

**BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

**DOCKET EL18-053**

**IN THE MATTER OF THE APPLICATION OF DEUEL HARVEST WIND ENERGY  
LLC FOR A PERMIT OF A WIND ENERGY FACILITY AND A 345 KV  
TRANSMISSION LINE IN DEUEL COUNTY**

**PUBLIC REBUTTAL TESTIMONY OF JON THURBER  
ON BEHALF OF THE COMMISSION STAFF  
APRIL 1, 2019**



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## **EXHIBITS**

Exhibit\_JT-7 South Dakota Department of Transportation Office of Aeronautics Letter

Exhibit\_JT-8 Commission Staff Request to South Dakota Department of Environment and  
Natural Resource for Comment

Exhibit\_JT-9 South Dakota Department of Environment and Natural Resource Response Letter

1 **I. INTRODUCTION AND QUALIFICATIONS**

2  
3 **Q. Please state your name and business address.**

4 A. Jon Thurber, Public Utilities Commission, State Capitol Building, 500 East Capitol  
5 Avenue, Pierre, South Dakota, 57501.  
6

7 **Q. By whom are you employed and in what capacity?**

8 A. I am a utility analyst for the South Dakota Public Utilities Commission ("Commission"). I  
9 am responsible for analyzing and presenting recommendations on utility dockets filed  
10 with the Commission.  
11

12 **Q. Did you provide direct testimony in this docket on March 13, 2019?**

13 A. Yes.  
14

15 **Q. What is the purpose of your rebuttal testimony?**

16 A. The purpose of my rebuttal testimony is to respond to the testimony of Garrett Homan,  
17 John Homan, Christina Kilby, and Dean Pawlowski.  
18

19 **II. RESPONSE TO THE TESTIMONY OF GARRETT HOMAN**

20  
21 **Q. In his testimony, Garrett Homan discusses concerns regarding the proposed**  
22 **placement of turbines near a private airstrip, Homan Field, and compliance with**  
23 **SDCL Title 50. Is the Commission the state agency responsible for interpreting**  
24 **SDCL Title 50?**

25 A. No, SDCL Title 50 provides statutory authority for aviation, and the South Dakota  
26 Department of Transportation ("DOT") is the state agency responsible for aviation.  
27 However, SDCL 49-41B-22(1) requires that the Commission determine whether the  
28 facility will comply with all applicable laws and rules.  
29

30 **Q. Did Commission Staff request the opinion of the DOT on Garrett Homan's**  
31 **arguments regarding the proposed Deuel Harvest Wind Farm and compliance with**  
32 **SDCL Title 50?**

33 A. Yes. Please see the DOT's opinion on Exhibit\_JT-7.

1 **Q. Please provide the DOT's position on Garret Homan's argument regarding**  
2 **compliance with SDCL Title 50.**

3 A. On Page 3 of Exhibit\_JT-7, the DOT provided the following position:

4  
5 "With regard to private airports, Title 50 provides the Department with limited  
6 enforcement authority. The Department *may* have the authority to abate a  
7 private airport hazard found to be a public nuisance as SDCL 50-2-5 provides  
8 one of the duties of the Transportation Commission, and also the  
9 Department, is to "supervise the aeronautical activities and facilities within the  
10 state, including supervision and control over all airports and aviation  
11 facilities." *SDCL 50-2-5*

12  
13 As previously noted, the Legislature has expressly granted the authority to  
14 abate private airport hazards to "political subdivisions" in SDCL 50-10-2.1.  
15 SDCL 50-10-5 further provides "[e]ach municipality, county, or other political  
16 subdivision that has an airport layout plan, shall take measures for the  
17 protection of airport approaches, and shall adopt, administer, and enforce,  
18 under the police power and in the manner and upon the conditions prescribed  
19 by this chapter, airport zoning regulations applicable to the area." *SDCL 50-*  
20 *10-5*. This statute, and the general intent of SDCL Ch. 50-10, shifts zoning  
21 enforcement, and therefore airport hazard enforcement which isn't definitively  
22 granted to the Department through Title 50, to the respective political  
23 subdivision. In this instance, it is the Department's belief Deuel County would  
24 be the political subdivision required to address any airport hazards or zoning  
25 violations which affect a private airport or which are not violations of the  
26 permit process in SDCL Ch. 50-9."

27  
28 **Q. Did the DOT note any other concerns regarding the Deuel Harvest Wind Farm?**

29 A. On Page 4 of Exhibit\_JT-7, the DOT stated "there is a public airport which may affect the  
30 installation of at least one wind turbine related to the referenced application. The Clear  
31 Lake Airport is a public airport located within Deuel County which has been permitted by  
32 the Department. In reviewing the proposed turbine locations, Department staff has  
33 preliminarily determined one turbine (referenced as #90) may require an aeronautical

1 hazard permit pursuant to SDCL 50-9-1, et al. Turbine #90 is approximately 23,300 feet  
2 from the Clear Lake Airport. The spacing would give the relative positions about a 48 to  
3 1 approach surface ratio and SDCL 50-9-1 states any positioning within that distance to  
4 the airport which exceeds 50 to 1 surface ratio requires a permit be granted by the  
5 Department.”

6  
7 Commission Staff requests Deuel Harvest address this issue at the evidentiary hearing.  
8

9 **Q. On Pages 9 through 11 of his testimony, Garret Homan asserts that the Project**  
10 **“does not provide an adequate level of safety to the public or neighbors from ice**  
11 **throw.” Please summarize his position.**

12 A. Garret Homan asserts that “the project as proposed does not comply with 49-41B-22 (3)  
13 since the minimum setbacks used for siting do not meet the wind turbine manufacturer’s  
14 (GE) recommendations for the required safety distances surrounding turbines in freezing  
15 weather to mitigate hazards associated with ice throw.”

16  
17 To support his claim, Mr. Homan references sections in a safety manual for GE turbines  
18 that was filed as an exhibit in the Seneca Wind Farm Application before the Ohio Power  
19 Siting Board. Specifically, Mr. Homan references Page 45 of the Safety Manual, citing  
20 the following:

21  
22 “it is advisable to cordon off an area around the wind turbine generator system  
23 with the radius R\* during freezing weather conditions, in order to ensure that  
24 individuals are not endangered by pieces of ice thrown off during operation. \*R =  
25 1.5 x (hub height [m] + rotor diameter [m]) (Recommendation of the German  
26 Wind Energy Institute DEWI 11/1999).”  
27

28 **Q. Did Commission Staff request the safety manual for the proposed turbines from**  
29 **the Applicant?**

30 A. Yes. In response to Commission Staff data request 3-6, the Applicant provided a safety  
31 manual for both proposed turbines with following condition: “These documents are being  
32 provided confidentially and subject to an agreement with General Electric that they will  
33 be provided on an "Attorneys' Eyes Only" basis.” Commission Staff counsel received  
34 permission for Commission Staff analysts to review the safety manual.

As a result of the confidentiality request, the remainder of my ice throw testimony will be treated as confidential.

**Q. Based on your review of the safety manual, can you provide any additional context regarding the “area to cordon off” referenced by Garrett Homan?**

**[BEGIN CONFIDENTIAL]**

■ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**[END CONFIDENTIAL]**

**Q. Do the turbines proposed by the Applicant have an ice detector?**

A. Yes, it is my understanding that the proposed turbines have an ice detector.

**Q. Does General Electric make any other statements regarding an ice sensor or detector in the safety manual?**

**[BEGIN CONFIDENTIAL]**

A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1  
2  
3  
4  
5  
6  
7 [END CONFIDENTIAL]  
8

9 III. RESPONSE TO THE TESTIMONY OF JOHN HOMAN  
10

11 **Q. In his testimony, John Homan indicated a concern for the impact that the Deuel**  
12 **Harvest Wind Farm construction and operation may have on aquifers and springs**  
13 **in and near the project area. Did Mr. Homan provide any studies or**  
14 **documentation to support his concerns?**

15 A. No, John Homan did not provide any studies or documentation in response to  
16 Commission Staff data request 2-2, 2-6, and 2-7 to support his concerns. In response to  
17 Commission Staff data requests 2-6 and 2-7, John Homan requested that a state agency  
18 provide an assessment before granting a permit, and specifically mentioned the  
19 Department of Environment and Natural Resources ("DENR").  
20

21 **Q. Did any other Intervenor indicate concerns regarding potential hydrological and**  
22 **geological impacts from the construction and operation of the Deuel Harvest Wind**  
23 **Farm in their testimony?**

24 A. Yes. Garrett Homan indicated concern regarding pollution due to oils and fluids leaking  
25 from the turbines during operation. Also, Christina Kilby stated concern regarding  
26 pollution to the aquifers due to ground vibrations during wind turbine operation.  
27

28 **Q. Did Commission Staff request the DENR provide comment on the hydrology and**  
29 **geology concerns identified in this proceeding?**

30 A. Commission Staff sent a letter to DENR that summarized hydrological and geological  
31 concerns identified in pre-filed testimony and requested comment on each concern. See  
32 Exhibit\_JT-8 for the information request to DENR.  
33  
34

1 **Q. Did the South Dakota DENR reply to Commission Staff's information request?**

2 A. Yes. Please see Exhibit\_JT-9 for the DENR response to Commission Staff's information  
3 request. The DENR did not indicate any threat of serious injury to the environment  
4 associated with the concerns raised by the Intervenors.  
5

6 **IV. RESPONSE TO THE TESTIMONY OF CHRISTINA KILBY**  
7

8 **Q. In her testimony, Ms. Kilby challenges Deuel Harvest's interpretation of the**  
9 **setback associated with Lake Alice in the Deuel County Ordinance. Do you have**  
10 **any comments regarding the interpretation of the Lake Alice setback?**

11 A. As stated in my direct testimony, Commission Staff has analyzed the Application using  
12 the interpretation that the 2-mile setback is from the Lake Park District at Lake Alice.  
13 Ms. Kilby argues that the Deuel County Ordinance should be interpreted based on the  
14 plain language in the ordinance and the setback is from Lake Alice, not its lake park  
15 district. Commission Staff agrees with Ms. Kilby that the interpretation of an ordinance  
16 presents a question of law and will brief this issue.  
17

18 **Q. How would Commission Staff's review of the Application be impacted If a court of**  
19 **competent jurisdiction agrees with Ms. Kilby's interpretation of the Lake Alice**  
20 **setback?**

21 A. The number of turbines that would be shifted or removed from the proposed layout to  
22 comply with a 2-mile setback from Lake Alice would constitute a material change to the  
23 Application and require approval from the Commission. Commission Staff recommends  
24 adopting the following condition to address this potential scenario:  
25

26 The Applicant must obtain a Deuel County Special Exception Permit and comply with  
27 the Deuel County Zoning Ordinance. If a court of competent jurisdiction determines  
28 the Deuel County Ordinance requires a 2-mile setback from Lake Alice, not its lake  
29 park district, the permit shall be suspended until the Applicant receives Commission  
30 approval of all turbine location changes. However, if Applicant chooses to remove all  
31 impacted turbines from the project layout, rather than relocate the turbines, then the  
32 permit shall remain in effect and no Commission approval is necessary.  
33  
34  
35  
36

V. **RESPONSE TO THE TESTIMONY OF DEAN PAWLOWSKI**

**Q. In his testimony, Mr. Pawlowski states that Otter Tail will construct, operate and maintain the transmission facilities that Otter Tail will own, notably the Interconnection Switching Station. How is Otter Tail's position different than what Deuel Harvest communicated in its Application?**

A. Deuel Harvest describes the proposed Interconnection Substation in Section 8.6 of the Application. On Page 8-8 of the Application, Deuel Harvest states "the Interconnection Substation will be constructed by the Applicant or Otter Tail Power Company and will be owned and operated by Otter Tail Power Company." (*emphasis added*) In addition, Deuel Harvest "requests that the Permit allow the Interconnection Substation to be modified as needed, so long as the new location is on land leased for the Project."

Otter Tail appears to want to clarify that Otter Tail will be constructing the Interconnection Substation, not the Applicant. The fact that Otter Tail will own and operate the transmission facilities was stated in the application.

**Q. Since Otter Tail is constructing, owning, and operating the Interconnection Substation, is it necessary to include that facility in the requested permit?**

A. No. Commission Staff believes the Interconnection Substation was included in the Application because Deuel Harvest was unsure if it would be responsible for constructing the facility. Without the need to construct, the Interconnection Substation does not need to be included in the request as an associated facility.

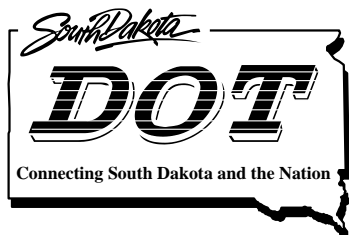
**Q. On Page 14 of his testimony, Mr. Pawloski requested that the permit either be separated/bifurcated or, at a minimum, that Otter Tail be given the opportunity to be heard regarding any conditions imposed on the facility permit as to the 345-kV Interconnection Switching Station. Did Commission Staff reach out to Otter Tail to see if there was an alternative solution, such as a permit condition, to resolve their concerns?**

A. Yes. Instead of a permit condition, Otter Tail prefers to have a stipulation of facts to be included in the findings of fact and conclusions of law, in the event a permit is granted by the Commission. Commission Staff will continue to work with Otter Tail and Deuel Harvest to address Otter Tail's concerns.

1   **Q.     Does this conclude your rebuttal testimony?**

2   A.     Yes, this concludes my written rebuttal testimony.  However, I will supplement my written  
3           testimony with oral testimony at the hearing to respond to Deuel Harvest testimony,  
4           Intervenor testimony, and responses to discovery.

5



# Department of Transportation

## Office of Legal Counsel

Sioux Falls Area Office

5316 West 60<sup>th</sup> Street North

Sioux Falls, South Dakota 57107

PH: 605/367-4970 Ext. 1802014 FAX: 605/367-5685

March 22, 2019

VIA EMAIL ATTACHMENT ONLY

Mr. Darren Kearney  
SD PUC  
500 E. Capitol Ave.  
Pierre, SD 57501

RE: Deuel Harvest Wind Energy LLC  
EL18-053

Dear Mr. Kearney:

You have contacted the Department of Transportation Office of Aeronautics (“the Department”) requesting an opinion related to the referenced application. It is my understanding Garrett Homan has intervened in the permit application and approval process for the proposed Deuel Harvest Wind Energy windfarm. You had inquired about arguments Mr. Homan made in his public testimony regarding effects of the installation of wind turbines near the Homan Airfield, a private airport, as they pertain to SDCL Title 50 and, specifically, SDCL 50-10-2. I have had an opportunity to review Mr. Homan’s written testimony submitted in the matter. The argument I will address is contained in Paragraph A.2. of the Intervenor’s written testimony:

2) Wind Turbines in close proximity to my family’s airport will create a hazard and as such do not meet South Dakota Codified Law chapter 50 Aviation and 50-10 Airport Zoning which provides protection to private airports by preventing the creation of hazards to landing and taking off.

There are two chapters of Title 50 which address airport hazards relative to airport operation.

### **1. SDCL 50-9-1: Approval required for construction or alteration of certain structures**

SDCL Ch. 50-9 (Airport Navigation Hazards) contains the “traditional” permit application process for construction of tall structures or a potential airport hazard. Department approval is required for construction or alteration of certain structures. SDCL 50-9-1 details the height threshold and the buffer distances from airports relative to the approval process.

Mr. Kearney  
March 21, 2019  
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In SDCL 50-9-2, the Aeronautics Commission was ordered “to promulgate rules, pursuant to chapter 1-26, covering the requirements that shall be met by any applicant to obtain the approval for the construction or alteration of any structure which is not exempt from the requirements of § 50-9-1.” *SDCL 50-9-2*. As additional criteria for the permitting process, ARSD 70:02:03:20 provides:

The [Aeronautics Commission] shall grant approval to any structure defined by SDCL 50-9-1 and 50-9-7 that has received and submitted to the commission a written determination by the FAA that the proposed structure does not pose a hazard to air navigation. The approval shall be conditioned upon the structure's compliance with all requirements contained in the FAA's determination that the proposed structure does not pose a hazard to air navigation. If the FAA has not yet issued a written determination at the time the application is submitted, the commission may grant conditional approval contingent upon submittal prior to commencing construction of a written determination by the FAA that the proposed structure does not pose a hazard to air navigation.

*ARSD 70:02:03:20*. Please note SDCL 50-9-7 has been repealed.

SDCL 50-9-1 details with specificity the circumstances under which the Department would be involved with the permitting of tall and potentially hazardous structures. The height and spacing of structures relative to the runway or airport facilities are clearly defined parameters. Failure to comply with this statute and the permit application procedure outlined in Title 50 is a criminal offense. See *SDCL 50-9-5*. An unapproved or illegal structure which would potentially endanger the safety of the public is a public nuisance. See *SDCL 21-10-1*. The Department may take steps prescribed in statute to abate the nuisance. See *SDCL Ch. 21-10*.

## **2. SDCL 50-10-2: Airport hazards as danger to life and property**

The second chapter of Title 50 which addresses airport hazards is SDCL Ch. 50-10 (Airport Zoning). Specifically, SDCL 50-10-2 is a general public nuisance statute addressing airport hazards. The definition of "airport" as used in Title 50 includes private airports. *SDCL 50-1-1(7)*. In contrast to a public airport, it is important to emphasize the Department only becomes involved with private airports when the provisions of Title 50 allow. A private airport can be established within South Dakota without the need for any involvement or approval from the Department, so long as it conforms with state statutes and any applicable Federal Aviation Administration (FAA) regulations.

An “airport hazard” is defined as “any structure, or tree, or use of land, which obstructs an aerial approach of such an airport or is otherwise hazardous to its use for landing or taking off[.]” *SDCL 50-10-1(1)*. SDCL 50-10-2 essentially established as public policy that “an airport hazard endangers the lives and property of users of the airport and of occupants of land in its vicinity, and also, if of the obstruction type, in effect reduces the size of the area available for the landing, taking off and

Mr. Kearney  
March 21, 2019  
Page 3

maneuvering of aircraft, thus tending to destroy or impair the utility of the airport and the public investment therein.” *SDCL 50-10-2*. It was further declared in the statute:

- (1) That the creation or establishment of an airport hazard is a public nuisance and an injury to the community or the United States served by the airport in question; and
- (2) That it is therefore necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of airport hazards be prevented.

*Id.*

The responsibility of prevention of airport hazards has been generally designated to “political subdivisions” by *SDCL 50-10-2.1* and not specifically to the Department. If a structure is believed to be an airport hazard, and therefore a possible public nuisance pursuant to *SDCL 50-10-2*, *SDCL 50-10-2.1* does provide for the use of public funds by “political subdivisions” for “the prevention of the creation or establishment of airport hazards[.]” *SDCL 50-10-2.1*.

### **3. The Department’s position**

It is clear the Department is fully involved with the permit application process addressed in *SDCL Ch. 50-9*. The Department will grant tall or hazardous structure permits as long as all conditions are met. If the conditions aren’t met or a structure is constructed in violation of the law, the Department will take steps to abate the nuisance. But that is not the concern here.

With regard to private airports, Title 50 provides the Department with limited enforcement authority. The Department *may* have the authority to abate a private airport hazard found to be a public nuisance as *SDCL 50-2-5* provides one of the duties of the Transportation Commission, and also the Department, is to “supervise the aeronautical activities and facilities within the state, including supervision and control over all airports and aviation facilities.” *SDCL 50-2-5*

As previously noted, the Legislature has expressly granted the authority to abate private airport hazards to “political subdivisions” in *SDCL 50-10-2.1*. *SDCL 50-10-5* further provides “[e]ach municipality, county, or other political subdivision that has an airport layout plan, shall take measures for the protection of airport approaches, and shall adopt, administer, and enforce, under the police power and in the manner and upon the conditions prescribed by this chapter, airport zoning regulations applicable to the area.” *SDCL 50-10-5*. This statute, and the general intent of *SDCL Ch. 50-10*, shifts zoning enforcement, and therefore airport hazard enforcement which isn’t definitively granted to the Department through Title 50, to the respective political subdivision. In this instance, it is the Department’s belief Deuel County would be the political subdivision required to address any airport hazards or zoning violations which affect a private airport or which are not violations of the permit process in *SDCL Ch. 50-9*.

Mr. Kearney  
March 21, 2019  
Page 4

#### **4. Final note: Clear Lake Airport**

As a final note, there is a public airport which may affect the installation of at least one wind turbine related to the referenced application. The Clear Lake Airport is a public airport located within Deuel County which has been permitted by the Department. In reviewing the proposed turbine locations, Department staff has preliminarily determined one turbine (referenced as #90) may require an aeronautical hazard permit pursuant to SDCL 50-9-1, et al. Turbine #90 is approximately 23,300 feet from the Clear Lake Airport. The spacing would give the relative positions about a 48 to 1 approach surface ratio and SDCL 50-9-1 states any positioning within that distance to the airport which exceeds 50 to 1 surface ratio requires a permit be granted by the Department. This would be an example of the permit process in action addressed in Paragraph 1, above.

Thank you for this opportunity to provide input in this matter. Please let me know if you should have any questions regarding this information.

Best regards,

*/s/ Dustin W. DeBoer*

Dustin W. DeBoer  
Special Assistant Attorney General

cc: Mr. Jack Dokken (Office of Aeronautics)  
Ms. Karla Engle (DOT Office of Legal Counsel)



Gary Hanson, Chairman  
Chris Nelson, Vice Chairman  
Kristie Fiegen, Commissioner



## PUBLIC UTILITIES COMMISSION

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### VIA EMAIL

March 26, 2019

Mr. Brian Walsh  
Environmental Scientist Manager, Ground Water Quality  
SD DENR  
Joe Foss Building  
523 E Capitol  
Pierre, SD 57501

### **Subject: Request for DENR Comment on Deuel Harvest North Wind Farm**

Dear Mr. Walsh,

The South Dakota Public Utilities Commission Staff (PUC Staff) is reviewing a wind farm siting application for the Deuel Harvest North wind farm, located in Deuel County SD. Several concerned residents with homes near the project area intervened in the docket to raise their concerns before the Commission for consideration. One of the concerns raised by these individuals is the impact that wind farm construction and operation may have on aquifers and springs.

Concerns raised regarding aquifers and springs include the following:

- 1) the potential adverse impacts to the environment due to oil and chemical spills used during wind turbine construction or operation;
- 2) the potential for the project to contaminate, disrupt the flow, or disturb aquifers/springs due to the concrete in wind turbine foundations;
- 3) the potential for the project to contaminate, disrupt the flow, or disturb aquifers/springs during construction of the project;
- 4) the potential for the project to contaminate, disrupt the flow, or disturb aquifers/springs during wind turbine operation as a result of ground vibration; and
- 5) the request for a hydrogeological study to demonstrate that aquifers/springs will not be adversely impacted by the construction or operation of the project.

Through this letter, PUC Staff is reaching out the Department of Environment and Natural Resources (DENR) for comment on the concerns listed above. Specifically, PUC Staff would like the DENR to provide an opinion on the concerns and identify if, in the DENR's opinion, the requested hydrogeological study is necessary to understand potential impacts to aquifers/springs as a result of wind turbine construction and operation.

Sincerely,

Darren Kearney  
Utility Analyst  
SD PUC

Cc: Jon Thurber, Amanda Reiss, Kristen Edwards



DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

March 29, 2019

Mr. Darin Kearney  
Public Utilities Commission  
500 E Capitol  
Pierre, SD 57501

**Subject: Response to PUC's Request for DENR Comment on Deuel Harvest North Wind Farm**

Dear Mr. Kearney:

The following is the Department of Environment and Natural Resource's response to the questions contained in your March 26, 2019 letter to Brian Walsh, with the DENR's Ground Water Quality Program.

PUC Questions followed by DENR's response:

- 1) the potential adverse impacts to the environment due to oil and chemical spills used during wind turbine construction or operation;
  - a. *The Department of Environment and Natural Resources has rules and regulations (SDCL 34A-12 and ARSD 74:34:01) which require the reporting, assessment and cleanup of oil and chemical spills that may occur during the construction or operation of wind farms.*
  - b. *Previously reported oil spills from operating wind farms have been minor and were easily addressed. Based upon the quantity of oil and chemicals present at these sites, it does not appear that these sites pose a significant oil or chemical risk to ground water.*
- 2) the potential for the project to contaminate, disrupt the flow, or disturb aquifers/springs due to the concrete in wind turbine foundations;

*The department does not consider a concrete foundation to be a source of ground water contamination. Foundations will not be constructed in any major aquifer.*

- 3) the potential for the project to contaminate, disrupt the flow, or disturb aquifers/springs during construction of the project;

*Based upon the depth and spacing of the concrete wind turbine foundations and the depth of the aquifer, construction of the wind farm will not contaminate or cause disruption of ground water flow, nor a disturbance of the aquifer underlying the site.*

- 4) the potential for the project to contaminate, disrupt the flow, or disturb aquifers/springs during wind turbine operation as a result of ground vibration; and

*Based upon the depth of the aquifer and spacing of the wind turbines, vibrations from the towers will not contaminate and are unlikely to cause disruption of ground water flow, nor a disturbance of the aquifer underlying the site.*

- 5) the request for a hydrogeological study to demonstrate that aquifers/springs will not be adversely impacted by the construction or operation of the project.

*Previous geological studies performed by DENR and the United States Geological Survey to map the ground water resources have shown that the major aquifer in this area is greater than 100 feet deep. Therefore, the construction and operation of the wind farm will not impact the major aquifer under this wind farm.*

Sincerely,

A handwritten signature in black ink, appearing to read "Kim McIntosh". The signature is fluid and cursive, with the first name "Kim" written in a larger, more prominent script than the last name "McIntosh".

Kim McIntosh, Administrator  
Ground Water Quality Program  
Department of Environment and Natural Resources