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September 25, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2
Technical Specifications
NRC Docket Nos. 50-454 and 50-455

References (a): July 19, 1984 letter from B. J. Youngblood to D. L. Farrar.

(b): July 26, 1984, letter from E. D. Swartz to H. R. Denton.

(c): August 22, 1984 letter from B. J. Youngblood to D. L. Farrar.

Dear Mr. Denton:

This letter provides a revised response to a question on the proposed Byron Technical Specifications which was originally sent to Commonwealth Edison in reference (a).

In reference (c) the NRC sent a revised question 12 regarding the testing of the P-10 interlock. Attachment A to this letter contains ouyr response to that question.

Please address further questions regarding this matter to this office.

One signed original and fifteen copies of this letter and the attachment are provided for NRC review.

Very truly yours,

T. R. Tramm

T. R. Tramm
Nuclear Licensing Admininstrator

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cc: Byron Resident Inspector

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ATTACHMENT A

Response to Revised Question 12

QUESTION:

Table 3.3-1, Reactor Trip Instrumentation

Item 19, the minimum channels operable for interlock P-10 for Mode 1 conflicts with FSAR Section 7.2.1.1.2. That is, when coming down in power it takes 3 out of 4 P-10 channels to reinstate the intermediate range high neutron flux trip and the low power range neutron flux trip. Item 19 shows 2 out of 4 with the minimum channels operable being three. The action statement is entered into when the number of operable channels is less than three. The staff is concerned that if one channel of P-10 is found to be inoperable, it will be placed in the "tripped high" condition. A single failure of any one of the remaining three channels can result in not reinstating the intermediate range high neutron flux and the low power range neutron flux trips when coming down in power. Justify why it is permissible to have Technical Specification for Byron that would allow this situation (loss of particular reactor trip functions) or modify the Technical Specifications to correct for this.

RESPONSE:

The Staff's analysis is correct. With one power range channel out of service, if a second power range channel failed high the reactor would trip and the P-10 permissive would not be cleared (requires 3 of 4 channels below 10% power). The power range-low or intermediate range reactor trips would not be automatically reinstated. This failure would also prevent the P-7 permissive from being made up, thus preventing the automatic block of the "at power trips" (RCP undervoltage, RCP underfrequency, low flow in more than one loop, pressurizer low pressure, pressurizer high level, turbine trip and more than one RCP breaker open). In addition, since P-10 is a backup to P-6, the failure of P-10 to clear at 10% power also prevent the automatic re-energization of the source range detectors at P-6. The Byron/Braidwood source range channels also provide signals to a flux doubling meter for the detection of an inadvertant boron dilution transient. However, the flux doubling meter is not sensitive to a dilution transient until the source range count rate has started to level off (approximately one hour after the trip). This is consistent with the requirements of ACTION 8 for item 19d on Table 3.3-1 in the Technical Specifications.

If the decreasing power level is due to a reactor trip, the only adverse consequence of two P-10 channels failed high is the failure to re-energize the source range detectors. This in itself is not significant since the neutron count rate would be constantly decreasing and the reactor is already tripped. The operators are trained to check for restoration of source range indication in such a situation. Permissive status lights are also provided to indicate such a failure.

If the decreasing power level is due to a controlled shutdown, with operation below 10% power for a significant period of time or if the plant is subcritical with the reactor trip breakers closed, the plant would be protected by the "at power trips" and the power range high setpoint trip. A Westinghouse evaluation of the transients which rely on the power range low setpoint reactor trip (rod ejection and rod withdrawal from subcritical) indicates that the plant is still protected by the operable trip functions (i.e., power range high setpoint and pressurizer low pressure). If the plant was taken subcritical the requirements of ACTION 8 for item 19d on Table 3.3-1 are sufficient to ensure proper operation of the flux doubling meter for inadvertent boron dilution and continued cooldown.

In any case, operating procedures require the operator to verify actuation of the P-10 permissive when the reactor power decreases below 10%. The operator is also required to verify the unblocking of the power range low setpoint trip and the intermediate range trip. Therefore, with one power range channel out of service, the operator can identify if a second power range channel fails as is such that the power range - low and intermediate range trips are not reinstated.

Based on the above considerations, Westinghouse has indicated that ACTION 8 of Table 3.3-1 of the Technical Specifications is adequate to ensure continued protection of the plant. In the event two or more channels of P-10 are in the failed high condition, there is sufficient time for operator action to render 3 of 4 channels indicate less than 10% power thus allowing P-10 to be cleared. No additional changes to the technical specification are required.