Ms. Tricia L. DeBleeckere
Minnesota Public Utilities Commission
121 7th Place East STE 350, St. Paul, MN 55101

RE: Big Blue Site Permit Major Deviations – Noise Model Discrepancy

September 20, 2017

Dear Ms. DeBleeckere

I have been complaining about Big Blue in my opinion never ran any models for noise for their noisy G97 turbines. However, it has been brought to my attention that they submitted a charming pretty map to the Commission on October 12, 2011. But they never submitted the required 18 month noise study after COD because of an "oversight". And they did submit an unprofessional noise study to the Docket on July 7th, 2017. Four years AFTER they were ordered to do so.

In my opinion, just because they submitted a wind turbine noise analysis cute map, doesn't mean they actually did any of the work. How could they come to the conclusion of the turbines complying with the MPCA sound requirements when they already had micro-sighted the turbine locations?

Another key element on their cute pretty map shows a red circle at each turbine base, which they say their model study produced db level of 55, however their own study showed at the base of each turbine was 75 to 85 db. I believe they took the data from the study model of the Repower MM92 and created a map for the Commission to satisfy their compliance, hoping they would never get caught.

They actually did do the noise analysis modeling for the MM92, which is supported by the many pages of raw data and statistical results. But then I believe they conveniently used those study results to micro-site the G97's when they finally decided to build the G97's. How can that be allowed? The Repower MM92 and the G97 are extremely different turbines. They have different blade configurations and different noise outputs. And the MM92 is much quieter from the factory supplied noise parameters. It appears to me the orange, yellow, green and blue circles were hand drawn to copy the actual noise results from the noise study of the MM92.

I request the raw data under the Minnesota Data Practices Act, to provide all of the raw data, and reports from the noise analysis submitted on October 12th 2011 which resulted in the map. This raw data must contain the noise analysis from the G97.

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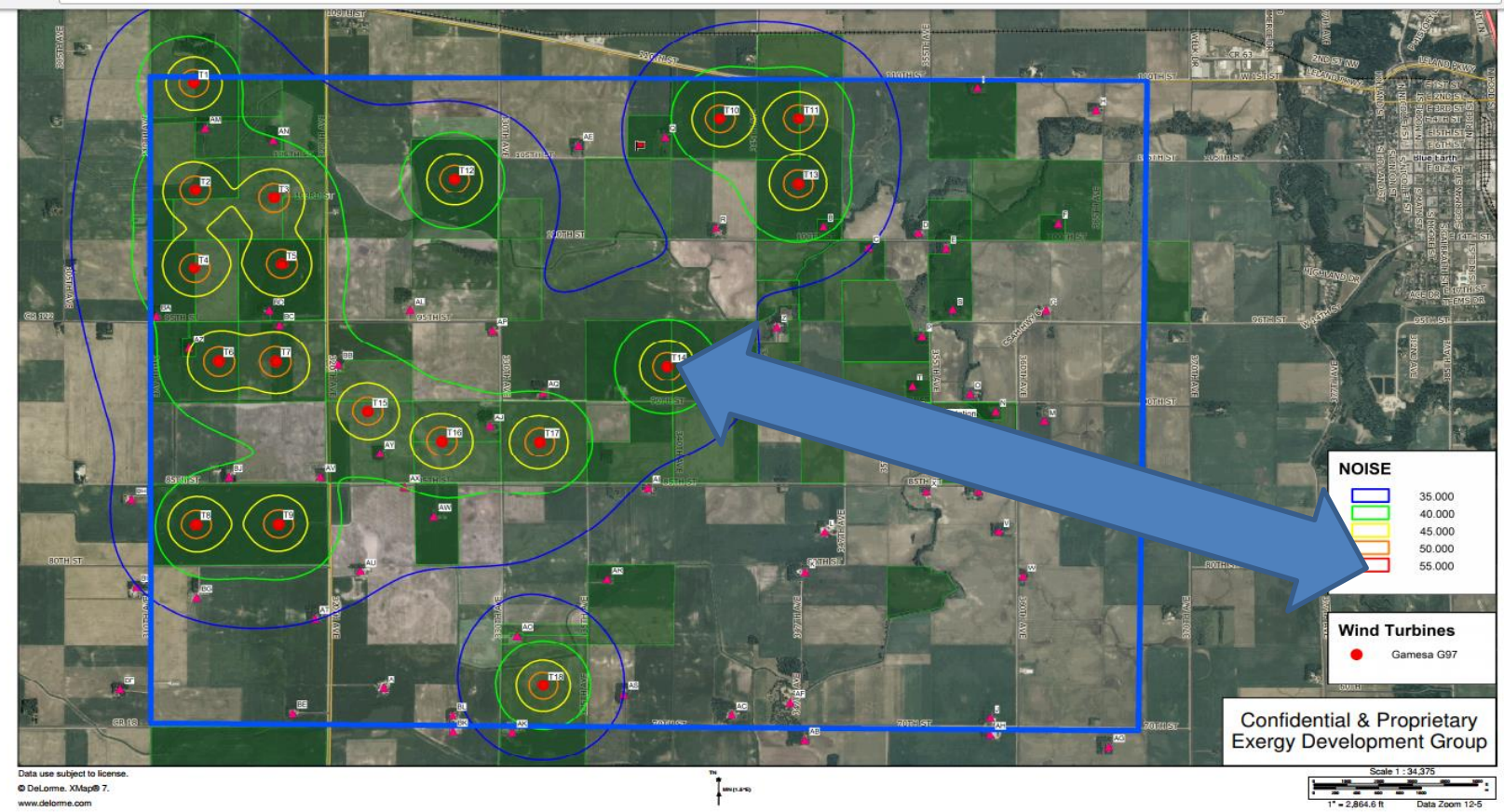
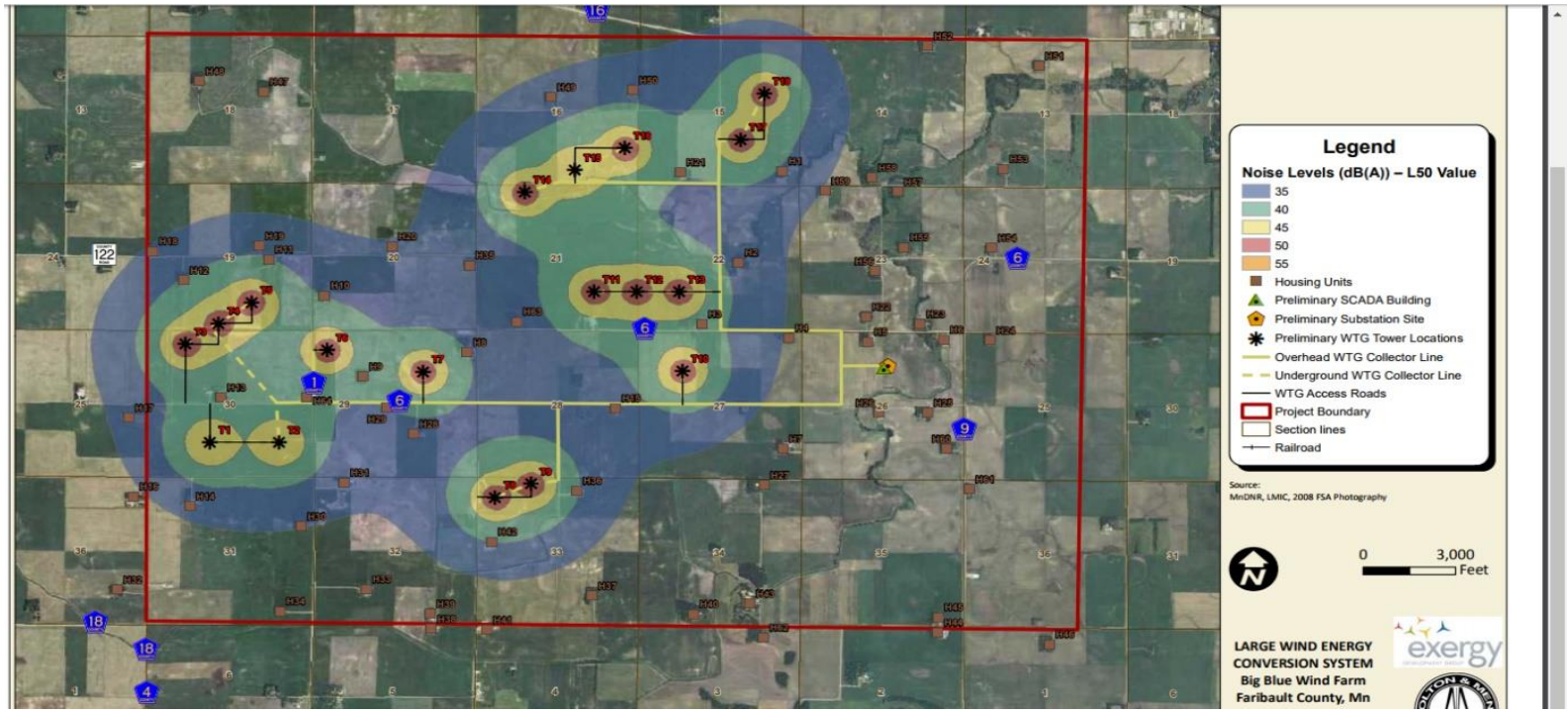
This is the map they submitted on October 12,2011.The red circles are turbine bases of the G97 which supposedly the noise model concluded only 55 db.



This is a screenshot of the actual noise study results of the Repower MM92. Appendix24 Docket # 201012-57189-07. The turbine sites are different.



This is a screen shot of Docket #20177-133620-01 submitted by Mike Rutledge and David Plagge of Fagen Engineering, July 7, 2017.

The Sound Level Warranty listed in the Turbine Supply Agreement specifies that the sound level of the turbines shall not exceed the Lwd value specified in Exhibit Z of the Agreement.

The following table shows estimates of aero-acoustic noise emitted by the rotor or the G97 2MW turbine, with wind speed measured 10 meters above ground level, listed in Exhibit Z.

Wind Speed (m/s)	dB
3	95.3
4	95.9
5	99.6
6	103.0
7	105.6
8	105.8
9	105.8
10	105.8

Results of Noise Study Big Blue Wind Farm, Faribault County, Minnesota 2/5/2013 On Tuesday, February 6, 2013, Michael Rutledge and David Plagge of Fagen Engineering visited Big Blue Wind Farm to measure the noise levels generated by the 18 newly installed Gamesa G97 2MW wind turbines**. The equipment used was a Extech Instruments Model 407736 Sound Level Meter**. Real time wind speeds were obtained using an app on an Android smart phone and verified later using actual met tower data.

The tables below contain results of actual noise measurements taken at each turbine at Big Blue Wind Farm. Measurements were made with a hand-held instrument, 2 meters above ground level with corresponding wind speeds measured 2 meters above ground level. Wind was from the NNW and noise level measurements were taken at the SW side of the tower base.

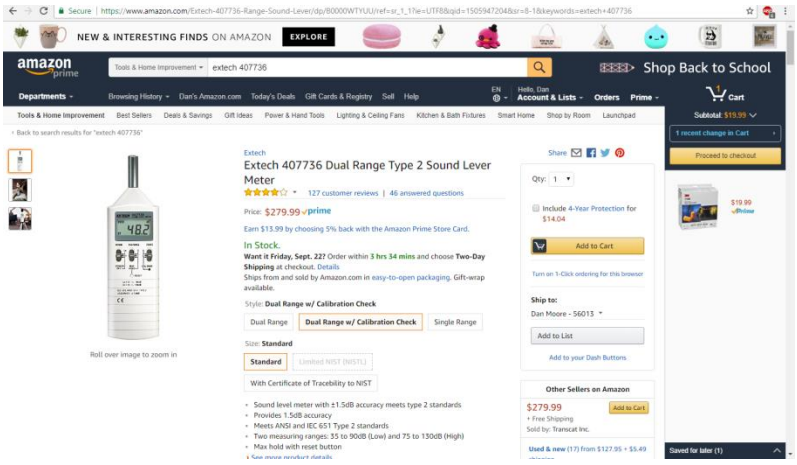
Actual Noise Measurements

Turbine	Wind Speed (m/s)	dB
1	10.7	75
2	10.9	80
3	10.0	80
4	11.1	75
5	10.3	85
6	9.1	75
7	11.3	75
8	9.0	70
9	9.3	75

Turbine	Wind Speed (m/s)	dB
10	10.9	75
11	11.1	75
12	10.6	80
13	11.5	80
14	10.8	75
15	10.3	75
16	10.8	75
17	11.3	75
18	11.1	80

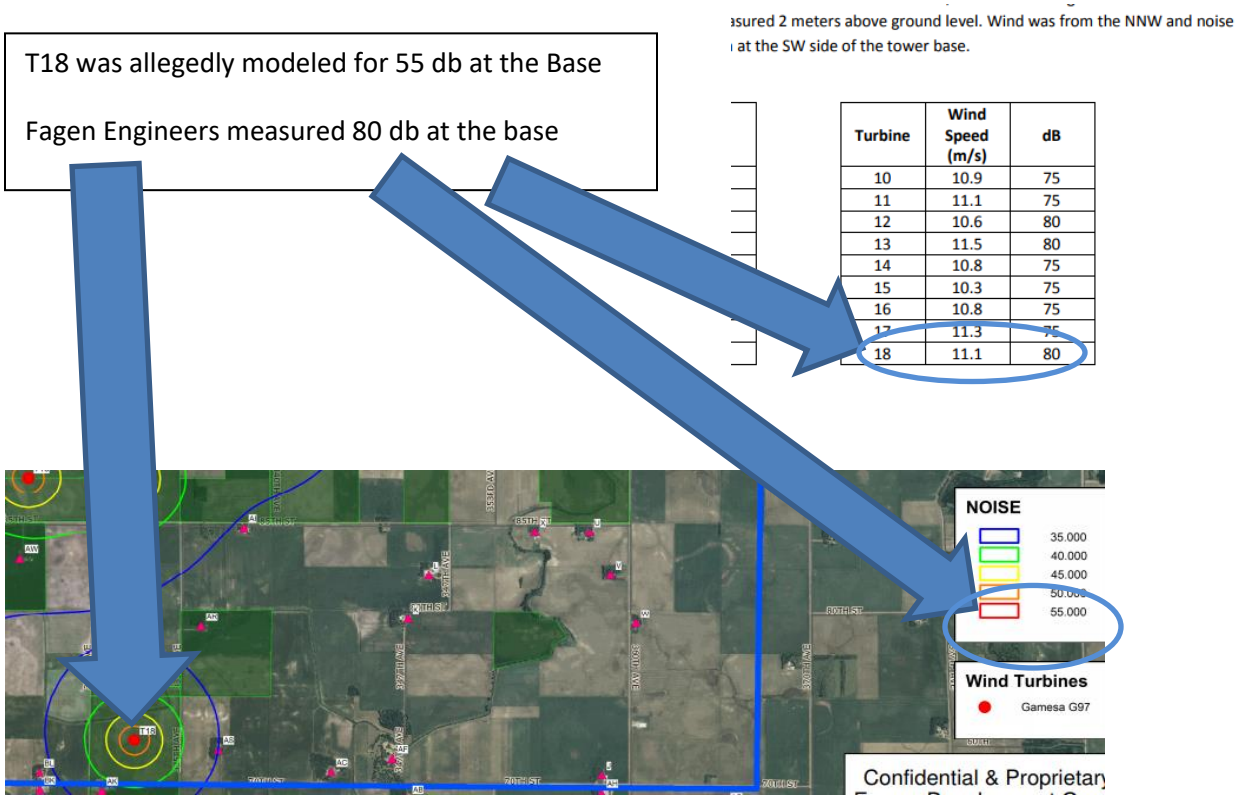
This document says they analyzed the noise at the bases of each turbine using a meter that anyone can get on Amazon for $279 bucks, and their Android App. Was the Extech 407736 Dual Range Type 2 Sound Lever Meter calibrated to log the sound level on the 'A' scale as well as the sound pressure levels in the octave bands from 31.5 Hz to 8,000 Hz? Is this lackluster, thoughtless, and meaningless noise study acceptable to the Commission?

This is the noise meter they used



For example T18, the noise results of Mr. Rutledge and Mr. Plagge from Fagen Engineering study were 35 db HIGHER than the study model. They say the noise study model concluded the turbine at the base would only be 55 db, however when they went out and did the physical noise survey, they found at the base of the turbine was 80 db, or 35 db higher than the model. How can they be this far off? Could it be they modeled one turbine, such as the MM92, and used that data for the G97?

I believe the noise map that was submitted to the commission was fabricated by Big Blue to suit their needs. I also believe they never actually ran any noise study for the G97 turbines, as proven by the 55 db-85 db noise results produced by the Fagen Engineers.



Furthermore, IF Mr. Rutledge and Mr. Plagge from Fagen Engineering's handheld study is acceptable to the Commission and at the turbine base is indeed 80 db, then by using their own mathematical formula, the 1,500 foot blue circle would be much louder than the MPCA allows. Therefore I ask the Site Permit be suspended until the PUC and Big Blue can fix each issue, or revoke the Site Permit completely so decommissioning can begin.

Sincerely,

Dan Moore
Farmer
Blue Earth, MN