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December 6, 2002

Mr. John Hannon
Chief, Plant Systems Branch
Office of Nuclear Reactor Regulation
Mail Stop O11-A11
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Comments on NRC Hemyc Test Plan

PROJECT NUMBER: 689

Dear Mr. Hannon:

On behalf of the industry users of the Hemyc and MT fire barrier material, NEI appreciates the opportunity to provide final comments on the draft NRC document, *Program Plan for Hemyc (1-Hour) and M.T. (3-Hour) Fire Protective Wrap Performance Testing* (Revision 3, July 19, 2002). We also provided preliminary comments to you and your staff during a meeting on October 31, 2002.

The comments address the following principal areas:

1. Licensing basis
2. Program plan additions
3. Construction and test plan
4. Evaluation of test results

As noted during the meeting on October 31, and in the enclosed comments, the Program Plan should incorporate the American Nuclear Insurers Test acceptance criteria for some of the tested configurations ("ANI/MAERP Standard Fire Endurance Test Method to Qualify a Protective Envelope for Class IE Electrical Circuits" dated July 1979). The ANI Test provides a more realistic comparison with plant installations. Therefore, the industry believes the test plan should include specific configurations tested using the ANI acceptance criteria.

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We would appreciate further opportunities to comment on any later revisions of the test plan. Further, we recommend industry observation of the construction of the test configurations and of the tests themselves in order to assure that the test configurations envelope installed configurations to the maximum extent.

Please contact Fred Emerson at fae@nei.org, 202-739-8086 or me at 202-739-8080, am@nei.org with any questions about this information.

Sincerely,

A handwritten signature in black ink that reads "Alex Marion". The signature is written in a cursive, flowing style.

Alexander Marion

FAE/maa
Enclosure

Industry Comments on Hemyc Wrap Program Plan

1. Licensing Basis

The industry's position is that the installed Hemyc wrap configurations have already been accepted by the Staff and the guidance of Generic Letter 86-10 Supplement 1 presents a testing methodology for installations subsequent to the issuance of Generic Letter 86-10. As stated in Generic Letter 86-10 "This guidance will be used by the staff to review and evaluate the adequacy of fire endurance tests and fire barrier systems proposed by licensees or applicants **in the future** to satisfy existing NRC fire protection rules and regulations." As stated in the Public Meeting 2002-0816 (10/31/02) this is a backfit issue.

- a. The reference to Regulatory Guide 1.189 (April 2001) is not applicable to those utilities with installed Hemyc wrap and should be removed as a reference.

2. Program Plan Additions

- a. Provide additional details on how the test assemblies were selected. The issue of bounding qualification and thermal mass should be discussed in the plan. The plan should be clear that items of larger thermal mass are bounded by this test. Examples are grouped cable trays and conduits within the same wrap enclosure, cable drops with more and larger cables than tested, conduits larger than tested and junction boxes larger than tested.
- b. The industry recommends that the Program Plan include within the Scope section a discussion as to how this test will be used considering the previous acceptance of fire barrier materials. Generic Letter 86-10 stated "Conduit and cable tray enclosure materials accepted by the NRC as 1 hour fire barriers prior to Appendix R (e.g. some Kaowool and 3M materials) and already installed by the licensee need not be replaced even though they may not have met the 325 °F criteria" [cold-side temperature criterion]. Generic Letter 86-10 effectively "grandfathered" fire wrap materials previously approved by the NRC Staff based on earlier testing. The NRC has previously accepted the Hemyc material at a number of facilities.
- c. The Program Plan should include the development of a mathematical calculation for the tested configurations to allow inspectors and licensees to apply the test results to configurations not tested.

- d. The Program Plan should incorporate the ANI Test (ANI/MAERP Standard Fire Endurance Test Method to Qualify a Protective Envelope for Class IE Electrical Circuits” dated July 1979) acceptance criteria for some of the tested configurations. The ANI Test provides a more realistic comparison with plant installations because it includes cable fill and an acceptance criterion that is not based on thermocouple temperature but on survivability of the cables being protected. For example, cable drop configurations should be tested with the wrap installed around cable. Therefore, the industry feels the test plan should include some configurations tested using the ANI acceptance criteria thus allowing a side by side comparison for future evaluation purposes.

3. Construction and Test Plan

- a. The industry should be allowed to review and comment on the detailed construction plan. This is to ensure that the tested details are consistent to those installed in the industry. The detailed construction plan should include installation configurations. Examples of details that vary within accepted installation practices include:
 - i. Joint details (collar and overlap)
 - ii. Fastener type/details
 - iii. Termination details
 - iv. Material details such as density, thickness and material type
 - v. Unexposed side material (Klevers 600/6 fiberglass mat verse Siltemp 84CH/SR fabric)
- b. The Hemyc/MT should be installed to the original vendor installation procedures and QC procedures. Industry representation during the assembly and testing is requested.
- c. The test should include:
 - i. A 24-inch wide cable tray, as this is the most dominant size tray in the industry.
 - ii. The “large cable tray” should be a 36” tray in lieu of the currently specified 30” tray as this is the largest size tray used in the industry

- f. The test should include angle iron and unistrut supports in addition to the tube steel and channel currently proposed in the test plan. These are the most prevalent supports used for cable trays and conduit
- g. The nominal thickness of the Hemyc blanket for configurations should be clarified as follows:
 - i. For direct-wrap of conduit and air drops use 2 inches
 - ii. For cable trays with air gaps use 1-1/2 inches (as currently identified)
 - iii. For conduit only test direct wrap (There are no users of the air gap design)
 - iv. For supports use both 2 inches and 1-1/2 inch
- h. The MT wrap configuration should include a direct applied air drop assembly.
- i. The MT wrap junction box should be 12"x24"x10" (this is minimum size used) instead of the 12"x18"x 10" in the test plan.
- j. The cable drop is apparently being tested with a single configuration in Test 1 and Test 2. A second, larger configuration with much higher thermal mass should be added to each fire test, to allow evaluation of intermediate and larger configurations. For example, a second cable drop containing at least one bare, 250 kcmil copper wire could be added to the same cable tray.

4. Evaluation of Test Results

- a. The Staff should include in the Program Plan guidance on applying the test results to configurations not tested.
- b. Provide guidance for use by inspectors on how to evaluate intermediate configurations and configurations not tested