EXHIBIT A20-1

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF SOUTH DAKOTA

EL18-026 - IN THE MATTER OF THE APPLICATION BY PREVAILING WIND PARK, LLC FOR A PERMIT OF A WIND ENERGY FACILITY IN BON HOMME COUNTY, CHARLES MIX COUNTY AND HUTCHINSON COUNTY, SOUTH DAKOTA, FOR THE PREVAILING WIND PARK PROJECT	* * * * * * * *	**APPLICANT'S RESPONSES TO STAFF'S FIFTH SET OF DATA REQUESTS** **EL18-026**

Below, please find Applicant's Responses to Staff's Fifth Set of Data Requests to Applicant.

5-1) Refer to the direct testimony of Mr. Richard James, Page 10, line 342 through Page 11, line 353:

> *"Second, I reviewed the information on the computer model prepared for the report. I find the model is deficient in many ways. One significant way is that it fails to include two important sets of tolerances. The sound power data used as input to the model is derived using a method that has about a ± 2 dB tolerance for measurement repeatability. This tolerance should have been added to the sound power levels used as input to the model to account for known variability in measurement data. Also, the model uses the formulas and protocols from ISO 9613-2 which states it is not applicable for noise sources that are more than 30 meters above 350 the ground or receiver elevation. Even if the model was appropriate for wind turbine noise the model has known tolerances of ± 3 dBA. This should have also been applied as an adjustment to the Burns-McDonnell sound model. Given these two tolerances the predicted sound levels are as much as 5 dBA low."*

a) Please respond to Mr. James' comment regarding a 2 dBA tolerance for measurement repeatability and explain how the Applicant incorporated the tolerance in the sound model.

Chris Howell: The vendor data used in our modeling is developed per IEC 61400-11 and reflects the loudest sound levels the turbines are expected to produce at any given time. Further, the model assumes all turbines are operating at maximum sound levels at all times in all directions. A residence between two turbines is assumed to experience downwind sound from both turbines (which is a physical impossibility). In general, the plus or minus (+/-) 2-dBA tolerance referenced by Mr. James captures

unexpected situations. It is worth noting that the situations captured by +/- 2-dBA are as likely to be over-predicted by up to 2 dBA as they are to be under-predicted by 2 dBA. In our experience, our model predicts the most likely outcome for loudest impacts. We have developed and refined our modeling techniques using actual measurement data as a basis for comparison, and our modeling has proven accurate through the years when compared to post-construction measurements. Therefore, the model predicts the most likely loudest sound levels for the Project, and adding or subtracting 2 dB would be less accurate.

b) Please respond to Mr. James' comment regarding a 3 dBA tolerance from the formulas and protocols from ISO 9613-2 and explain how the Applicant incorporated the tolerance in the sound model.

Chris Howell: ISO 9613-2 includes language for tolerance; we did not include this tolerance in our modeling. As previously stated, we approached the modeling using conservative assumptions, and the model predicts the most likely loudest sound levels. The accuracy of our modeling has been confirmed by comparing our pre-construction modeling to post-construction sound measurements. There is no reason to apply overly conservative assumptions to the modeling, as doing so would result in a less accurate prediction of the Project's projected loudest sound levels.

c) Is the predictive sound levels reflected in the model as much as 5BA low? Please explain.

Chris Howell: No. We are confident that our modeling results are not under-predicting by 5-dBA. It would not be prudent to under-predict potential sound levels in a regulatory setting, so we use conservative inputs. That said, we do not always use the most conservative selections because it is also important to be accurate, and we have to weigh the compounding effects of always making conservative choices in a model. Doing so could result in very unrealistic predictions, which, as noted previously, are not helpful to clients or regulators because they do not present an accurate picture of the Project's projected loudest sound levels. As noted previously, our modeling techniques use actual measurement data as a basis for comparison, and our modeling method has proven to be accurate through the years for other projects.

5-2) Refer to the direct testimony of Mr. Richard James, Page 11, lines 354 through 359:

"Further, the values used for ground attenuation are not disclosed. The proper value for ground attenuation is "0" to turn off any calculations of ground effect. This is because the height of the wind turbines means that the sound emitted by them radiates directly from the blades to the homes without interaction with the ground. The ISO ground attenuation calculations are intended for ground-based

noise sources where the sound radiates along a line from source to receiver just above the ground."

Please respond to Mr. James' comment regarding the values for ground attenuation reflected in the sound model.

Chris Howell: Mr. James continues to advocate for overly conservative methods that would not accurately predict the Project's sound levels. Specifically, using "0" is overly conservative in these circumstances because it is representative of "hard ground," (i.e. paving, ice, concrete). However, the Project area is predominantly agricultural in nature, which according to ISO 9613-2 is considered "porous ground." ISO 9613-2 suggests a ground absorption value of 1.0 for "porous ground." However, a ground absorption factor of 0.5 was conservatively used within the model to simulate mixed ground (equally hard and porous).

According to ISO 9613-2, the ground absorption plays a role in three distinct areas: the source; middle; and receiver. While the source and middle are elevated, the receiver area is near-grade and will be influenced by the ground absorption. The influence of ground absorption due to elevation of the source and receiver, and therefore the middle area, are automatically determined within the model. Again, assuming 0 for ground absorption near the receiver is considered overly conservative and would not present an accurate picture of the Project's projected sound levels.

5-3) Is compliance with the Bon Homme County's noise regulation associated with wind energy systems achieved through a sound model based on predicted sound levels, or is compliance based on actual sound levels? Please explain.

Lisa Agrimonti: Section 1741 of the Bon Homme County Ordinance states: "Noise level produced by the LWES shall not exceed forty five (45) dBA, average A-weighted sound pressure at the perimeter of occupied residences existing at the time the permit application is filed, unless a signed waiver or casement is obtained from the owner of the residence. The permittees shall submit a report of predicted noise levels at habitable residential dwellings within one mile of proposed tower locations to the Board no less than forty five (45) days prior to commencing construction."

Compliance with this provision requires, prior to construction, submission of a report showing that modeled sound levels will meet the stated limit. In operations, the Ordinance requires that actual noise levels from the wind farm not exceed the stated limit.

5-4) Refer to the direct testimony of Mr. Richard James, Page 11, line 381 through Page 12, 388:

"Before any decisions are made on permitting this project the applicant should be required to submit a new model that applies the known tolerances to the input data. It should also show the contour lines for 30, 35, and 40 dBA. These new sound levels should then be viewed as indicators of what the community will experience on a day when the wind turbines are operating under optimum conditions for the lowest noise emissions. They are not precision predictions. Review of the model should be done keeping in mind that the operating values can be as much as 10 dB higher than what is predicted, under operating conditions that would be considered normal."

a) Please comment on Mr. James' request above.

Chris Howell: Published noise emissions by the wind turbine vendor indicate that the turbines will vary by 10 to 15 dBA. The loudest published sound levels were used within our modeling. I am confident in our modeling, for the reasons discussed above, and do not believe additional modeling is necessary or helpful.

b) Please submit a map that shows the contour lines for 30, 35, and 40 dBA using the sound model results that the Applicant believes accurately reflects predictive sound levels.

Chris Howell: See Attachment 5-4

5-5) Refer to the direct testimony of Mr. Richard James, Page 6, line 174 through 206. Does the Applicant agree or disagree that noise limits should be applied to the property lines or to the homes? Please explain.

Chris Howell: The noise modeling conducted for the Project was modeled at residences in accordance with general practice and requirements. *See, e.g.*, Bon Homme County Ordinance, Section 1741 (setting sound standard "at the perimeter of occupied residences" not the property line).

5-6) Refer to the direct testimony of Prof. Mariana Alves-Pereira, Page 27, lines 461 – 466:

However, in the absence of zoning laws based on scientific information, then the governmental agencies responsible for Public Health should step in to conduct appropriately designed epidemiological studies. Ideally, this would study relevant health endpoints before and after installation of the industrial wind turbines. It would also include the quantification of ILFN before and after the installations of the industrial wind turbines, with the same wind speed and wind direction, and evaluated inside the affected homes.

What is the Applicant's position on the Intervenor's request for an epidemiological study by the governmental agencies responsible for Public Health? Please explain.

Dr. Mark Roberts: Referring to my Supplemental Direct and Rebuttal Testimony, multiple state, federal, and international governmental bodies have independently reviewed the peer-reviewed, published literature many times over and have reached similar conclusions that there is no evidence of wind turbines being associated with a specific health effect. (Massachusetts (2012), Germany (2016), Japan (2017), France (2017), Denmark (2009), Switzerland (2017), New Zealand (2010), and Australia (2015).) With respect to Dr. Alves-Pereira's call for more study, science is an evolving knowledge base that will be influenced by discussions of societal change (climate change, alternate energy sources, medical treatments) and demands of life, but decisions are made based on the science that we know. The science related to wind turbines has been assessed multiple times by multiple groups of scientists, and they have all come to the similar conclusion – there is no specific health effect associated with sounds produced by wind turbines. As I have pointed out in my testimony, science evolves, and with it comes new knowledge. In this area, there has been no scientifically verifiable evidence that wind turbines are associated with a specific health effect.

5-7) Refer to the direct testimony of Mr. Jerry Punch, Page 11, lines 303 – 314.

a) Does the Applicant agree that LAmax is the optimal measurement metric to protect sleep? Please explain.

Chris Howell: This metric is intended to quantify sound levels from instantaneous and non-continuous noise sources, such as dogs barking, thunder, car passing by, etc., that occur during an otherwise quiet time period. As such, it may be a useful metric to gauge if a person is likely to wake from one of these sources. The WHO Night Noise Guidelines for Europe state that LAmax is intended for non-continuous sources of sound and would therefore not be relevant to sounds emitted from wind turbines.

b) Based on the WHO Night Guidelines, is a 40 dB LAmax level a reasonable maximum allowable noise level during nighttime? Please explain.

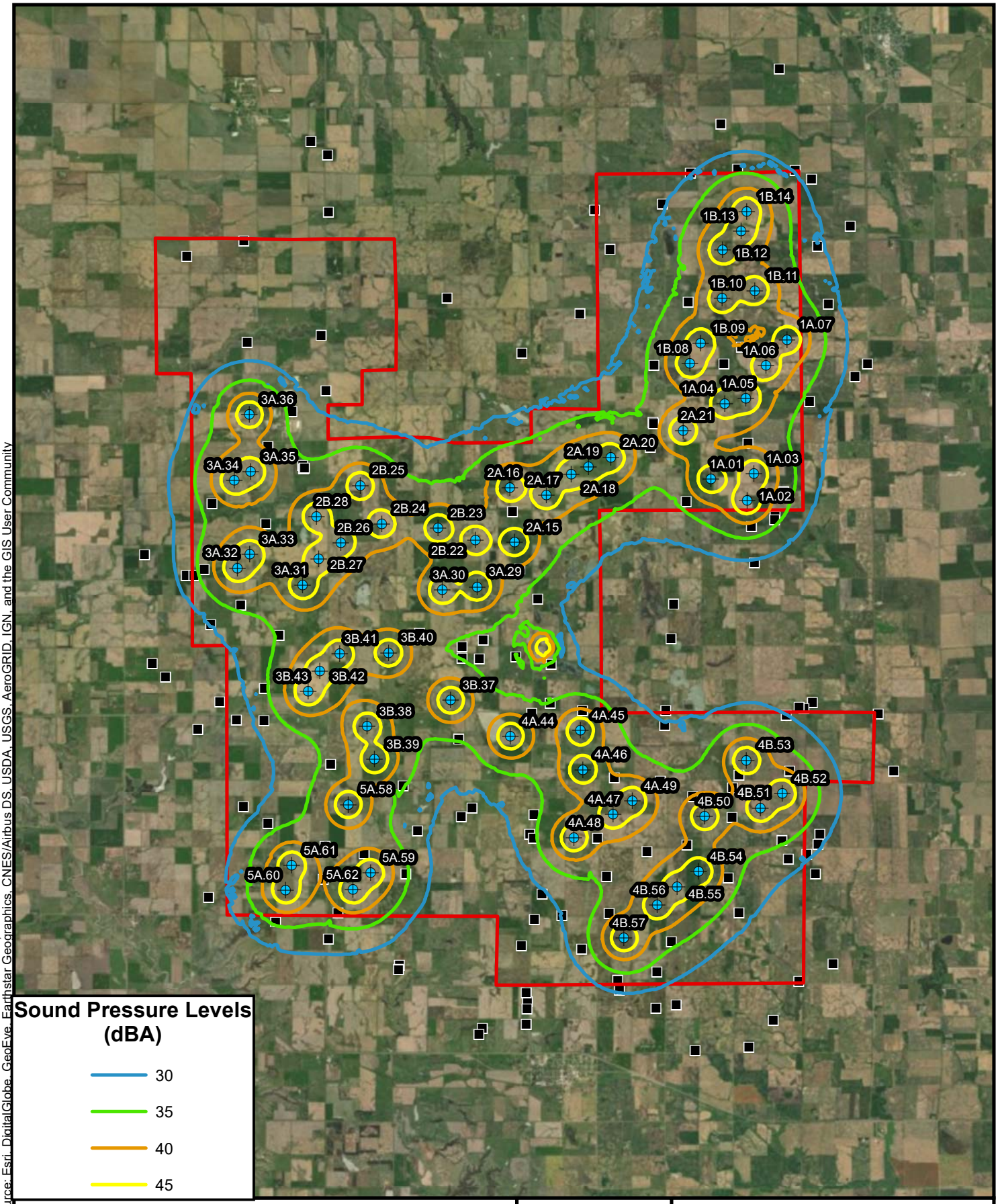
Chris Howell: No, this is not a reasonable maximum level, and it is not the recommended limit from the WHO Night Noise Guidelines. The WHO Night Noise Guidelines recommend a Lnight, outdoor level of 40 dBA. This is an average sound level during all nighttime hours (8-hour period) over each night of an entire year and is inclusive of any sounds that may occur. In the case of a wind farm, the metric also incorporates time periods when sounds levels don't include the source of interest (e.g., when the turbines are not operating). Bon Homme County's limit of 45 dBA

would apply on any given night, not be averaged out over an entire year, and would differentiate wind turbine noise from other intrusive noises.

Dated this 5th day of October, 2018.

By: */s/ Lisa M. Agrimonti*

Mollie M. Smith
Lisa M. Agrimonti
FREDRIKSON & BYRON, P.A.
Attorneys for Applicant
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402
Phone: (612) 492-7270
Fax: (612) 492-7077



BURNS McDONNELL

Figure D-1

Prevailing Wind Park
Sound Level Contours

Path: Z:\Clients\BTS\SPowerDC\105644_PrvWindStudies\Studies\Permitting\Modeling\Noise\GIS\Figure D-1 - Sound Level Contours V6.mxd chowell 10/3/2018

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: ESRI, Burns & McDonnell Engineering Company, Inc.

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