

Introduction to Stray Voltage

May 9, 2017

Stray Voltage Testing

May 10-11, 2017



WE Energies Service Center
1300 Janesville Avenue
Fort Atkinson, Wisconsin 53538

Developed by

University of Wisconsin Biological Systems
Engineering Department

Public Service Commission of Wisconsin

Wisconsin Department of Agriculture, Trade and
Consumer Protection

The series of stray voltage investigators' courses have been designed to reduce time in the classroom and improve knowledge retention by combining web-based instructional modules with our classroom sessions. You will review basic materials at home before attending the course. When you enroll for a course you will be sent instructions on accessing the web-based instructional material. You will need to successfully complete these instructional modules before attending the classroom session. Each instructional module will have a short quiz to test your knowledge. After the classroom session, you will take a "final exam" online. An Advanced Level class is being planned for later in the fall.

Course Organizers and Instructors:

Brian Costello is a Senior Agricultural Representative for Alliant Energy. As a stray voltage investigator, Brian has conducted more than 350 investigations in his 10 years at Alliant Energy. He has been assisting with the Stray Voltage Investigator Training classes for the past 6 years.

Robert Fick, PhD, PE, is Lead Agricultural Engineer at Alliant Energy and adjunct professor of Biological Systems Engineering at the University of Wisconsin. He has helped develop stray voltage rules and protocols for the State of Michigan and has taught stray voltage classes at Michigan State University and the University of Wisconsin for the last 20 years and helped develop the Wisconsin Farm Wiring Classes.

Michael Haas, PE, is a Principal Engineer for the Agriculture Services department at We Energies. In the past 10 years, he has had a wide variety of responsibilities ranging from performing numerous stray voltage investigations to working as an expert witness. Presently at We Energies, Michael's duties are focused around providing support, training, and technical assistance for the agriculture representatives.

Paul Ortmann is a Senior Electrical Engineer with Idaho Power Company. He has been involved in the investigation of stray voltage for several years, and has taught classes on stray voltage in Wisconsin, Minnesota, and Idaho. Paul has also been involved in the development of stray voltage rules and investigation protocols.

Douglas J. Reinemann, PhD is professor of Biological Systems Engineering at the University of Wisconsin-Madison. He has Extension, research and teaching appointments in the areas of machine milking and rural energy issues. He has conducted research and educational programs on stray voltage since 1990.

Tom Seidl, PE, is a Principle Engineer with WE Energies, a Wisconsin utility. In the course of his duties, he has been conducting stray voltage investigation and analysis for over 25 years. He has been involved in stray voltage investigator training for the last 15 years, and participated in the development of the training class for electricians participating in Wisconsin's Farmstead Rewiring Program. He is a Registered Professional Engineer in the State of Wisconsin.

Introduction to Stray Voltage Tuesday, May 9, 2017

The introductory course is for those new to the topic of stray voltage. It is designed to give dairy producers and agricultural professionals a basic understanding of stray voltage sources and solutions and includes a demonstration of simple spot check measurements for stray voltage.

COURSE TOPICS INCLUDE:

- ◆ Basic Electrical Knowledge
- ◆ Utility and Farm Circuits
- ◆ Review of Animal Research
- ◆ Stray Voltage Rules and Regulations
- ◆ Voltage Spot Checks

COURSE SCHEDULE:

May 9: 8:00 am - 5:00 pm - Lunch and Dinner included

Stray Voltage Testing Wednesday-Thursday, May 10-11, 2017

The testing course is designed to give the professional stray voltage investigator the tools required to collect the data required for a complete stray voltage investigation. Students will gain an understanding of the farm and utility circuits associated with stray voltage and measurement techniques to determine the sources of voltage and current on a farm. This course includes farm visits and a hands-on exercise during which the student will work with an experienced stray voltage investigator and perform all of the standard measurements of a stray voltage investigation.

COURSE TOPICS INCLUDE:

- ◆ Review of Electrical Calculation Methods
- ◆ Stray Voltage Circuits and Sources
- ◆ Agricultural Electrical Code
- ◆ Customer Relations
- ◆ Stray Voltage Measurement Tools
- ◆ Measurement Techniques and Data Recording
- ◆ Hands-On Stray Voltage Investigation in Small Groups, and Data Analysis

COURSE SCHEDULE:

May 10: 8:00 am - 5:00 pm - Lunch and Dinner included

May 11: 8:00 am - 12:00 pm - Lunch included

General Information

REGISTRATION FEES:

**Introduction to Stray Voltage \$175
\$200 if registered after May 1, 2017**

Fee includes registration, materials, breaks, lunch and dinner.

**Stray Voltage Testing \$350
\$400 if registered after May 1, 2017**

Fee includes registration, materials, breaks, lunch and dinner on Wednesday and lunch on Thursday.

An **Advanced Stray Voltage** class is being planned for later this fall. Visit www.mrec.org for information.

Make checks payable to: UW-Madison.

Class sizes will be limited to 40 registrants.

Registration will be filled on a first come/first served basis. Information will be emailed to confirm your registration.

Mail to: CALS Conference Services, 640 Babcock Drive, Madison, Wisconsin 53706 or FAX your registration form to (608) 262-5088.

Online: <http://www.cals.wisc.edu/ccs/CurrentPrograms.html>

Please advise us at the time of registration if you have a disability and desire special accommodations. Requests will be kept confidential.

COURSE LOCATION: WE Energies Service Center, 1300 Janesville Avenue, Fort Atkinson, WI 53538

LODGING OPTIONS: Americas Best Value-Courtyard Inn, 1225 Janesville Avenue, Fort Atkinson, (920) 563-6444.

Holiday Inn Express, 1680 Madison Avenue, Fort Atkinson, (920) 563-3600.

Please make your own hotel reservations by calling the hotel of your choice.

CANCELLATIONS/REFUNDS: If you are unable to attend, please notify CALS Conference Services immediately at (608) 263-1672. To receive a full refund, you must contact CALS Conference Services seven days before the course starts. After that date, a \$75 cancellation fee will be charged. If you fail to cancel, no refund will be granted.

Registration Form

Introduction to Stray Voltage
May 9, 2017

Stray Voltage Testing
May 10-11, 2017

MAIL/FAX TO: CALS Conference Services
640 Babcock Drive
Madison, Wisconsin 53706
Fax: (608) 262-5088

ONLINE: <http://www.cals.wisc.edu/ccs/CurrentPrograms.html>

Fill out a **separate** registration form (or copy) for each registrant. *Print clearly or type*

Name _____

Company _____

Address _____

City/State/Zip _____

Daytime Phone _____

Email _____

**Introduction to Stray Voltage \$175
\$200 if registered after May 1, 2017**

**Stray Voltage Testing \$350
\$400 if registered after April 25, 2016**

Enclose fee. Payment must be made at time of registration.

Make checks payable to UW-Madison.

Please charge to the following account:

Visa MC AMEX DISC

Expiration Date _____

Credit Card # _____

Name on Card _____

Signature _____