

To: Bushing Advisory Committee
From: Anshel Schiff
Ref: Bushing Advisory Committee Memo1
Date: 4/4/07

Executive Summary

A format for memos is suggested. A White Paper that reviews the issues related to the seismic qualification of transformers and formulates issues related to the testing program has been attached for your review. It is **vital** that we get responses from knowledgeable members to the questions in Section 9 of the Paper (9 questions on transformer and 6 on bushings). The organization and membership of the Bushing Advisory Committee is reviewed. The current status of activities and a tentative schedule of activities are given.

Action Item

1. Please provide any suggestions or questions that you have about the project.
2. Please respond to the 9 transformer and /or 6 bushing questions in Section 9 of the White Paper. Please respond by March 16.
3. Please review the review White Paper that is attached and provide your comments.

Content

1. Communications and Memos
2. Paper on Seismic Qualification of Transformers
3. Committee Organization and Members
4. Current Status

Attachments

TR Mfg Invitation
Seismic Qualification Transformers (Seismic Qual TR 3.4.07)

1 Communications and Memos

First I would to welcome and thank you for agreeing to serve on the Bushing Advisory Committee. This committee will help researchers formulate the testing program to develop a valid method for qualifying transformer bushings for IEEE 693. It is anticipated that the new approach will require that the bushing and transformer be considered as a system, even though the transformer will not be shake-table tested.

I plan to use the same format for memos that I am using for similar projects, as I feel that it has been effective. Please let me know if this is acceptable or if you prefer a different format or procedure. Generally the email will have an executive summary, list of action items, table of contents and list of attachments. The body of memo will generally be an

attachment. In general, attachments will be MS Word documents. Please let me know if you have problems opening documents.

2 Paper on Seismic Qualification of Transformers

I have prepared a “White Paper” for members of the Bushing Advisory Committee that puts forward my understanding of the issues, identify an approach to some of the identified problems, and will solicit your input to enhance our understanding of the problems and correct any of the things that I got wrong. It is **vital** that we get feedback from the Bushing Advisory Committee at this early stage of the project. This is the stage of the project where your input can have the most impact on guiding the direction of the project. The paper is quite long, however, Section 9 contains a list of questions that will provide information that will help us formulate the testing program. Section 8 summarized the main issues contained in the earlier part of the report.

3 Advisory Committee Organization and Members

I have been organizing the advisory committee for the MCEER bushing project. The committee will consist of representatives from utilities, transformer and bushing manufacturers, others familiar with transformers and researchers. I will chair the committee. I plan to conduct the business of the committee by means of email. The tentative members are listed below, however, not all individuals listed below have confirmed their participation in the committee. Several utility members of the committee are also active on the IEEE 693 committee.

Keith Ellis provided me with contact information for the major EHV transformer manufacturers. They are listed below and a few have already responded positively. If you have any suggestions for others who can contribute to the committee, please provide me with their name, email address, affiliation, and phone number if you have it.

Transformer Manufacturers Contacted:

Siemens Brazil
Bill Darovny, Siemens Mexico and Canada
Siemens Germany
Sergio Soriano Soriano, Prolec GE
Antonio González Cabrera, Prolec GE
Enrique Betancourt Ramírez, Prolec GE
George Del Fratte, ABB Transformers

Utility Members

Syed Ahmed, SCE
Dennis Berent, BPA
Terry Burley, WAPA
Jean-Bernard Dastous, Hydro Quebec

Fred E Elliott, BPA
Eric Fujisaki, PG&E
Joe Granzinao, TVA
Carl Horvath, LADWP
Leon Kempner, BPA
Craig Riker, SDG&E
Casey Scoggins, TVA
Janos Toth, BC Hydro
Pedro Zazueta, Comision Federal De Electricidad, Mexico
Vicente Guerrero, Instituto de Investigaciones, Mexico

Bushing Manufacturers

Lonnie Elder, ABB
Keith Ellis, Haefely-Trench
Norbert Koch, HSP

Researchers

Andre Filiatrault, MCEER
Bill Gundy, W.E Gundy Associates
Andrei Reinhorn, MCEER
Lloyd Cibulka, UCOP

For your information I have attached a copy of the letter that I sent to transformer manufacturers. It also outlines the activities of the committee. As noted in the invitation, the target testing date is April 2007.

4 Current Status

1 MCEER has drafted tentative plans for the bushing support structure and an instrumentation plan for a porcelain bushing. I am in the process of reviewing these and after the next iterations they will be distributed to you for review and comment.

2 I am drafting a test plan and when it is complete I will distribute it for review and comment.

3 I have drafted a “White Paper” that reviews the issues related to the seismic qualification transformers and identified the issues that I am aware of that need to be addressed in the testing program. This paper is discussed above.

4 Rough overview of test plan

A 500 kV Porcelain GE Type U bushing provided by LADWP will be used to do initial shake down tests.

Two 500 kV Porcelain GE Type U bushings provided by TVA via CERL will be used for other tests. One may be reserved to evaluate the test procedure that will be proposed to IEEE 693 Committee.

A 500 kV Composite bushing provided by Trench will also be used to evaluate the proposed test procedure.

A 230 kV Composite HSP bushing will be used to evaluate the proposed test procedure.

A 230 kV Porcelain GE Type U bushing (BPA may have located one) will be used to evaluate the proposed test procedure.

5 Supplemental funding for the project does not appear to be forthcoming at this time. At this time it is not clear how this will impact the scope of the project.

6 Tentative Schedule

Completed – Request test bushings to be shipped to the lab

Completed – Draft White Paper that reviews issues related to seismic qualification of bushings

First Week of March – Distribute first Bushing Advisor Committee Memo and White Paper for review

Third week of March – Distribute test plan

Mid of March - Distribute draft test plan, and proposed bushing support,

Mid of March - Get feedback on White Paper that were distributed

Fourth Week of March – Distribute updated document

April – Start Testing

Note that the testing lab has web cast capability and we plan to make tests available real time basis the tests. Information on getting access to the web casts will be distributed later,