

INTRODUCTION TO STRAY VOLTAGE TRAINING COURSE

May 16, 2005

Arlington Agricultural
Research Station
Arlington, Wisconsin

STRAY VOLTAGE INVESTIGATION

May 17-19, 2005

Arlington Agricultural
Research Station
Arlington, Wisconsin

ADVANCED STRAY VOLTAGE INVESTIGATION

October 25-27, 2005

InnTowner-Best Western Hotel
Madison, Wisconsin

Developed by

University of Wisconsin
Biological Systems Engineering Dept.
Public Service Commission of Wisconsin
Wisconsin Department of Agriculture,
Trade and Consumer Protection

COURSE ORGANIZERS AND INSTRUCTORS

Mark Cook is certified as a Master Electrician and Electrical Inspector by the State of Wisconsin. He has been employed by the Public Service Commission of Wisconsin as a member of the Rural Electric Power Services program for over fifteen years and was also a member of Wisconsin's Stray Voltage Task Force in 1986 and 1987. Mark has been a practicing electrician for over twenty years.

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. For more information about Dr. Reinemann's research visit his web page www.uwex.edu/uwrmrl.

INTRODUCTION TO STRAY VOLTAGE ARLINGTON AGRICULTURAL RESEARCH STATION MAY 16, 2005

The series of Stray Voltage Educational Programs offered at the University of Wisconsin has been designed to target participants with different levels of technical background.

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 16: 8:00 am - 5:00 pm - Continental Breakfast and Lunch Included

LOCATION

ARLINGTON AGRICULTURAL RESEARCH STATION

N695 Hopkins Rd.
Arlington, WI 53911
Phone: 608-846-3761
Fax: 608-846-3920

LODGING

A block of rooms has been reserved at the Days Inn in DeForest, WI (608)-846-7473. The block will be held until April 14, 2005; after that date the rooms will be sold on a first request basis. To receive the conference room rate (\$52.20/S, \$62.10/D), mention that you will be attending the Introduction to Stray Voltage Course.

OTHER INSTRUCTORS

Jim Biesterveld, Dunn Energy Cooperative
Pete Enstrom, WE Energies
Robert Fick, PhD, PE, Alliant Energy
Chuck Forster, PE, Phasor Labs
Dave Hansen, WDATCP
Roger O'Neil, Xcel Energy
Mike Paffel, Xcel Energy
John Roberts, DVM, WDATCP
Richard Reines, Public Service Commission of WI
Tom Seidl, PE, WE Energies
Jim Thiede, PE, WI Public Service Corporation

STRAY VOLTAGE INVESTIGATION ARLINGTON AGRICULTURAL RESEARCH STATION MAY 17-19, 2005

The investigation 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 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, Data Analysis and Group Reports

COURSE SCHEDULE

May 17: 9:00 am - 8:00 pm - Continental Breakfast, Lunch and Supper Included

May 18: 7:00 am - 5:00 pm - Breakfast and Lunch Included

May 19: 7:00 am - 12:45 pm - Breakfast Included

LODGING

A block of rooms has been reserved at the Days Inn in DeForest, WI (608)-846-7473. The block will be held until April 14, 2005; after that date the rooms will be sold on a first request basis. To receive the conference room rate (\$52.20/S, \$62.10/D), mention that you will be attending the Stray Voltage Investigators Training Course.

**ADVANCED STRAY VOLTAGE INVESTIGATION
THE INNTOWNER BEST WESTERN
OCTOBER 25-27, 2005**

This advanced course is designed to develop analytical skills of the experienced stray voltage investigator. This course is designed to give the professional stray voltage investigator detailed technical information for a complete stray voltage investigation, including determination of sources and mitigation methods.

The program draws upon extensive field experience gained by the Public Service Commission of Wisconsin, electric power suppliers and nationally recognized experts. This is an interactive course that is focused on circuit analysis and small group evaluation of data from actual stray voltage investigators. Students will work in small groups with an experienced investigator to do a case study and use the analysis tools presented in the course.

Over 500 stray voltage investigators have attended this course. A new module has been added to give participants hands-on-experience with the latest electrical test equipment for high frequency measurements.

LOCATION

InnTowner Hotel
2424 University Avenue
Madison, WI 53705
(608) 233-8778

A block of rooms has been reserved at the InnTowner Hotel (\$84S/\$94D). The block will be held up to one month prior to the meeting; after that date the rooms will be sold on a first request basis. To receive the conference room rate, mention that you will be attending the Advanced Stray Voltage Investigators Training Course.

INSTRUCTORS

See course organizers and instructors

COORDINATORS

Roger Kasper, Wisconsin Department of Agriculture, Trade & Consumer Protection

Lorna Vinger, Public Service Commission of WI

COURSE TOPICS INCLUDE:

- ♦ **Utility Service Transformations**
- ♦ **Factors Contributing to Stray Voltage from Utility Systems**
- ♦ **Electrical Code Update for Agricultural Buildings**
- ♦ **Factors Contributing to Stray Voltage from the Farm Wiring System**
- ♦ **Advanced Measurement Techniques and Source Determination**
- ♦ **High Frequency Measurement Equipment and Methods**
 - ♦ Capabilities of Various Commercial Stray Voltage Measuring Devices
 - ♦ Use and Misuse of Data Loggers for Stray Voltage Investigations
 - ♦ Interpreting Field Data
- ♦ **Special Stray Voltage Mitigation Techniques**
- ♦ **Review of Research**
 - ♦ Low Level Contact Voltage and Animal Health
 - ♦ High Frequency Events and Animal Responses
- ♦ **Review of International Research Publications**
- ♦ **Case Studies - Small Group Exercise with Experienced Investigator**
- ♦ **Case Study Reports and Discussion**

COURSE SCHEDULE

- October 25**
11:30 pm - 8:00 pm - Light Lunch and Supper Included
- October 26**
8:00 am - 5:00 pm - Breakfast and Lunch Included
- October 27**
8:00 am - 2:00 pm - Breakfast and Light Lunch Included

GENERAL INFORMATION

REGISTRATION FEES

**Introduction to Stray Voltage \$120
\$100 if postmarked before April 29, 2005**
Fee includes registration, conference materials and lunch.

**Stray Voltage Investigation \$360
\$300 if postmarked before April 29, 2005**
Fee includes registration, conference materials, all breaks, breakfast, lunch and supper on Tuesday, breakfast and lunch on Wednesday and breakfast on Thursday.

**Advanced Stray Voltage Investigation \$650
\$600 if postmarked before October 7, 2005**
Fee includes registration, conference materials, all breaks, lunch and supper on Tuesday, breakfast and lunch on Wednesday and Thursday.

Make checks payable to: **UW-Madison.**
Class size will be limited to 30 registrants.
Registration will be filled on a first come/first served basis.

Information will be sent to confirm your registration and provide detailed information on location, class schedule and accommodations.

Mail to: CALS Conference Services, 620 Babcock Drive, Madison, Wisconsin 53706 or FAX your registration form to (608) 262-5088.

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

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.

CONTINUING EDUCATION UNITS

This course meets criteria for the nationally accepted Continuing Education Unit. To obtain a copy of your CEU transcript, call (608) 262-6215.

REGISTRATION FORM

**Introduction to Stray Voltage
May 16, 2005**

**Stray Voltage Investigation
May 17-19, 2005**

**Advanced Stray Voltage Investigation
October 25-27, 2005**

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

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

Print clearly or type

Name _____

Company _____

Address _____
Home or Business

City/State/Zip _____

Daytime Phone _____

**Introduction to Stray Voltage \$120
\$100 if postmarked before April 29, 2005**

**Stray Voltage Investigation \$360
\$300 if postmarked before April 29, 2005**

**Advanced Stray Voltage Investigation \$650
\$600 if postmarked before October 7, 2005**

Enclose fee. Make checks payable to **UW-Madison.**

I will be paying by purchase order.

PO# _____

Please charge to the following account:

Visa _____ Mastercard _____ Expiration Date _____
Credit Card # _____
Name on Card _____
Signature _____

I cannot attend but please add my name to the Stray Voltage mailing list.