

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE)
APPLICATION BY CROCKER WIND)
FARM, LLC FOR A PERMIT OF A)
WIND ENERGY FACILITY AND A 345)
KV TRANSMISSION LINE IN CLARK)
COUNTY, SOUTH DAKOTA, FOR)
CROCKER WIND FARM)

EL 17-028

DIRECT TESTIMONY OF

ADAM HOLVEN

ON BEHALF OF

CROCKER WIND FARM, LLC

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1 **Q. Please state your name and business address for the record.**

2 A. My name is Adam Holven. I am employed by Tetra Tech and my business address is
3 2001 Killebrew Drive, Suite 141, Bloomington, Minnesota, 55425.

4 **Q. Can you briefly describe your education and experience?**

5 A. I have a Bachelor's of Science in Geology from the University of Northern Iowa, a
6 Bachelor's of Art in Anthropology from the University of Northern Iowa, and a Masters of Art in
7 Anthropology from Iowa State University. My educational background and my 14 years of
8 experience allows me to be considered qualified to perform identification, evaluation,
9 registration, and treatment activities for archaeological resources under the Secretary of the
10 Interior's Standards and Guidelines.

11 **Q. Can you briefly describe your professional experience?**

12 A. Within South Dakota, I have been the Principal Investigator for Archaeology for numerous
13 projects ranging in size from telecommunication sites to wind farms. For the Crocker Wind
14 Farm, I am the Tetra Tech Project Manager overseeing the completion of the cultural resources
15 and wetlands investigations.

16 **Q. Have you attached a resume or CV.**

17 A. Yes, my resume is attached.

18 **Q. Have you previously submitted or prepared testimony in this proceeding in South**
19 **Dakota?**

20 A. No, I have not.

21 **Q. What is the purpose of your direct testimony?**

22 A. The purpose of my testimony is to describe the cultural resources and wetland matters
23 pertaining to the Crocker Wind Farm.

24 **Q. Which sections of the application are you responsible for?**

25 A. My testimony will relate to Section 13.2.3: Wetlands – Wind Farm. Section 13.2.4: Wetlands
26 – Transmission Line, Section 20.1.4: Cultural Resources – Wind Farm, and Section 20.3:
27 Cultural Resource Impacts – Wind Farm and Transmission Line Route.

28 **Q. Please describe the wetland investigation methodology for the Wind Farm and**
29 **Transmission Line Route.**

30 A. Prior to conducting field surveys, a review of the National Wetland Inventory data and aerial
31 photographs was completed to identify probable wetland, lake and stream locations within the
32 Wind Farm and Transmission Line Project Areas. This information was provided to Crocker to
33 help design a facility layout that avoided these features as much as possible. Wetland field
34 surveys of the Wind Farm and Transmission Line layouts were conducted in October 2016 and
35 September 2017. As of September 2017, all Project facilities in the Wind Farm have been
36 surveyed and only minor portions of the Transmission Line remain to be surveyed. The wetland
37 survey for the remaining portion of the Transmission Line, and any minor facility shifts for the
38 Wind Farm will be completed in the fall of 2017.

39 **Q. Please describe the wetland resources in the Wind Farm and Transmission Line Route.**

40 A. Based on Tetra Tech’s past experience in the area and through the desktop review and field
41 surveys, it was apparent that the Project area contained numerous isolated lakes and wetlands, as
42 well some small drainages located on the west side of the Wind Farm Project area. During the
43 wetland field surveys, 377 wetlands and other waters were identified. Of these 377, 35 were
44 preliminarily determined to meet the criteria to be considered waters of the U.S. that would fall
45 under the regulatory jurisdiction of the U.S. Army Corps of Engineers. The remaining 342
46 wetlands and ponds appeared to be isolated waters that would not likely be subject to the U.S.

47 Army Corps of Engineers regulatory jurisdiction. Additionally, 161 of the wetlands were located
48 on U.S. Fish and Wildlife Service wetland easement parcels, and would be regulated by the
49 Waubay Wetland Management District.

50 **Q. Can you describe any impacts to wetlands?**

51 A. Wetlands are present in the vicinity of the Wind Farm and along the Transmission Line
52 Route. The Project has been designed to avoid impacts to wetlands within U.S. Fish and Wildlife
53 Service wetland easements, and to avoid impacts to jurisdictional wetlands as much as
54 practicable. The Project will not impact wetlands and water features above what is allowable
55 under a Nationwide Permit from the U.S. Army Corps of Engineers.

56 **Q. How will impacts to wetlands be assessed if Project facilities are moved in the future?**

57 A. If Project facilities are moved beyond areas that have already been surveyed for wetlands,
58 then a desktop review of these areas would be completed to identify probable locations of any
59 wetlands followed by a field survey to confirm if wetlands are present.

60 **Q. Please describe the current status of cultural resource investigations for the Wind Farm
61 and Transmission Line Route.**

62 A. A Level I cultural resource file search was completed in October 2016 and included a review
63 of previously documented archaeological and architectural resources, and previously conducted
64 investigations within the Wind Farm and Transmission Line Project Areas. Tetra Tech reviewed
65 this data and recommended avoidance or no direct impacts for archaeological and architectural
66 resources that are potentially eligible for listing on the National Register of Historic Places, sites
67 that may be deemed culturally sensitive, or sites that have not been evaluated for eligibility on
68 the National Register of Historic Places.

69 A Level III archaeological resource survey was conducted in October 2016 and in August and

70 September of 2017. These surveys included a pedestrian or walking survey at 50-foot intervals
71 of 100 percent of the Project facilities and included survey corridors that were larger than the
72 anticipated temporary impacts during construction. These larger survey corridors allow for
73 flexibility in siting Project facilities during construction. As of September 2017, all Project
74 facilities in the Wind Farm have been surveyed and only minor portions of the Transmission
75 Line remain to be surveyed. The pedestrian survey for the remaining portion of the
76 Transmission Line, and any minor facility shifts for the Wind Farm will be completed in the fall
77 of 2017.

78 Based on Tetra Tech's previous work in the vicinity of the proposed Crocker Project Area,
79 archaeological sites have been recorded on many of the prominent ridges and knolls overlooking
80 lakes and drainages. While these sites are typically observed on the surface within agricultural
81 cropland, such sites can only be located through shovel testing in grasslands. The shovel tests
82 are arranged in a 50-foot grid typically arranged in a north-south/east-west pattern within an area
83 to be tested. Each shovel test is 15 inches in diameter and is excavated by hand. The sod cap is
84 cut off and set aside and all excavated soil is passed through a ¼ inch screen. A tarp is laid
85 under the screen to capture the falling soil. As the soil passes through the screen, larger items
86 such as artifacts, if present, are left behind. Tetra Tech has documented artifacts from 4 inches to
87 24 inches below the surface in this area and typically shovel tests do not exceed 30 inches in
88 depth. Once complete, a soil profile is recorded and any documented artifacts are recorded and
89 collected. The soil is placed back into the hole and the sod cap is put back. The shovel testing
90 survey is scheduled to be completed in the fall of 2017.

91 Any artifacts recovered from the pedestrian or shovel testing will be cleaned and analyzed. Site
92 forms will be filled out and filed with the South Dakota Archaeological Research Center in

93 Rapid City. A complete site form and any recovered artifacts will be returned to the appropriate
94 landowner upon completion of the investigation.

95 A reconnaissance survey of architectural resources is currently underway to record elements of
96 the built environment that are 50 years or older within the study area of the Wind Farm and to
97 recommend whether properties within the study areas are potentially eligible or are not eligible
98 for listing in the National Register of Historic Places. In addition, if any potentially eligible
99 properties are within the study areas, an assessment of potential visual impacts of the Wind Farm
100 will be determined. Based on guidance received from the South Dakota State Historical Society,
101 the study area for each project will be a 1-mile radius around each proposed turbine location to
102 account for potential visual effects.

103 **Q. Could You Describe the Historical And Cultural Resources Present in the Area?**

104 A. A total of 13 previously documented archaeological resources were documented within 1
105 mile of the archaeological survey corridor (Table 20-3 of the Application). One previously
106 recorded archaeological resource was documented within the archaeological survey corridor for
107 the Transmission Line. Site 39CK48 is a former Euro-American farmstead, and Tetra Tech
108 recommends that the proposed transmission poles be placed beyond the site boundary. Spanning
109 the site with transmission line would not directly impact the site. No previously documented
110 sites were identified in the Wind Farm survey corridor. Any potential future Wind Farm or
111 Transmission Line layout moves should avoid these previously documented sites.

112 During the archeology survey of the Wind Farm and Transmission Line survey corridors, Tetra
113 Tech documented 38 archaeological resources. These included 3 Native American lithic scatters,
114 2 Native American cairns, 8 Native American isolated finds, and 23 Euro-American sites
115 associated with abandoned farmsteads, 1 Euro-American railroad grade, and 1 Euro-American

116 site associated with an abandoned airfield. Tetra Tech recommended avoidance of the Native
117 American lithic scatters and cairns and 21 of the Euro-American sites. Tetra Tech would also
118 recommend shovel testing at the eight Native American isolated finds to determine if additional
119 archaeological artifacts were present in the subsurface.

120 Four previously recorded architectural resources were documented within the architecture study
121 area (Table 20-4 of the Application). None of these resources are located within the construction
122 footprint. These resources will be reassessed during the current reconnaissance survey of
123 architectural resources underway for the Wind Farm.

124 **Q. How will impacts to cultural resources be assessed if Project facilities are moved in the**
125 **future?**

126 A. Tetra Tech will review any changes to Project facilities and determine what cultural resources
127 studies are needed. For archaeological resources, this will include determining if the facilities
128 changes are beyond areas that have been previously surveyed, and if shovel testing is
129 appropriate. If previously surveyed areas cannot be used, then Tetra Tech will recommend the
130 completion of additional field surveys to assess the presence or absence of archaeological
131 resources within these areas.

132 For architectural resources, this will include evaluating the study area for architectural resources,
133 which is based on a 1-mile buffer from the proposed turbine locations. If turbine moves result in
134 a change to the study area, then Tetra Tech will review this change and determine if additional
135 architectural resources over 50 years old are present. If architectural resources are present, then
136 an additional field survey will be recommended to evaluate these resources.

137 **Q.** Does this conclude your written pre-filed direct testimony?

138 A. Yes, this concludes my written pre-filed direct testimony.

139

140 Dated this 27 day of September, 2017.

141

142



143 Adam Holven

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