

Appendix F
Turbine Noise Analysis Technical Memo

To:	Joyce Pickle		
From:	Gina Ramirez	Project:	Buffalo Ridge II MWT95 Analysis
cc:	Tim Casey		
Date:	September 5, 2008	Job No:	79112

Re: Buffalo Ridge II MWT95 Noise Analysis

Background

This memorandum summarizes the results of the noise analysis performed for the proposed Buffalo Ridge II Wind Farm, using the MWT 95 wind turbine and the Cadna-A model.

Single Turbine Results

Analysis results show that the distance to a predicted SPL of 50 dBA is 160 meters from the mast, resulting from the use of a single MWT 95 as shown in Figure 1.

Figure 1

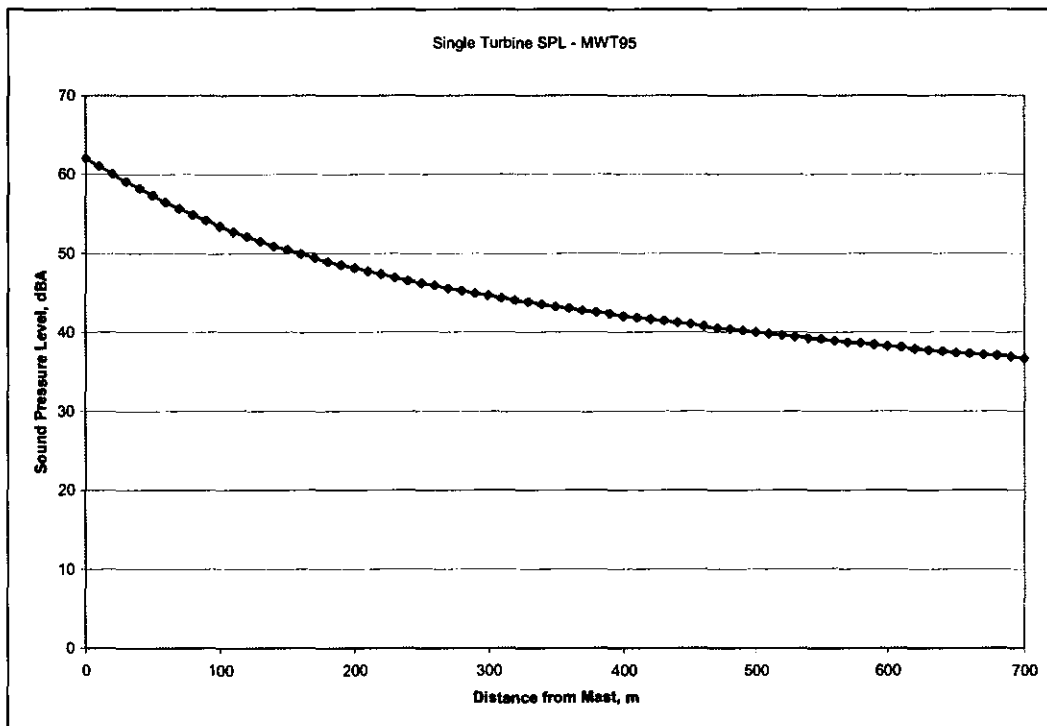
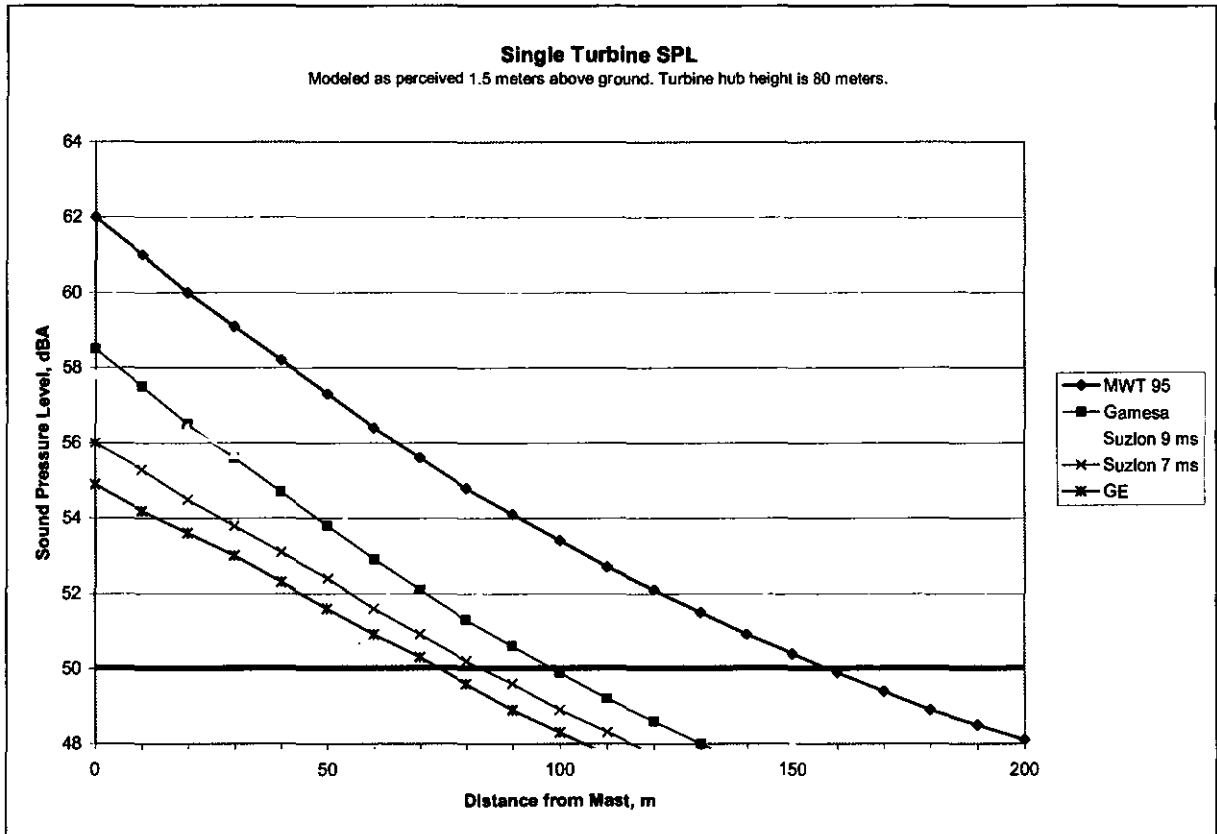


Figure 2 shows the sound levels from each turbine at a distance from the mast. The GE turbine was the quietest, even when operating in its loudest mode with a 50 dBA distance of 75 meters from the base of the mast. The Suzlon turbine had a 50 dBA distance ranging from 85 meters (if operated at the same wind speed as the GE turbine) to 115 meters (for the maximum noise emission). The Gamesa had a 50 dBA distance extending 100 meters from the mast. The MWT95 turbine was the loudest with a 50 dBA distance extending 160 meters from the mast.

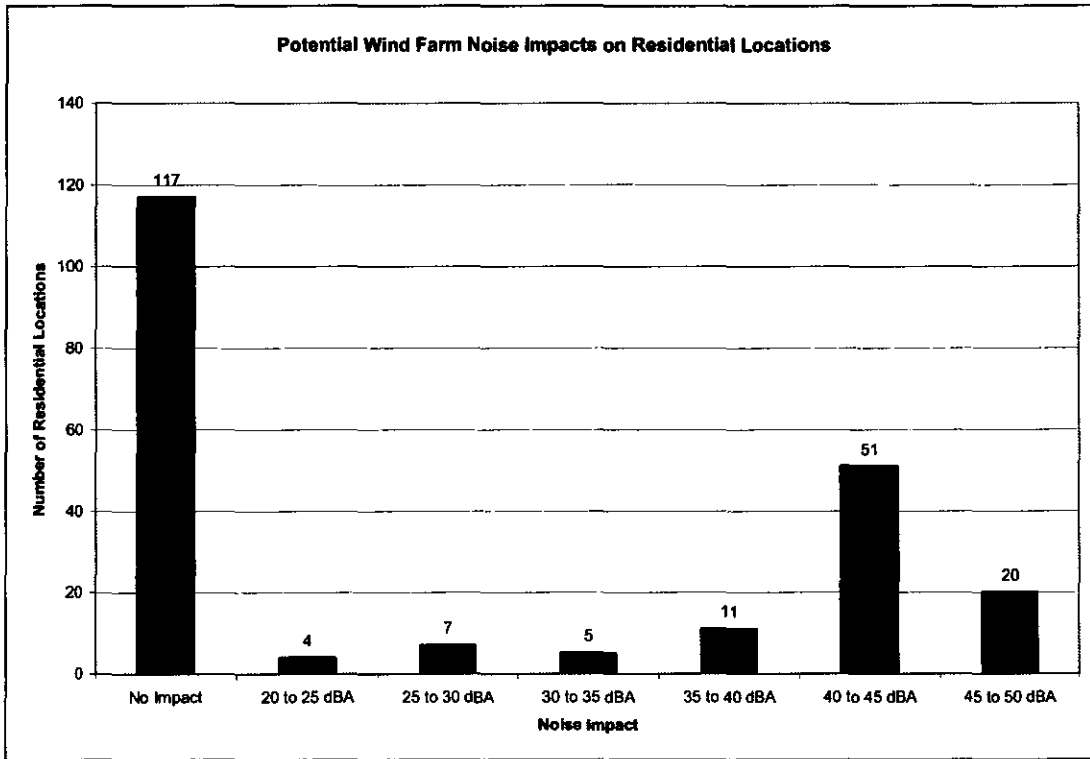
Figure 2



Wind Farm

A model of all proposed and alternate turbines and residential receptors was developed, using the loudest turbine being considered, the MWT95. The site elevation contour data was used along with the site-specific meteorological conditions. Figure 3 shows the number of residences predicted to experience wind turbine noise levels between 20 dBA and 50 dBA. No residential receptors are predicted to experience wind turbine noise levels of 50 dBA.

Figure 3



Conclusions

Analysis results indicate that the MWT95 is the loudest of the four turbines evaluated, with a sound pressure level of 111 dBA, under unknown wind speed conditions and unknown distance. Noise emissions from a single MWT95 turbine produce a 50 dBA contour line approximately 160 meters from the turbine mast.

Analysis results also indicate that noise levels associated with the simultaneous operation of all turbines proposed at the Buffalo Ridge II development are not predicted to reach 50 dBA at any residential receptor included in this analysis of the project area. The loudest noise exposure calculated at a residence was 48 dBA. This statement applies to the footprint of residences in the project area, and not to the entire parcel upon which a residence exists. Analysis results are expressed as an hourly equivalent noise level (Leq).