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FMY 81-5

January 20, 1981

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation
Mr. Robert A. Clark, Chief
Operating Reactors, Branch #3
Division of Licensing

References: (1) License No. DPR-36 (Docket No. 50-309)
(2) USNRC letter dated 6/3/77
(3) USNRC letter dated 10/16/79
(4) MYAPC letter No. WMY 77-72 dated 7/18/77
(5) VYNPC letter No. WVY 79-139 dated 12/6/79
(6) YAEC letter No. WYR 80-83 dated 7/24/80
(7) USNRC letter dated 10/2/80
(8) MYAPC letter No. WMY 80-150 dated 11/10/80

Subject: Mitigating the Effects of Grid Degradation on Safety-Related
Electrical Equipment

Dear Sir:

In Reference (6), YAEC proposed to adopt a scheme to mitigate the effects of grid degradation on safety related electrical equipment at Maine Yankee. This scheme was developed as an alternative to both the NRC's generic position (Reference 2, 3), and the Yankee Atomic Electric position (Reference 4, 5) on degraded grid voltage protection. This alternative scheme was originally suggested by the NRC and carefully analyzed by Yankee Atomic; the alternative was presented to the NRC as Reference (6) and engineering commenced immediately.

We believed we had a mutual understanding which assumed that the alternative scheme would stand on its own merits and would replace in its entirety both the NRC's generic position as well as the Yankee Atomic position; therefore, it came as a surprise to receive Reference (7) from the NRC stating that the proposed alternative described in Reference (6) was not in full compliance with four requirements of the NRC generic position of Reference (2).

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Notwithstanding the above contention, we are responding to the four NRC staff positions identified in Reference (7).

1. Staff Position

Staff Position 1 of Reference (2) requires coincident logic in the voltage protection scheme to preclude spurious trips of the offsite power source. The proposed logic in Reference (6) does not preclude spurious trip of offsite source in all cases and, therefore, the required coincident logic should be provided in accordance with Table 3.3-3 in Enclosure 2 of Reference (2).

YAEC Response

YAEC proposes to modify its design to include coincident logic. Two second level undervoltage relays will be added to each safety bus: Each second level undervoltage relay will be supplied from an independent instrument transformer. The circuit breaker connecting offsite power to the emergency bus is shown in Figure 1. The first level undervoltage relays are shown as device 27A-1 and 27A-2. The second level undervoltage relays are shown as device 27B-1 and 27B-2.

When voltage is degraded below that required to ensure continued operation of safety-related equipment, the second level undervoltage relays 27B-1 and 27B-2 will be activated. Contacts of the second level undervoltage relays will close in the breaker trip circuit as well as in the alarm circuit. The contacts in the breaker trip circuit are arranged to provide 2 out of 2 coincident logic and the breaker will trip automatically if an accident signal is also received. The contacts in the alarm circuit are arranged to provide 1 out of 2 coincident logic.

2. Staff Position

Staff Position 1 of Reference (2) also required Technical Specification changes including limiting conditions for operation, surveillance, trip setpoints with minimum and maximum limits, and allowable values for second level voltage protection monitors. The required changes to the Technical Specifications should be submitted in accordance with Tables 3.3-3, 3.3-4 and 4.3-2 in Enclosure 2 of Reference (2).

Yankee Response

With the information presently available to Yankee, we do not believe that technical specifications, in the areas requested above, will provide any meaningful enhancement to the continued safe operation of our facilities. We have repeatedly requested some explanation from your staff to justify that technical specifications in this area are necessary or beneficial. Unfortunately, instead of further information, we have received a near repetition of the initial staff request; as a result we do not believe it is prudent to volunteer technical specifications at this time. We are anxious to resolve this outstanding licensing aspect of the degraded grid voltage issue, and recommend a meeting with your staff, at your earliest convenience, to resolve this difference.

3. Staff Position

Staff Position 2 of Reference (2) requires that load shedding on the emergency buses be prevented from occurring when the diesel generator is supplying power to all the sequenced loads and that the load shedding feature be reinstated automatically when the diesel generator circuit breaker is tripped. Reference (4) indicates that there is an automatic bypass of the load shedding feature when the diesel generator circuit breaker is closed, however, the reinstatement of the feature is not provided. The bypassing of a protective function (i.e., load shedding) should meet the requirements of IEEE 279-1971 paragraph 4.12 by removing the bypass automatically whenever the permissive condition (i.e. diesel generator breaker closed) is not met. The licensee should revise its design to meet these requirements.

Yankee Response

In Reference (4) Yankee Atomic objected to compliance with reinstating the load shedding feature because we believed this was an arbitrary requirement over and above the ground rules established by NRC's General Design Criteria for Nuclear Power Plants, as well as one which has not been assumed in the accident analysis of any station. Yankee Atomic's position remains unchanged by the above NRC argument which additionally misrepresents the requirements of IEEE-279-1971..

4. Staff Position

Staff Position 3(b) of Reference (2) requires that the diesel generators operate for at least five minutes while loaded with the emergency loads. The proposed Technical Specification section 4.5.A.2 of Reference (4) does not meet this requirement. The licensee should submit Technical Specification changes to include this requirement.

Yankee Response

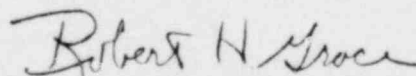
See Yankee's response to Staff Position 2 of this letter.

PROPOSED ACTION AND SCHEDULE:

Engineering will proceed upon receipt of NRC approval. The modification will be installed at the first opportune shutdown following completion of engineering and receipt of materials.

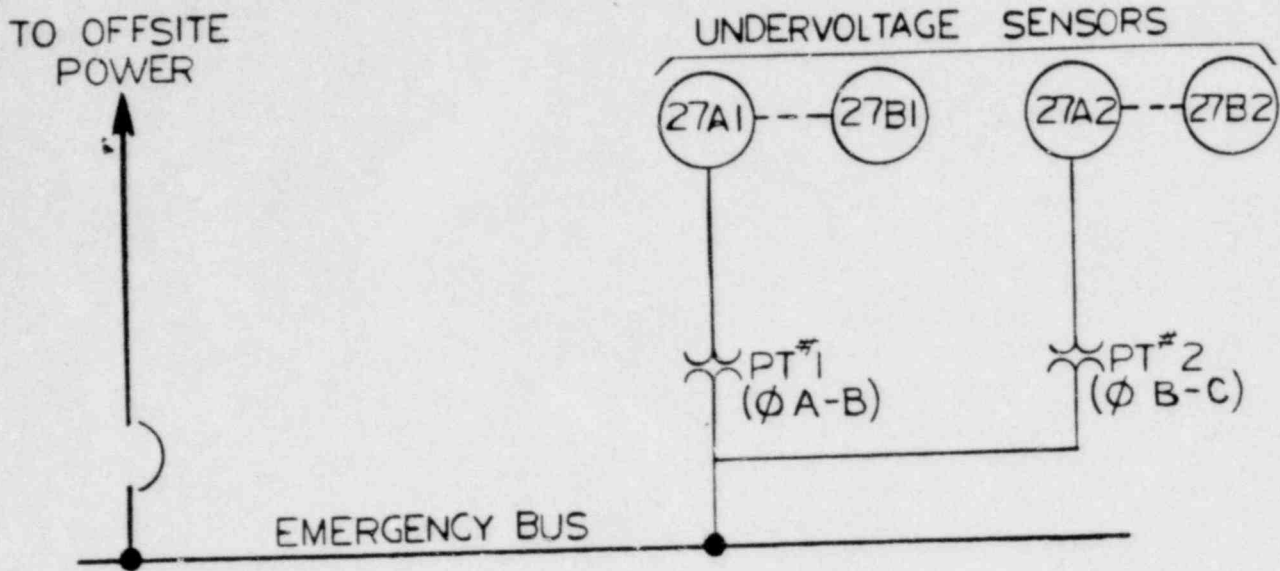
Very truly yours,

MAINE YANKEE ATOMIC POWER COMPANY

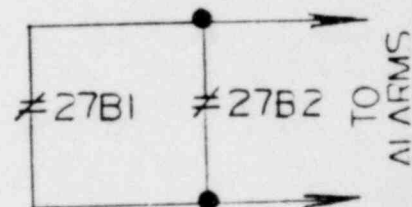
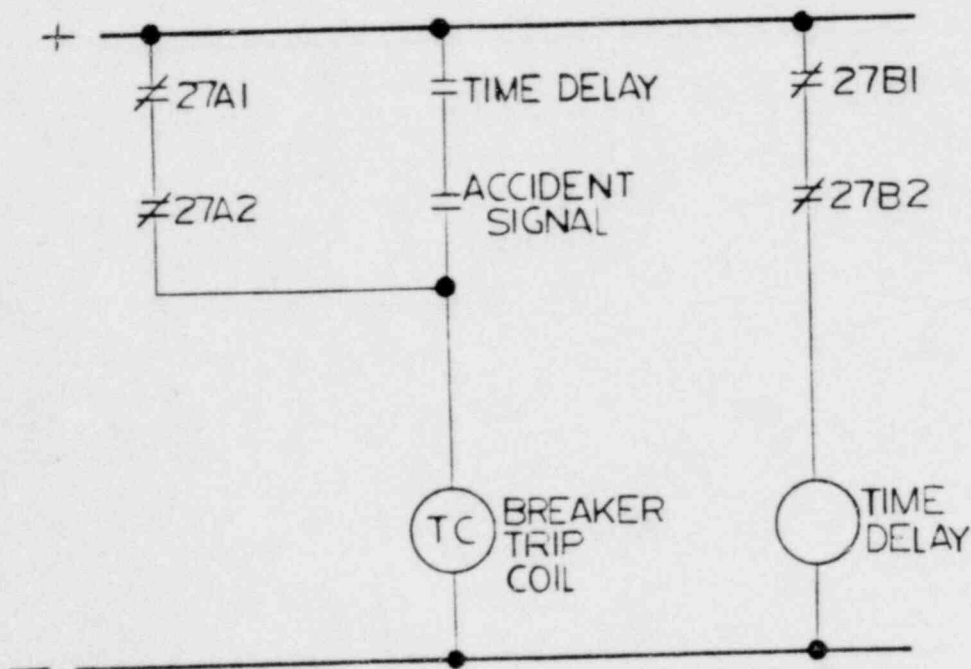


Robert H. Groce
Senior Engineer - Licensing

FIGURE 1



ONE LINE REPRESENTATION



SCHEMATIC REPRESENTATION OF OFFSITE POWER CIRCUIT BREAKER TRIP CIRCUIT