Georgia Tech NEETRAC National Electric Energy Testing, Research and Applications Center

NEETRAC NEWS

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In This Issue...

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Arc Fault Resistance Testing

Screening tests were just completed in June at the NEETRAC NJCL for Baseline Project No. 17-046, *Arc Fault Resistance of Cable Conduits*. Full testing will be performed in August. Shown here is a 20 kA, 10½ cycle fault on a 15 kV cable with a 500 kcmil copper conductor in a 4-inch HDPE conduit. Do you have your Technical Advisors assigned?

Baseline Projects Recently Launched

NEETRAC is launching the following Baseline project proposals presented during the February 2018 Management Board Meeting based on input from the Management Board.

Optimized Methodology for Collecting Topical Information for NEETRAC Members

Baseline Project Number 18-056

Knowing what other companies are doing with respect to operating practices, material applications, or problem resolution can help Members stay abreast of new technologies and practices or find optimal solutions to everyday operational problems. Many companies do not have the resources to perform benchmarking activities. However, NEETRAC, with its broad array of Members and contacts, is ideally suited to perform benchmarking surveys. This project will help Members utilize NEETRAC for that purpose by developing a methodology for quickly gathering information/data from NEETRAC Members (and others). Once developed, Members will have a quick, efficient method for conducting benchmarking surveys that will provide them with the needed information on a specific topic of interest.

Coating Evaluation Program

Baseline Project Number 18-060

With many steel transmission and distribution line structures dating back into the 60s or earlier, rust repair needs are increasing. Previous NEETRAC research discovered that several utilities have restarted painting programs to remediate and prevent corrosion but there remain questions about which repair techniques are the most effective. This project will provide detailed information regarding the performance of specific coating systems, including rust converters and traditional paint systems, that are identified by Members.

Assessing the Loss of Performance in Mature Field Aged Cables

Baseline Project Number 18-057

It is difficult to know the true performance of extruded underground cables installed over the last 20 or so years for several reasons. First, current industry information on cable aging in the field is based on designs and manufacturing principles that were not used in North America. Second, accelerated aging tests in the laboratory do not produce the same type of aging that occurs in service. It is assumed that cables installed over the last 20 years perform better than earlier vintages, but the true degree of improvement is unclear. This project will conduct aging assessments on long lengths of extruded cables removed from service, including cables with XLPE, TRXLPE, and EPR insulations. Aging assessment data will then be correlated to laboratory and factory data on new cables. This will give Members an increased understanding of technologies commonly used in North America for field aging of cables.

Cable System Fire Proofing Test Program Development

Baseline Project Number 18-032

When an underground cable system fails, the resulting plasma can cause the faulted cable to ignite. In vaults/manholes/tunnels, this resulting fire can damage adjacent cables and equipment. Many different approaches can be used to protect cables from fire, however, there is currently no systematic technique for evaluating the efficacy of those approaches. In this project, a test protocol, based on a search of relevant literature and input from the project Technical Advisors, will be developed as a means to establish fire ratings for different cable system fire protection techniques.

Do You Use Wildlife Guards and Deterrents?

To improve reliability, utilities often use wildlife guards and deterrents to mitigate intermittent contact between wildlife and energized components. In 2001, NEETRAC's utility members were beginning to install these relatively new devices, but did not have a way to determine if they would help with the contact issue or, worse, harm system performance. To address this, NEETRAC began a series of projects to develop tests that would provide information for both manufacturers and users about the electrical, mechanical and durability performance of wildlife protective products.

An IEEE working group (P1656) was established under the IEEE Distribution subcommittee to develop a guide for use by the industry. Its purpose was to provide test recommendations that would help users assure that installation of these products would not compromise the electrical performance of the supporting structure or cause premature failure due to normal environmental conditions. Over the course of a decade, over $500k in NEETRAC Baseline research funds were used to conduct extensive testing on various types of wildlife guards and deterrents. These results were used to develop test methods that the IEEE working group incorporated into the guide document, IEEE 1656-2010.

It is now 2018, NEETRAC would like to understand how this guide is utilized by your company. Please send a quick email to Caryn Riley at caryn.riley@neetrac.gatech.edu letting her know your experience. In particular, we would like to know:

- For utilities - do your distribution standards or purchase specifications reference this guide?
- For manufacturers – do you utilize this guide to assist in developing new products or product ratings?

The guide will go inactive shortly without the backing of the industry at IEEE. A proposal will be presented to the NEETRAC board in September to support NEETRAC resources in assisting with maintaining the guide as an active IEEE document. Please contact your NEETRAC management board representative if you have any suggestions or comments on this topic.

Where to Find NEETRAC

NEETRAC staff members regularly attend and participate in industry conferences and meeting around the world. Here is a list of upcoming event(s) where you will find NEETRAC representation.

- **IEEE PES General Meeting** - August 2018 (Attended by Joe Goldenburg, Yamille del Valle, and Frank Lambert)

NEETRAC Baseline Project Flashbacks - 5 Years Ago

NEETRAC has completed many interesting Baseline projects over its 20-year history. Here is a look at one of NEETRAC's past projects that is still useful today. If you are interested in any of these project reports, please contact your Management Board representative (see below).

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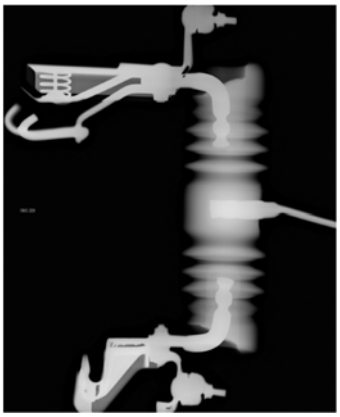
DISTRIBUTION

Project #07-150: Overhead Cutout Failure Analysis - Porcelain Focus



Failure rates on porcelain cutouts are significantly higher for utilities in the northern part of the country. Over 300 cutouts were evaluated to help determine root cause(s) of failures. This project identified a number of possible causes of failure and recommended a follow-up project to perform testing to isolate the root cause(s). This enabled utilities to better recognize risk factors and assess risk exposure, as well as employ supplemental tests to better evaluate porcelain cutouts and screen alternative designs / technologies for the failure mechanisms identified.

Management Board Meetings

The next three Management Board meetings have been scheduled. Please plan to join us on the Georgia Tech campus on the following dates:

September 26 - 27, 2018
January 24 - 25, 2019
May 15 - 16, 2019

For details, please visit the Member Section of the NEETRAC website at www.neetrach.gatech.edu.

2018/2019 NEETRAC Member Management Board Representatives

1. 3M..... Mark Hoisington
2. ABB..... Gary Haynes
3. Alumaform..... Pete Landsgaard
4. Ameren..... Mark Nealon
5. American Electric Power..... John Tucker
6. BC Hydro.....Cosmo Picassi
7. Borealis Compounds, Inc.....Susan Song
8. Consolidated Edison..... Frank Doherty
9. Dominion Virginia Power..... John Bruce
10. Dow Chemical Company.....Brent Richardson
11. DTE Energy.....Diego Libreros
12. Duke Energy.....Chris Fletcher
13. Eaton..... Alan Yerges
14. Exelon..... Lisa Perrone
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26. S&C Electric..... Salvador Palafox
27. San Diego Gas & Electric..... Christian Henderson
28. Smart Wires..... Haroon Inam
29. South Carolina Electric & Gas..... Doug Spires
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