

Clifford (Clif) Groth, SRE

Senior Radio Engineer - 50+ years

Broadcast Engineering Service

521 Autumn Crest Drive Watertown, WI 53094-5916

Additional Report on the proposed WBKY radio tower, Rutland Township, Dane County, Wisconsin, to address concerns regarding “stray voltage.”

For: Edge Consulting, Sauk-Prairie, WI

Purpose: My services have again been retained by Edge Consulting to provide additional input regarding questions on “stray voltage” from the proposed radio tower. My experience with radio towers spans more than 50 year as outlined in my May 27, 2014 report.

I have first hand knowledge on “stray voltage” being a farm owner, working with my son's electrical firm at actual farm sites and one direct incident. That incident was brought to my attention at a farm where one of our towers was located.

Cause and results from “stray voltage:”

The direct incident noted above came from a farmer who noted cattle seemed to be getting electrical shocks while in a barn at milking time. I was asked if it was possibly coming from our transmitter that was consuming over 21,000 watts of electrical energy. I offered to help locate the problem. It turned out to be “stray voltage.” A ground on an electric fencer was connected to a vacuum pump pipe and cattle stanchions that were not grounded. When cattle drank from the grounded water feeders they were in the path of “stray voltage.”

We were able to able to measure voltages approaching nearly one-half the 120 volt line. Once all the piping was electrically connected and the fencer was separately grounded with a proper ground rod, the measured voltage was reduced to zero.