



MURRAY AND TRETTEL, INCORPORATED

To: Todd Hapak, Exelon Nuclear
LaSalle County Station

RE: LaSalle County Station meteorological monitoring tower wind study

Date: June 4, 2009

INTRODUCTION:

In late 2007, wind turbines began being erected near Exelon's LaSalle County Station. The turbines were erected primarily to the west and southwest of the site's meteorological monitoring tower. Todd Hapak from Exelon Nuclear asked Murray and Trettel to review wind speed and direction data from LaSalle's meteorological monitoring tower both prior to and after the installation of the wind turbines. This study is intended to determine what if any impact the wind turbines have had on the average wind speed and wind direction being monitored at the LaSalle County Station.

METHODOLOGY:

Murray and Trettel has archived meteorological data from the LaSalle County Station dating back to the installation of the meteorological monitoring tower. For this wind study, six years of data were utilized. The years 2002 through 2006 were used as a baseline for average wind speed and wind direction. The years 2002 through 2006 were used as they were the last five complete years of data that exist prior to the installation of the wind turbines in late 2007. Data from 2008 (the first full year after the beginning of the installation of the wind turbines) was used as a comparison to the 2002 through 2006 data.

Tables providing average wind speed by direction in 10 degree increments (10 through 360) and percent frequency of wind by direction were generated for each LaSalle meteorological monitoring tower elevation (the tower is instrumented at and wind data is collected from the 33 foot, 200 foot and 375 foot tower elevation). A tables was generated for the combined years 2002 through 2006 as well as the individual years 2002 through 2006 and 2008 (a total of 21 tables were produced). These tables are included at the end of this report in appendix A.

Also produced were wind tables for Dresden (35 foot, 150 foot and 300 foot levels) for the years 2002 through 2006 and 2008. Dresden was used as a comparison to LaSalle since it is the closest three level tower. Any data variances that were evident at LaSalle

(2002 through 2006 data as compared to 2008 data) were compared to variances for the same time period. Appendix B contains the Dresden wind tables.

Average X/Q and D/Q values for the nearest residents to LaSalle for the five year period 2002-2006 were compared to X/Q and D/Q values for 2008.

RESULTS:

Lower wind speed and wind direction frequency in the northeast and southwest sectors was evident in the LaSalle data when comparing 2008 data to the 2002 through 2006 data. The lower speeds and percent frequency in the northeast and southwest sectors was evident at all three measurement heights (33 ft, 200 ft and 375 ft). Appendix C contains tables comparing pre turbine data (2002 through 2006) to post turbine data (2008).

A review of wind data from Dresden for all three measurement levels (35 ft, 150 ft and 300 ft) yielded similar results. Reduced wind speeds and lower percent frequency of occurrence of winds in the northeast and southwest sectors in 2008 as compared to the 2002-2006 average was evident. Appendix D contains tables comparing 2002 through 2006 data to 2008 data from the Dresden meteorological monitoring tower.

The LaSalle data indicated a more noticeable decrease in wind speed in the southwest to west sectors for 2008 (compared to the 2002-2006 baseline) when compared to Dresden. The closest wind turbines to the LaSalle meteorological monitoring tower are to the west and southwest.

Overall, annual average wind speed was slightly higher at LaSalle and Dresden at each elevation in 2008 as compared to the five year (2002-2006) average (approximately 0.3 mph at LaSalle and 0.5 mph at Dresden).

X/Q and D/Q values for 2008 for the nearest residents to LaSalle did not differ in any significant way from the five year average (2002-2006).

CONCLUSION/RECOMMENDATION:

Similar trends in wind speed and wind direction percent frequency of occurrence were found at LaSalle and Dresden when comparing 2008 site specific data to the five year averages compiled for 2002 through 2006.

A more pronounced reduction in wind speed in 2008 in the southwest to west sectors at LaSalle was evident. The closest wind turbines to the meteorological monitoring tower at LaSalle are to the west and southwest.

No significant differences in X/Q and D/Q data were apparent when comparing the 2008 values to the five year (2002-2006) average X/Q and D/Q values.

A great deal of variability in wind speed and directional frequency can occur in a single year when compared to a long term average (5 years or more).

Due to the variability of winds on an annual basis, it is recommended that 2009 wind data, when available, be compared to the long term (2002-2006) data as has been done for 2008 in this study. Data from Dresden for 2009 should also be analyzed for comparison purposes. A longer period of record (post turbine installation) will assist in determining whether the turbines are having an impact on the wind data being collected on the LaSalle meteorological monitoring tower.