~~DATE~~March 26~~19~~, 2010~~December 24, 2009~~

~~David M. Weetman~~
~~Westwood Professional Services~~
~~7699 Anagram Drive~~
Patrick Smith
Geronimo Wind Energy
5050 Lincoln Dr #420
Edina, Minnesota~~N~~ 55436
~~Mike Dehryter~~
~~HDR~~TITLE
~~COMPANY~~
~~ADDRESS~~
~~CITY, ST ZIP~~
Re: Black Oak Wind~~Lakefield Wind~~ Farm Review, ~~Jackson~~~~Streans~~Stearns County, Minnesota
FWS TAILS #32410-2009-FA-0145~~0116~~

Dear ~~TITLE~~Mr. ~~Smith~~~~Dehryter~~Smith:

~~INTRODUCTORY PARAGRAPH:~~ This is in response to your ~~November 18, 2009, DATE letter,~~ request for~~ing~~ our review of ~~a~~ the proposed Black Oak~~wildlife survey protocol for COMPANY'S NAME, PROJECT'S NA~~~~Lakefield~~~~ME~~ Wind Farm ~~Streans~~Stearns ~~in Jackson~~ County, Minnesota. The proposed project includes the installation of ~~NUMBER AND SIZE OF TURBINES~~wind turbines, and associated infrastructure including roads, ~~MILES AND CAPACITY OF~~ transmission lines, and staging areas. The~~-~~ macro-siting project boundary provided~~sent~~ to our office covers a total area of approximately ~~32,406~~4,813 acres located in all or parts of sections 1, 2, and 11-14 Township 125 North, Range 35 West and~~,~~ sections 35 and 36 Township 126 North, Range 35 West, ~~Streans~~Stearns~~Jackson~~ County, Minnesota~~, is located at DESCRIBE PROJECT LOCATION.~~

Representatives from the U.S. Fish and Wildlife Service (Service), Geronimo Wind Energy, HDR, and the Minnesota Department of Natural Resources (DNR) participated in a meeting/conference call on July 21, 2009, to discuss the project proposal, wildlife survey recommendations, setback recommendation, and potential migratory bird issues related to this project.

~~REFERENCE PREVIOUS MEETINGS/CORRESPONDENCE AND ANY OUTCOMES: e.g., Representatives from the U.S. Fish and Wildlife Service (Service),~~~~HDR~~~~Geronimo Wind~~ the

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~~DEVELOPER, the CONSULTING FIRM, and the STATE AGENCY participated in a meeting on DATE~~ July 21, ~~to discuss the project proposal and wildlife survey recommendations. We agree that the wildlife surveys proposed in your DATE email are appropriate for the project site, and are the same as what we discussed during our meeting. GENERALLY CHARACTERIZE THE PROJECT AREA e.g., The project area is predominantly rural and agricultural, however some woodlots greater than 10 hectares exist within the project boundaries.~~

~~REFERENCE STATUTORY AUTHORITY STANDARD LANGUAGE:~~ The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956. This information is being provided to assist you in making an informed decision regarding wildlife issues, site selection, project design, and compliance with applicable laws.

~~REFERENCE STATE ROLE (if any):~~ The Service has been ~~working closely~~in contact with the ~~STATE WILDLIFE AGENCY~~MN ~~to develop~~as they have developed recommended survey protocols and site evaluations that will satisfy both state and federal wildlife statutes, and this letter describes these measures, in part. We appreciate your early coordination with both the Service~~ourselves~~ and ~~STATE AGENCY~~MN ~~the~~ DNR, and recommend continued collaboration on this project to ensure wildlife and habitat issues are fully and appropriately addressed.

~~DISCLAIMER STANDARD LANGUAGE:~~ The Fish and Wildlife Service ~~(Service)~~ supports the development of wind power as an alternative energy source. ~~H~~However, wind farms can have negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Selection of the best sites for turbine placement is enhanced by ruling out sites with known, high concentrations of birds and/or bats passing within the rotor-swept area of the turbines or where the effects of habitat fragmentation will be detrimental. In support of wind power generation as a wildlife-friendly, renewable source of power, development sites with comparatively low bird, bat and other wildlife values~~,~~ would be preferable and would have relatively lower impacts on wildlife.

~~WATER RESOURCE STANDARD LANGUAGE:~~ The Service recommends that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved. Streams and wetlands provide valuable habitat for fish and wildlife resources, and the filtering capacity of wetlands helps to improve water quality. Naturally~~,~~ vegetated buffers surrounding these systems are also important in preserving their wildlife-habitat and water quality-enhancement properties. Furthermore, forested riparian systems (wooded areas adjacent to streams) provide important stopover habitat for birds migrating through the region.

The proposed activities do not constitute a water-dependent activity, as described in the Section 404(b)(1) guidelines, 40 CFR 230.10. Therefore, practicable alternatives that do not impact aquatic sites are presumed to be available, unless clearly demonstrated otherwise. Therefore, before applying for a Section 404 permit, the client should closely evaluate all project alternatives that do not affect streams or wetlands, and if possible, select an alternative that avoids impacts to the aquatic resource. If water resources will be impacted, the ~~INSERT~~

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~~APPROPRIATE DISTRICT~~St. Paul District of the Corps of Engineers should be contacted for possible need of a Section 404 permit.

~~ENDANGERED SPECIES COMMENTS:~~Federally ~~L~~listed Threatened, Endangered, and Candidate Species

~~TAKE PROHIBITION STANDARD LANGUAGE:~~ Because of the potential for wind power projects to impact ~~endangered bird, bat, or other~~federally-listed species, they are subject to the Endangered Species Act (16 U.S.C. 1531-1544) section 9 provisions governing "take," similar to any other development project. "Take" incidental to a lawful activity may be authorized through the initiation of formal consultation, if a Federal agency is involved. ~~I~~If a ~~F~~federal agency, ~~f~~Federal funding, or a ~~f~~Federal permit are not involved in the project, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA may be obtained upon completion of a satisfactory habitat conservation plan for the listed species. However, there is no mechanism for authorizing incidental take after the project is constructed and operational.

~~PROVIDE LISTED SPECIES INFORMATION FOR THE PROJECT COUNTY/COUNTIES AND SURVEY RECOMMENDATIONS, AVOIDANCE/MINIMIZATION MEASURES/ETC.~~Currently ~~prairie bush clover (Threatened)~~ there are no federally listed candidate, threatened, or endangered species ~~is~~ present within ~~Streams~~Stearns~~Jackson~~ County. ~~Our records do not indicate any individuals within the proposed macro siting boundary, but there have been some individual plants recorded approximately 2 miles from the proposed macro siting boundary.~~ At any point during project planning, construction, or operation should additional information on listed or proposed species become available, or new species are listed that may be affected by the project, consultation should be reinitiated with the Twin Cities Field Office. ~~at~~

~~INDIANA BAT LANGUAGE DEVELOPED FOR OHIO: The proposed project lies within the range of the Indiana bat (*Myotis sodalis*), a Federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines. During the winter Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:~~

~~1. Dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas.~~

~~2. Live trees (such as shagbark hickory and oaks) which have exfoliating bark.~~

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~~3. Stream corridors, riparian areas, and upland woodlots which provide forage sites.~~

~~The Service currently HAS/DOES NOT HAVE records for Indiana bats WITHIN/NEAR ETC. the project area; however, this is due to an absence of survey data for this area. However, suitable SUMMER/HIBERNATION habitat exists within the project area. Additionally, wind power developments within Pennsylvania, West Virginia, and other states are known to cause take of relatively large numbers of bats (no Indiana bats to date). Therefore further assessment of the bat community within the project area is warranted to determine if take of Indiana bats (or other bat species) is likely to occur.~~

~~Mist Net Surveys: We recommend that a mist net survey be conducted to document the presence or likely absence of the Indiana bat within the project area during the summer. The survey must be conducted by an approved surveyor (INCLUDE LIST OF PERMITTED SURVEYORS FOR YOUR STATE) and be designed and conducted in coordination with the Endangered Species Coordinator for this office and meet the standards outlined in the Indiana bat mist net survey protocol included in the Indiana bat Draft Recovery Plan. Summer mist net surveys should be conducted between May 15 and August 15 (DATES MAY VARY DEPENDING ON LOCATION), when the presence of maternity colonies of Indiana bats could be detected. We recommend that any Indiana bats captured, especially reproductively active females, be monitored through radio-tracking to determine roost locations. ALSO, NOTE IF SPRING/FALL SURVEYS ARE RECOMMENDED.~~

~~Acoustic Surveys: We recommend installation of two AnaBat SDI detectors on the meterological tower within the project area, and recording of bat echolocation calls from March 15-November 15, 2009. One AnaBat detector should be mounted at 5 m above ground, and the other should be mounted as close to the rotor-swept area as possible. The AnaBat's sensitivity should be adjusted to detect a calibration tone at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. This will help to gauge bat activity and to some degree, to determine bat species/guild composition within the project area during spring and fall migration and the maternity season.~~

~~Coordination of Survey Results: Please submit survey results to this office for review. Survey results will be interpreted to determine areas with relatively low bat activity/diversity as opposed to areas with relatively high bat activity/diversity. Based on the survey results, we may make recommendations as to turbine placement and operation, additional consultation under Section 7 or 10 of the Endangered Species Act of 1973, as amended, or pre- or post-construction monitoring.~~

~~IF INDIANA BATS ARE KNOWN TO OCCUR WITHIN 5 MILES OF PROJECT AREA, PROBABLY A GOOD IDEA TO RECOMMEND DEVELOPMENT OF AN HCP! THE FOLLOWING IS HCP LANGUAGE DEVELOPED FOR INDIANA BATS, BUT COULD BE TAILORED TO OTHER SPECIES TOO: The findings of the mist net surveys onsite indicate that INSERT INFO ON STATUS OF IBAT IN THE PROJECT AREA, eg) at least one maternity colony of Indiana bats and additional individual male~~

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~~Indiana bats occur within the project area during the summer months. Additional and ongoing mist net and fall swarming surveys indicate that hibernacula for several species of bats occur within approximately four miles of the project area. Based on the extensive use of the project area by a reproducing colony of Indiana bats and the documented extensive mortality of some bats species at wind energy facilities, the Service believes that development of wind energy at this specific site is likely to result in take of Indiana bats. Further, because of the density of bats within the project area at all times of year, the Service strongly believes that significant mortality of bats of multiple species is likely to occur, and therefore, that this particular project area is inappropriate for siting of a wind energy project.~~

~~Developing a HCP to apply for an Incidental Take Permit (ITP) is the appropriate course of action to request an exemption from the prohibitions of take of federally listed species under section 9 of the ESA. Take incidental to a lawful activity may be authorized through the issuance of an ITP pursuant to section 10(a)(1)(B) of the ESA, which may be obtained upon completion of a satisfactory HCP for the listed species. However, there is no mechanism for authorizing incidental take "after the fact."~~

~~Upon receiving a complete HCP, the Service's Regional Director will decide whether or not an ITP should be issued. In accordance with 50 CFR Chapter 1 § 17.22(b)(2), the Director shall issue the permit if he or she finds that: (A) The taking will be incidental; (B) The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such takings; (C) The applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided; (D) The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; (E) Such other measures that the Director may require as being necessary or appropriate for purposes of the plan will be met; and (F) He or she has received such other assurances as he or she may require that the plan will be implemented. In making his or her decision, the Director shall also consider the anticipated duration and geographic scope of the applicant's planned activities, including the amount of listed species habitat that is involved and the degree to which listed species and their habitats are affected.~~

~~The issuance of a section 10 ITP is considered to be a discretionary Federal action, and is therefore subject to review under NEPA. The NEPA process requires analysis of multiple alternatives and their effect on various resources, including threatened and endangered species. The NEPA document could be either an Environmental Assessment (EA) or Environmental Impact Statement (EIS), depending upon the results of a scoping process. In either case, your firm would be responsible for the cost of developing the document although the Service would maintain control of the content. Any one of the alternatives considered in the NEPA analysis could ultimately be selected by the Service and would dictate the constraints of the ITP. In selecting a permittable alternative, the Service would need to balance a number of factors, but protection of the Indiana bat would be one of our highest priorities. It is certainly feasible that the NEPA alternative selected by the Service (and the accompanying ITP) might not be the alternative originally proposed by the developer in the HCP submittal.~~

~~At this point in time, the Service believes that the measures to reduce take to Indiana bats include, but are not limited to feathering, cut-in speeds, micro-siting, long-term monitoring and adaptive management. Ultimately, the Service's responsibility is to protect the Indiana bat, especially where uncertainty exists. We can only authorize incidental take to the extent that we are certain that this take, considered cumulatively with all other forms of mortality and with anticipated similar future wind projects, will not cause jeopardy to the species.~~

~~If a developer were to choose to move forward with this project without issuance of an ITP, they would risk violating the ESA's section 9 take prohibition, and if take of Indiana bats occurred, they could then be subject to enforcement action.~~

~~MIGRATORY BIRD COMMENTS:~~Migratory Birds

~~MBTA STANDARD LANGUAGE:~~ The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). N~~Unlike the Endangered Species Act, n~~either the MBTA nor its implementing regulations at 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds.

~~IF BALD OR GOLDEN EAGLES ARE KNOWN TO OCCUR WITHIN/NEAR THE PROJECT AREA, NOTE HERE AND DESCRIBE MONITORING PROTOCOL/AVOIDANCE AND MINIMIZATION MEASURES, eg)~~ Monitoring should be conducted to assess the daily movement patterns of any species of raptor ~~,~~whose nest is located within the proposed project site or within ~~2~~two miles of the proposed project site. ~~,~~During the incubation and rearing stage, the location of adult birds should be tracked for at least 4 hours twice per week until consistent activity patterns are established. Th~~e~~ise monitoring ~~should~~ dates will be ~~conducted between (DATES)~~determined based upon identified species within two~~2~~ miles of the project boundary.

Alternate monitoring strategies that assess the degree to which nesting ~~raptors~~ birds ~~use~~ utilize the proposed ~~turbine facility~~project site will be considered. ~~(contact Service).~~ Information collected will be used to document how frequently the birds enter the proposed ~~turbine facility~~ project site, and ~~whether particular turbines may pose a more~~this information can be utilized during micro-siting to minimize substantial risks to birds within close proximity of the project site.

There is a record of a bald eagle nest approximately 5 miles northeast of the proposed project site. During other recommended survey work the project proponent or their consultant should at a minimum take note of any bald eagles flying through or using habitat within the proposed project area, and note the direction of flight, frequency, and foraging areas being utilized.

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Comment [UF&WS1]: Delete- since all protected?

Comment [MSOffice2R1]: ODNR has them monitor all state-listed and federally-listed raptor It could get crazy if they were monitoring every red-tail in the project area… Not sure what to do with this

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Shoreland bird and waterfowl species may be more prevalent in the ~~northwest~~southeast corner of the proposed project area as there is a complex of wetlands and open water habitat adjacent to the proposed project boundary~~lakes~~ in this area. If turbines will be placed within the southeast~~northwest~~ corner of the proposed project site we strongly recommend that ~~surveys~~observation surveys be completed to determine bird species that may be moving through this area during spring and fall migration, and bird species that may be in the area throughout the summer.

The Service recommends observational bird surveys for the entire proposed Black Oak Wind Project site to document species, direction of flight, and height of flight. This recommendation is based on the presence of 16 Waterfowl Production Areas (WPAs) located within 5 miles of the proposed project site, and there is concern that birds utilizing these WPAs will be flying through the proposed project site as they move from one WPA to another. The Service would like the project proponent to utilize this flight survey data to assist them in micro-siting the individual turbines.

We also recommend a habitat survey throughout the proposed project site. There are a number of records of upland sandpiper, marbled godwit, and sandhill crane in the vicinity of the project. Should the habitat survey confirm habitat for any of these ~~fore mentioned~~aforementioned species, breeding bird surveys may be necessary to determine the utilization of habitat areas within the proposed project site.

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~~LAW ENFORCEMENT BIRD STANDARD LANGUAGE:~~

The Service's Office of Law Enforcement serves its mission to protect ~~f~~Federal trust wildlife species~~,~~ in part~~,~~ by actively monitoring industries known to negatively impact wildlife, and assessing their compliance with Federal law. These industries include oil/gas productions sites, cyanide heap/leach mining operations, industrial waste water sites, and wind power sites. There is no threshold as to the number of birds incidentally killed by wind power sites, or other industry, pastpast which the Service will seek to initiate enforcement action. However, the Service is less likely to prioritize enforcement action against a site operator that is cooperative in seeking and implementing measures to mitigate take~~s~~ of protected wildlife.

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Migratory Bird Concentration Areas and Conservation Lands

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~~PROVIDE INFO ON KNOWN BIRD CONCENTRATION AREAS, eg) Significant research on bird use of the Ottawa NWR adjacent to the project area has been completed over a number of years. Information on bird use of the western Lake Erie marsh region can be obtained by contacting the Ohio Department of Natural Resource's Crane Creek Wildlife Research Station and Black Swamp Bird Observatory (BSBO). Because of the significant and documented bird use of the Federal refuge adjacent to the project area, the Service believes that it is highly likely that the proposed project will result in bird mortality.~~

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~~ANOTHER EXAMPLE- Both Schoenberg Marsh Waterfowl Production Area (WPA) and Audubon's Goose Pond State Natural Area (SNA) are located within 1 mile of the project~~

~~boundary and have high concentrations of both breeding birds and migratory birds using the area as a stop-over site. Uplands surrounding Schoenberg Marsh WPA have been restored to native grassland and displacement of breeding grassland birds could occur if turbines are sited near the WPA. Therefore, we recommend that turbines be concentrated in the western portion of the project parcel, away from the WPA and SNA and (bordering Interstate 94). two.~~

~~CRP, WRP, OR OTHER STATE/FEDERAL FUNDED PROJECTS NEARBY WIND FARM:~~

We ~~also~~ recommend that no turbines be located within ¼ mile of Conservation Reserve Program, Wetland Reserve Program, or other similar federally- or ~~state~~ state-funded restoration projects.

~~Private land under a conservation easement with the Service is located in the north ½ of Section 31, T103N, R35W, and is within the proposed macro-siting boundary. According to a preliminary micro-siting layout provided to the Service on November 18, 2009 there are no turbines proposed within close proximity of this property under easement. If any of the proposed micro-siting locations are modified or added to, within Section 31, T103N, R35W or any adjacent sections after November 18, 2009 the Service should be contacted for comment and recommendations regarding any modifications.~~

Service-o-~~O~~wned Lands

~~**LAKE ERIE SHORELINE BIRD CONCERNS, COULD BE USED FOR OTHER GREAT LAKES TOO: Lake Erie serves as a migration barrier for some raptor species, which rely on thermal air drafts originating over land to fly. These raptors instead fly along the shoreline of the lake, and annual surveys by the BSBO have documented more than 10,000 raptors migrating through and around the project area each spring. Further, the Lake Erie shoreline provides critical stopover habitat for night migrating landbirds as they travel between their summer and winter grounds. As daylight approaches, night migrating landbirds search for areas to stop and rest. For those birds caught migrating across large bodies of water (eg. Lake Erie), the closest resting habitats are those natural areas closest to the shoreline. According to Ewert et al. (2005), "landbirds may be particularly concentrated at the shoreline to 0.4 km (0.25 mile) from the shoreline. Relatively high numbers occur at least 1.7-5 km (1—3 miles) inland from Great Lakes shorelines, particularly along wooded and brushy beach ridges, and in areas with high aquatic insect productivity." All of the proposed project area lies within 1 mile of the Lake Erie coast. Birds stopping over during migration would be expected to travel at lower altitudes than migrating birds, and would be more susceptible to turbines than birds in locations that do not provide migration stopover habitat. The sheer number of birds passing through the region during migration, coupled with the proximity of the project to the Lake, indicates a high probability that, if this project moves forward as proposed, mortality of birds due to turbine strikes would occur.~~**

~~The Hunter Waterfowl Production Area (WPA) is located within the proposed macro-siting boundary, Section 27, T102N, R36W. According to the November 18, 2009 preliminary micro-siting document wind turbines 21, 35, and 115 are proposed to be within a ¼ mile of the Hunter WPA, and wind turbines 93 and 102 are within a ½ mile of the Hunter WPA. Wind turbine 21 is also approximately ¼ mile from the Holy Trinity WPA, which is directly south of the Hunter~~

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~~WPA. The Service recommends that proposed turbines 21, 35, 93, 102, and 115 be moved to~~There are no Service owned lands within the proposed project boundary. It was noted during our review that the Behnen WPA is directly west of the northwest corner of the proposed project site, and the Trisko WPA is directly east of the proposed project site. Both the Behnen and Trisko WPAs are within a ½ mile of the Black Oak Wind Project, and the Service recommends that during micro-siting no turbines be placed within a ½ mile of any WPAs. If feasible a one mile setback from WPAs is preferred ~~provide additional buffer for the Hunter and Holy Trinity WPAs~~, which will reduce the potential for striking migratory birds utilizing the open water wetland and grassland habitats located in ~~this vicinity~~associated with these areas. ~~The Service generally recommends a minimum setback distance of a ½ mile from WPAs.~~

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Interim Service Guidelines

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~~REFERENCE SERVICE'S INTERIM GUIDELINES STANDARD LANGUAGE (THIS COULD BE CUT AND ADDED AS APPENDIX IN ADDITION TO DISCLAIMER INFO ABOVE ESPECIALLY IF DEVLOPER/CONSULTANT THAT HAS SEEN THIS STANDARD LANGUAGE MANY TIMES BEFORE):~~ Research into the actual causes of bat and bird collisions with wind turbines is limited. To assist Service field staffs in review of wind farm proposals, as well as aid wind energy companies in developing best practices for siting and monitoring of wind farms, the Service published *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (2003). We encourage any company/licensee proposing a new wind farm to consider the following excerpted suggestions from the guidelines in an effort to minimize impacts to migratory birds and bats.

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1) Pre-development evaluations of potential wind farm sites to be conducted by a team of Federal and/or State agency wildlife professions with no vested interest in potential sites;

2) Rank potential sites by risk to wildlife;

3) Avoid placing turbines in documented locations of federally-listed species;

4) Avoid locating turbines in known bird flyways or migration pathways, or near areas of high bird concentrations (i.e., rookeries, leks, refuges, riparian corridors, etc.);

5) Avoid locating turbines near known bat hibernation, breeding, or maternity colonies, in migration corridors, or in flight paths between colonies and feeding areas;

6) Configure turbine arrays to avoid potential avian mortality where feasible. Implement storm water management practices that do not create attractions for birds, and maintain contiguous habitat for area-sensitive species;

7) Avoid fragmenting large, contiguous tracts of wildlife habitat;

8) Use tubular supports with pointed tops rather than lattice supports to minimize bird perching and nesting opportunities;

9) If taller turbines (top of rotor-swept area is greater than 199 feet above ground level) require lights for aviation safety, the minimum amount of lighting specified by the Federal Aviation Administration (FAA) should be used. Unless otherwise requested by the FAA, only white strobe lights should be used at night, and should be of the minimum intensity and frequency of flashes allowable. Red lights should not be used, as they appear to attract night-migrating birds at a higher rate than white lights;

10) Adjust tower height to reduce risk of strikes in areas of high risk for wildlife.

The full text of the guidelines is available at http://www.fws.gov/habitatconservation/wind.pdf. The Service believes that implementing these guidelines may help reduce mortality caused by wind turbines. We encourage you to consider these guidelines in the planning and design of the project. We particularly encourage placement of turbines away from any large wetland, stream corridor, or wooded areas, and avoiding placing turbines between nearby habitat blocks.

~~RECOMMEND BIRD SURVEYS IF IN AN AREA OF CONCERN, eg)~~ If this proposal is to move forward, we strongly recommend that on-the-ground surveys using radar, infrared, and/or acoustic monitoring be conducted during the peak of spring and fall bird migrations and during the breeding season over a period of several years ~~(~~(consistent with the Service's *Interim Guidelines*, *op. cit.)* ~~to Avoid and Minimize Wildlife Impacts from Wind Turbines (2003))~~ to identify breeding and feeding areas and migration stopover sites. Observations made from greater than ¼ mile of target areas are likely to be insufficient to accurately assess bird use of the landscape, particularly if the observer is moving. Generalized ground research survey protocols, such as those followed in the Waterfowl Breeding Population and Habitat Survey (Smith 1995) and the North American Breeding Bird Survey (Pardieck 2001), among others, often do not accept observations made at greater than ¼ mile from the observer due in part to high probabilities of missed detections (R. Russell, personal communication). Furthermore, spring and fall raptor migration surveys may be necessary, as will surveys to document movement patterns of bald eagles that may use the project area or surrounding habitat. We request that any on-the-ground survey protocols be consistent with the Service's Interim Guidelines (2003), and be coordinated with this office and with the ~~STATE AGENCY~~Minnesota Department of Natural Resources prior to implementation.

~~**BIRDS AND BATS (NON-LISTED) GENERAL PRE-CONSTRUCTION SURVEYS:**~~**Pre-c~~~~C~~**onstruction Surveys**

The Service recommends that Geronimo ~~t enXco~~ and their consultants~~the project proponent~~ conduct rigorous assessments of bird and bat use of the area before proceeding with project design (i.e., preliminary siting of specific turbines). We strongly recommend development of a protocol for bird/bat surveys at this site, and specific consideration should be given to the potential for occurrence of marbled godwit and upland sandpiper within the proposed project

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area. We encourage ~~DEVELOPER/CONSULTANTenXcoGeronimo~~ to maintain~~apply~~ consistency with other wind farm survey protocols, thus allowing us to compare results with other wind farm survey data. These comparisons will potentially provide valuable information that can be applied in future wind farm/turbine macro- and micro-siting.

In addition to on-the-ground (point or transect) surveys, we recommend that the assessments include the use of mobile, horizontally- and vertically- scanning radar to study the direction, altitude, and numbers of flying animals moving through and within the project area during the fall and spring migration of birds and bats, and the breeding period of birds in the area. We recommend that radar be employed for 24 hours a day, 7 days ~~a~~per week during migration, and at a minimum from dawn to dusk during the breeding period. Radar studies are providing useful information in evaluating bird and bat activity at wind generation sites in Wisconsin, Vermont, Massachusetts, and other locations. The use of radar coupled with ground-truthing (surveys) can provide a more complete assessment of bird and bat use of a potential wind project area than point counts or other traditional survey methods alone. Such information could inform project design and minimize potential mortality associated with the project.

~~FROM INDIANA BAT SECTION- CAN BE APPLIED TO ALL BATS (PRE-CONSTRUCTION):~~

~~Acoustic Surveys:~~ We recommend installation of two ~~two (NUMBER OF ANABAT DEPENDS ON SIZE OF FARM)~~ AnaBat SDI detectors ~~on the~~ per ~~meterological~~meteorological tower to be used within the project area, and ~~recording of bat echolocation calls~~ data should be collected from ~~March~~ April 15 - November 15, ~~2009 [2010?],~~ 2010 and 2011. One AnaBat detector should be mounted at 5 meters above ground, and the other should be mounted as close to the rotor-swept area as possible. The AnaBat's sensitivity should be adjusted to detect a calibration tone at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. This will help to gauge bat activity and to some degree, to determine bat species/guild composition within the project area during spring and fall migration and the maternity season.

~~POST CONSTRUCTION MONITORING:~~Post-c~~C~~onstruction Surveys

The Service recommends the project be monitored post-construction to determine impacts to migratory birds and bats. A specific post-construction monitoring plan should be prepared and reviewed by the Service and should include a scientifically robust, peer reviewed methodology of mortality surveys. ~~We~~Generally the Service recommends that surveys be conducted for a minimum of three years following construction to assess impacts to birds and bats. The duration of post construction surveys is project specific and will be determined based upon pre construction survey results. ~~—~~We also recommend that the post-construction mortality studies be conducted by an independent third party contractor with expertise in bird/bat mortality monitoring. Results of mortality surveys and other forms of monitoring should be used to adjust operations to reduce mortality if necessary and feasible, as well as improve design and siting of future wind generation facilities. **The Developer or its contractor should provide to this office each year, no later than December 31, copies of annual bird/bat mortality monitoring reports.**

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Infrastructure Considerations

~~MISC.:~~

~~Transmission lines associated w/ wind farm development: (COULD BE INSERTED INTO APPENDIX)~~

Development of transmission infrastructure associated with wind facilities also poses risks to wildlife. These risks include potential avian mortality, particularly electrocution of raptors (hawks, eagles, kites, falcons, and owls), that could occur when they attempt to perch on uninsulated or unguarded power poles. Recently published information about which types of power line poles and associated hardware (e.g., wires, transformers and conductors) pose the greatest danger of electrocution to raptors and what modifications can be made to reduce this threat can be found on the internet at http://www.aplic.org/ .

Thank you for the opportunity to provide comments on this proposed project. Please contact me at (612) 725-3548, ext. 2201, or Rich Davis, Fish and Wildlife Biologist, at (612) 725-3548, ext. 2214.~~, biologist INSERT SERVICE CONTACT NAME AND NUMBER~~ if we can be of further assistance.

Sincerely,

~~Name~~Tony Sullins
~~Title~~Field Supervisor

c~~C~~c: Mike DeRuyter, HDR, Inc.~~Barry Christenson~~
Beverly Meyer, USFWS ~~Windom~~Litchfield WMD
Kevin Mixon, MN DNR~~STATE AGENCIES, ETC.~~

~~Attachments:~~

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