minnesota power

AN ALLETE COMPANY

David R. Moller
Senior Attorney

218-723-3963
Fax: 218-723-3955
E-mail:dmoeller@allete.com

October 5, 2015

Mr. Darrell Nitschke
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard Ave., Dept. 408
Bismarck, North Dakota 58505-0480

Re: Minnesota Power Bison 1 HVTL Project
Case No. PU-09-587

Dear Mr. Nitschke:

Please find attached for filing the Pathology Report and the Site Evaluation in the above-referenced Case.

Yours truly,

David R. Moeller

DPM:sr
Attach.

IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Office of Law Enforcement
Clark R. Bavin
National Fish and Wildlife Forensics Laboratory
1490 East Main Street
Ashland, Oregon 97520

ANAB ACCREDITED FORENSIC TESTING LABORATORY

June 18, 2015

VETERINARY PATHOLOGY EXAMINATION
FINAL REPORT

Lab Case #: 15-0158
Agency Case #: 2015602466
Pathologist: Tabitha C. Viner
Case Title: Bison Wind Energy, North Dakota

Submitting Agency:
USFWS/LE, Bismarck
3425 Miriam Avenue
Bismarck, ND 58501
Investigator: Rich Grosz
Suspect(s):

EVIDENCE RECEIVED
The following evidence was received in the Evidence Unit of the Laboratory on May 13, 2015, and was transferred to the undersigned examiner on June 17, 2015:

Lab 1: "One (1) Bald Eagle carcass" [ST#580339; Item#1]

HISTORY
"Eagle carcass found near active wind tower site." --per evidence submittal form

EXAMINATIONS CONDUCTED
LAB-1: The carcass was radiographed (x-rayed), dissected, and examined visually (necropsy examination) for gross pathological lesions. Photographs were taken to document any significant gross pathological findings.

CASE SUMMARY
In my opinion, this eagle died of a blunt force impact to the right side of the body. Fracture of the sternum would have caused severe damage to the lung and heart. It is unclear whether the impact was from a slower moving portion of a wind turbine blade or a vehicle.

EVIDENCE DETAILS -- LAB-1

Common name: Eagle, bald
Scientific name: *Haliaeetus leucocephalus*
Sex: Undetermined
Lifestage: Adult
Necropsy Date: 17 June 2015

Weight: 1.9 kg
Carcass composition: Decomposed carcass
Nutritional condition: Indeterminate
Post-mortem condition: Poor

Pathologist Initials: TV

POST-MORTEM FINDINGS

RADIOGRAPHIC EXAMINATION: Soft tissues are essentially absent from the body. The right side of the clavicle is fractured. The ramus of the right mandible is displaced medially compared to the left. Substrate is associated with the back. No metal density objects are noted.

EXTERNAL EXAMINATION: Numerous fly larvae that are up to 13 mm long are associated with the carcass and present within the esophagus and body cavity. Mud and debris is clumped in the feathers over the back. Feathers are easily plucked from the skin. The joints of the feet are desiccated and fixed in place.

EVIDENCE OF INJURY: There is a 7 cm long longitudinal fracture of the right side of the sternal plate that extends from the midportion of the coracosternal joint to within 5 cm of the end of the sternal plate. The lateral segment of the fracture is displaced medially. A small section of sternum attached to the internal coracosternal ligament has been removed from the sternal plate and remains attached to the ligament.

The right clavicle is transversely fractured 3 cm from ventral midline. The right 4th rib is detached from the spine and the right 1st rib is easily removed from the spinal attachments. The right temporomandibular joint is lax and the bones around the jaw are dissociated.

INTERNAL EXAMINATION: Adipose stores and skeletal muscling cannot be adequately assessed due to postmortem decomposition. Muscles are absent or reduced to thin strips of dark brown, malodorous tissue. The esophagus and crop are empty. The trachea is desiccated but remains intact to the thoracic inlet. Internal organs have been reduced to soft, dark brown, unrecognizable tissue mixed with fly larvae.

SUMMARY OF POST-MORTEM FINDINGS

Post-mortem decomposition and scavenging
Sternal fracture, right side
Clavicle fracture, right side
Right 4th rib disarticulation

CAUSE OF DEATH

TRAUMA-BLUNT FORCE

DISPOSITION OF EVIDENCE:

All evidence item(s) were transferred to the Evidence Unit pending return to the submitting agency.

Digitally signed by TABITHA VINER
DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=TABITHA VINER, 0.9.2342.19200300.100.1.1=14001001792
Date: 2015.06.22 10:15:28 -07'00'

Tabitha C. Viner, DVM DACVP
Supervisory Veterinary Pathologist

WEST inc.

ENVIRONMENTAL & STATISTICAL CONSULTANTS

4007 State Street, Suite 109, Bismarck, ND 58503
Phone: 701-250-1756 • www.west-inc.com • Fax: 701-250-1761

May 19, 2015

Dan McCourtney
Environmental Siting and Permitting
Minnesota Power
30 West Superior Street
Duluth, MN 55802

RE: Eagle Impact Evaluation and Minimization Recommendations

Dear Mr. McCourtney,

Minnesota Power has developed and is operating the Bison 1, 2, 3, and 4 Wind Energy Facilities in Morton and Oliver Counties, North Dakota. On May 11, 2015, Bison Wind operations personnel located a bald eagle carcass on the turbine pad near Turbine 10 of the Bison 1 facility (see attached figure). Following the facilities reporting procedures, the carcass find was reported to the USFWS, and personnel from the USFWS collected the carcass on May 12, 2015. It appeared that the eagle may have been a sub-adult based on photographs. Minnesota Power requested that Western EcoSystems Technology, Inc. (WEST) complete a site visit and develop an eagle risk assessment as well as recommendations for any impact minimization efforts for the Bison Wind Facility.

Risk Assessment
Personnel from WEST's Bismarck office visited the Bison Facility on May 13, 2015 to evaluate potential risk issues in the vicinity of Turbine 10. Turbine 10 is located on a series of small hills or ridgeline containing native grassland. The surrounding area is composed largely of tilled agriculture with interspersed wetlands, hayland, and grasslands. The native grassland area is seasonally grazed, but was not being grazed at the time of the site visit or earlier in 2015.

The hills/ridgeline does not appear to present any significant migration "funnel" or opportunity for wind related uplifts given the small size of the landscape feature and the irregular topography. the areas native grassland may present a foraging opportunity for eagles that is different from much of the surrounding landscape given that nearby land cover is largely tilled agriculture. Ponds and wetlands in the area likely attract waterfowl which could also result in foraging opportunities. In addition, there appeared to be a small calving operation approximately 1 mile south of Turbine 10. While at Turbine 10 and surrounding turbines, WEST personnel noticed several species of waterfowl, pheasants, sharp-tailed grouse, and mule deer in the area. While

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it is doubtful that these items would draw eagles or other predatory species into the area (grasslands with wetlands are not unique in the overall region), if the species are in the vicinity they could easily use the area for hunting opportunities. Management of these items is not possible or practical as one would need to remove the grassland, drain many wetlands, and remove hills; or the potential concern is at a greater distance (e.g., calving operations).

There was one feature that did appear to present a management opportunity. Near Turbine 10 and more particularly between Turbine 10 and Turbine 1, there were several large rock piles that appear to be spoil from the result of trenching in the collection system or otherwise constructing the wind facility. Based on the field review, it would appear that these rock piles could serve as ideal habitat for rabbits, one of the bald eagle's main prey in uplands. These rock piles could also serve as potential perching opportunities. Given that rock piles are not natural to the area, the increase in potential habitat for rabbits could result in an increase in overall rabbit populations, and thus increased foraging opportunities for eagles in the vicinity of the turbines. Minnesota Power may consider removing these rock piles if it is determined that the eagle death was the result of a turbine collision, or likely turbine collision (pending USFWS necropsy).

Training

As demonstrated by the actions taken by the operations staff, the wildlife reporting system that the Bison Wind Facility has been implementing works and training has been completed. In addition to reporting wildlife related deaths or incidents, Bison may consider inclusion of additional training to alert operations staff to be aware of bald eagles and other sensitive wildlife before collisions occur. For example, if operations staff are trained to be aware of bald eagles (what they look like as juveniles, sub-adults, adults), they may notice one or more bald eagles foraging in a certain area over the course of several days. This may indicate that a road killed deer is nearby and removal of the carcass could result in decrease use by eagles, thereby reducing risk to eagles. This training could include slide shows or even a visit to the Bismarck Zoo where there are bald eagles, golden eagles, and several common raptor species on display to help provide size perspective and color variation information directly to the staff. In the end, the goal would be to sensitize all staff and contractors to watch for wildlife before fatalities occur and to respond accordingly.

Please let me know if you wish to discuss any of our findings or recommendations.

Sincerely,

Clayton Derby
Senior Manager