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December 22, 1992
IPN-92-058

Mr. Marvin W. Hodges, Director
Division of Reactor Safety
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Subject: **Indian Point 3 Nuclear Power Plant**
Docket No. 50-286
Environmental Qualification of Submerged Cable

- References:
1. Letter from Marvin W. Hodges to William Josiger, dated November 19, 1992, entitled "Environmental Qualification of General Electric Silicone Rubber Insulated Cable for Submergence Application at Indian Point Unit 3 (50-286/87-22-05)."
 2. Letter from John C. Brons to the NRC, dated May 8, 1989, entitled, "Submittal of the Final Report in Response to Concerns Involving Cable Submergence."
 3. Letter from Jack Strosnider to William Josiger, dated April 12, 1989, entitled, "Meeting to Discuss Equipment Qualifications for Submergence of Silicone Rubber Insulated Cable at Indian Point 3 (NRC Meeting 89-10)."
 4. Submergence and High Temperature Steam Testing of Class IE Electrical Cables, Sandia Test Report, NUREG/CR-5655, dated May 1991.

Dear Sir:

This letter provides the Authority's response to the NRC letter (reference 1), which stated that the diffusion methodology, contained in attachment 3 of reference 2, was not an acceptable means to establish environmental qualification for submerged cables. The Authority agrees with the NRC that the diffusion theory approach, on its own, does not provide an acceptable basis for establishing qualifications. However, it was not the Authority's intent to use the diffusion analysis

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as the primary qualification method. The Authority concluded that submergence qualification of various cables at IP-3 was established through the IR Trend Method and the diffusion methodology as described in reference 2, attachments 1 and 3. It must be noted that the two methods are completely independent of each other, and they constitute different approaches to the same problem. The IR Trend Method concludes that a cable that passes a LOCA test is qualified for submergence. This method utilizes the specific LOCA test results for each qualified cable.

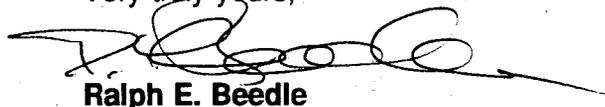
Since our submittal, new information has been developed that substantiates the overall conclusions reached using the IR Trend Method, that the cables are qualified for submergence. The new information consists of (1) a May 1991 Sandia test report (reference 4), which was prepared for the NRC and (2) a draft report developed for the Nuclear Utility Group on Equipment Qualification (NUGEQ), which is expected to be finalized in 1993.

Reference 4 provided the results of actual submergence tests that were conducted on different cables with insulations such as: XLPE (cross linked polyethylene), Silicone Rubber, Flamtrol, EPR (Ethylene Propylene Rubber), and Kerite. The submergence tests were performed in addition to aging, LOCA, and post-LOCA testing. Based on our review of the test results, the cables proved their adequacy.

The Authority as a member of the NUGEQ agrees with the conclusion of the NUGEQ draft report that any cable passing a LOCA test is qualified for submergence.

Based on the above, the Authority concludes that the cables used at the Indian Point 3 Nuclear Power Plant are qualified for submergence. If you have any questions, please contact Mr. P. Kokolakis.

Very truly yours,



Ralph E. Beedle

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