25 in 1995 (Greater Yellowstone Bald Eagle Working Group, referenced in Final Biological Opinion [USFWS 1995]).

Raptor nesting surveys were conducted between May and August 1994 (BLM 1995a) and between April and July 1995 (West 1997) in the SPA (including both the FCR and SR areas). Nesting surveys in 1994 included a 16-km buffer around FCR and a 3.2-km buffer around SR and the three transmission line routes. In 1995, nesting surveys also included a 16-km buffer around the SR area. Use surveys were conducted between February 1994 and March 1995 (BLM 1995b) and between March 1995 and March 1996 (West 1997). Use surveys were conducted from observation stations within the study areas (methods described in Thomas et al. [1995] and West [1997]).

During 1994, one active bald eagle nest was documented approximately 3.2 km south of SR; one young successfully fledged from this nest (BLM 1995a). Continued monitoring in 1995 found two active nests in the SPA (1.5 young/nest; West 1997). Use surveys documented 37 bald eagle observations in the FCR area and 13 observations in the SR area in 1994. Monitoring studies in 1995-1996 documented bald eagle use infrequently (1.3 percent of surveys) only in the FCR area during winter (West 1997). No known communal roosts exist within the SPA, but it is likely that cottonwood trees along the Medicine Bow River, Rock Creek, Foote Creek, and other perennial drainages are regularly used as perches in winter (BLM 1995a).

B. Golden Eagle

Golden eagles (*Aquila chrysaetos*) are widely distributed throughout the world and typically build their nests on cliffs or rocky escarpments that provide access to prey (Terres 1980:478). Golden eagles forage primarily on small mammals, such as ground squirrels and lagomorphs (Beecham and Kochert 1975). Golden eagles perch during hunting, feeding, territorial broadcasting, and resting. Perch locations probably coincide with hunting opportunities. Most golden eagles in North America migrate when prey numbers decline in their northern range (Terres 1980). Olendorff et al. (1981) reported an estimated 63,000 golden eagles in the arid grasslands and shrublands of the western United States. Analysis of data from migration censuses from the late 1970s through 1991 suggests an annual decline of 6.1 percent for the golden eagle population in western United States (Hoffman et al. 1992). Lehman et al. (1993) reported that the number of occupied golden eagle nesting areas in the Snake River Birds of Prey Area, Idaho, has declined significantly since the late 1970s; however, actual numbers were only slightly lower and productivity (young/occupied site) was higher than the previous 10 years. Causes of golden eagle mortality include poisoning,

shooting, electrocution associated with power lines, and collisions with power lines and wind turbines (Newton 1979, Orloff and Flannery 1992, APLIC 1996).

Raptor nesting surveys were conducted between May and August 1994 (BLM 1995a) and between April and July 1995 (West 1997) in the SPA (including both the FCR and SR areas). Nesting surveys in 1994 included a 16-km buffer around FCR and a 3.2-km buffer around SR and the three transmission line routes. In 1995, nesting surveys also included a 16-km buffer around SR. Use surveys were conducted between February 1994 and March 1995 (BLM 1995a) and between March 1995 and March 1996 (West 1997). Use surveys were conducted from observation stations within the study areas (methods described in Thomas et al. [1995]).

During the 1994 nesting surveys, five active golden eagle nests were located within the SPA (one nest was located within 3.2 km of an alternate transmission line ROW); all nests successfully produced young. An additional 38 inactive nests were also located (BLM 1995b). In 1995, eight active nests were monitored in the FCR area (0.88 young/nest), and eight active nests were monitored in the SR area (0.63 young/nest) (West 1997).

Golden eagles composed the majority of raptor observations (43 percent) during raptor use surveys of the FCR area in 1994 (pers. comm., Diane Thomas, TRC Mariah Associates Inc., February 1996). Eagles were observed most frequently along the west side of FCR. It is likely that a combination of favorable winds for soaring, a substantial prey base, and preferred perch sites are present in these areas (BLM 1995b). During 1995-96, golden eagles were the most frequently observed raptor during all seasons at FCR, with highest use occurring in the fall season (1.48/survey) (West 1997). Eagle use of FCR was concentrated on the western side and within 50 m of the rim's edge. There was less raptor use documented at the SR area, but the golden eagle was the most common species during fall (0.12/survey) and winter (0.13/survey). Highest use was on north-south oriented ridges with steep slopes.

III. POTENTIAL IMPACTS OF THE PROPOSED PROJECT ON BALD AND GOLDEN EAGLES

Potential impacts to golden and bald eagles from development and operation of wind generating facilities at FCR (Phase I of Windfarm development) could be direct or indirect (BLM 1995a). The direct effect would be Windfarm-related mortality; indirect effects would include changes in essential habitat components (e.g., prey availability and nesting sites) and which may affect mortality and reproductive success.

Collision-related mortality at windpower facilities is related to raptor abundance, behavior, and flight characteristics (Howell and DiDonato 1991, Howell and Noone 1992, Orloff and Flannery 1992). Given that these characteristics may contribute to the probability of turbine collision, the most abundant species that fly at rotor height may have the greatest risk of collision. Golden eagles were the most commonly observed raptor species in the FCR area during 1994-95 surveys. West (1997) developed a relative index of risk based on mean

use, time spent flying, and proportion of flight heights within the rotor-swept area. Based on monitoring during 1994-95 and 1995-96, 53 percent and 49 percent, respectively, of eagles in the FCR area were observed flying at rotor height (BLM 1995b, West 1997). A tendency to fly within the rotor-swept area on the rim edge was consistently observed for golden eagles and other raptors. Calculations of relative risk for raptors and other large birds suggest that the golden eagle is the species at greatest risk of turbine collision during all seasons in the FCR area.

The rotor-swept area categories used for monitoring from 1994-96 were based on turbines originally proposed by Kenetech (BLM 1995b); in comparison, the rotors proposed by SeaWest would be slightly larger and higher. Thus, those species that tend to fly at heights of >20 m (e.g., *buteo* hawks and eagles) may be at greater risk of collision per turbine under the current proposal (TRC Mariah Associates 1997). However, analysis of data collected at Altamont Pass suggests that rotor-swept area per turbine may not be an important factor in the probability of raptor collision (Orloff and Flannery 1996). Further, the larger rotor-swept area per turbine may be offset by the installation of 65 to 110 fewer turbines under the current proposal. Preliminary study by Howell (1995) suggested that the number of turbines present may be more important than rotor-swept area. Under the current proposal, the effect of rotor-swept area on mortality is unknown, but mortality due to collision will be monitored beginning with Windfarm development.

Orloff and Flannery (1992) reported that golden eagles were killed more often than expected based upon their abundance at Altamont Pass, California. Based on mortality rates reported at Altamont Pass, the annual loss of golden eagles for Phase I of the Windfarm would range from 0.002 to 0.005 per turbine per year, or 0.4 to 1.01 golden eagles per year (pers. Comm., Sue Orloff, Ibis Environmental Services, February 1996). However, due to numerous physical and biological differences between the California and the Wyoming windfarm sites, this mortality estimate will probably change as data are collected during monitoring. For example, golden eagles are more abundant on the SPA than at the California windfarm. In California, carcasses were primarily recovered from turbines on lattice towers; the Windfarm will utilize only tubular towers (see below). There is little information on population structure for golden eagles at the FCR area. Because total number of nesting territories and geographic origins of resident birds and their movement patterns are unknown for this area, potential impacts on golden eagles are difficult to quantify.

Mortality or injury to bald eagles may occur as a result of the Windfarm (USFWS 1995). However, only 37 observations of bald eagles occurred in the FCR area during the 1994 surveys, and bald eagles were infrequently observed during winter in subsequent monitoring (BLM 1995b, West 1997). Further, the SPA has not been identified as critical habitat for the bald eagle. No bald eagle carcasses have been recovered from the California windfarms; thus there are no data with which to estimate mortality due to collision at the SPA (BLM 1995a). But because bald eagles are probably present year-round in the SPA, mortality due to collision may occur during the life of the project ("LOP"). Bald eagle mortality will be monitored beginning with Windfarm development.

Other windfarm facilities may also impact bald and golden eagles. In Altamont Pass, 11 percent of raptor deaths were attributed to collisions with electrical and guy wires and electrocution caused 8 percent of raptor deaths (Orloff and Flannery 1992). Although considered an unusual event, bald eagle collisions with power lines have been documented (Olendorff and Lehman 1986). Collisions may occur when wires transect daily flight paths and high-velocity winds push birds into the lines (Brown 1993). Electrocution may occur when large birds perch on power poles, especially riser or other poles with additional electrical hardware (Orloff and Flannery 1992, APLIC 1996). Construction standards used in the development of the Windfarm are designed to avoid these impacts (see below).

Food availability is one of the primary factors that potentially limits raptor populations (Newton 1979). Phase I would result in construction of roads, turbine strings, and power lines that would at least temporarily reduce foraging areas for eagles. Impacts of Phase I on prey populations are unknown but would be monitored beginning with Phase I development (see below). If prey availability decreases, raptor reproductive success and winter survival could also decrease. If prey increases, reproductive success may improve, but more raptors may be attracted to the Windfarm, which could result in increased collisions. However, because wind generating facilities at FCR are expected to permanently modify only 68 acres (1.4 percent of the FCR area), it is believed that prey populations will not appreciably change due to Windfarm operation throughout the LOP (BLM 1995a, TRC Mariah Associates 1997).

Given the large number of active raptor nests found during surveys (e.g., 65 and 122 total nests in 1994 and 1995, respectively, and 4 and 10 eagle nests in the FCR area) (BLM 1995b, West 1997), suitable nest sites are probably not limiting for most species of raptors within the SPA that typically nest in open, arid grasslands. Disturbance of active eagle nest sites will be avoided or minimized by following the procedures outlined below. Bald eagles generally nest near aquatic ecosystems that provide abundant prey and large dominant trees to support their nests (Anthony et al. 1982). Parts of the SPA may provide suitable habitat for winter perching by bald eagles (Bob Oakleaf, pers. comm., Wyoming Game and Fish [WGF]), and it is likely that bald eagles use the areas for foraging throughout the year (BLM 1995a). The grass/sagebrush habitat within the FCR project boundary is not believed to provide suitable habitat for nesting by bald eagles, but habitat suitable for nesting is available along the Rock Creek drainage adjacent to FCR.

IV. CONSERVATION MEASURES TO AVOID TAKE OF BALD AND GOLDEN EAGLES

Recent research on windpower projects has suggested factors that contribute to avian mortality at windpower developments (Howell and DiDonato 1991, Howell and Noone 1992, Orloff and Flannery 1992, 1996; ref. in Colson and Associates 1995). These include higher mortality associated with:

- windpower developments located in bird migration corridors and areas of high bird concentrations;
- WTGs located at the end of turbine strings, closer to canyon edges, and in proximity to high-density prey populations;
- increased perching opportunities provided by turbines supported on lattice towers;
- WTGs with a higher number of operating hours; and
- WTGs with higher rotor tip speeds.

It is unclear whether larger turbines (greater rotor-swept area) contribute to increased mortality, but a preliminary study suggested that the number of turbines is a more important factor than the amount of rotor-swept area (Howell 1995).

Based on research of windpower effects on raptors and results of studies in the SPA, on-site measures to avoid take of bald and golden eagles during Phase I include the following:

1. Siting options have taken into consideration the entire annual cycle and pattern of eagle use of FCR. The size and physical configuration of the Phase I development, turbine spacing, and locations of turbine strings will be evaluated with respect to eagles and their activities in the area. High-use areas and known nesting areas will be considered when evaluating siting options and avoided, whenever possible. Suggested disturbance buffers for wintering eagles will be strictly adhered to (Holmes et al. 1993).
2. Only six to eight turbine strings will be constructed; thus the number of end-row turbines will be 12 - 16, and 12 - 25 turbines will be located within 50 m of the rim's edge. No WTGs will be located on Arlington Peak, an area heavily used by raptors.
3. Turbines and towers will be designed to reduce the likelihood of collisions by reducing perching opportunities. Only tubular towers will be used with no railings, walkways, ladders, or other potential bird perching sites.

4. Turbine rotors and nacelles will be coated with paint that is highly reflective in the ultraviolet range, which may improve visibility to birds under a range of conditions. Selection of appropriate paint will be in consultation with the USFWS.
5. All within-plant collection and communication lines will be buried to reduce the potential for electrocution and to reduce potential perching substrate that may attract birds near project facilities. Only two power/riser poles will be installed and constructed to raptor-safe standards (APLIC 1996).
6. If bald eagle winter communal roosting areas are found, a no surface occupancy restriction will be applied to a 1.6-km buffer zone around the roosts, and the area will be closed to surface-disturbing activities (e.g., construction) from November 1 through April 1. However, normal operation of Windfarm facilities will be allowed.
7. If active (i.e., used within the last three years) bald eagle nests are found, no surface disturbance or construction activity will be allowed within a 1.6-km radius buffer zone around the nests during the nesting season (February 1 through July 31). However, normal operation of Windfarm facilities will be allowed.
8. Construction within 1.2 km of active golden eagle nest sites will be avoided during the nesting season (February 1 through July 31). However, normal operation of Windfarm facilities will be allowed. If construction must occur within the area, it will occur outside the nesting season.
9. Approval from the BLM authorizing officer (AO), in consultation with the technical committee (see below), will be obtained before construction or any other surface disturbing activity in restricted areas during restricted periods described in 7-9 above.
10. When necessary, based on monitoring and consultation with the technical committee, power lines will be marked with visibility devices following state-of-the-art practices (APLIC 1994).

Windfarm impacts on golden and bald eagles are part of continuing study in the SPA (BLM 1995b, West 1997). Because the magnitude of impacts are not completely understood at this time, monitoring will be an integral part of the mitigation program.

V. MONITORING

Results of site-specific studies within the SPA have been used to design an intensive monitoring program for the entire SPA, beginning with Phase I (BLM 1995a, 1995b). The monitoring program will help determine project impacts on raptors and will also assist in

the development of appropriate mitigation measures for future phases of Windfarm development. During monitoring, there will be two reference areas (i.e., the Morton Pass area and SR before development) to compare with the FCR area. The Morton Pass reference area was evaluated during the initial field season to determine its suitability (West 1997). The FCR area and reference areas are similar in terms of topography and habitat features. The same sampling methods, intensity, and frequency are being used to compare raptor use and relative abundance in the three areas.

The protocol for monitoring combines pre- and post-construction data from baseline studies and subsequent monitoring activities (before/after) with data from reference and development areas (control/treatment). By sampling both the reference area and the development areas before and after windpower development, both temporal and spatial controls are utilized, optimizing the design impact (Green 1979).

Monitoring activities include relatively intensive surveys of bald and golden eagles and other large raptors. Several outcomes are possible from monitoring studies. For example, a decline in eagle use on the FCR (i.e., the area with wind turbines) without a similar decline on the reference area may be interpreted as evidence of an effect of windpower development. The presence of carcasses near turbines or a decline in nesting activity increases the weight of evidence that an effect can be attributed to windpower. A decline in use of both the reference and development area coupled with few to no carcasses may be interpreted as a population response unrelated to the Windfarm.

The level at which mortalities are considered significant from a population perspective depends on the species involved. A significant number of carcasses associated with a decline in use relative to the reference area or a decline in number of active nests may be interpreted as a probable population effect. These efforts will yield indices of population effects. If evidence indicates significant negative impacts to eagles, additional, more detailed studies may be necessary to determine the significance of impacts (e.g., the effect of mortalities on the dynamics of the populations).

Specific monitoring tasks include the following:

1. Point-count surveys for eagles (and other raptors) to estimate the spatial and temporal use of the FCR area and the reference areas.
2. Nest surveys to evaluate the number and distribution of nesting eagles (and other raptors) that may be potentially influenced by the project.
3. Prey availability studies to determine an index of prey availability within a 16-km buffer of the FCR and the reference areas.

4. Avian carcass searches to determine the level of direct mortality associated with turbines, adjusted for scavenging and detectability biases. The frequency of carcass searches will be based on scavenging tests conducted before beginning the searches.

More detailed descriptions of these studies are presented in West (1997). These studies are equivalent to those included in the Final Biological Opinion (USFWS 1995). For all parameters, data will be plotted by survey date for the FCR area and the permanent reference area. For many of the parameters estimated, statistical comparisons will be made (1) between the FCR and the reference areas and (2) between data collected pre- and post-construction within the study areas, using randomizing tests and the computer package RT (Manly 1991). Significance levels (*i.e.*, p-values) will be reported, and those below $\alpha=0.10$ (one-tailed) will be judged as significant.

As a component of the Monitoring Plan, a technical committee has been meeting informally to assist the BLM in evaluating and weighing information collected during monitoring, identifying project impacts, and evaluating mitigation measures (BLM 1995b). The technical committee will be formally established within six weeks of the Notice to Proceed. The technical committee will advise the BLM AO throughout the development of Phase I and all subsequent phases of project development. The technical committee will consist of personnel representing the BLM, the USFWS, and the WGF. The technical committee's principal objectives will be to identify project-related impacts on wildlife and develop additional proposed mitigation measures for any unexpected impacts identified. The committee will meet a minimum of once annually but may conduct more frequent meetings, especially during initial review of monitoring information. All meetings of the committee will be open to the public.

SeaWest will prepare an annual monitoring and technical report. The report will include a description of the technical committee activities for the year and a discussion of the committee's recommendations and SeaWest's actions.

The technical committee will be disbanded when it is determined that monitoring is no longer necessary. Monitoring will be terminated if (1) impacts are shown to be minimal and adequately mitigated (as determined by the AO in consultation with the USFWS) or (2) the Windfarm is decommissioned and all disturbed areas are reclaimed.

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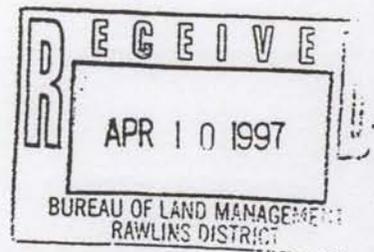
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ATTACHMENT 4

Memorandum of Agreement

for

**Phase 1 of the
SeaWest/PacifiCrop
Windpower Project**



MEMORANDUM OF AGREEMENT
AMONG
THE BUREAU OF LAND MANAGEMENT
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND THE WYOMING STATE HISTORIC PRESERVATION OFFICER
REGARDING THE SEA WEST/PACIFICORP PHASE 1 WINDPOWER PROJECT

WHEREAS, the Bureau of Land Management, Great Divide Resource Area (BLM), proposes to issue a Right-of-Way grant for the Sea West/Pacificorp (Sea West) Windpower Project under a Memorandum of Understanding among the BLM Sea West, and the Bonneville Power Administration which designates the BLM as the lead Federal agency; and

WHEREAS, the BLM has determined that the Phase 1 Windpower project, located in Sections 5, 6, 7, 18, 19, T.19N., R.78W; Section 24, T.19N., R.79W; Sections 20, 21, 28, 29, 32, 33, T.20N., R.78W., will have an adverse effect upon 48CR5834, a property eligible for inclusion in the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the Wyoming State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act; (16 U.S.C. 470f); and

WHEREAS, Sea West, the Medicine Wheel Coalition for Sacred Sites of North America (Coalition) and the Eastern Shoshone Tribe participated in consultation and have been invited to concur in this Agreement; and

WHEREAS, all parties to this Agreement acknowledge that the inherent nature of this project is such that the Agreement will not adequately mitigate some of the adverse effects to the historic property, particularly the destruction of spiritual values which make the property significant to Native Americans, but the parties have concluded that this document reflects the best possible mitigation measures given the nature of the project; and

WHEREAS, the BLM has a unique legal relationship with Indian Tribes and Indian people and, in recognition of its responsibilities under the American Indian Religious Freedom Act (AIRFA) and Executive Order 13007 and by extension its own policies on Native American coordination and consultation in accordance with Manual Section 8160 and Handbook H-8160-1, the BLM seeks to develop mutually acceptable ways to avoid or minimize disturbance of traditional Native American sacred places and to provide opportunities for Native Americans to carry out traditional religious practices. A letter, attached as Appendix B, documents these efforts to date; and

WHEREAS, the Coalition, on behalf of all Native Americans, has signed an agreement with affected private landowners to provide access to Native Americans for ceremonial purposes (see attached

agreement);

NOW, THEREFORE, the BLM, the Council, and the SHPO agree that the Phase 1 Windpower Project shall be administered in accordance with the following stipulations to satisfy the BLM's Section 106 responsibility for all individual undertakings of the program.

STIPULATIONS

All parties to this MOA agree to carry out the following measures that fall within their area of responsibility as set forth herein:

1. BLM and Sea West will ensure that all facilities associated with Phase 1 of the Windpower Project (turbines, roads, electrical corridors, etc.) will be sited in accordance with the map attached as Appendix A.
2. All features located within 150 feet of construction will be protected from construction by a fence. The fence will consist in large wooden or metal posts, placed at intervals not to exceed 50 feet with one strand of cord (i.e. mason's line) run between the posts.
2. BLM will ensure that Native Americans will have access to all public lands within the project area which are not otherwise limited by access to private lands, unless specifically agreed to by private land owners as per the attached agreements.
3. Sea West, in coordination with the BLM, will provide training for all workers associated with the construction and maintenance of the project with regard to the importance of the cultural features of the historic property and the possible penalties to individuals who might disturb those cultural features. Workers shall also specifically be informed that cement trucks will not be washed out on Foote Creek Rim itself.
4. All construction will be monitored by an archaeologist hired by Sea West and permitted by BLM under the Archaeological Resources Protection Act (ARPA) to ensure avoidance of all features. The parties shall also be permitted to have site visits on at least a monthly basis, should they so choose, to monitor construction activity. If any previously undiscovered cultural material is discovered during construction of Phase I, BLM shall notify the parties to this Agreement immediately and shall consult with the parties regarding the proper treatment of the discovery in accordance with the provisions of 36 CFR 800.11. If any grave sites are discovered as a result of Phase I construction, BLM and Sea West agree that they will immediately notify and consult with the parties to this Agreement and the affected landowner(s) and, in the case of

Federal Land, the BLM will fully comply with BLM policy for inadvertent discovery of human remains and the requirements of the Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001 et seq. Every effort will be made to preserve such discoveries in situ if at all possible.

5. Sea West will allow Native Americans the opportunity to hold a ceremony at the project location prior to all construction and again after construction is completed.
6. Any offerings left by Native Americans for ceremonial purposes will not be removed or disturbed in any fashion by parties to this agreement.
7. Sea West will place prominent signs on all project access roads to the Project Area stating as follows: "NO TRESPASSING WITHOUT AUTHORIZATION OF THE LANDOWNER OR PROJECT DEVELOPER. VIOLATORS WILL BE PROSECUTED." Where necessary, Sea West agrees to obtain the approval of private landowners to place such signs on their property.
8. Upon signing of this MOA, all parties will enter into a good faith discussion to develop a Programmatic Agreement (PA) that will guide Native American consultation for future phases of the Sea West/Pacificorp Windpower Project. The PA discussions will address identification of sacred sites, requirements and standards for ethnographic and archaeological investigations, and potential mitigation measures. The goal of the PA will be to create a process whereby future phases of the project avoid damaging or disturbing traditional cultural and sacred places located in the Project Area, including the integrity of setting, feeling and association of those sites, to the maximum extent feasible.
9. The BLM and Sea West agree that the "Plan of Development" to be approved for this project will require Sea West to restore and reclaim the land in the Project Area when the project is abandoned and will include provisions requiring that all structures associated with the Windpower Project be removed from Foote Creek Rim within a limited and reasonable time frame after abandonment. The BLM agrees to circulate the "Plan of Development" to the parties to this agreement at least 10 days prior to its approval for their review. Sea West agrees that it will restore and reclaim the land and remove structures on private land within the Project Area to the same extent required by the "Plan of Development" for public lands that are part of the project area.
10. This Memorandum of Agreement expires at the time Sea West's Right-of-Way grant expires. Should the Right-of-Way grant be renewed without changes to the provisions of the grant, this Agreement shall continue coincident with the renewal

grant. If new provisions of the renewal grant could have an effect on historic properties, the grant shall be considered a new undertaking and will be subject to consultation with the Council, SHPO, and others in accordance with 36 CFR Part 800 regulations. The BLM shall notify the parties to this Agreement of pending expiration or renewal of the grant 30 days prior to either action.

11. The BLM, SHPO, or the Council may terminate this Memorandum of Agreement by providing 30 days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.
12. Should any party to this Agreement object within 30 days to any plans provided for review or actions proposed pursuant to the stipulations of this Agreement, the BLM shall consult with the objecting parties to resolve the objection. If the BLM determines that the objection cannot be resolved, the BLM shall forward all relevant documentation to the Council. Within 30 days of receipt of all pertinent documentation, the Council will either:
 - a. provide the BLM with recommendations, which the BLM will take into account in reaching a final decision regarding the dispute; or
 - b. notify the BLM that it will comment pursuant to 36 CFR Section 800.6(b). Any Council comment provided in response to such a request will be taken into account by the BLM in accordance with 36 CFR Section 800.6(c)(2) with reference only to the subject of the dispute; the responsibility of all parties to this agreement to carry out actions under this Agreement that are not subjects of the dispute will remain unchanged.
13. Any party to this Agreement may request that it be amended, whereupon the BLM, Council and SHPO will consult in accordance with Section 800.5(e) to consider such amendment. All parties, including the concurring parties, will be consulted regarding any amendments to the Agreement.

Execution of this Memorandum of Agreement and implementation of its terms evidence that the BLM has afforded the Council an opportunity to comment on the Phase 1 Windpower Project and its effects on historic properties, and that the BLM has taken into account the effects of the Phase 1 Windpower Project on historic properties.

BUREAU OF LAND MANAGEMENT, RAWLINS DISTRICT

BY: Kurt J. Kottler DATE: 4/3/97
TITLE: Rawlins District Manager

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: Alan W. Soule DATE: 5/23/97
TITLE: Acting Ex Dir.

WYOMING STATE HISTORIC PRESERVATION OFFICER

BY: John J. Keck DATE: 4/9/97
TITLE: _____

CONCUR

SEA WEST ENERGY LAND ASSOCIATES, LLC by: SEAWEST ENERGY CORPORATION, MEMBER

BY: [Signature] DATE: 6/24/97
TITLE: SR. vice president

MEDICINE WHEEL COALITION FOR SACRED SITES OF NORTH AMERICA

BY: _____ DATE: _____
TITLE: _____

EASTERN SHOSHONE TRIBE

BY: _____ DATE: _____
TITLE: _____

BUREAU OF LAND MANAGEMENT, RAWLINS DISTRICT

BY: Kurt J. Kotter
TITLE: Rawlins District Manager

DATE: 4/3/97

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: _____
TITLE

DATE: _____

WYOMING STATE HISTORIC PRESERVATION OFFICER

BY: _____
TITLE

DATE: _____

CONCUR

SEA WEST

BY: _____
TITLE

DATE: _____

NORTHERN ARAPAHO TRIBE

BY: Richard Brannan
Richard Brannan, Chairman

DATE: 6-23-97

BY: Francis Brown
Francis Brown, Traditional Leader

Date: 6/24/97

ATTACHMENT 2

Migratory Bird Special Purpose Permit

for

**SeaWest/PacifiCrop
Windpower Project**



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Mountain-Prairie Region

IN REPLY REFER TO:

USFWS/PERMITS
MAIL STOP 69400

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228-1807

Mr. Dino J. Pionzio, Jr.
Chief Executive Officer
Seawest Energy Corporation
1455 Frazee Road - Ninth Floor
San Diego, California 92108

APR 8 1997

Dear Mr. Pionzio:

You and those authorized under the attached Migratory Bird Special Purpose Permit, PRT 808690, are authorized to daily salvage, possess, and transport, bald or golden eagle remains, carcasses, or parts located in the applications described windpower site. Such remains will be tagged and retained in accordance with instructions contained in the Migratory Bird Special Purpose Permit. Furthermore, such remains are also subject to the recording/reporting requirements in accordance with instruction contained in the Migratory Bird Special Purpose Permit. Such remains shall only be surrendered to the Casper Special Agent or his designee. Employees salvaging eagles will be held strictly accountable for said collected eagles.

Such activities, as described in the paragraph above, will not be used as the basis for allegations of violations of 16 U.S.C., 668, prohibiting the possession or transportation of any bald or golden eagle. Provided, however, that nothing herein shall be construed as relieving the permittee from allegations of other actions prohibited by 16 U.S.C., 668, including, but not limited to, take and possession/transportation of eagles or their parts thereof when such eagles or parts thereof are not surrendered to authorized agents of the Fish and Wildlife Service.

The term of this Letter of Authorization shall be that of the Special Purpose Migratory Bird Permit.

Sincerely,

John E. Cornely
Migratory Bird Coordinator
Region 6



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(10/86)

FEDERAL FISH AND WILDLIFE PERMIT

2. AUTHORITY-STATUTES

16 USC 703-712

REGULATIONS (Attached)

50 CFR Part 13
50 CFR 21.27

1. PERMITTEE

AMENDMENT # 1

SEAWEST ENERGY CORPORATION
1455 FRAZEE ROAD
NINTH FLOOR
SAN DIEGO CA 92108

3. NUMBER

PRT-808690

4. RENEWABLE

YES
 NO

5. MAY COPY

YES
 NO

6. EFFECTIVE

3/21/97

7. EXPIRES

12/31/97

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

CHIEF EXEC OFFICER
DINO J. PIONZIO

9. TYPE OF PERMIT

SPECIAL PURPOSE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

FOOTE CREEK RIM AND SIMPSON RIDGE AREA BETWEEN ARLINGTON AND HANNA IN
CARBON COUNTY, WYOMING
AMENDMENT #1 CHANGED OWNERSHIP NAME AND MAILING ADDRESS.

11. CONDITIONS AND AUTHORIZATIONS:

- A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.
- B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.
- C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

And any other person(s) under the direct control of, employed by or under contract to the permittee only to the extent necessary in accomplishing the purpose authorized below.

D. Permittee, and any other person(s), is authorized to take, transport and temporarily possess those migratory bird species as specified in Attachment A.

E. Permittee is NOT authorized to take Bald or Golden eagles under the terms and conditions of this permit. Permittee is NOT authorized to take Threatened or Endangered species under the terms and conditions of this permit unless accompanied by the appropriate permits issued under the Endangered Species Act. For the salvage, collection, transport and possession of Bald and/or Golden eagles or their parts, see the attached Letter of Authorization.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ON REVERSE ALSO APPLY

12. REPORTING REQUIREMENTS

FIRST ANNUAL REPORT DUE 1/31/98
ANNUALLY BY JANUARY 31 FOR THE PRECEDING CALENDAR YEAR ENDING
DECEMBER 31 AS OUTLINED IN 50 CFR 21.27(C)(1).

ISSUED BY

TITLE

DATE

MIGRATORY BIRD COORDINATOR R-6

3/21/97

ORIGINAL

US FISH & WILDLIFE SERVICE
MIGRATORY BIRD PERMIT OFFICE
P.O. BOX 25488, DFC (69400)
DENVER, CO 80225-0486

F. Permittee shall collect all migratory bird carcasses or parts discovered on the windpower site described in Item 10 on the face of this permit and tag such specimens. Each tag shall have the following information: 1) date and location the bird was collected; 2) full printed name of the person who collected the specimen; 3) permit number under which the specimen was collected; and 4) any other information germane to the collection.

G. Permittee shall immediately freeze all tagged specimens and contact the Casper Special Agent at (307) 261-5796, WITHIN 24 HOURS. The Casper Special Agent will provide storage or disposal instructions. In the event a significant or large migratory bird kill occurs on the windpower site, the permittee shall notify the Casper Special Agent IMMEDIATELY. In the event an injured or

otherwise incapacitated migratory bird is discovered on the windpower site, the permittee shall notify the Casper Special Agent IMMEDIATELY.

H. Permittee, and any other person(s), shall carry a copy of this permit, Attachment A and Letter of Authorization whenever exercising its authority.

I. Permittee shall supply interim or completed information relative to the project to the Region 6 Migratory Bird Coordinator upon reasonable request.

J. In the event significant or unanticipated levels of mortality or harm to protected species populations which the U.S. Fish and Wildlife Service deems unacceptable, and an agreement cannot be immediately reached on appropriate equipment modifications or other response measures, the U.S. Fish and Wildlife Service may amend, modify or suspend

the permit pending corrective action by the permittee.

K. Permittee shall maintain records as required in 50 CFR 13.46 and 50 CFR 21.27(c)(1)(2).

L. Permittee shall submit an annual report to the Region 6 Migratory Bird Coordinator which shall include the following information: 1) date and location specimen was collected; 2) species and number collected; 3) full name of person who collected the specimen; and 4) date and method of final disposition. Said annual report shall be due by January 10 for the preceding calendar year.

M. This permit, Attachment A and Letter of Authorization is contingent upon acquisition of appropriate State, County, City or other municipal authorization.

PERMIT INVALID WITHOUT ATTACHMENT A AND
LETTER OF AUTHORIZATION.

Permittee: Seawest Energy Corp
Exp. Date: 12/31/97
PRT#: 808690

US FISH & WILDLIFE SERVICE
MIGRATORY BIRD PERMIT OFFICE
P.O. BOX 25486, DFC (D400)
DENVER, CO 80225-0486

ATTACHMENT A.

Take for the avian species on the following list is restricted to no more than 10 individuals per species per annum.

Take for all other avian species, except Endangered or Threatened and Golden Eagles, is limited to no more than 100 individuals per species per annum.

ENGLISH NAME	ZOOLOGICAL NAME
1 Red-throated Loon	<i>Gavia stellata</i>
2 Pacific Loon	<i>Gavia pacifica</i>
3 Common Loon	<i>Gavia immer</i>
4 Horned Grebe	<i>Podiceps auritus</i>
5 Red-necked Grebe	<i>Podiceps grisegena</i>
6 American White Pelican	<i>Pelecanus erythrorhynchos</i>
7 American Bittern	<i>Botaurus lentiginosus</i>
8 Least Bittern	<i>Ixobrychus exilis</i>
9 Snowy Egret	<i>Egretta thula</i>
10 Green Heron	<i>Butorides virescens</i>
11 Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>
12 White-faced Ibis	<i>Plegadis chihi</i>
13 Trumpeter Swan	<i>Cygnus buccinator</i>
14 Harlequin Duck	<i>Histrionicus histrionicus</i>
15 Oldsquaw	<i>Clangula hyemalis</i>
16 Northern Harrier	<i>Circus cyaneus</i>
17 Northern Goshawk	<i>Accipiter gentilis</i>
18 Broad-winged Hawk	<i>Buteo platypterus</i>
19 Swainson's Hawk	<i>Buteo swainsoni</i>
20 Ferruginous Hawk	<i>Buteo regalis</i>
21 Rough-legged Hawk	<i>Buteo lagopus</i>
22 Gyrfalcon	<i>Falco rusticolus</i>
23 Prairie Falcon	<i>Falco mexicanus</i>
24 Snowy Plover	<i>Charadrius alexandrinus</i>
25 Mountain Plover	<i>Charadrius montanus</i>
26 Upland Sandpiper	<i>Bartramia longicauda</i>
27 Long-billed Curlew	<i>Numenius americanus</i>
28 Wilson's Phalarope	<i>Phalaropus tricolor</i>
29 Franklin's Gull	<i>Larus pipixcan</i>
30 Black Tern	<i>Chlidonias niger</i>
31 Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
32 Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
33 Barn Owl	<i>Tyto alba</i>
34 Burrowing Owl	<i>Athene cunicularia</i>
35 Short-eared Owl	<i>Asio flammeus</i>
36 Lewis' Woodpecker	<i>Melanerpes lewis</i>
37 Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
38 Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>
39 Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>
40 Olive-sided Flycatcher	<i>Contopus borealis</i>
41 Willow Flycatcher	<i>Empidonax traillii</i>
42 Hammond's Flycatcher	<i>Empidonax hammondii</i>
43 Gray Flycatcher	<i>Empidonax wrightii</i>
44 Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>
45 Purple Martin	<i>Progne subis</i>
46 Violet-green Swallow	<i>Tachycineta thalassina</i>

47 Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
48 Bank Swallow	<i>Riparia riparia</i>
49 Rock Wren	<i>Salpinctes obsoletus</i>
50 Canyon Wren	<i>Catherpes mexicanus</i>
51 Bewick's Wren	<i>Thryomanes bewickii</i>
52 Golden-crowned Kinglet	<i>Regulus satrapa</i>
53 Veery	<i>Catharus fuscescens</i>
54 Wood Thrush	<i>Hylocichla mustelina</i>
55 Gray Catbird	<i>Dumetella carolinensis</i>
56 Northern Mockingbird	<i>Mimus polyglottos</i>
57 Sage Thrasher	<i>Oreoscoptes montanus</i>
58 Sprague's Pipit	<i>Anthus spragueii</i>
59 Northern Shrike	<i>Lanius excubitor</i>
60 Loggerhead Shrike	<i>Lanius ludovicianus</i>
61 Solitary Vireo	<i>Vireo solitarius</i>
62 Red-eyed Vireo	<i>Vireo olivaceus</i>
63 Orange-crowned Warbler	<i>Vermivora celata</i>
64 Virginia's Warbler	<i>Vermivora virginiae</i>
65 Black-throated Gray Warbler	<i>Dendroica nigrescens</i>
66 Ovenbird	<i>Seiurus aurocapillus</i>
67 Lazuli Bunting	<i>Passerina amoena</i>
68 Dickcissel	<i>Spiza americana</i>
69 Green-tailed Towhee	<i>Pipilo chlorurus</i>
70 Cassin's Sparrow	<i>Aimophila cassinii</i>
71 Clay-colored Sparrow	<i>Spizella pallida</i>
72 Vesper Sparrow	<i>Pooecetes gramineus</i>
73 Black-throated Sparrow	<i>Amphispiza bilineata</i>
74 Baird's Sparrow	<i>Ammodramus bairdii</i>
75 Grasshopper Sparrow	<i>Ammodramus savannarum</i>
76 McCown's Longspur	<i>Calcarius mccownii</i>
77 Chestnut-collared Longspur	<i>Calcarius ornatus</i>
78 Bobolink	<i>Dolichonyx oryzivorus</i>
79 Scott's Oriole	<i>Icterus parisorum</i>
80 Hoary Redpoll	<i>Carduelis hornemanni</i>

ATTACHMENT 3

Eagle Management Plan

for

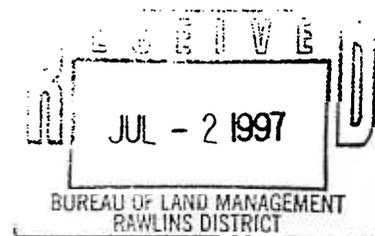
**SeaWest/PacifiCrop
Windpower Project**

STOEL RIVES LLP

ATTORNEYS

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July 1, 1997



BARBARA D. CRAIG
Direct Dial
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VIA FEDERAL EXPRESS

Mr. Chuck Davis
U.S. Fish and Wildlife Service
4000 Morrie Avenue
Cheyenne, WY 82001

Re: Eagle Management Plan for the SeaWest/PacifiCorp Windpower Project

Dear Chuck:

Enclosed is the Eagle Management Plan ("Plan") for the SeaWest/PacifiCorp Windpower Project. The Plan is a compilation of the substantial commitments to mitigation and monitoring of bald and golden eagles during project development, operations and maintenance contained in the draft and final environmental impact statements and the biological assessment and the SeaWest/Kenotech Comparison Report. SeaWest has reviewed the Plan and believes the Plan accurately reflects SeaWest's commitments to conservation measures identified during the development of this Project. This Plan was developed in consultation with the Bureau of Land Management, the Bonneville Power Administration and the U.S. Fish and Wildlife Service, presents the best available scientific information to date and provides for extensive monitoring as well as project modification as additional information becomes available. The Plan measures provide to the maximum extent practicable the avoidance of take of bald and golden eagles. We appreciate your assistance and look forward to a continued cooperative working relationship.

Sincerely,

Barbara D. Craig

Enclosure

cc (w/encl.): Mr. Walt George, Bureau of Land Management (*via Federal Express*)
Mr. Michael Azeka, SeaWest Energy Corporation (*via Federal Express*)
Ms. Sarah McNary, Bonneville Power Administration (*via messenger*)
Mr. Tom Graf, Solicitor's Office (*via Federal Express*)
Mr. Alan Larsen, Eugene Water & Electric Board (*via messenger*)
Ms. Gail Miller, PacifiCorp (*via messenger*)
Mr. Monte Garrett, PacifiCorp (*via messenger*)

Eagle Management Plan
SeaWest/PacifiCorp Windpower Project
Carbon County, Wyoming
July 1, 1997

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I. INTRODUCTION

SeaWest Energy Corporation (SeaWest) proposes to construct a 500-megawatt (MW) windpower facility (Windfarm) in the Foote Creek Rim (FCR) and Simpson Ridge (SR) areas between the towns of Hanna and Arlington, in southeastern Wyoming. SeaWest has applied for a right-of-way (ROW) grant from the Bureau of Land Management (BLM) to construct and access wind turbines and associated facilities on approximately 60,619 acres of federal, state, and private land. Currently, one transmission line is proposed to connect the Windfarm to existing transmission grids to transport the power to buyers in the Pacific Northwest and Rocky Mountain regions. PacifiCorp has applied for a ROW grant to construct a 230-kilovolt (kV) transmission line from the proposed Windfarm at FCR to the existing Miner's substation near Hanna. The SeaWest/PacifiCorp Project Area (SPA) consists of the FCR and SR areas, plus three alternate transmission line routes.

The proposed Windfarm would be constructed in phases. Phase I would consist of approximately 91 - 136 turbines located on top of FCR north of Arlington and would have a generating capacity of up to 68.25 MW. The Bonneville Power Administration (BPA), which proposes to buy a portion of the power from Phase I, is a cooperating agency with the BLM in analyzing the environmental impacts associated with the proposed Windfarm.

In 1995, the BLM, in cooperation with the BPA, prepared draft and final environmental impact statements (EIS) pursuant to the National Environmental Policy Act (NEPA). During the NEPA process, the concern over the potential for birds to collide with wind turbine generators (WTGs) and other Windfarm facilities, and other potential sources of bird mortality related to Windfarm operation and maintenance (O&M), were identified as potentially significant adverse impacts of Windfarm development. Of particular concern were impacts to bald and golden eagles. The objective of this Eagle Management Plan is to summarize actions planned to minimize Windfarm impacts to eagles and other large birds.

During the scoping process, Kenetech Windpower Inc. ("Kenetech") proposed elements in the project design to mitigate Windfarm impacts. SeaWest, in cooperation with the agencies, has made additional changes for mitigation and monitoring during project development and O&M. Potential impacts and mitigation measures are described in detail in the draft and final EIS for the project (BLM 1995a, 1995b), the Biological Assessment (TRC Mariah Associates 1995), and the SeaWest/Kenetech Comparison Report (TRC Mariah Associates 1997).

The bald eagle is listed as a threatened species in the coterminous states of the United States under the federal Endangered Species Act (ESA) (16 USC §§ 1531-1544). Pursuant to the ESA, the BLM and the BPA completed formal consultation with the U.S. Fish and Wildlife Service (USFWS) concerning potential project impacts to the bald

eagle.¹ The USFWS issued a “no jeopardy” biological opinion with an incidental take statement.

All native species of migratory birds in the United States, including bald and golden eagles, are protected under the Migratory Bird Treaty Act (MBTA), 16 USC §§ 703-712. On November 13, 1995, the USFWS issued a special purpose permit to Kenetech (pursuant to 50 CFR § 21.27 and the MBTA), which authorizes the take of up to 10 individuals per year of each species identified in Attachment A of the MBTA permit.² Take of all other migratory avian species, except threatened or endangered species and golden eagles, is limited to no more than 100 individuals per species per year.

Bald eagles and golden eagles are also protected under the Bald and Golden Eagle Protection Act, 16 USC § 668. The Eagle Management Plan consolidates information from the draft and final EIS for the project (BLM 1995a, 1995b), the Biological Assessment (TRC Mariah Associates 1995), the Final Biological Opinion (USFWS 1995), 1995-1996 monitoring studies (West 1997), and the comparison report (TRC Mariah Associates 1997) regarding the conservation measures that should avoid to the maximum extent practicable the take of bald and golden eagles. Commensurate with analysis presented in the EIS, this Eagle Management Plan focuses on Phase I impacts and mitigation measures based on data collected through March 1996. As monitoring progresses and more data are collected, the Eagle Management Plan will be modified to reflect new information and additional mitigation measures may be recommended for future phases of development. Any modifications would be consistent with future NEPA documents, which would be prepared as additional phases are proposed. This Eagle Management Plan was developed in consultation with the USFWS, presents the best available scientific information to date, and provides for extensive monitoring as well as project modification as additional information becomes available.

II. TAXONOMY, LIFE HISTORY, AND HABITAT OF THE BALD AND GOLDEN EAGLE

A. Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) are widely distributed throughout North America and are often associated with large bodies of water (Newton 1979:52). Bald eagles typically build their nests on prominent features that overlook aquatic foraging areas and usually migrate during the winter months in response to prey availability (Stalmaster 1976, Swenson et al. 1986). This species is characterized by opportunistic foraging behavior and

¹ In addition, the BLM and the BPA consulted with the USFWS regarding potential impacts to the peregrine falcon, an endangered species protected under the ESA.

² On December 16, 1996, the U.S. Bankruptcy Court for the Northern District of California ordered the sale of the Wyoming windpower project and all associated assets and permits from Kenetech to SeaWest, including the MBTA permit. The USFWS revised the MBTA permit on March 21, 1997 to reflect that SeaWest is the designated permittee.

frequently scavenges for animal carcasses such as elk and deer during winter migrations. Population declines of bald eagles are related to habitat destruction, shooting, and environmental pollutants (Sprunt et al. 1973, Wiemeyer et al. 1984, Anthony et al. 1982, 1994). Due to recovery efforts, the bald eagle was reclassified in 1995 from endangered to threatened throughout the lower 48 states (FR 60 (133): 36000-36010). Most recovery goals for bald eagles are directed toward the breeding population. The number of breeding areas in Wyoming has increased from five in 1982 to 25 in 1995 (Greater Yellowstone Bald Eagle Working Group, referenced in Final Biological Opinion [USFWS 1995]).

Raptor nesting surveys were conducted between May and August 1994 (BLM 1995a) and between April and July 1995 (West 1997) in the SPA (including both the FCR and SR areas). Nesting surveys in 1994 included a 16-km buffer around FCR and a 3.2-km buffer around SR and the three transmission line routes. In 1995, nesting surveys also included a 16-km buffer around the SR area. Use surveys were conducted between February 1994 and March 1995 (BLM 1995b) and between March 1995 and March 1996 (West 1997). Use surveys were conducted from observation stations within the study areas (methods described in Thomas et al. [1995] and West [1997]).

During 1994, one active bald eagle nest was documented approximately 3.2 km south of SR; one young successfully fledged from this nest (BLM 1995a). Continued monitoring in 1995 found two active nests in the SPA (1.5 young/nest; West 1997). Use surveys documented 37 bald eagle observations in the FCR area and 13 observations in the SR area in 1994. Monitoring studies in 1995-1996 documented bald eagle use infrequently (1.3 percent of surveys) only in the FCR area during winter (West 1997). No known communal roosts exist within the SPA, but it is likely that cottonwood trees along the Medicine Bow River, Rock Creek, Foote Creek, and other perennial drainages are regularly used as perches in winter (BLM 1995a).

B. Golden Eagle

Golden eagles (*Aquila chrysaetos*) are widely distributed throughout the world and typically build their nests on cliffs or rocky escarpments that provide access to prey (Terres 1980:478). Golden eagles forage primarily on small mammals, such as ground squirrels and lagomorphs (Beecham and Kochert 1975). Golden eagles perch during hunting, feeding, territorial broadcasting, and resting. Perch locations probably coincide with hunting opportunities. Most golden eagles in North America migrate when prey numbers decline in their northern range (Terres 1980). Olendorff et al. (1981) reported an estimated 63,000 golden eagles in the arid grasslands and shrublands of the western United States. Analysis of data from migration censuses from the late 1970s through 1991 suggests an annual decline of 6.1 percent for the golden eagle population in western United States (Hoffman et al. 1992). Lehman et al. (1993) reported that the number of occupied golden eagle nesting areas in the Snake River Birds of Prey Area, Idaho, has declined significantly since the late 1970s; however, actual numbers were only slightly lower and productivity (young/occupied site) was higher than the previous 10 years. Causes of golden eagle mortality include poisoning,

shooting, electrocution associated with power lines, and collisions with power lines and wind turbines (Newton 1979, Orloff and Flannery 1992, APLIC 1996).

Raptor nesting surveys were conducted between May and August 1994 (BLM 1995a) and between April and July 1995 (West 1997) in the SPA (including both the FCR and SR areas). Nesting surveys in 1994 included a 16-km buffer around FCR and a 3.2-km buffer around SR and the three transmission line routes. In 1995, nesting surveys also included a 16-km buffer around SR. Use surveys were conducted between February 1994 and March 1995 (BLM 1995a) and between March 1995 and March 1996 (West 1997). Use surveys were conducted from observation stations within the study areas (methods described in Thomas et al. [1995]).

During the 1994 nesting surveys, five active golden eagle nests were located within the SPA (one nest was located within 3.2 km of an alternate transmission line ROW); all nests successfully produced young. An additional 38 inactive nests were also located (BLM 1995b). In 1995, eight active nests were monitored in the FCR area (0.88 young/nest), and eight active nests were monitored in the SR area (0.63 young/nest) (West 1997).

Golden eagles composed the majority of raptor observations (43 percent) during raptor use surveys of the FCR area in 1994 (pers. comm., Diane Thomas, TRC Mariah Associates Inc., February 1996). Eagles were observed most frequently along the west side of FCR. It is likely that a combination of favorable winds for soaring, a substantial prey base, and preferred perch sites are present in these areas (BLM 1995b). During 1995-96, golden eagles were the most frequently observed raptor during all seasons at FCR, with highest use occurring in the fall season (1.48/survey) (West 1997). Eagle use of FCR was concentrated on the western side and within 50 m of the rim's edge. There was less raptor use documented at the SR area, but the golden eagle was the most common species during fall (0.12/survey) and winter (0.13/survey). Highest use was on north-south oriented ridges with steep slopes.

III. POTENTIAL IMPACTS OF THE PROPOSED PROJECT ON BALD AND GOLDEN EAGLES

Potential impacts to golden and bald eagles from development and operation of wind generating facilities at FCR (Phase I of Windfarm development) could be direct or indirect (BLM 1995a). The direct effect would be Windfarm-related mortality; indirect effects would include changes in essential habitat components (e.g., prey availability and nesting sites) and which may affect mortality and reproductive success.

Collision-related mortality at windpower facilities is related to raptor abundance, behavior, and flight characteristics (Howell and DiDonato 1991, Howell and Noone 1992, Orloff and Flannery 1992). Given that these characteristics may contribute to the probability of turbine collision, the most abundant species that fly at rotor height may have the greatest risk of collision. Golden eagles were the most commonly observed raptor species in the FCR area during 1994-95 surveys. West (1997) developed a relative index of risk based on mean

use, time spent flying, and proportion of flight heights within the rotor-swept area. Based on monitoring during 1994-95 and 1995-96, 53 percent and 49 percent, respectively, of eagles in the FCR area were observed flying at rotor height (BLM 1995b, West 1997). A tendency to fly within the rotor-swept area on the rim edge was consistently observed for golden eagles and other raptors. Calculations of relative risk for raptors and other large birds suggest that the golden eagle is the species at greatest risk of turbine collision during all seasons in the FCR area.

The rotor-swept area categories used for monitoring from 1994-96 were based on turbines originally proposed by Kenetech (BLM 1995b); in comparison, the rotors proposed by SeaWest would be slightly larger and higher. Thus, those species that tend to fly at heights of >20 m (e.g., buteo hawks and eagles) may be at greater risk of collision per turbine under the current proposal (TRC Mariah Associates 1997). However, analysis of data collected at Altamont Pass suggests that rotor-swept area per turbine may not be an important factor in the probability of raptor collision (Orloff and Flannery 1996). Further, the larger rotor-swept area per turbine may be offset by the installation of 65 to 110 fewer turbines under the current proposal. Preliminary study by Howell (1995) suggested that the number of turbines present may be more important than rotor-swept area. Under the current proposal, the effect of rotor-swept area on mortality is unknown, but mortality due to collision will be monitored beginning with Windfarm development.

Orloff and Flannery (1992) reported that golden eagles were killed more often than expected based upon their abundance at Altamont Pass, California. Based on mortality rates reported at Altamont Pass, the annual loss of golden eagles for Phase I of the Windfarm would range from 0.002 to 0.005 per turbine per year, or 0.4 to 1.01 golden eagles per year (pers. Comm., Sue Orloff, Ibis Environmental Services, February 1996). However, due to numerous physical and biological differences between the California and the Wyoming windfarm sites, this mortality estimate will probably change as data are collected during monitoring. For example, golden eagles are more abundant on the SPA than at the California windfarm. In California, carcasses were primarily recovered from turbines on lattice towers; the Windfarm will utilize only tubular towers (see below). There is little information on population structure for golden eagles at the FCR area. Because total number of nesting territories and geographic origins of resident birds and their movement patterns are unknown for this area, potential impacts on golden eagles are difficult to quantify.

Mortality or injury to bald eagles may occur as a result of the Windfarm (USFWS 1995). However, only 37 observations of bald eagles occurred in the FCR area during the 1994 surveys, and bald eagles were infrequently observed during winter in subsequent monitoring (BLM 1995b, West 1997). Further, the SPA has not been identified as critical habitat for the bald eagle. No bald eagle carcasses have been recovered from the California windfarms; thus there are no data with which to estimate mortality due to collision at the SPA (BLM 1995a). But because bald eagles are probably present year-round in the SPA, mortality due to collision may occur during the life of the project ("LOP"). Bald eagle mortality will be monitored beginning with Windfarm development.

Other windfarm facilities may also impact bald and golden eagles. In Altamont Pass, 11 percent of raptor deaths were attributed to collisions with electrical and guy wires and electrocution caused 8 percent of raptor deaths (Orloff and Flannery 1992). Although considered an unusual event, bald eagle collisions with power lines have been documented (Olendorff and Lehman 1986). Collisions may occur when wires transect daily flight paths and high-velocity winds push birds into the lines (Brown 1993). Electrocution may occur when large birds perch on power poles, especially riser or other poles with additional electrical hardware (Orloff and Flannery 1992, APLIC 1996). Construction standards used in the development of the Windfarm are designed to avoid these impacts (see below).

Food availability is one of the primary factors that potentially limits raptor populations (Newton 1979). Phase I would result in construction of roads, turbine strings, and power lines that would at least temporarily reduce foraging areas for eagles. Impacts of Phase I on prey populations are unknown but would be monitored beginning with Phase I development (see below). If prey availability decreases, raptor reproductive success and winter survival could also decrease. If prey increases, reproductive success may improve, but more raptors may be attracted to the Windfarm, which could result in increased collisions. However, because wind generating facilities at FCR are expected to permanently modify only 68 acres (1.4 percent of the FCR area), it is believed that prey populations will not appreciably change due to Windfarm operation throughout the LOP (BLM 1995a, TRC Mariah Associates 1997).

Given the large number of active raptor nests found during surveys (e.g., 65 and 122 total nests in 1994 and 1995, respectively, and 4 and 10 eagle nests in the FCR area) (BLM 1995b, West 1997), suitable nest sites are probably not limiting for most species of raptors within the SPA that typically nest in open, arid grasslands. Disturbance of active eagle nest sites will be avoided or minimized by following the procedures outlined below. Bald eagles generally nest near aquatic ecosystems that provide abundant prey and large dominant trees to support their nests (Anthony et al. 1982). Parts of the SPA may provide suitable habitat for winter perching by bald eagles (Bob Oakleaf, pers. comm., Wyoming Game and Fish [WGF]), and it is likely that bald eagles use the areas for foraging throughout the year (BLM 1995a). The grass/sagebrush habitat within the FCR project boundary is not believed to provide suitable habitat for nesting by bald eagles, but habitat suitable for nesting is available along the Rock Creek drainage adjacent to FCR.

IV. CONSERVATION MEASURES TO AVOID TAKE OF BALD AND GOLDEN EAGLES

Recent research on windpower projects has suggested factors that contribute to avian mortality at windpower developments (Howell and DiDonato 1991, Howell and Noone 1992, Orloff and Flannery 1992, 1996; ref. in Colson and Associates 1995). These include higher mortality associated with:

- windpower developments located in bird migration corridors and areas of high bird concentrations;
- WTGs located at the end of turbine strings, closer to canyon edges, and in proximity to high-density prey populations;
- increased perching opportunities provided by turbines supported on lattice towers;
- WTGs with a higher number of operating hours; and
- WTGs with higher rotor tip speeds.

It is unclear whether larger turbines (greater rotor-swept area) contribute to increased mortality, but a preliminary study suggested that the number of turbines is a more important factor than the amount of rotor-swept area (Howell 1995).

Based on research of windpower effects on raptors and results of studies in the SPA, on-site measures to avoid take of bald and golden eagles during Phase I include the following:

Siting options have taken into consideration the entire annual cycle and pattern of eagle use of FCR. The size and physical configuration of the Phase I development, turbine spacing, and locations of turbine strings will be evaluated with respect to eagles and their activities in the area. High-use areas and known nesting areas will be considered when evaluating siting options and avoided, whenever possible. Suggested disturbance buffers for wintering eagles will be strictly adhered to (Holmes et al. 1993).

2. Only six to eight turbine strings will be constructed; thus the number of end-row turbines will be 12 - 16, and 12 - 25 turbines will be located within 50 m of the rim's edge. No WTGs will be located on Arlington Peak, an area heavily used by raptors.
3. Turbines and towers will be designed to reduce the likelihood of collisions by reducing perching opportunities. Only tubular towers will be used with no railings, walkways, ladders, or other potential bird perching sites.

4. Turbine rotors and nacelles will be coated with paint that is highly reflective in the ultraviolet range, which may improve visibility to birds under a range of conditions. Selection of appropriate paint will be in consultation with the USFWS.
5. All within-plant collection and communication lines will be buried to reduce the potential for electrocution and to reduce potential perching substrate that may attract birds near project facilities. Only two power/riser poles will be installed and constructed to raptor-safe standards (APLIC 1996).
6. If bald eagle winter communal roosting areas are found, a no surface occupancy restriction will be applied to a 1.6-km buffer zone around the roosts, and the area will be closed to surface-disturbing activities (*e.g.*, construction) from November 1 through April 1. However, normal operation of Windfarm facilities will be allowed.
7. If active (*i.e.*, used within the last three years) bald eagle nests are found, no surface disturbance or construction activity will be allowed within a 1.6-km radius buffer zone around the nests during the nesting season (February 1 through July 31). However, normal operation of Windfarm facilities will be allowed.
8. Construction within 1.2 km of active golden eagle nest sites will be avoided during the nesting season (February 1 through July 31). However, normal operation of Windfarm facilities will be allowed. If construction must occur within the area, it will occur outside the nesting season.
9. Approval from the BLM authorizing officer (AO), in consultation with the technical committee (see below), will be obtained before construction or any other surface disturbing activity in restricted areas during restricted periods described in 7-9 above.
10. When necessary, based on monitoring and consultation with the technical committee, power lines will be marked with visibility devices following state-of-the-art practices (APLIC 1994).

Windfarm impacts on golden and bald eagles are part of continuing study in the SPA (BLM 1995b, West 1997). Because the magnitude of impacts are not completely understood at this time, monitoring will be an integral part of the mitigation program.

V. MONITORING

Results of site-specific studies within the SPA have been used to design an intensive monitoring program for the entire SPA, beginning with Phase I (BLM 1995a, 1995b). The monitoring program will help determine project impacts on raptors and will also assist in

the development of appropriate mitigation measures for future phases of Windfarm development. During monitoring, there will be two reference areas (i.e., the Morton Pass area and SR before development) to compare with the FCR area. The Morton Pass reference area was evaluated during the initial field season to determine its suitability (West 1997). The FCR area and reference areas are similar in terms of topography and habitat features. The same sampling methods, intensity, and frequency are being used to compare raptor use and relative abundance in the three areas.

The protocol for monitoring combines pre- and post-construction data from baseline studies and subsequent monitoring activities (before/after) with data from reference and development areas (control/treatment). By sampling both the reference area and the development areas before and after windpower development, both temporal and spatial controls are utilized, optimizing the design impact (Green 1979).

Monitoring activities include relatively intensive surveys of bald and golden eagles and other large raptors. Several outcomes are possible from monitoring studies. For example, a decline in eagle use on the FCR (i.e., the area with wind turbines) without a similar decline on the reference area may be interpreted as evidence of an effect of windpower development. The presence of carcasses near turbines or a decline in nesting activity increases the weight of evidence that an effect can be attributed to windpower. A decline in use of both the reference and development area coupled with few to no carcasses may be interpreted as a population response unrelated to the Windfarm.

The level at which mortalities are considered significant from a population perspective depends on the species involved. A significant number of carcasses associated with a decline in use relative to the reference area or a decline in number of active nests may be interpreted as a probable population effect. These efforts will yield indices of population effects. If evidence indicates significant negative impacts to eagles, additional, more detailed studies may be necessary to determine the significance of impacts (e.g., the effect of mortalities on the dynamics of the populations).

Specific monitoring tasks include the following:

- 1 Point-count surveys for eagles (and other raptors) to estimate the spatial and temporal use of the FCR area and the reference areas.
- 2 Nest surveys to evaluate the number and distribution of nesting eagles (and other raptors) that may be potentially influenced by the project.
3. Prey availability studies to determine an index of prey availability within a 16-km buffer of the FCR and the reference areas.

- 4 Avian carcass searches to determine the level of direct mortality associated with turbines, adjusted for scavenging and detectability biases. The frequency of carcass searches will be based on scavenging tests conducted before beginning the searches.

More detailed descriptions of these studies are presented in West (1997). These studies are equivalent to those included in the Final Biological Opinion (USFWS 1995). For all parameters, data will be plotted by survey date for the FCR area and the permanent reference area. For many of the parameters estimated, statistical comparisons will be made (1) between the FCR and the reference areas and (2) between data collected pre- and post-construction within the study areas, using randomizing tests and the computer package RT (Manly 1991). Significance levels (*i.e.*, p-values) will be reported, and those below $\alpha=0.10$ (one-tailed) will be judged as significant.

As a component of the Monitoring Plan, a technical committee has been meeting informally to assist the BLM in evaluating and weighing information collected during monitoring, identifying project impacts, and evaluating mitigation measures (BLM 1995b). The technical committee will be formally established within six weeks of the Notice to Proceed. The technical committee will advise the BLM AO throughout the development of Phase I and all subsequent phases of project development. The technical committee will consist of personnel representing the BLM, the USFWS, and the WGF. The technical committee's principal objectives will be to identify project-related impacts on wildlife and develop additional proposed mitigation measures for any unexpected impacts identified. The committee will meet a minimum of once annually but may conduct more frequent meetings, especially during initial review of monitoring information. All meetings of the committee will be open to the public.

SeaWest will prepare an annual monitoring and technical report. The report will include a description of the technical committee activities for the year and a discussion of the committee's recommendations and SeaWest's actions.

The technical committee will be disbanded when it is determined that monitoring is no longer necessary. Monitoring will be terminated if (1) impacts are shown to be minimal and adequately mitigated (as determined by the AO in consultation with the USFWS) or (2) the Windfarm is decommissioned and all disturbed areas are reclaimed.

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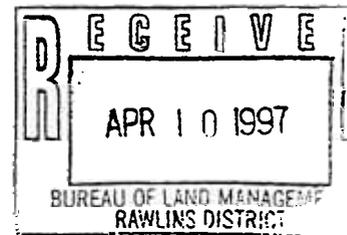
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ATTACHMENT 4

Memorandum of Agreement

for

**Phase 1 of the
SeaWest/PacifiCrop
Windpower Project**



MEMORANDUM OF AGREEMENT
AMONG
THE BUREAU OF LAND MANAGEMENT
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND THE WYOMING STATE HISTORIC PRESERVATION OFFICER
REGARDING THE SEA WEST/PACIFICORP PHASE 1 WINDPOWER PROJECT

WHEREAS, the Bureau of Land Management, Great Divide Resource Area (BLM), proposes to issue a Right-of-Way grant for the Sea West/Pacificorp (Sea West) Windpower Project under a Memorandum of Understanding among the BLM Sea West, and the Bonneville Power Administration which designates the BLM as the lead Federal agency; and

WHEREAS, the BLM has determined that the Phase 1 Windpower project, located in Sections 5, 6, 7, 18, 19, T.19N., R.72W; Section 24, T.19N., R.79W; Sections 20, 21, 28, 29, 32, 33, T.20N., R.78W., will have an adverse effect upon 48CR5834, a property eligible for inclusion in the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the Wyoming State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act; (16 U.S.C. 470f); and

WHEREAS, Sea West, the Medicine Wheel Coalition for Sacred Sites of North America (Coalition) and the Eastern Shoshone Tribe participated in consultation and have been invited to concur in this Agreement: and

WHEREAS, all parties to this Agreement acknowledge that the inherent nature of this project is such that the Agreement will not adequately mitigate some of the adverse effects to the historic property, particularly the destruction of spiritual values which make the property significant to Native Americans, but the parties have concluded that this document reflects the best possible mitigation measures given the nature of the project; and

WHEREAS, the BLM has a unique legal relationship with Indian Tribes and Indian people and, in recognition of its responsibilities under the American Indian Religious Freedom Act (AIRFA) and Executive Order 13007 and by extension its own policies on Native American coordination and consultation in accordance with Manual Section 8160 and Handbook H-8160-1, the BLM seeks to develop mutually acceptable ways to avoid or minimize disturbance of traditional Native American sacred places and to provide opportunities for Native Americans to carry out traditional religious practices. A letter, attached as Appendix B, documents these efforts to date; and

WHEREAS, the Coalition, on behalf of all Native Americans, has signed an agreement with affected private landowners to provide access to Native Americans for ceremonial purposes (see attached

agreement);

NOW, THEREFORE, the BLM, the Council, and the SHPO agree that the Phase 1 Windpower Project shall be administered in accordance with the following stipulations to satisfy the BLM's Section 106 responsibility for all individual undertakings of the program.

STIPULATIONS

All parties to this MOA agree to carry out the following measures that fall within their area of responsibility as set forth herein:

1. BLM and Sea West will ensure that all facilities associated with Phase 1 of the Windpower Project (turbines, roads, electrical corridors, etc.) will be sited in accordance with the map attached as Appendix A.
2. All features located within 150 feet of construction will be protected from construction by a fence. The fence will consist in large wooden or metal posts, placed at intervals not to exceed 50 feet with one strand of cord (i.e. mason's line) run between the posts.
2. BLM will ensure that Native Americans will have access to all public lands within the project area which are not otherwise limited by access to private lands, unless specifically agreed to by private land owners as per the attached agreements.
3. Sea West, in coordination with the BLM, will provide training for all workers associated with the construction and maintenance of the project with regard to the importance of the cultural features of the historic property and the possible penalties to individuals who might disturb those cultural features. Workers shall also specifically be informed that cement trucks will not be washed out on Foote Creek Rim itself.
4. All construction will be monitored by an archaeologist hired by Sea West and permitted by BLM under the Archaeological Resources Protection Act (ARPA) to ensure avoidance of all features. The parties shall also be permitted to have site visits on at least a monthly basis, should they so choose, to monitor construction activity. If any previously undiscovered cultural material is discovered during construction of Phase I, BLM shall notify the parties to this Agreement immediately and shall consult with the parties regarding the proper treatment of the discovery in accordance with the provisions of 36 CFR 800.11. If any grave sites are discovered as a result of Phase I construction, BLM and Sea West agree that they will immediately notify and consult with the parties to this Agreement and the affected landowner(s) and, in the case of

Federal Land, the BLM will fully comply with BLM policy for inadvertent discovery of human remains and the requirements of the Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001 et seq. Every effort will be made to preserve such discoveries in situ if at all possible.

5. Sea West will allow Native Americans the opportunity to hold a ceremony at the project location prior to all construction and again after construction is completed.
6. Any offerings left by Native Americans for ceremonial purposes will not be removed or disturbed in any fashion by parties to this agreement.

Sea West will place prominent signs on all project access roads to the Project Area stating as follows: "NO TRESPASSING WITHOUT AUTHORIZATION OF THE LANDOWNER OR PROJECT DEVELOPER. VIOLATORS WILL BE PROSECUTED." Where necessary, Sea West agrees to obtain the approval of private landowners to place such signs on their property.

8. Upon signing of this MOA, all parties will enter into a good faith discussion to develop a Programmatic Agreement (PA) that will guide Native American consultation for future phases of the Sea West/Pacificorp Windpower Project. The PA discussions will address identification of sacred sites, requirements and standards for ethnographic and archaeological investigations, and potential mitigation measures. The goal of the PA will be to create a process whereby future phases of the project avoid damaging or disturbing traditional cultural and sacred places located in the Project Area, including the integrity of setting, feeling and association of those sites, to the maximum extent feasible.
9. The BLM and Sea West agree that the "Plan of Development" to be approved for this project will require Sea West to restore and reclaim the land in the Project Area when the project is abandoned and will include provisions requiring that all structures associated with the Windpower Project be removed from Foote Creek Rim within a limited and reasonable time frame after abandonment. The BLM agrees to circulate the "Plan of Development" to the parties to this agreement at least 10 days prior to its approval for their review. Sea West agrees that it will restore and reclaim the land and remove structures on private land within the Project Area to the same extent required by the "Plan of Development" for public lands that are part of the project area.
10. This Memorandum of Agreement expires at the time Sea West's Right-of-Way grant expires. Should the Right-of-Way grant be renewed without changes to the provisions of the grant, this Agreement shall continue coincident with the renewal

grant. If new provisions of the renewal grant could have an effect on historic properties, the grant shall be considered a new undertaking and will be subject to consultation with the Council, SHPO, and others in accordance with 36 CFR Part 800 regulations. The BLM shall notify the parties to this Agreement of pending expiration or renewal of the grant 30 days prior to either action.

The BLM, SHPO, or the Council may terminate this Memorandum of Agreement by providing 30 days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

- 12 Should any party to this Agreement object within 30 days to any plans provided for review or actions proposed pursuant to the stipulations of this Agreement, the BLM shall consult with the objecting parties to resolve the objection. If the BLM determines that the objection cannot be resolved, the BLM shall forward all relevant documentation to the Council. Within 30 days of receipt of all pertinent documentation, the Council will either:
- a. provide the BLM with recommendations, which the BLM will take into account in reaching a final decision regarding the dispute; or
 - b. notify the BLM that it will comment pursuant to 36 CFR Section 800.6(b). Any Council comment provided in response to such a request will be taken into account by the BLM in accordance with 36 CFR Section 800.6(c)(2) with reference only to the subject of the dispute; the responsibility of all parties to this agreement to carry out actions under this Agreement that are not subjects of the dispute will remain unchanged.

Any party to this Agreement may request that it be amended, whereupon the BLM, Council and SHPO will consult in accordance with Section 800.5(e) to consider such amendment. All parties, including the concurring parties, will be consulted regarding any amendments to the Agreement.

Execution of this Memorandum of Agreement and implementation of its terms evidence that the BLM has afforded the Council an opportunity to comment on the Phase 1 Windpower Project and its effects on historic properties, and that the BLM has taken into account the effects of the Phase 1 Windpower Project on historic properties.

BUREAU OF LAND MANAGEMENT, RAWLINS DISTRICT

BY: Kurt J. Kotter DATE: 4/3/97
TITLE: Rawlins District Manager

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: Alan W. Butler DATE: 5/23/97
TITLE: Acting Exec Dir.

WYOMING STATE HISTORIC PRESERVATION OFFICER

BY: John J. Keck DATE: 4/9/97
TITLE: _____

CONCUR

SEA WEST ENERGY LAND ASSOCIATES, LLC by: SEAWEST ENERGY CORPORATION, MEMBER

BY: [Signature] DATE: 6/24/97
TITLE: SR. vice president

MEDICINE WHEEL COALITION FOR SACRED SITES OF NORTH AMERICA

BY: _____ DATE: _____
TITLE

EASTERN SHOSHONE TRIBE

BY: _____ DATE: _____
TITLE

BUREAU OF LAND MANAGEMENT, RAWLINS DISTRICT

BY: Kurt J. Kottler
TITLE: Rawlins District Manager

DATE: 4/3/97

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: _____
TITLE

DATE: _____

WYOMING STATE HISTORIC PRESERVATION OFFICER

BY: _____
TITLE

DATE: _____

CONCUR

SEA WEST

BY: _____
TITLE

DATE: _____

NORTHERN ARAPAHO TRIBE

BY: Richard Brannan
Richard Brannan, Chairman

BY: Francis Brown
Francis Brown, Traditional Leader

DATE: 6-23-97

Date: 6/24/97