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POWER COMPANY

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VPNPD-96-100

10 CFR 50.4
10 CFR 50.90

November 26, 1996

Document Control Desk
US NUCLEAR REGULATORY COMMISSION
Mail Station P1-137
Washington, DC 20555

Gentlemen:

DOCKETS 50-266 AND 50-301
SUPPLEMENT TO
TECHNICAL SPECIFICATIONS CHANGE REQUEST 192
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

In a letter dated September 30, 1996, Wisconsin Electric requested Technical Specifications Change Request 192. This Technical Specifications Change Request proposes to modify Technical Specifications Section 15.3.3, "Emergency Core Cooling System, Auxiliary Cooling Systems, Air Recirculation Fan Coolers, and Containment Spray," to incorporate allowed outage times similar to those contained in NUREG-1431, Revision 1, "Westinghouse Owner's Group Improved Standard Technical Specifications," and modify the operability requirements for the service water system. The proposed changes to Technical Specifications Section 15.3.7, "Auxiliary Electrical Systems," also reflect the modified service water operability requirements. The proposed change to Technical Specifications Section 15.5.2, "Containment," modifies the heat removal capacity of the reactor containment air cooler units.

A Nuclear Regulatory Commission request for additional information (RAI), dated November 13, 1996, was received. This RAI provided questions relating to Attachment 3 of the September 30, 1996 submittal. Response to these questions are provided as an attachment to this letter.

We have determined that the additional information does not involve a significant hazards consideration, authorize a significant change in the types or total amounts of any effluent release, or result in any significant increase in individual or cumulative occupational exposure. Therefore, we conclude that the proposed amendments meet the requirements of 10 CFR 51.22(c)(9) and that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared. The original "No Significant Hazards" determinations for operation under the proposed Technical Specifications remain applicable.

Please contact us if you have any questions.

Sincerely,

AOO1/1

GMKrieser for

Bob Link
Vice President
Nuclear Power

030031

Subscribed and sworn to before me on this 26th day of November 1996.

Jacqueline Gorecki
Notary Public, State of Wisconsin

My commission expires 10/26/2000

cc: NRC Resident Inspector
NRC Regional Administrator
PSCW

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TECHNICAL SPECIFICATION CHANGE REQUEST 192
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The following responses are provided to the request for additional information for Technical Specifications change request dated November 13, 1996.

1. **Attachment 3 indicates that Westinghouse performed a new post-LOCA containment pressure and temperature analysis in 1996. Do the mass and energy boundary conditions and the containment response model for the 1996 analysis reflect any and all post-Operating License plant modifications that might affect the containment pressure and temperature response to a loss-of-coolant accident? Will the 1996 analysis be incorporated into the Final Safety Analysis Report as the new analysis of record?**

   Response:

   The containment integrity evaluation submitted with Technical Specification Change Request 192 demonstrated no increase in containment peak pressure. This evaluation is based on the original FSAR analysis with reduction of the containment fan cooler heat removal rate by 25%.

   Plant modifications are evaluated under the requirements of 10 CFR 50.59, "Changes, Tests, and Experiments." 10 CFR 50.59 requires that changes be evaluated to determine if an unreviewed safety question has been introduced. No changes have been previously identified that would have resulted in significant change in the mass and energy release or significant change in the results from the containment response model originally used for Point Beach.

   Recently, changes to the containment response model have been identified by evaluation performed in support of unit operations following replacement of steam generators this fall (see Technical Specifications Change Requests 188 and 189 Supplement dated August 5, 1996). The evaluation showed a minimal increase in peak containment pressure (approximately 0.77 psi). This resulted in an estimated peak containment pressure of 53.34 psig, which is still substantially less than the design pressure limit of 60 psig.

   Analysis of the combined effect of the containment fan cooler heat removal rate reduction and the steam generator replacement has been performed. The results show that the containment design pressure is not exceeded and that containment heat removal is sufficient to prevent overpressurization of the containment. The attached figures show the resultant containment pressure and temperature response. The results show that the steam generator replacement causes a slightly higher peak

containment pressure, similar to that predicted by the steam generator replacement evaluation. Therefore, with respect to the containment integrity analysis, the effect of the steam generator replacement, combined with all other changes to the plant since the original analysis, is minor.

10 CFR 50.71(e) establishes the requirements for final safety analysis report updating. 10 CFR 50.59 also invokes the requirements of 10 CFR 50.71(e) for FSAR updating. Appropriate FSAR updates for these changes will be made, in accordance with these requirements.

2. **Have secondary system breaks reflecting the guidance in Bulletin 80-04, "Analysis of a Pressurized Water Reactor Main Steam Line Break with Continued Feedwater Addition," 10 CFR 50.49 limitations, and any applicable plant modifications been considered in the new analysis?**

Response

The Point Beach FSAR section 14.2.5, Rupture of a Steam Pipe states, "For the break inside the containment at the exit of the steam generator, the total mass and energy release to the containment have been computed as 165,500 lbs and 140 x 10^6 Btu, respectively. Assuming instantaneous release to the containment and no credit for containment safeguards, the containment pressure has been calculated to be 52 psig compared to the containment design of 60 psig." Additional evaluation of the pressure response of Point Beach containment has been performed which accounts for the issue identified by IE Bulletin 80-04 (analysis of PWR main steam line break with continued feedwater addition). This evaluation shows that the peak containment pressure from a double-ended rupture of a main steam line remains below the containment design. This evaluation has also been recently updated to account for the change to containment fan cooler design heat removal rate. Previous submittals in regards to IEB 80-04 include letters dated April 25, 1980, April 14, 1982, May 4, 1982, March 23, 1988, September 7, 1988, August 27, 1989, and LER 88-008-00. The NRC has previously provided safety evaluation for IEB 80-04 for PBNP dated October 8, 1982.

With respect to 10 CFR 50.49 requirements, the NRC provided safety evaluation reports in December 1982 for Point Beach Units 1 and 2 for the environmental qualification of safety-related electrical equipment. These reports conclude that the Pressure and Temperature profiles for the LOCA are acceptable and sufficient for use in environmental equipment qualification. The slight increases in LOCA containment pressure and temperature due to the reduction in containment fan cooler heat removal rate, analysis of securing containment spray at the end of the injection phase of the accident, and steam generator replacement have been evaluated with respect to environmental qualification of electrical equipment inside containment. It has been concluded that the operability of equipment relied upon to remain functional during and following design basis events is maintained.

3. **In switching to use of American Nuclear Standard 5.1-1979 decay heat, has a two-sigma uncertainty margin been added?**

   Response:

   Yes.

4. **Explain how the 25 percent air cooler capacity reduction is implemented in the containment response model (e.g., reduction in overall heat transfer coefficient; reduction in water flow?). Explain why the method properly reflects the new service water conditions.**

   Response:

   In the Westinghouse evaluation of containment pressure and temperature response, fan cooler heat removal capability as a function of containment temperature, as shown in FSAR figure 14.3.4-1, was reduced by 25%.

   With respect to the Point Beach service water calculations, service water flows to the fan coolers were reduced in the system hydraulic model. These reduced flows were then checked for acceptability by using them as input to a model for fan cooler performance, where the 25% reduction in fan cooler heat removal capability was used as the minimum acceptance criteria. Technical Specification change request 192, submitted in letter dated September 30, 1996, provides description of the methods used for analysis of the service water system flows and heat exchanger performance.

5. **One of the changes described in Attachment 3 is the use of a value of 33°F for "injection water cooling by the residual heat removal (RHR) heat exchanger." Please clarify the use of the 33°F value. (Does the containment model not continuously compute the injection water conditions using a simplified primary system model?)**

   Response:

   In the evaluation performed for Technical Specification Change Request 192, a conservative value of 33°F of cooling was used for the residual heat removal heat exchanger during the recirculation phase assuming a constant inlet temperature from the containment sump. The cooler water from the outlet of the RHR heat exchanger was then used to reduce the mass and energy releases from the core to the containment. Therefore, for this evaluation, rather than continuously computing an injection temperature, the model conservatively assumed that the sump temperature remained constant.

In the previous FSAR section 14.3.4 analysis, the inlet water temperatures were assumed to have no effect on the mass and energy releases during the recirculation phase. Page 14.3.4-19 of the FSAR states, "...the decay heat generated for a 1520 MWt core is conservatively assumed. This decay heat is added to the containment in the form of steam by the boil-off of water in the reactor vessel. For this case, injection water merely serves as a mechanism to transfer the residual energy to the containment as it is produced. Injection water is in effect throttled at the required rate."

Technical Specifications change request 192 proposes to remove the statement from the basis of section 15.3.3 which states that any combination of the following equipment will provide sufficient heat removal capacity to maintain the post-accident containment pressure below the design value, assuming that the core residual heat is released to the containment as steam: (1) All four containment cooling units, (2) both containment spray pumps, and (3) two of the four containment cooling units and one containment spray pump. Change request 192 goes on to state the following: This [statement] was based on the equivalency of heat removal via these various combinations of equipment. The FSAR does not contain any specific analysis of these combinations. Only the third combination is analyzed with the results contained in the FSAR §14.3.4. The results of the recent evaluations using the reduced containment fan cooler heat removal capability is provided as Attachment 3 to this Technical Specifications Change Request (as stated previously). It should be noted that this equivalency statement is being removed from the Technical Specifications basis because it does not directly support any of the operability requirements or LCOs for the containment cooling systems.

We intend to provide a supplement to this Technical Specification change to propose the reinstatement of this capability statement. This supplement will be submitted by December 13, 1996, along with the proposed changes to TS 15.3.3.C, identified in the answer to question 6 (below). In support of the reinstatement of this capability statement in the basis of section 15.3.3, analysis has been performed that shows the four fan cooler capability to maintain the post-accident containment pressure below the design value is still valid. The results of this analysis (which are attached) show that the containment pressure and temperature response are not significantly affected by the reduction in fan cooler heat removal rate. This analysis also includes the effect of steam generator replacement, for completeness.

6. **Please explain reliance on the RHR and component cooling water (CCW) systems for containment heat removal (when are the systems placed in service as assumed in the analysis?). Please describe the CCW system's ability to withstand a single failure based on current TS.**

Response:

As stated in the response to the previous question, the original analysis for containment integrity assumed that the recirculated fluid being injected back into the

reactor coolant system was not cooled. Based on Westinghouse personnel review of PBNP analysis information, it is evident that the FSAR analysis assumed that containment spray system fluid was cooled by the residual heat removal heat exchangers in the determination of spray fluid temperature for calculating containment spray heat removal rate during the recirculation phase. The recent evaluation, described in Technical Specifications change request 192, switches these assumptions such that the injected fluid is assumed to be cooled and containment spray is assumed to be secured during the recirculation phase of the LOCA.

The basis for Technical Specification section 15.3.3 states, "The component cooling water system is different from the other systems discussed above in that the components are so located in the Auxiliary Building as to be accessible for repair after a loss-of-coolant accident. The component cooling water pump together with one component cooling water heat exchanger can accommodate the heat removal load on one unit either following a loss-of-coolant accident, or during normal plant shutdown. If during the post-accident phase the component cooling water supply is lost, core and containment cooling could be maintained until repairs are effected." In support of this Technical Specifications basis, section 9.3 of the FSAR states, "If a break of a component cooling line occurs outside the containment, the leak could either be isolated and repaired, or the system could be shutdown for repairs depending on the position in the loop at which the break occurred. Access is available to required components. During this period, no heat removal from the containment by the residual heat removal system is required since the fan coolers' capability using service water exceeds decay heat generation."

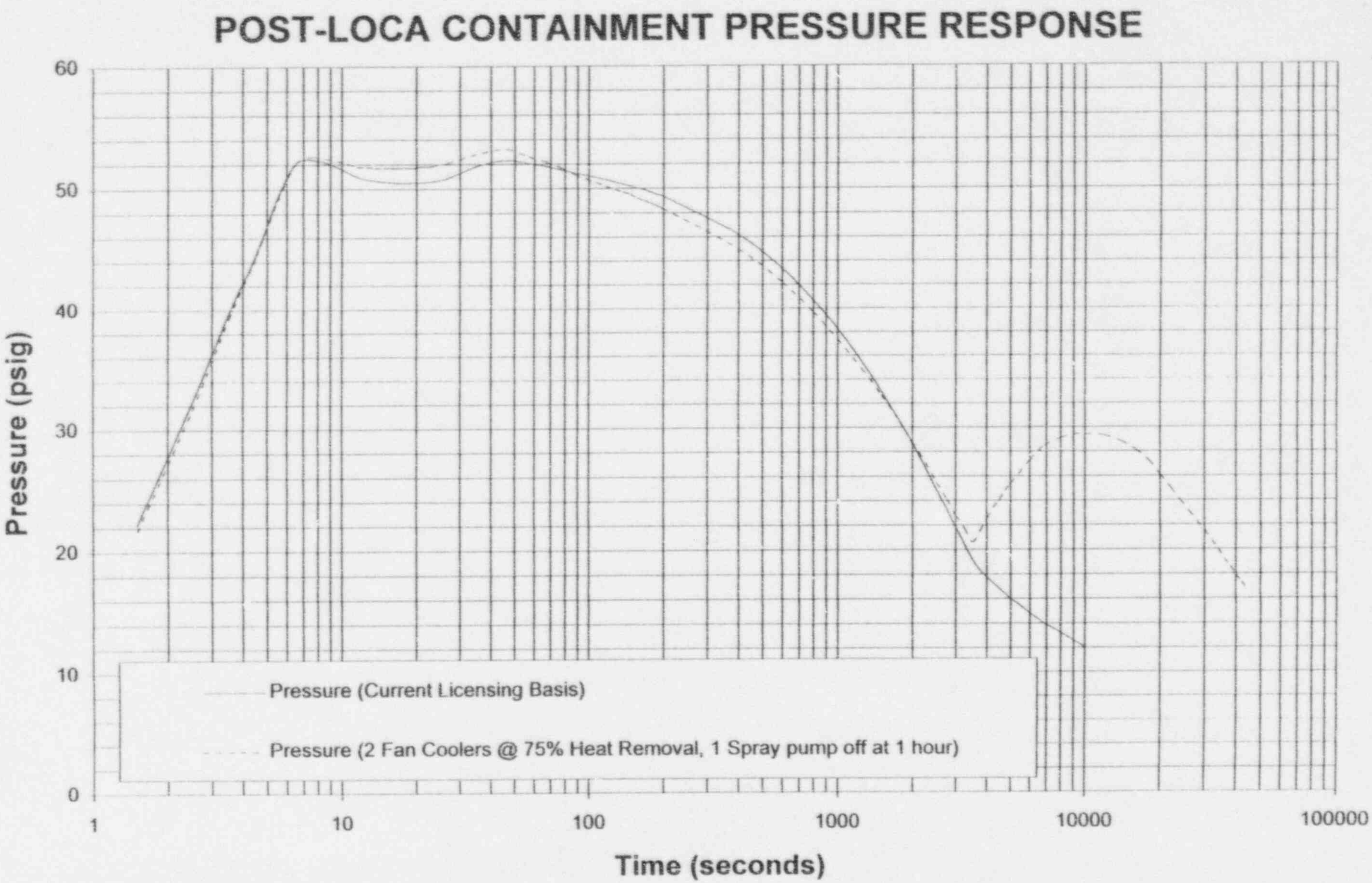
The current Technical Specifications for CCW, section 15.3.3.C, require two operable pumps for single unit operation and three operable pumps for two unit operation. For two unit operation, a single failure of one of the CCW pumps would leave two operable pumps which is greater than the minimum requirement of one pump for accident mitigation. For single or dual unit operation, the single failure of a train of emergency power after a loss of offsite power could leave one operable pump which is the minimum requirement for accident mitigation.

FSAR Chapter 9 contains substantial information regarding the design and operation of the PBNP CCW system. The CCW system is considered part of the auxiliary cooling system (ACS) for the reactor. It is not automatically initiated for accident mitigation. Operator action is required to initiate the ACS reactor cooling function. The general design criteria in the PBNP FSAR related to the CCW system (GDC 41 and 52) described in section 9.1 state that the system shall provide sufficient performance capability to accommodate the failure of any single active component without resulting in undue risk to the health and safety of the public.

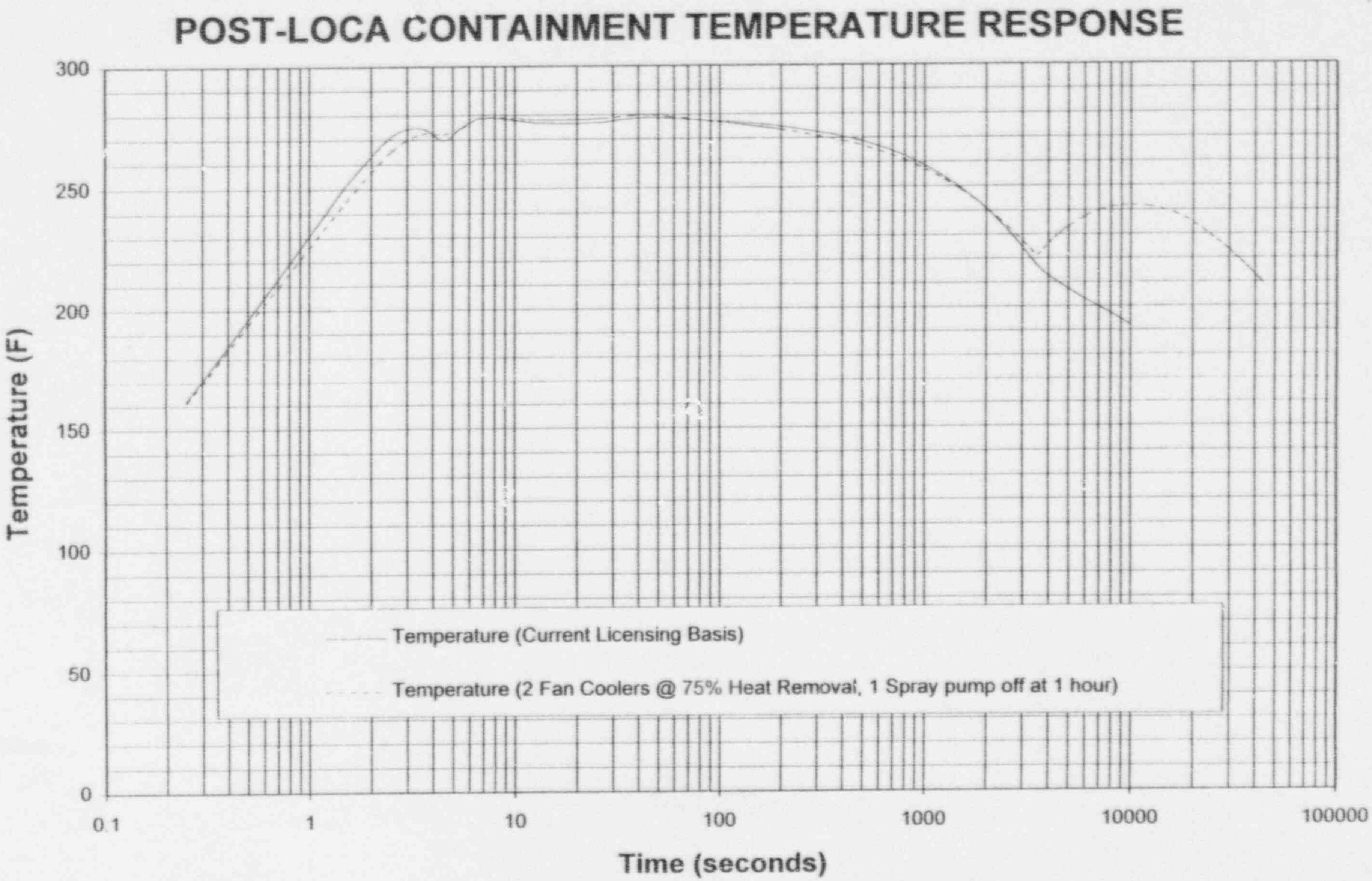
FSAR Appendix B, "Functional Evaluation of the Components of the Systems Shared by the Two Units," states that two pumps are required for LOCA in one unit and hot shutdown of the other unit. This evaluation was based on four CCW pumps normally

available. The repair capability for this system can be applied to the situation described above where two of the three available pumps could be assumed to fail. In this case the repair would be performed to restore a second pump.

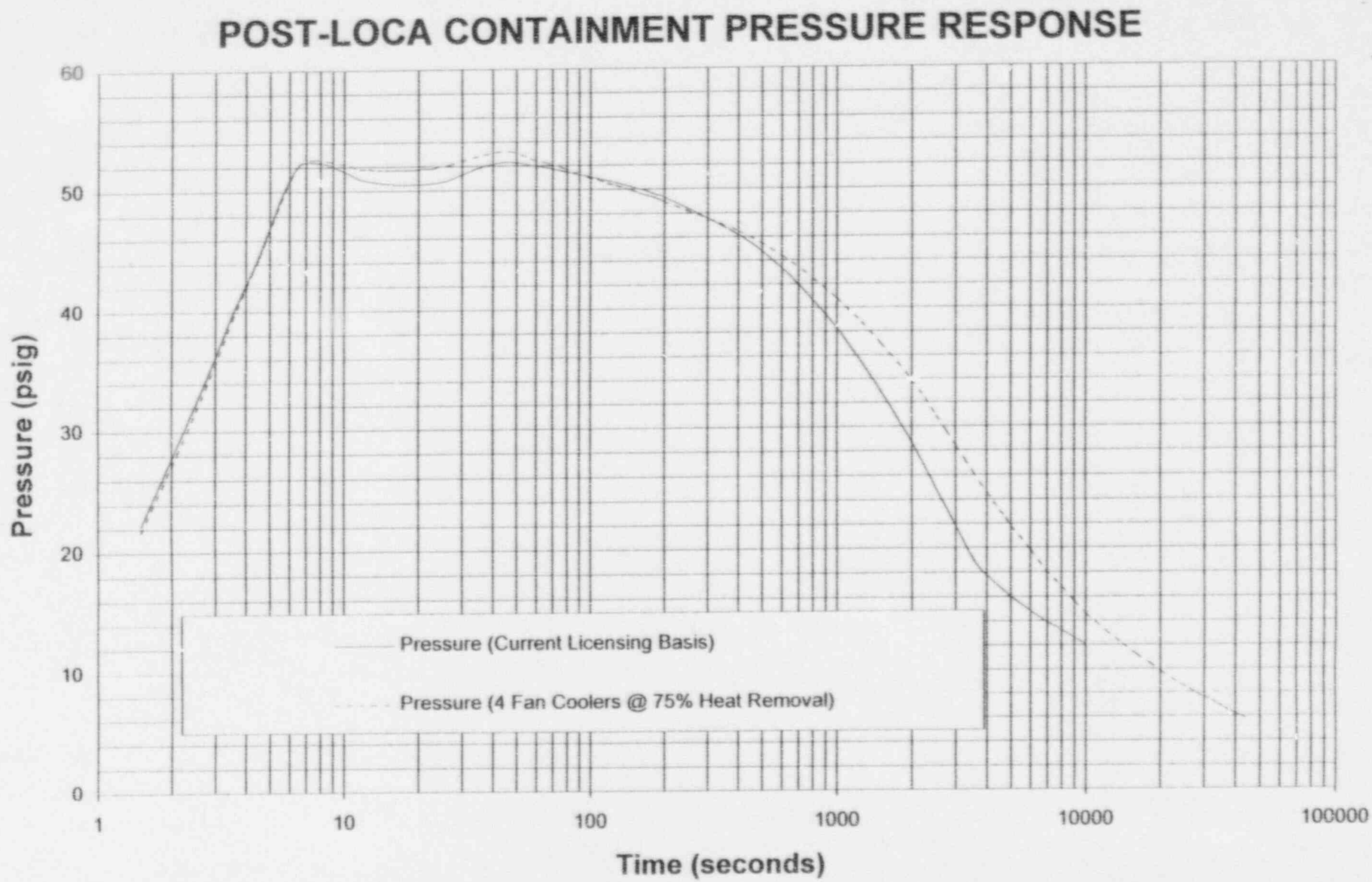
The CCW pumps are normally aligned with two pumps to each unit, one pump in each train per unit. If four CCW pumps are available at the outset of an event, a single failure of one train of emergency equipment would leave one operable CCW pump in each unit. This configuration is consistent with the evaluation of the CCW system function contained in FSAR Appendix B described above. The capability of the CCW system starting with four pumps leaves two operational pumps after a train failure. This is considered preferable to the situation of starting with the three operable pumps because a repair is not necessary to restore a CCW pump and the possible requirement for cross-connection of the Unit 1 and Unit 2 CCW systems would not be needed. Therefore, we intend to propose that the Technical Specifications be amended to require four operable CCW pumps for two unit operation. It is expected that the proposed amendment will include an increase in CCW pump allowed outage time from 24 to 72 hours. A supplement to this Technical Specifications change request containing this information will be submitted by December 13, 1996.



POST-LOCA CONTAINMENT PRESSURE RESPONSE
Pressure (psig)
60
50
40
30
20
10
0
1
10
100
1000
10000
100000
Time (seconds)
Pressure (Current Licensing Basis)
Pressure (2 Fan Coolers @ 75% Heat Removal, 1 Spray pump off at 1 hour)



POST-LOCA CONTAINMENT TEMPERATURE RESPONSE
Temperature (F)
300
250
200
150
100
50
0
0.1
1
10
100
1000
10000
100000
Time (seconds)
Temperature (Current Licensing Basis)
Temperature (2 Fan Coolers @ 75% Heat Removal, 1 Spray pump off at 1 hour)


POST-LOCA CONTAINMENT PRESSURE RESPONSE
Pressure (psig)
Time (seconds)
0
10
20
30
40
50
60
1
10
100
1000
10000
100000
Pressure (Current Licensing Basis)
Pressure (4 Fan Coolers @ 75% Heat Removal)

POST-LOCA CONTAINMENT TEMPERATURE RESPONSE