



## **REABE SPRAYING SERVICE, INC.**

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Better Plan, Wisconsin  
PO Box 393  
Footville, WI 53537

Better Plan, Wisconsin:

This letter is intended to inform you of Reabe Spraying Service's perception of hazards to aerial applicators when operating in or near wind farm developments. Large commercial wind farms create distraction, obstruction, and wake turbulence hazards that are life threatening to aerial applicators.

Modern wind turbines are very large structures, measuring approximately 400 feet high with a blade diameter of up to 270 feet. When you combine the physical size of these structures with blade rotation, the result is an object that captures your attention visually. Aerial application operations take place at low levels near obstructions such as power lines, trees, and buildings. Aerial applicators must divide their attention between aircraft systems, treatment volumes, swath spacing, aircraft performance, weather, and obstruction avoidance. When operating within a wind farm, the visual distraction created by the wind turbines further divides the pilot's attention, exponentially increasing the likelihood of a life threatening error.

In a typical commercial wind farm there are approximately 2.5 turbines per square mile. In any given aerial application operation, a radius of one mile from the target site is utilized for maneuvering between swath runs, equating to an operations area of approximately three square miles. This results in approximately seven turbines within the operations area. Unlike other obstructions that aerial applicators must avoid, wind turbines are taller than the maximum height achieved during the turnaround. This means that a pilot never reaches a safe altitude allowing the pilot to check aircraft systems, treatment volumes, etc. Simply said, the number and height of wind turbines within an aerial application area, exponentially increases the likelihood of a life threatening error.

Finally we come to the hazard of wake turbulence. This hazard is the most dangerous because it is invisible. All airfoils in motion create wake turbulence. The turbulence created is proportional to the weight and angle of attack of the airfoil; the heavier the weight and greater the angle of attack, the greater the wake turbulence. A commercial wind turbine's three blades can weigh as much as 40,000 pounds and operate at a very high angle of attack. The result is turbulence severe enough to induce loss of control to an aerial application aircraft. Again, this hazard is invisible and difficult to avoid while performing all of the other tasks necessary to perform an aerial application safely.

Due to the potential hazards mentioned above, Reabe Spraying Service has elected not to operate within the lateral boundaries of commercial wind farms.

Sincerely,

Tom Reabe  
President, Reabe Spraying Service  
Waupun, WI 53963