

Southern California Edison Company



P. O. BOX 800
2244 WALNUT GROVE AVENUE
ROSEMEAD, CALIFORNIA 91770

K. P. BASKIN
MANAGER OF NUCLEAR ENGINEERING,
SAFETY, AND LICENSING

June 7, 1982

TELEPHONE
(213) 572-1401

Director, Office of Nuclear Reactor Regulation
Attention: D. M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
Results of Cable Evaluations
San Onofre Nuclear Generating Station
Unit 1

Our letter to Mr. D. L. Ziemann dated November 19, 1979 identified a potential problem associated with cable utilized at San Onofre Unit 1. In particular, the presence of manufacturing rework was observed in three types of safety-related cable: GE, GE/Vulkene and Rockbestos. The purpose of this letter is to inform you of the results of the evaluations which we performed in accordance with our November 19 letter.

Samples of reworked General Electric EPR insulated neoprene jacketed power cable ("GE cable") were subjected to qualification testing in accordance with IEEE 383-74. These samples survived the tests through the simulated LOCA but failed to pass the post-LOCA mechanical tests in the reworked area. Although this demonstrates that the cable is capable of surviving a LOCA at anytime during its 40 year life, because the cable did not pass all of the qualification tests required by IEEE 383-74, we have decided to replace this cable inside containment at San Onofre Unit 1. The only application of this cable inside containment is on the RHR pump motors. We currently anticipate replacing this cable during the next refueling outage.

Samples of reworked Rockbestos cross-linked polyethylene cable were also subjected to qualification testing in accordance with IEEE 383-74. These samples passed all aspects of the qualification test. Therefore, this cable including manufacturing rework is fully qualified.

As indicated in our November 19, 1979 submittal, the GE/Vulkene cable installed at San Onofre Unit 1 is no longer available from the manufacturer. In view of this, an attempt was made to locate a sample of reworked cable at the station such that qualification testing could be performed on this sample. However, a sample of reworked cable could not be

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located at the station. Therefore, the GE/Vulkene cable was evaluated by comparison to other cable which was tested and found acceptable in accordance with IEEE 383-74. Specifically, the cable was compared to GE Vulkene Supreme cross-linked polyethylene cable. The reworking procedure that is used for the Vulkene Supreme cable is basically the same as has been used since 1958 at the GE plant where both the GE/Vulkene and GE Vulkene Supreme cables were made. The material properties of the two cross-linked polyethylene cables are comparable with the exception that Vulkene Supreme has additional fire retardant materials included in the insulation. In fact, other than the fire retardant capability, the GE/Vulkene cable is considered to be a superior cable. Therefore, any reworked sections of the GE/Vulkene cable which may be present at San Onofre Unit 1 are concluded to be satisfactory based on this comparison with a nearly identical cable which was tested in accordance with IEEE 383-74.

It should be noted that the above evaluations have been completed for some time. However, it was only recently that these items were all closed out internally such that we could formally inform you of the results. Specifically the evaluations of the GE cable and GE/Vulkene cable were completed in August of 1980 and the testing and evaluation of the Rockbestos cable was completed in August of 1981. The last results were not formally reviewed by our Nuclear Audit and Review Committee until February of 1982.

If you have any questions regarding any of this information please let us know.

Very truly yours,

W.P. Bushman