

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

**IN THE MATTER OF THE APPLICATION OF
CROWNED RIDGE WIND II, LLC FOR A FACILITIES PERMIT TO
CONSTRUCT A 300.6-MEGAWATT WIND FACILITY**

Docket No. EL19-027

**SUPPLEMENTAL TESTIMONY AND EXHIBITS
OF SARAH SAPPINGTON**

September 20, 2019

INTRODUCTION AND QUALIFICATIONS

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Sarah Sappington. I am employed by SWCA Environmental Consultants and am based in the Bismarck, North Dakota office at 116 North 4th Street, Suite 200, Bismarck, North Dakota, 58501.

Q. WHAT IS YOUR JOB AND WHAT ARE YOUR JOB RESPONSIBILITIES?

A. I am the Director of the Bismarck SWCA Office. My team is responsible for environmental permitting and regulatory compliance for many industries and states in the Midwest, including for renewable energy projects in the state of South Dakota.

Q. ARE YOU THE SAME SARAH SAPPINGTON WHO SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING ON JULY 9, 2019?

A. Yes.

Q. HAS THIS TESTIMONY BEEN PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes.

PURPOSE OF TESTIMONY

Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.

A. The purpose of my testimony is to address the comments made at the August 26, 2019 Public Input Meeting on environmental issues, and to provide an update to agency coordination and correspondence.

ENVIRONMENTAL

Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS WERE MADE SUGGESTING THAT MAY BE AN ENVIRONMENTAL IMPACT RESULTING FROM LEAVING FOUR FEET OF THE WIND TURBINE FOUNDATION IN THE GROUND AFTER DECOMMISSIONING. IS THERE AN IMPACT TO THE ENVIRONMENT DUE TO CRW II'S PLANS TO LEAVE FOUR FEET OF FOUNDATION IN THE GROUND AFTER DECOMMISSIONING OF THE PROJECT?

A. No. As noted in the Decommissioning Plan, Appendix N of the application, CRW II will remove 132 wind turbine generators and other associated Project facilities, and restore the Project Area to pre-construction conditions to the extent feasible for agricultural purposes. As noted in Section 3.2 of the Decommissioning plan, when the wind turbines and substation components are removed from their foundations, the concrete and steel within the deeper wind turbine foundations will be broken-up and removed to a depth of four (4) feet below grade unless a lesser depth is otherwise agreed to by the landowner. Fully

1 removing the wind turbine foundations would require major
2 excavation/disturbance at each tower site, and additional truck haul-away traffic.
3 The foundation sections below 4 feet that are proposed to remain are composed of
4 non-leaching elements, concrete, and steel, and are not a hazard to the
5 environment. Four feet of topsoil and subsoils will be placed on top of the
6 remaining foundation, which will create similar to pre-construction soil profiles,
7 facilitate water percolation in the subsurface, and support agriculture in the areas
8 of previous turbine foundations. Ground water recharge will not be appreciably
9 different from pre-construction conditions, because the soil layer placed over the
10 remaining foundation will allow for downward percolation of water until it
11 encounters the foundation, at which point the water will flow laterally over the
12 foundation edges and continue its downward flow to recharge the shallow ground
13 water. Hence, there are no environmental issues with leaving four feet of
14 foundation after decommissioning.

15 **Q. AT THE AUGUST 26, 2019 PUBLIC INPUT MEETING COMMENTS**
16 **WERE MADE SUGGESTING THAT THERE IS AN IMPACT TO WATER**
17 **ACQUIRERS IF OIL IS LEAKED OR SPILLED FROM THE WIND**
18 **TURBINE. WHAT IS THE ASSOCIATION BETWEEN WATER**
19 **AQUIFERS AND THE PROJECT'S WIND TURBINES?**

20 A. As Witness Thompson explains in his supplemental testimony it is extremely rare
21 that oil will leak or spill from a wind turbine. Witness Thompson further indicated
22 that in the unlikely event of an oil leak or spill, CRW II will implement mitigation
23 measures to contain and cleanup the leaked or spilled oil so that it does not impact

1 water aquifers. Containment is provided by the wind turbine nacelle and tower
2 base for releases from oil-containing equipment (e.g., gearbox, hub, and
3 dampening system), while equipment, materials, and procedures described in the
4 Spill Prevention Control and Countermeasure (SPCC) Plan that will be developed
5 for the facility ensure that any released oil is quickly cleaned up.

6 Geologic deposits where the depth to aquifer materials is greater than 100
7 feet underlie the vast majority of turbine locations in the array. Of all the wind
8 turbines in the array, 5 are underlain by glacial outwash deposits, 9 are underlain
9 by sand and gravel deposits that are less than 50 feet below ground surface, and 3
10 underlain by alluvium. Lithologic logs of water wells maintained by the South
11 Dakota Department of Environment and Natural Resources in the Project Area
12 were reviewed to assess the nature of the aquifer materials and characteristics of
13 the overlying geologic deposits. The information contained in the logs indicates
14 that the depth to water producing zones ranges from 6 feet to 526 feet below
15 ground surface (fbgs). In most wells, the logs record the presence of a protective
16 confining layer of yellow clay and blue clay that extends from the shallow
17 subsurface to the top of the water bearing zones. For wells less than 50 feet in
18 depth, this protective clay layer extends on average from approximately 2 to 15
19 fbgs; and is deeper for wells greater than 50 feet deep. The relationship between
20 the depth of the water producing zones and the static water levels indicates that
21 the aquifers are under confined conditions with the clay zone protecting the
22 aquifers. Under these confined conditions, the groundwater flow direction will
23 tend to be upward so in the unlikely event any oil contaminants were to enter

1 from the surface, the distribution of those contaminants would be minimal and
2 aquifers would be protected by the geologic conditions already in place.

3 **AGENCY COORDINATION**

4 **Q. PLEASE PROVIDE AN UPDATE ON AGENCY COORDINATION AND**
5 **CORRESPONDENCE.**

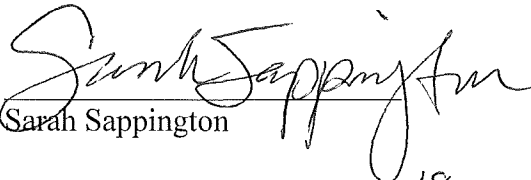
6 A. The table provided in Exhibit SS-S-1 is a summary of significant communication
7 with federal, state, local agencies, and Tribes in chronological order and is found
8 in Appendix B of the application. Correspondence that is new is shown in bold
9 font in Exhibit SS-S-1, and is provided as Exhibit SS-S-2.

10 **Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?**

11 A. Yes.

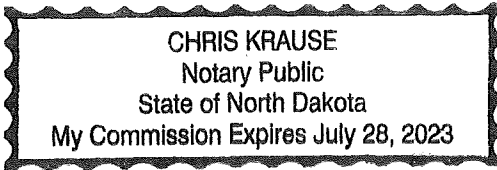
STATE OF NORTH DAKOTA)
) ss
COUNTY OF BURLEIGH)

I, Sarah Sappington, being duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.


Sarah Sappington

Subscribed and sworn to before me this 18 day of September 2019.

SEAL





Notary Public

My Commission Expires July 28, 2023



August 6, 2019

Mr. Scott Phillips
SWCA Environmental Consultants
295 Interlocken Blvd. Suite 300
Broomfield, CO 80021

RE: SDCL 1-19A-11.1 Consultation

Project: 150904001S – Crowned Ridge II - Archaeological and Traditional Cultural Property Inventory, Crowned Ridge II Wind Turbine Array
Location: Multiple Counties
(PUC)

Dear Mr. Phillips:

Thank you for the opportunity to comment on the above referenced project pursuant to South Dakota Codified Law (SDCL) 1-19A-11.1. The South Dakota Office of the State Historic Preservation Officer (SHPO) would like to provide the following comments concerning the effect of the proposed project on the non-renewable cultural resources of South Dakota.

On July 26, 2019, we received your letter dated July 23, 2019, and the report entitled “Level III Intensive Archaeological and Traditional Cultural Property Resources Inventory for the Crowned Ridge II Wind Turbine Array, Codington, Deuel and Grant Counties, South Dakota,” prepared by the Sisseton Wahpeton Oyate Tribal Historic Preservation Office (THPO), Spirit Lake THPO, Yankton Sioux THPO, HDR, Inc. and SWCA Environmental Consultants.

Based on the information provided in the report, we agree with the following determinations of eligibility.

- Seven newly identified properties 39CD0177: 421-09, 39CD0178: 453-01, 39DE0132: II-034-S8, 39DE0133: 649-02, 39DE0135: II-127-S2, 39DE0136: AR491-01 and two sections of the Chicago, Rock Island and Pacific Railroad, (39DE3016: CRIIF-RR-01 and 39DE2016: SA152-01) should be considered **not eligible/ non-contributing** for listing to National Register of Historic Places.
- One newly recorded segment of the Chicago, Rock Island and Pacific Railroad, (39DE3016: II-116-S1, should be considered **contributing** to the overall eligibility of the railroad property.
- A total of 141 properties were identified, recorded and evaluated as Traditional Cultural Properties (TCPs) by the THPOs. The following properties should be considered **eligible** for listing in the National Register of Historic Places for Criterion A:

TCP-CD-0318: 400-03	TCP-CD-0367: 682-04	TCP-DE-0016:593-02
TCP-CD-0319: 400-07	TCP-CD-0368: 682-03	TCP-DE-0017: II-044-S3
TCP-CD-0320: 400-04	TCP-CD-0369: 682-05	TCP-DE-0018:II-048-S4
TCP-CD-0321: 400-05	TCP-CD-0370: 652-03	TCP-DE-0019:II-048-S2
TCP-CD-0322: II-ALT1-S1	TCP-CD-0371: 652-05	TCP-DE-0020:II-048-S1
TCP-CD-0318: II-ALT1-S2	TCP-CD-0372: 652-01	TCP-DE-0021:649-01
TCP-CD-0324: 427-01	TCP-CD-0373: 652-02	TCP-DE-0022:445-05
TCP-CD-0325: 427-02	TCP-CD-0374: 652-07	TCP-DE-0023:445-04
TCP-CD-0326: 427-03	TCP-CD-0375: 652-06	TCP-DE-0024:445-02
TCP-CD-0327: 529-03	TCP-CD-0376: 689-01	TCP-DE-0025:605-08
TCP-CD-0328: 529-01	TCP-CD-0377: 689-02	TCP-DE-0026:665-01
TCP-CD-0329: 529-04	TCP-CD-0378: 453-03	TCP-DE-0027:605-07
TCP-CD-0330: 529-05	TCP-CD-0379: 453-07	TCP-DE-0028:605-06
TCP-CD-0331: 529-06	TCP-CD-0380: 453-02	TCP-DE-0029:605-05
TCP-CD-0332: 424-01	TCP-CD-0381: 453-14	TCP-DE-0030:605-04
TCP-CD-0333: 424-02	TCP-CD-0382: 453-12	TCP-DE-0031:605-03
TCP-CD-0334: II-030-S1	TCP-CD-0383: 453-04	TCP-DE-0032:605-02
TCP-CD-0335: II-030-S2	TCP-CD-0384: 453-08	TCP-DE-0033:605-01
TCP-CD-0336: II-033-S5	TCP-CD-0385: 453-09	TCP-DE-0034:II-113-S13
TCP-CD-0337: II-033-S3	TCP-CD-0386: 453-05	TCP-DE-0035:571-02
TCP-CD-0338: II-033-S4	TCP-CD-0387: 453-10	TCP-DE-0036:II-113-S12
TCP-CD-0339: 685-01	TCP-CD-0388: 453-06	TCP-DE-0037:II-113-S6
TCP-CD-0340: II-033-S2	TCP-CD-0389: 450-01	TCP-DE-0038:571-01
TCP-CD-0341: II-033-S1	TCP-CD-0407: 791-01	TCP-DE-0039:II-113-S8
TCP-CD-0342: II-033-S6	TCP-CD-0408: 663-16	TCP-DE-0040:II-113-S10
TCP-CD-0343: 685-02	TCP-CD-0409: 529-02	TCP-DE-0041:II-113-S14
TCP-CD-0344: 685-03	TCP-CD-0410: 682-02	TCP-DE-0042:II-113-S3
TCP-CD-0345: 685-04	TCP-CD-0411: 650-03	TCP-DE-0043: II-113-S2
TCP-CD-0346: 685-06	TCP-CD-0412: 650-02	TCP-DE-0044: II-113-S1
TCP-CD-0347: 685-05	TCP-CD-0413: CLII265-01	TCP-DE-0045:611-02
TCP-CD-0348: 421-08	TCP-CD-0414: 453-15	TCP-DE-0046: II-117-S1
TCP-CD-0349: 421-03	TCP-DE-0001:II-034-S10	TCP-DE-0047:567-01
TCP-CD-0350: 421-07	TCP-DE-0002: II-034-S7	TCP-DE-0048:567-02
TCP-CD-0351: 421-02	TCP-DE-0003: II-034-S11	TCP-DE-0049:II-117-S2
TCP-CD-0352: 421-05	TCP-DE-0004: II-034-S9	TCP-DE-0050:II-127-S1
TCP-CD-0353: 421-04	TCP-DE-0005: II-034-S6	TCP-DE-0051:642-02
TCP-CD-0354: 421-06	TCP-DE-0006: II-034-S1	TCP-DE-0052:691-02
TCP-CD-0355: 421-01	TCP-DE-0007: II-034-S5	TCP-DE-0053:691-01
TCP-CD-0357: 643-01	TCP-DE-0008: II-034-S4	TCP-DE-0054:AR491-04
TCP-CD-0358: II-041-S3	TCP-DE-0009: 671-06	TCP-DE-0055:AR491-05
TCP-CD-0359: 643-04	TCP-DE-0010: 671-05	TCP-DE-0056:695-01
TCP-CD-0360: II-041-S1	TCP-DE-0011: 671-04	TCP-DE-00059:AR495-02
TCP-CD-0361: 643-03	TCP-DE-0012: 671-02	TCP-DE-0069:709-01
TCP-CD-0362: 643-05	TCP-CD-0370: 652-03	TCP-DE-0070:642-01

TCP-CD-0363: II-041-S4	TCP-CD-0371: 652-05	TCP-DE-0356:II-041-S2
TCP-CD-0364: II-041-S6	TCP-DE-0013: 671-03	TCP-DE-0390:II-042-S2
TCP-CD-0365: II-042-S1	TCP-DE-0014: 671-01	TCP-DE-0016:593-02
TCP-CD-0366: 682-01	TCP-DE-0015:593-01	TCP-DE-0017: II-044-S3

According to the report, the THPO's have determined that the proposed project will alter characteristics that make the TCPs eligible for listing in the National Register of Historic Places in a way that will diminish the integrity of setting and feeling. NextEra Energy Resources, LLC, working in coordination with the THPOs, including the Rosebud THPO, have developed the document entitled "Historic Property Monitoring and Discovery Plan for Crowned Ridge Wind and Crowned Ridge II Projects, Deuel, Grant and Codington Counties." The document outlines avoidance, minimization and mitigation measures. We recommend implementing these measures for all eligible and unevaluated properties located in the project area.

Given the above, we have determined that the proposed project will not encroach upon, damage or destroy any archaeological property or Traditional Cultural Property that is listed in the State or National Register of Historic Places or the environs of such property pursuant to SDCL 1-19A-11.1.

We appreciate the efforts made by all parties to consider the effects of the project on the non-renewable cultural resources of South Dakota. If you have any questions or concerns, please contact Paige Olson at Paige.Olson@state.sd.us or (605) 773-6004.

Sincerely,

Jay D. Vogt
State Historic Preservation Officer



Paige Olson
Review and Compliance Coordinator

Cc: Jane Watts and Renee Boen, Archaeological Research Center
Dianne Desrosiers, Sisseton Wahpeton Oyate Tribal Historic Preservation Officer
Erich Longie, Spirit Lake Tribal Historic Preservation Office
Kip Spotted Eagle, Yankton Sioux Tribe - Tribal Historic Preservation Office
Ben Rhodd, Rosebud Sioux Tribal Historic Preservation Office



August 19, 2019

Mr. Scott Phillips
SWCA Environmental Consultants
295 Interlocken Blvd. Suite 300
Broomfield, CO 80021

RE: SDCL 1-19A-11.1 Consultation

Project: 150904001S – Crowned Ridge Wind II Turbine Array – Architectural Resources Assessment

Location: Multiple Counties
(PUC)

Dear Mr. Phillips:

Thank you for the opportunity to comment on the above referenced project pursuant to South Dakota Codified Law (SDCL) 1-19A-11.1. The South Dakota Office of the State Historic Preservation Officer (SHPO) would like to provide the following comments concerning the effect of the proposed project on the non-renewable cultural resources of South Dakota.

On July 25, 2019, we received your letter dated July 23, 2019, and the report entitled “Historic Architectural Resources Assessment for the Crowned Ridge Wind II Turbine Array, Codington, Deuel, And Grant Counties, South Dakota,” prepared by SWCA Environmental Consultants.

Based on the information provided, there are four National Register of Historic Places (NRHP)-listed or NRHP-eligible architectural properties within one mile of a proposed turbine, as noted below:

- CD00000157, Nicholas T. Ries Farmstead. This property is listed in the NRHP.
- Object ID 6107 and 6107a, Frank Hupf Farmstead, barn and stable. SWCA recommends that these two properties are NRHP-eligible. SHPO concurs with this assessment.
- DE00000098, School House District #67. This building was previously determined eligible for NRHP listing.

Given that these properties are significant for their architecture and/or their contributions to the development of the area, the proposed wind turbines will not alter the characteristics which make these properties eligible for listing in the National Register of Historic Places. Therefore, the SHPO has determined that the proposed project will not encroach upon, damage or destroy any architectural

property that is listed in the State or National Register of Historic Places or the environs of such property pursuant to SDCL 1-19A-11.1.

If you have any questions or concerns, please contact Kate Nelson at Kate.Nelson@state.sd.us or (605) 773-6005.

Sincerely,

Jay D. Vogt
State Historic Preservation Officer



Kate Nelson
Restoration Specialist

Cc: Jane Watts and Renee Boen, Archaeological Research Center
Dianne Desrosiers, Sisseton Wahpeton Oyate Tribal Historic Preservation Officer
Erich Longie, Spirit Lake Tribal Historic Preservation Office
Kip Spotted Eagle, Yankton Sioux Tribe - Tribal Historic Preservation Office
Ben Rhodd, Rosebud Sioux Tribal Historic Preservation Office