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November 15, 1982
BECo Letter No. 82- 297

Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

License No. DPR-35
Docket No. 50-293

Subject: RPS Power Supply Protective Circuitry

Reference: (A) Letter from Boston Edison to Mr. Thomas A. Ippolito dated November 18, 1981

(B) Letter from Mr. Domenic B. Vassallo to Boston Edison dated July 28, 1982

(C) Telephone conversation between Mr. V.L. Rooney (NRC) and Mr. P.M. Kahler conducted on October 8, 1982

Dear Sir:

In reference (A), Boston Edison stated that it intended to tie in the RPS Power Supply Protective (RPSPSP) circuitry during the first planned outage of sufficient duration, which was believed to be approximately eight days. On October 8, 1982, prior to initiating such an outage, a number of concerns involving the circuitry were identified, and became the subject of reference (C). During this telephone conversation the concerns were described, and an alternative plan, that of cutting in one circuit during the impending outage, was submitted.

This plan was found acceptable by NRC.

The purpose of this submittal is to document the modification of our commitment, to supply a more detailed discussion of the reasons for the commitment modification, and to discuss certain changes found to be necessary during the cutting over of one circuit.

I) Prior to tying in the RPSPSP circuit, Boston Edison learned that equipment similar to ours had experienced difficulties during its installation and operation in plants similar to Pilgrim. Therefore, rather than tying in all three circuits during the outage commencing on October 8, 1982, we tied in one circuit to the Alternate Supply System. We chose this system because we believe it to be the most likely to experience voltage transients.

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By monitoring the operation of this circuit, we intend to collect data which will be useful in assuring us of the reliability of the design, and for identifying problems which can be corrected prior to the final cutting over of the remaining circuits.

II) Another concern which became apparent was the coordination between the degraded voltage relays that monitor safety busses and the RPSPSP circuitry on the Alternate Power Supply. The degraded voltage relays have time delays of 9.5 seconds, while the maximum time delay available on the RPSPSP assembly is 3 $^{+}$ seconds. To avoid spurious trips of the system, which might occur with the starting of a large motor, we set the undervoltage trip time delay of the alternate supply protective assembly at a time range of 3 to 4 seconds. This is a change from the trip times stated in reference (A), which gave 0.14 seconds for all trips (overvoltage, undervoltage and under frequency) on all protective assemblies. We took this action because of confirmation of problems associated with the Alternate Power Supply, which is fed from a safety related load center.

This change has been implemented only on the Alternate Power Supply. However, we intend to consult with GE on this issue, and the results of that consultation may result in longer times on all channels. In addition to changing our statement in reference (A), this time change also affects the evaluation section of Lawrence-Livermore Laboratory Report UCID-19134 which was recently supplied to Boston Edison by the NRC.

III) When the October, 1982 outage began we did not have spare parts for the three assemblies; hence, we were reluctant to install all three circuits, particularly in light of reported installation difficulties at other facilities.

We have been pursuing a list of recommended spare parts from GE. In May, 1982, we received our first list, which we believed to be inadequate. We therefore requested that GE supply us with a list reflecting what we believed to be more realistic quantities of spare parts. This request also asked for an explanation of component repair service.

We have not yet received a written response to our requests.

IV) The protective assemblies associated with the A and B Motor-Generator (MG) sets, which are the normal supplies to RPS, are under test, but we have not yet had their final time delay settings established. Some variance is expected because of the voltage and frequency dependency of the logic circuits.

The A and B protective assemblies are prewired, and are awaiting later cutover. Testing of the printed circuit boards and breakers associated with these assemblies will be proceeding during the interim.

V) Reference (B) requires Boston Edison to submit proposed Technical Specifications (TS) when the cutover of these assemblies is completed.

We do not believe it is appropriate to submit such TS at this time, because only one system of the three has been made operational. We also believe that the TS submitted will benefit from the experience and data garnered from the protective assemblies which are now operational.

Further, GE is considering the revision of trip times associated with all channels of the power supply protective assemblies to a maximum of 4 seconds. This potential revision would be based on the known resistance of RPS components to damage caused by short time voltage and frequency excursions.

We are not in agreement with the need for a Channel Functional Test, which is now suggested to be performed on all the assemblies once every six months by the model Technical Specifications. We also do not see a method for secure channel testing because of the 1/1 trip logic of the protective assemblies relays. This testing is likely to result in spurious scrams. We consider these new devices to be essentially electric analog protective relays, which we normally check each outage or every 18 months.

We believe this submittal satisfactorily documents our recent efforts concerning the RPS Power Supply Protective Circuitry and the issues discussed in reference (C). Should you desire further information concerning this submittal, please contact us.

Very truly yours,

W. H. Deacon
for A. V. Morisi