

GOLDENDALE ENERGY STORAGE HYDROELECTRIC PROJECT

Federal Energy Regulatory Commission Project No. 14861

Klickitat County, Washington

FINAL LICENSE APPLICATION Appendix D: Wildlife Management Plan

For:

FFP Project 101, LLC



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Acronyms and Abbreviations

APLIC	Avian Power Line Interaction Committee
Applicant	FFP Project 101, LLC
BGEPA	Bald and Golden Eagle Protection Act
BMPs	best management practices
BPA	Bonneville Power Administration
CFR	Code of Federal Regulations
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
GPS	Geographic Positioning System
Licensee	FFP Project 101, LLC
MBTA	Migratory Bird Treaty Act
PM&Es	protection, mitigation, and enhancement
Project	Goldendale Energy Storage Project No. 14861
USFWS	United States Fish and Wildlife Service
WMP	Wildlife Management Plan
WDFW	Washington Department of Fish and Wildlife

1.0 INTRODUCTION

The purpose of this draft Wildlife Management Plan (WMP) is to develop voluntary guidelines that FFP Project 101, LLC (the Applicant and eventual Licensee) will adopt to reduce impacts to wildlife (including avian species) associated with the construction and operations of the Goldendale Energy Storage Project No. 14861 (Project). This WMP has been developed for submittal to the Federal Energy Regulatory Commission (FERC) in concert with the Project's Final License Application (FLA) and will be further developed as the Project moves through the FERC licensing process. This WMP establishes goals for managing wildlife resources in the Project area and vicinity; identifies measures for existing and proposed wildlife habitat management, mitigation, and improvement; and describes programs designed to implement those measures.

This WMP provides guidance for overall habitat management and specific concerns related to mammals and reptiles that utilize habitat in the Project area; summarizes environmental conditions at the Project; identifies avian species potentially occurring in the Project area and the associated potential impacts to birds, including eagles; and provides measures to address the risks to wildlife, including avian species. The management strategy discussed herein takes into account the developed nature of properties within and adjacent to the Project area and potential cumulative impacts to avian species in the Project area and vicinity. The term "Project vicinity" is used to describe areas adjacent to and near the defined Project area included in previous studies of energy development in the immediate area. The Project vicinity discussed for wildlife includes areas where wildlife could be directly or indirectly affected by Project activities, and takes into account far-ranging species such as mule deer (*Odocoileus hemionus hemionus*) and migratory birds.

This draft WMP will be updated in consultation with the United States Fish and Wildlife Service (USFWS), the Washington Department of Fish and Wildlife (WDFW), and the Oregon Department of Fish and Wildlife. The consultation and outreach process is described in greater detail in Exhibit E, Section 10.3.3 of the FLA. Consultation will be ongoing throughout the licensing and license implementation phases of the Project.

1.1 Goals and Objectives

The Applicant's management of wildlife resources in the Project area is defined in Exhibit E, Section 3.2 of the FLA and is further focused by the goals listed below.

- Goal 1. Avoid, reduce, and mitigate impacts to wildlife, including avian species.
 - Develop best management practices (BMPs). Construction will be timed to reduce impacts to wildlife resources in the Project vicinity, particularly during critical time periods (e.g., courtship, breeding, nest building, egg laying).

- Goal 2. Work in concert with existing developments in the Project area to reduce Project impacts to wildlife, including avian species.
 - Nearby wind turbines pose a threat to raptors and other birds; therefore, habitat for raptors and their prey will not be improved in the Project area, so as to not encourage their use of these habitat areas.
- Goal 3. Comply with existing and proposed state and federal resource management plans, laws, and regulatory frameworks including the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA).
 - Work in consultation with WDFW and USFWS to develop specific eagle conservation measures, if deemed necessary, to reduce risk to the golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*), as well as compliance with the MBTA and BGEPA.

1.2 Project Area and Planning Area

The Project is situated on a bench above the Columbia River near John Day Dam on river mile 215.6, about 8 miles southeast of the city of Goldendale in Klickitat County, Washington, as illustrated in Exhibit G of the FLA.

The proposed Project area is included in the regional Columbia Hills Important Bird Area designated by the National Audubon Society (National Audubon Society 2015). Results of resource studies in areas adjacent to or near the Project area are included in this WMP and referred to as the “Project vicinity.”

1.3 Regulations Protecting Wildlife and Avian Species

This section describes the applicable regulations pertinent for the development of this WMP. Native wildlife and birds in the United States are protected primarily under three main pieces of legislation: the Endangered Species Act (ESA), MBTA, and BGEPA.

The purpose of the ESA is “to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species.” Section 9 of the ESA prohibits “take” of threatened or endangered species, which includes killing, injuring, or harming a listed species or its habitat. Any activity that may result in the “incidental take” of a threatened or endangered species requires permits issued from the USFWS under Sections 7 or 10 of the ESA. There are no documented threatened or endangered species or their designated critical habitats in the Project area (see FLA Exhibit E, Section 3.2).

The BGEPA is the primary law protecting eagles. BGEPA prohibits “take” of eagles without a permit (16 United States Code 668-668c). BGEPA defines “take” to include “pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb,” and prohibits take of individuals

and their parts, nests, or eggs. The USFWS expanded this definition by regulation to include the term “destroy” to ensure that “take” includes destruction of eagle nests. The term “disturb” is further defined by regulation as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, . . . injury to an eagle, a decrease in productivity, or nest abandonment” (50 Code of Federal Regulations [CFR] 22.3).

Under MBTA (16 United States Code 703), it is illegal for anyone to "take" migratory birds, their eggs, feathers, or nests. "Take" includes by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. The MBTA does not distinguish between intentional and unintentional take. Additional protections are provided to migratory birds by FERC through a memorandum of understanding with the USFWS (FERC and USFWS 2011). The USFWS is, in part, responsible for the protection of wildlife including avian species.

Golden eagles have been listed as a Washington state candidate species since 1991, under review for possible listing as State Endangered.

2.0 PROPOSED MEASURES

This section identifies measures, including BMPs, that will be incorporated into planning, design, construction, and operational phases of the Project in order to avoid and reduce impacts on wildlife, including raptors. The Licensee will continue to develop and refine these BMPs and this WMP in consultation with the USFWS and WDFW. Wildlife protection and eagle conservation measures are further described below and may also include the following:

- Identification and implementation of potential compensatory mitigation approaches; and
- Cumulative effects analysis to assess take in combination with take from previously authorized actions and reasonably foreseeable future actions.

2.1 Raptor Studies

The Applicant recognizes the role of monitoring studies as essential components for avoiding and reducing disturbance and other forms of take. Surveys will be conducted by a qualified and experienced raptor biologist. Data gathered from survey and monitoring studies will be used to conduct informed impact analyses and mitigation decisions.

2.1.1 Raptor Nest Surveys and Monitoring

Prior to construction, surveys will be conducted to locate and identify raptor nests within the Project area based on historic nest locations. Historic raptor nest locations identified in the John Day Dam territory during WDFW raptor surveys and surveys completed prior to the Windy Point project construction that overlap the Project area will be used as a point of reference. Specifically, golden eagle and prairie falcon surveys will be focused on historically documented

nest locations near the Project area. Pre-construction surveys for bald eagles will also be conducted within the Project area, and will include documenting any bald eagle communal winter roosts.

Location: Surveys will be conducted within and near the Project area in the areas of all known nest sites and in all suitable nesting habitat in the study area, within a maximum of a 1-mile buffer around the Project area. Bald eagles nest in mature trees, typically conifers (e.g., juniper, pine, or Douglas-fir trees). Golden eagles typically nest on cliffs or rock outcrops but will occasionally nest in mature trees. Prairie falcons nest on bluffs and cliffs.

The three historic golden eagle nest locations near the Project area range from approximately 50 to 300 feet from the Project Boundary to the west/southwest of the lower reservoir. These historic golden eagle nest locations will be included in the raptor survey area. In addition to those three historic golden eagle nest locations, there are four historic nest locations to the east of project Boundary and just below the access road. Since these nest locations are within the golden eagle territory and within line of sight of the Project, they will also be surveyed. The Licensee will consult with the WDFW and USFWS area biologists as well as guidance found in the *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Pagel et al. 2010) and *Management Recommendations for Washington's Priority Species, Volume IV: Birds* specific for golden eagles (Watson and Whalen 2004).

A historic prairie falcon eyrie within territory FAME 289 (John Day Dam Substation; previously provided to the Applicant) is located within the Project Boundary. The historic prairie falcon eyrie within territory FAME 288 (John Day Dam; previously provided to the Applicant) is also in close proximity to the Project Boundary. These historic eyries will be included in the raptor survey area.

Methods: The Licensee plans to conduct pre-construction surveys to document nesting activity (or lack thereof), which will support the development of appropriate mitigation measures (e.g., buffer distances, seasonal timing restrictions). Specifically, the Licensee will conduct surveys of bald eagle, golden eagle, and prairie falcon nests for two breeding seasons prior to initiating construction, and will implement avoidance measures as appropriate depending on the results of the surveys.

Raptor occupancy will be determined by two ground surveys between February 1 and April 30 for the 2 years preceding disturbance activities. Each survey consists of two field events, such that all suitable habitat is searched at least twice per season. Field events should ideally be scheduled in the early and later part of the breeding season (e.g., in February and in April). Surveys should be conducted earlier in the morning hours. Duration of individual surveys will be 4 or more hours and conducted at a minimum of 30 days apart. Locations of other raptor nests will be noted concurrently with occupancy surveys.

A third survey will be conducted from June through the first week in July to evaluate productivity. Specific protocols and techniques will be developed in accordance with WDFW survey guidelines, in consultation with WDFW and USFWS area biologists as well as guidance provided in Pagel et al. 2010 and Watson and Whalen 2004 documents referenced above. In addition, bald eagle surveys and management recommendations will be developed using the *National Bald Eagle Management Guidelines* (USFWS 2007).

In areas where nests are determined to be active by monitoring studies, raptor-specific conservation measures and general nest protection measures will be developed in consultation with the USFWS and WDFW. These additional mitigation measures will be submitted to USFWS and WDFW for final review and subsequent approval and filed with FERC.

Breeding survey field methods are described below to identify nests in suitable habitat and observe nests to confirm whether a nest is active.

- Identify nests in areas of suitable habitat using ground-based survey methods:
 - Establish transects near the upper and lower reservoirs, and traverse the area at intervals no greater than 0.25 mile (approximately 400 meters). Pause frequently (at least every 0.25 mile) for periods of at least 3 minutes and use binoculars to scan the surrounding area for signs of raptor activity. Nests may be detected by visually following bird movements. Careful visual searches of the cliffs, rock outcrops, low hills, trees, and other potential nesting substrates may also yield nests.
 - To avoid disturbing nests, mark nest locations on the field maps for later mapping in a geographic information system (e.g., ArcGIS).
- Observe known or new nest locations to confirm occupancy:
 - Observe the nest ideally from a minimum distance of 0.5 mile (800 meters).
 - Observe nests for 2 to 3 hours (CPW 2018), or until occupancy is confirmed. Nests should not be considered unoccupied until they have been observed for 2- to 3-hour periods during at least two survey periods, at least 7 days apart.
- Identify nests in areas of suitable habitat using aerial-based survey methods:
 - In order to survey steep terrain and cliff and/or bluff habitat, helicopter surveys may be utilized to conduct raptor surveys within and near the Project area. The survey area would include the areas of all known nest sites and in all suitable nesting habitat in the study area, within a maximum of a 1-mile buffer around the Project area.

Monitoring: Based on raptor survey results, monitoring of raptor use and productivity will occur prior to construction and during operations. In accordance with USFWS recommendations and based on site-specific environmental conditions and raptor nesting status, the appropriate spatial and temporal restrictions on construction activities will be implemented.

Reporting: Monitoring observations and survey results will be submitted as part of a summary report as described in Section 3.0 below.

2.1.2 Winter Roost Surveys

Pre-construction surveys will include winter roost surveys prior to Project construction.

The winter roost surveys are primarily to identify bald eagle roosting areas as it is less common for golden eagles to communally roost in winter. Roost surveys will be conducted in all suitable roosting habitat in the study area where disturbance is proposed (and where landowner permission is granted). Suitable habitat includes tall deciduous or coniferous trees, typically with an open branching structure. Standing snags and utility poles have also been recorded as bald eagle communal roost sites (USFWS 2020). Roost grove size can vary from 1 to 30 acres, and several roosts can exist within a general wintering area, with perching locations moving within a grove depending on the prevailing wind or other weather. Bald eagle winter roost locations can also be located based on identification of the eagles' foraging areas. Once observations of the foraging areas are made, eagles can potentially be tracked back to their communal roost. If the biologist locates four to five birds foraging in one area, then their flights can be observed and a directional bearing can be recorded to help identify the flight corridors and locate the roosting grove.

Roosting surveys will be conducted during leaf-off conditions, between December and February. Surveys can be conducted at dawn or dusk; however, dusk observations are usually more reliable as eagles are visible at the roost longer and lighting is typically better. Dawn observations should extend 30 minutes before and after sunrise. Dusk surveys should be conducted at least 1 hour prior to sunset, and extend 30 minutes after sunset. Surveys should be avoided during inclement weather (e.g., fog, snow, rain, or high wind). Winter roost survey methods are described below.

- Establish observation locations from open areas with a clear line of sight to observe a known portion of the study area. Mark the observed area on the field maps to ensure all potential habitat areas in the study area are observed.
- Using binoculars and a spotting scope, observe at each location for approximately 1 hour. Scan potential flight paths for eagles arriving or departing from roosting areas. Perching birds may also be observed.
- Observation locations should be established at a minimum of 0.25 mile (400 meters) from potential roost areas to avoid disturbing eagles (CPW 2018). Effort should be made to appear non-threatening, such as remaining inside a vehicle or using a pop-up blind.
- If a probable roost is identified but not confirmed, visit the area during the day to search for any eagle evidence (e.g., features or castings).
- Mark roosting locations on the field map during the survey. Record the actual roosting tree/grove location and document using a handheld Geographic Positioning System (GPS)

unit during the day when eagles are not roosting to avoid disturbance. Take photos of the roosting tree when the GPS point is recorded and identify the tree species.

- In addition to documenting roosting areas, record any incidental observations of raptor stick nests.

2.1.3 Literature Review

The WDFW May 28, 2019, letter (see Appendix F) recommended a review of similar impacts on migratory birds from other projects. Specifically, they requested that a literature review be conducted to gather information that will provide information on impacts and use of pump storage projects where new reservoirs were constructed adjacent to wind turbines.

The Applicant agrees that a literature review will provide useful information. However, the Applicant cannot be held accountable for wind project effects that are unrelated to the Goldendale Project. The Applicant will continue to research options and measures to reduce attraction to the reservoirs, including looking into how this issue is addressed at airport storm water detention basins.

In the same 2019 letter, the WDFW recommended pre- and post-construction bat surveys during spring, summer, and fall for 2 consecutive years as well as acoustic bat surveys. However, pre-construction studies conducted by the wind farms already document species presence. The Applicant will continue to conduct a literature review of the nearby wind farms and associated bat studies.

2.2 Construction Phase Protection, Mitigation, and Enhancement Measures

Construction disturbance will be avoided by flagging the limits of the construction zone to avoid sensitive areas designated for preservation. These areas may include high quality native plant communities and priority habitats (e.g., John Day Talus and John Day Cliffs).

Construction activities will be limited to the hours of 8:00 a.m. to 6:00 p.m. to avoid disrupting crepuscular foraging activity by species such as ungulates and raptors (e.g., owls) and to minimize impacts to nocturnal activity.

Construction activities will generate short-term increases in sound levels; therefore, the Project will concentrate construction activities with the loudest noise to occur outside of the critical nesting periods to minimize effects on migratory birds and bald and golden eagles as much as possible. When feasible, on- and near-surface blasting and helicopter use will be prohibited from 0.25 to 1 mile of an active nest, depending on the species. Site-specific studies and consultation with a knowledgeable area biologist will be used to refine spatial buffers. Additional actions may include the submission of an application for permitted take (e.g., non-purposeful take), 50 CFR 22.26, (Form 3-200-71).

2.2.1 Raptor-safe Transmission Construction

Project transmission within the Bonneville Power Administration (BPA) right-of-way will utilize existing BPA structures and connect at the John Day substation (see FLA Exhibit A, Figure 1.1-1). In accordance with the standards and guidelines outlined by the Avian Power Line Interaction Committee (APLIC) and USFWS (APLIC and USFWS 2005; APLIC 2012) and the Electrocutation Mitigation Basics (Eagle Electrocutation Solutions 2018), protection, mitigation, and enhancement (PM&E) measures and BMPs will be implemented to minimize risk of electrocution and collision mortality to raptors.

The Eagle Electrocutation Solutions (2018) states “Eagle electrocutions occur on distribution power poles where clearances between electrified or electrified and grounded parts are shorter than metacarpal-to-metacarpal or head-to-foot distances. When perching or landing on a power pole, eagles can be electrocuted by simultaneously contacting two different phase conductors (phase-to-phase), or a conductor and a path to ground (phase-to-ground).” A power pole is considered “eagle-friendly” when there are 40 inches or more of vertical clearance and 60 inches or more of horizontal clearance between energized conductors or energized conductors and grounded hardware (Eagle Electrocutation Solutions 2018; APLIC and USFWS 2005). Insulation of the center conductor can allow eagles to safely perch; however, this is not a permanent solution because insulators need to be replaced (Eagle Electrocutation Solutions 2018). Perch discouragers (e.g., spikes on pole cross arms) are a less reliable mitigation option because determined eagles may still attempt to perch on them (Eagle Electrocutation Solutions 2018).

Birds are more likely to collide with smaller diameter wires (e.g., overhead static wire), which may be less visible than larger diameter wires (APLIC and USFWS 2005). The installation of visibility enhancement devices can reduce the risk of collision on new or existing lines (e.g., marker balls, bird diverters) (APLIC and USFWS 2005).

The Project will ensure that the transmission line is sited on the existing poles so that appropriate clearance between energized conductors or between energized conductors and grounded hardware is applied. If the existing transmission lines already have visibility enhancement devices installed, no new ones will be added. If no visibility enhancement devices are on the existing lines, the Project will install appropriate devices after consultation with USFWS and WDFW. New poles and lines will be designed with appropriate conductor spacing and visibility enhancement devices.

2.2.2 Noise Management Measures

Noise from blasting activities could disturb nesting bald and golden eagles. Blasting should be avoided within 0.5 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area (USFWS 2007). However, golden eagles may be disturbed at distances greater than 0.5 mile from nest sites. The Licensee will apply for an eagle non-purposeful take permit from USFWS if blasting would occur within

0.5 mile of the golden eagle nest sites. In the event that the *National Bald Eagle Management Guidelines* (USFWS 2007) cannot be followed, the Licensee would apply for an eagle non-purposeful take permit for the Project and coordinate with the nearest USFWS Ecological Services Field Office, USFWS Regional Migratory Birds Permit Office, and WDFW.

When feasible, high noise activities such as blasting and heavy equipment operation will be conducted simultaneously. The Licensee will equip noise-producing equipment and vehicles with exhaust mufflers and/or other type of noise control features.

2.2.3 Biological Construction Monitoring

A biological monitor will be employed to check construction sites to ensure that protected areas are not disturbed and that fencing is intact. Additionally, during open pit construction, inspections of open pits will occur daily to ensure animal safety. Open pits will be closed, temporarily fenced, or covered each evening.

Construction disturbance will be minimized by flagging the limits of the construction zone to avoid sensitive areas. Environmental monitoring will be conducted during construction activities to ensure avoidance of flagged areas.

Golden eagle survey protocols and techniques will be developed using the *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Pagel et al. 2010) as well as *Management Recommendations for Washington's Priority Species, Volume IV: Birds* (Watson and Whalen 2004).

After construction is completed, all access roads to the Project area will be gated to prevent public access without prior approval.

2.2.4 Biological Training Program

The Licensee will provide environmental training on sensitive biological resources associated with the Project area to inform their employees, as well as employees of contractors and subcontractors, who work on the Project area or related facilities during construction and operation. Training will be conducted prior to the start of construction, when new employees and contractors are hired to assist Project development and operations, as well as at other times as necessary due to implementation or operational changes.

2.2.5 Address Habitat Loss

To avoid additional loss of habitat, the proposed Project will utilize existing access roads and previously developed lands for the majority of Project features. To address loss of habitat due to the permanent Project features, the Applicant is working with USFWS and WDFW to select an off-site property for compensatory mitigation of impacted wildlife habitat (i.e., golden eagle). A mitigation ratio of 2:1 acres will be used for habitat impacts of the upper reservoir; a ratio of 1:1

acres will be used for the lower reservoir/West Surface Impoundment area because of the poor quality, degraded state.

Additional mitigations for the removal of vegetation can be found in the Vegetation Management and Monitoring Plan (Appendix E).

2.2.6 Manage Traffic

Wildlife mortalities can occur from vehicle activity during construction and operations. Key measures to reduce road fatalities include limiting speeds on all roads and the development of a Traffic Management Plan.

Mitigation measures that may be included in the Traffic Management Plan include:

- Setting appropriate speed limits to minimize collisions with wildlife or other vehicles/individuals;
- Dust and erosion control measures to limit changes to air quality and visibility;
- Controlled/limited access routes to reduce the likelihood of collisions and interference; and
- The consideration of use of muffled engines/exhaust to minimize the noise disturbance.

Additionally, appropriate signage will be placed along the roads to notify recreational users of the work that is occurring, as well as signage, speed bumps, pavement markings, and flaggers to help direct traffic as necessary.

2.3 Operational Phase Protection, Mitigation, and Enhancement Measures

Additional operational measures will be evaluated upon further details of operations schedule and maintenance.

2.3.1 Carcass Removal Program

The Licensee will monitor for and remove carcasses of livestock, big game, and other animals from the Project area that may attract scavenging wildlife, foraging eagles, or other raptors.

2.3.2 Reduce Attraction for Migratory Birds

The Licensee will implement the use of reservoir deterrents such as wildlife exclusion fencing and floating plastic shade balls to discourage migratory bird use of the reservoirs. A monitoring program to identify bird usage of the reservoirs and measure the effectiveness of bird deterrents will be developed.

The Licensee will follow a Vegetation Management and Monitoring Plan (Appendix E) that includes measures to address potential introduction and spread of undesirable plants such as

hanging riparian vegetation and grass-forb communities adjacent to the reservoirs during and after construction that may attract migratory birds, such as waterfowl. Edge habitat around the reservoirs may be modified or blocked with fences, rip-rap, or cement to make it less desirable for migratory birds.

The Project will continue to consult with USFWS and WDFW during construction and operations. Adaptive management may be implemented if PM&E measures and BMPs in place are unsuccessful. For example, bird hazing may be initiated if other measures are proven unsuccessful. A USFWS approach to adaptive management is discussed in Appendix A of the Eagle Conservation Plan Guidance (USFWS 2013).

2.3.3 Reduce Attraction for Mammals (Potential Prey Species)

The Licensee will assess the use of the deterrents, such as physical barriers, low current shocking wires and strips, modified reservoir edge habitat, and reduction of the introduction and spread of potential forage species surrounding reservoirs to discourage mammals using the reservoirs. A monitoring program to identify mammal usage of the reservoirs and measure the effectiveness of the selected deterrents will be developed.

Reservoirs will be fenced to minimum height of 8 feet with chain link fence. Weather permitting, fences will be monitored on at least a weekly basis when staff are present at the reservoirs, and any damage (e.g., vandalism) will be fixed immediately as it is practicable. Any damage or occurrences of injury or mortality to wildlife species as a result of fencing will be documented and reported to WDFW. All fences associated with the Project will also be marked with vinyl strips and/or reflective tape to reduce avian collision risks.

2.3.4 Wildlife Incident Reporting System

A wildlife incident reporting system will be developed with intent to be in place for the life of the Project. This program will accompany the USFWS Injury and Mortality Reporting System. Incidents may include mortalities, injuries, nuisance activity, and other interactions. The report may include, but not be limited to, fatality/injury details (i.e., when the animal was discovered, type of species was involved, apparent cause of injury/fatality), environmental conditions (e.g., location, time of day), existing protection measures in place, and photographs.

Any eagle injuries or mortalities encountered will be immediately reported to the USFWS and WDFW.

2.3.5 Dust Palliatives

Dust palliatives or suppressants would be applied to all ungraded roads to reduce dust clouds that could disturb wildlife, including ungulates and reduce forage quality. A number of factors contribute to road dust generation: vehicle speed, number of wheels per vehicle, number of

vehicles, vehicle weight, particle size distribution of the surface material, restraint of the surface fines, and surface moisture (Bolander and Yamada 1999). There are several types of dust suppressants to consider for the Project. Some of the options include water, water absorbing magnesium chloride, organic lignin derivatives, clay additives, and synthetic polymer derivatives (Bolander and Yamada 1999). Tables and flow charts in the USFS Dust Palliative Selection and Application Guide (Bolander and Yamada 1999) would be used to select the best and most cost effective option for the Project.

2.3.6 Manage Light Pollution

Light pollution can affect migrating and nocturnal birds through disorientation, as well as breeding behavior and reproduction of songbirds (Kempnaers et al. 2010). Artificial light will be managed through PM&E measures that will be developed in the Visual and Recreation Resources Management Plan (Appendix E of this FLA).

3.0 IMPLEMENTATION AND COORDINATION

The Licensee will be responsible for scheduling and/or performing all needed activities, including the provision of necessary personnel, equipment rentals, materials purchase, and management oversight.

Provisions in this WMP will be formally adopted and implemented by the Licensee upon FERC approval of this WMP and after issuance of the FERC license. Requisite stakeholders will be consulted well in advance of construction efforts being implemented to assure a comprehensive and collaborative planning effort for those measures described above associated with construction.

3.1 Reporting

All WMP activities will be documented as part of a summary report submitted once yearly during construction activities, and during the first 3 years of Project operations. This report will include summary of actions that the Licensee implemented, results of surveys conducted the previous year, conclusions from monitoring results (if applicable), and any proposed modifications to plans and/or additional measures to be adopted to ensure that minimal impact to avian species as a result of Project construction and operations.

3.2 Cost Estimates

Initial cost estimates for each of the proposed measures for wildlife resources described in this WMP will be developed and refined during subsequent design work.

4.0 REFERENCES

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