

**SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

**CASE NO. EL05-022**

**IN THE MATTER OF THE APPLICATION BY OTTER TAIL POWER COMPANY**

**ON BEHALF OF THE BIG STONE II CO-OWNERS**

**FOR AN ENERGY CONVERSION FACILITY SITING PERMIT FOR THE**

**CONSTRUCTION OF THE BIG STONE II PROJECT**

**DIRECT TESTIMONY**

**OF**

**ANDREW SKOGLUND**

**ACOUSTICAL ENGINEER**

**BARR ENGINEERING COMPANY**

**MARCH 15, 2006**



1  
2  
3  
4  
5

**TESTIMONY OF ANDREW J. SKOGLUND**

**TABLE OF CONTENTS**

I. INTRODUCTION ..... 1

II. NOISE..... 2

1           **BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

2                           **DIRECT TESTIMONY OF ANDREW J. SKOGLUND**

3   **I.     INTRODUCTION**

4   **Q:     Please state your name and business address.**

5   A:     Andrew J. Skoglund, 4700 West 77<sup>th</sup> St., Suite 200, Minneapolis, MN 55435-4803.

6   **Q:     By whom are you employed and in what capacity?**

7   A:     I am employed by Barr Engineering Co. as an Acoustical Engineer.

8   **Q:     What is your educational background?**

9   A:     I graduated from Iowa State University in 2004 with a Bachelor of Science degree in  
10   Engineering Science with a focus in acoustics. This included studies in the areas of indoor and  
11   outdoor acoustics, attenuation and propagation of noise and vibration, finite elements analysis,  
12   and non-destructive evaluation. I performed a study of the noise behavior of a commercial  
13   blender and options to attenuate its noise, as well as a vibration study of sanding discs.

14   **Q:     What is your employment history?**

15   A:     I started working at Barr Engineering Co. in 2004.

16   **Q:     What work experience have you had that is relevant to your testimony?**

17   A:     I have been involved in the permitting process for several mining and power industry  
18   clients, performing both noise analysis and air quality modeling. I performed noise monitoring  
19   for the City of Inver Grove Heights, MN. This involved monitoring the noise levels being  
20   emitted from a warehouse facility adjacent to residences. I also modeled future noise effects of  
21   Xcel Energy's High Bridge Combined Cycle Project. This involved modeling of a proposed  
22   power generation facility in close proximity to residential development. My air quality modeling

1 experience involves primarily Class I dispersion modeling using the CALPUFF suite of  
 2 software. I also have some experience running ISC-PRIME and AERMOD.

3 **II. NOISE**

4 **Q: Were you involved in evaluating the potential noise impacts of the proposed Big**  
 5 **Stone Unit II?**

6 A: **Yes.**

7 **Q: Please describe your involvement.**

8 A: I performed on-site monitoring of existing noise levels around the current Big Stone  
 9 facility on June 23 and 24, 2005. I also performed noise modeling of the proposed Big Stone  
 10 Unit II, analyzing the potential for impact on surrounding properties.

11 **Q: Did you prepare any particular sections of the Application?**

12 A: I prepared Section 4.5.4 of the Application, which reflects the results of the noise  
 13 monitoring and noise modeling.

14 **Q: How did you obtain ambient noise levels at the plant site?**

15 A: I obtained the existing noise levels at the facility myself, using several calibrated  
 16 NoisePro DLX units. These units were placed at four locations around the plant for a 24 hour  
 17 period June 23-24, 2005. Locations were chosen to be representative of surrounding receptors.  
 18 Noise levels for the proposed equipment were provided by Burns and McDonnell.

19 **Q: Did you consider noise emissions associated with equipment to be used at the site?**

20 A: Yes. The noise levels of the equipment that will be part of Big Stone Unit II, used in the  
 21 modeling, were provided by Burns and McDonnell. This data consisted of the sound power  
 22 levels emitted, divided into octave bands.

23 **Q: How did you estimate future noise levels after Big Stone Unit II is in operation?**

1 A: I analyzed the potential noise levels using the SPM9613 computer model. This model  
 2 implements the International Standards Organization (ISO) 9613 standard for calculating the  
 3 propagation and attenuation of outdoor noise. Combination of the modeled results with the  
 4 existing background was used to give an estimate of the future noise environment.

5 **Q: Will snow machines be utilized in the maintenance of the ponds after Big Stone Unit**  
 6 **II is in operation?**

7 A: No. Snow machines located on evaporation pond dikes have previously been used to  
 8 enhance evaporation of water from the plant evaporation pond. This noise source, discussed in  
 9 Section 4.5.4 of the Application, will be eliminated as part of the Big Stone Unit II construction  
 10 and associated changes in plant water management.

11 **Q: Are there any federal, state, and local requirements related to noise applicable to**  
 12 **Big Stone Unit II?**

13 A: There are no specific federal, South Dakota, or local quantitative standards applicable to  
 14 noise for the Big Stone Unit II site. Minnesota noise standards were used for reference purposes  
 15 only. The proposed Big Stone Unit II site will comply with the Minnesota noise standards.

16 **Q: What are the results of your evaluation of the potential noise impacts?**

17 A: No significantly greater noise effects are expected from Big Stone Unit II compared to  
 18 existing conditions. South Dakota has no applicable noise standards. A comparison was made  
 19 to Minnesota standards, which would apply if the plant were located in Minnesota, and Big  
 20 Stone Unit II will be in compliance with those standards.

21 **Q: Does this conclude your testimony?**

22 A: Yes.

23