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U. S. NUCLEAR REGULATORY COMMISSION  
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Gentlemen:

DOCKETS 50-266 AND 50-301  
RESPONSE TO GENERIC LETTER 89-19  
SAFETY IMPLICATION OF CONTROL SYSTEMS  
IN LWR NUCLEAR POWER PLANTS  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

NRC Generic Letter 89-19, dated September 20, 1989, discussed the resolution of USI A-47, "Safety Implications of Control Systems in LWR Nuclear Power Plants." The NRC concluded that protection should be provided for certain control system failures. Specifically, the NRC concluded that all PWR plants should be provided with automatic steam generator overfill protection. The Generic Letter requested a statement within 180 days whether the recommendations provided in Enclosure 2 of the letter would be implemented and, if so, schedule for implementation. If the recommendations were not to be implemented, appropriate justification was to be provided.

Enclosure 2 to the Generic Letter identifies three groups of Westinghouse-designed plants to be considered. Point Beach Nuclear Plant appears to fall into Group I, with the following exception. Point Beach uses a two-out-of-three hi-hi steam generator water level initiating logic which is safety grade and uses one out of the three channels for both level control and overfill protection. The system isolates main feedwater (MFW) by closing the MFW control valves. This arrangement is the same as that described for the MFW isolation of the Group I Westinghouse plants, except that the MFW pump is not tripped. Instead, a recirculation line for pump protection allows limited flow back to the main condensers.

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The steam generator level instrument loop components used for steam generator overfill protection are safety-grade and addressed in the Technical Specifications as they are also used for low-low steam generator level reactor trip actuation. The MFW control valves are closed on a 2/3 hi-hi steam generator water level signal by venting the valve air actuators through two parallel solenoid valves. One of these solenoid valves also isolates air to the actuators. Both of these solenoid valves are currently required to vent sufficient air fast enough to meet the closure times for safety injection isolation, but either one is able to vent the actuator pressure within sufficient time to protect from an overfill incident. Both of these solenoid valves are environmentally qualified.

The overfill protection system at Point Beach Nuclear Plant uses three water level channels per steam generator, each channel being powered from a different instrument bus. Each of the instrument buses is connected to its own battery and DC bus through an inverter. Each of the channels is located in a different instrument cabinet. One of the three channels also supplies the MFW control system.

The 2/3 logic uses energized relays in series which are fed from different instrument buses. The loss of power will de-energize the relay and close the MFW control valves.

The overfill protection system solenoid valves have Battery D05 as their power supply. They are fed through a series of DC distribution panels. If the power supply is lost, the solenoid valves will operate to prevent overfilling the steam generators. DC power is required to keep the solenoid valves in their proper position for normal operation. Air is required to keep the MFW control valve open. Loss of DC power will de-energize the solenoid valves, isolating air to the MFW control valve operator and releasing the air in the operator, closing the valve. The MFW control system for the "A" steam generator is powered from the 120 volt AC, Y01, "red" instrument bus, which is powered from the red channel inverter. The red channel inverter uses the D05 battery or D05 battery charger as its source of power. The MFW control system for the "B" steam generator is powered from the 120 volt AC, Y04, "yellow" instrument bus, which is powered from the yellow channel inverter. The yellow channel inverter uses the D106 battery or the D106 battery charger as its source of power. Failure of the inverters or failure of the associated DC buses will cause the MFW control valves to close, preventing overfill of the steam generators.

There are some fire locations which could disable both the automatic overfill protection system and the normal MFW control

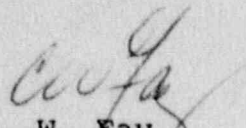


system. The loss of steam generator level indication for fires in these areas was identified in the Point Beach Appendix R review. As a result, alternate wide-range steam generator level indication is available outside the control room independent of the fire zones of concern for the "B" steam generator on each unit, although no indication of "A" steam generator level is provided. Operator action would be required to ensure feedwater isolation in the event of a fire-related loss of steam generator level instrumentation.

The bistables for the overfill protection system are functionally tested monthly; steam generator level transmitters are calibrated each refueling and feedwater isolation valves are tested each refueling. However, there is no Technical Specification requirement for calibrating or functionally testing the overfill protection system. A Technical Specification Change Request to add the overfill protection system logic as part of this item will be submitted by July 1990. There are no LCO's associated with the overfill protection system. Because of the low probability of an overfill event leading to core damage/main steam line break, as identified in NUREG-1218, and the fact that no overfill events have occurred at Point Beach in nearly forty years of reactor operation, no LCO's should be required for the overfill protection system at Point Beach Nuclear Plant.

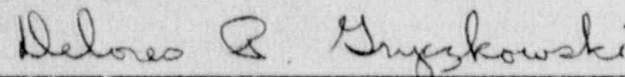
If you have any questions, please do not hesitate to contact us.

Very truly yours,

  
C. W. Fay  
Vice President  
Nuclear Power

Copies to NRC Regional Administrator, Region III  
NRC Resident Inspector

Subscribed and sworn to before me  
this 20<sup>th</sup> day of March, 1990.

  
Notary Public, State of Wisconsin

My Commission expires 5-27-90.