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November 1, 1985

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. NUCLEAR REGULATORY COMMISSION
Washington, D. C. 20555

Attention: Mr. Edward Butcher, Acting Chief
Operating Reactors, Branch No. 3

Gentlemen:

DOCKETS 50-266 AND 50-301
ADDITIONAL INFORMATION
TECHNICAL SPECIFICATION CHANGE REQUEST NO. 103
REACTOR COOLANT PUMP OPERATION
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

Our letter dated April 10, 1985 requested license amendments for Point Beach Nuclear Plant, Units 1 and 2. These amendments would impose additional, more restrictive, limiting conditions for operation for the reactor coolant pumps. Attached to that letter were proposed Technical Specification page changes which incorporated these limitations.

Your letter dated September 6, 1985, which we received on September 17, requested additional information relative to the Technical Specification changes. The requests generally addressed single reactor coolant pump operation [(N-1) loop configuration] in various operating modes. More specifically, it addressed five particular areas of our proposed changes to the Technical Specifications and their bases through five question groups.

Subsequently, we contacted the Westinghouse Water Reactor Division and enlisted their assistance in providing the requested information. In the following, each question group is reiterated and addressed.

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QUESTION 1

Section 15.3.1.A.1.a.1 of the proposed revision to the Technical Specifications permits plant operation at 10% of rated power under a (N-1)-loop configuration (e.g., 1 reactor coolant pump out of service). Provide details of the bases for (N-1)-loop operation and the associated modifications to the reactor protection system. Provide the supporting FSAR transient and accident analyses which justify such operating modes.

RESPONSE

The "zero-power" transients of concern here are:

1. Steamline break accident (including the N-1 analysis in the FSAR).

2. Rod withdrawal from subcritical.

3. Rod ejection.

The FSAR analyses for these events assume that only one reactor coolant pump (RCP) is in operation and that the reactor is at hot zero power (HZP). Westinghouse believes that these initial conditions are more limiting than the low power level operation (<10% Rated Thermal Power) allowed in the proposed Technical Specifications. The logic supporting this position is as follows:

1. For the steamline break accident, studies have shown that for events occurring at various power levels, the reactor trips provided by the reactor protection system are adequate to ensure that the DNB design basis is not violated prior to and immediately following a reactor trip. Therefore, the Westinghouse position has been to analyze the steamline break event at HZP. The analysis is presented in the FSAR.

2. For the rod withdrawal from subcritical accident, the assumption of highest reactivity insertion rate and lowest initial power produces the highest peak heat flux. Therefore, the HZP assumption as presented in the FSAR bounds the low power initial condition allowed by the proposed technical specifications. It should be noted that power levels greater than 10% Rated Thermal Power are covered by the rod withdrawal at power FSAR analysis.

3. For the rod ejection accident, our position is that the zero power and full power cases as currently analyzed in the FSAR bound any postulated partial power rod ejection event. Again, the HZP assumption in the FSAR is bounding.

No modifications to the reactor protection system have been proposed nor are any needed to show protection for N-1 operation at 10% Rated Thermal Power.

QUESTION 2

Section 15.3.1.A.1.a.2 of the proposed revision to the Technical Specifications states that upon loss of one RCP immediately initiate power reduction to less than 10% rated power. Address why a reactor trip would not occur on a low flow or low RPM signal. How has the plant protection system been modified?

RESPONSE

The P-7 permissive blocks a reactor trip on a low flow signal when the reactor is operating at power level less than 10% rated power. Therefore, no trip will occur. Also, at power levels greater than 10% reactor trip will occur in various low flow conditions. When greater than 50% power a loss of electrical power to either RCP or a low coolant flow signal in either loop will result in a reactor trip. When above 10% power but below 50% power a reactor trip will occur if a total loss of flow occurs. The reactor protection system has not been modified.

QUESTION 3

Section 15.3.1.A.1.a.3 of the proposed revision to the Technical Specifications states that if both RCP's cease to operate, the reactor shall be shut down and the reactor trip breakers opened within one hour. Justify power operation with both loops inoperable. Justify a hour delay in activating a reactor trip. Provide supporting transient and accident analyses.

RESPONSE

Upon the loss of both RCP's the reactor shall be shut down if one RCP cannot be restarted within one hour. It should be noted that a reactor trip will result when reactor power is greater than 10% and flow is lost in both reactor coolant loops.

Furthermore, a Condition II or greater event is not a postulated event in this short period of time. Also, any failure that might initiate one of the zero power transients would constitute a second failure (the first failure being the failure of one or both RCP's). Multiple failure conditions are not addressed in the FSAR.

The one hour time limit in the proposed Technical Specifications is the time limit to complete the "action" required when the Limiting Condition for Operation (LCO) is violated. In the Westinghouse Standard Technical Specifications (STS) (NUREG-0452) an action time limit of one hour is quite common and is used specifically in STS 3.4.1.2 if the STS LCO on the number of reactor coolant loops required to be operating is violated. Also, in STS 3.0.3, one hour is the generic time limit allowed to initiate action to change modes when a LCO is violated and a mode change is required.

Action time limits are used in the Technical Specifications to define transient time limits for LCO violations before a Technical Specification violation exists. The LCO's are intended to ensure that plant operation will be in accordance with FSAR assumptions. The FSAR conditions are bounded by the LCO's without including the action statements. Therefore, the temporary conditions that may exist during an action time and interval are not required to be analyzed in the FSAR.

QUESTION 4

With regard to Section 15.3.1.A.1.b of the proposed revision to the Technical Specifications, provide the basis for operating at a reactor coolant temperature greater than 350°F with all RCP's de-energized. Provide transient and accident analyses in support of this mode of operation. Address compliance with the rules and regulations and address consequences of operator error and single failures.

RESPONSE

The initial conditions of the existing "zero power" FSAR analyses bound the conditions described in the proposed Technical Specifications as follows:

1. For the steamline break accident, analysis has shown that lower RCS flow produces less severe results. Therefore, the existing FSAR analysis (assuming N-1 operation) is bounding.

2. The rod withdrawal from subcritical accident is precluded by opening the trip breakers, therefore, it need not be considered.

3. For the rod ejection event, there is no ejected rod worth that is greater than the shutdown margin. Therefore, the plant cannot achieve criticality if this event were to occur.

QUESTION 5

Page 15-3.1-3a references analytical work in support of one reactor coolant pump operation at an average reactor coolant temperature above 350°F. Provide this reference document.

RESPONSE

The reference by footnote lists FSAR Section 14.1.6 as supporting one RCP operation at reactor coolant temperatures greater than 350°F. The proper reference should be FSAR Section 14.1.11. This section, "Loss of All AC Power to the Station Auxiliaries", demonstrates that decay heat is sufficiently removed by natural circulation. Therefore, the operation of a single RCP provides more than sufficient decay heat removal capability. We have enclosed the proposed Technical Specification Page 15.3.1-3d, a part of the bases for this specification, which lists the correct section.

Please contact us if you have any further questions.

Very truly yours,

C. W. Fay
Vice President
Nuclear Power

Enclosure

Copies to R. S. Cullen, PSCW
NRC Resident Inspector

restricts leakage so that, in the event of a pipe break or isolation valve failure, makeup water for the leakage can be provided by a single coolant charging pump. If a RCGVS vent path from either the pressurizer or reactor vessel head is inoperable, Specification 15.3.1.A.7.c requires the remotely operable valves in that inoperable path to be shut with power removed. If a vent path from the common header to the pressurizer relief tank or containment atmosphere is inoperable, the isolation valve in that path must be shut but reactor operations may continue. If both vent paths to or both vent paths from the common header are inoperable, the RCGVS is inoperable and the steps in specification 15.3.1.A.7.d must be taken.

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(1) FSAR Section 14.1.11.

(2) FSAR Section 7.2.3.