

ATTACHMENT 1

Proposed Changed
Technical Specification Pages

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<u>Unit 2</u>	<u>Revision</u>
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REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITIONS FOR OPERATION

3.4.10.3 At least one of the following overpressure protection systems shall be OPERABLE:

- a. Two RHR relief valves with:
 - 1. A lift setting of less than or equal to 450 psig, and
 - 2. The associated RHR relief valve isolation valves open; or
- b. The Reactor Coolant System (RCS) depressurized with an RCS vent of greater than or equal to 2.85 square inches.

APPLICABILITY: When the temperature of one or more of the RCS cold legs is less than or equal to 310°F, except when the reactor vessel head is removed.

ACTION:

- a. With one RHR relief valve inoperable and the RCS not water-solid, restore the inoperable valve to OPERABLE status within 7 days or depressurize and vent the RCS through a greater than or equal to 2.85 square inch vent within the next 8 hours.
- b. With one RHR relief valve inoperable and the RCS water-solid, restore the inoperable valve to OPERABLE status within 24 hours or depressurize and vent the RCS through a greater than or equal to 2.85 square inch vent within the next 8 hours.
- c. With both RHR relief valves inoperable, within 8 hours either:
 - 1. Restore at least one RHR relief valve to OPERABLE status, or
 - 2. Depressurize and vent the RCS through a greater than or equal to 2.85 square inch vent.
- d. In the event a RHR relief valve or a RCS vent is used to mitigate a RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the RHR relief valves or vent on the transient and any corrective action necessary to prevent recurrence.
- e. The provisions of Specification 3.0.4 are not applicable.

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- b. With one RHR relief valve inoperable and the RCS water-solid, restore the inoperable valve to OPERABLE status within 24 hours or depressurize and vent the RCS through a greater than or equal to 2.85 square inch vent within the next 8 hours.
- c. With both RHR relief valves inoperable, within 8 hours either:
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- e. The provisions of Specification 3.0.4 are not applicable.

ATTACHMENT 2

Significant Hazards Evaluation

Pursuant to 10 CFR 50.92

10 CFR 50.92 EVALUATION

Pursuant to 10 CFR 50.92, each application for amendment to an operating license must be reviewed to determine if the proposed change involves a significant hazards consideration. The amendment, as defined below, describing the technical specification changes associated with the modification of allowable outage times for residual heat removal system relief valves for cold overpressure protection has been reviewed and deemed not to involve significant hazards considerations. The basis for this determination follows.

Proposed Changes

The proposed amendment involves modification to the technical specification for overpressure protection systems. The allowable outage time (AOT) for one inoperable RHR relief valve with one or more of the RCS cold leg temperatures less than or equal to 310°F is being modified. For water-solid conditions the AOT is being decreased from 7 days to 24 hours. The required AOT for low temperature conditions other than water-solid will remain at 7 days.

Background

On June 25, 1990, the NRC issued a Generic Letter (GL-90-06) in response to resolution of Generic Issue 70 (PORV and Block Valve Reliability) and Generic Issue 94 (Additional Low-Temperature Overpressure Protection for Light-Water Reactors). In GL-90-06, the staff requested modification to the technical specifications to assure cold overpressure protection is afforded. As discussed in GL-90-06, the staff stated that the Reactor Coolant System (RCS) is most vulnerable to a low temperature overpressure (LTOP) transient at temperatures less than 200°F when operating in a water-solid condition. The following proposed modifications to the Joseph M. Farley Nuclear Plant Units 1 & 2 Technical Specification are in response to GL-90-06. These modifications are being proposed based on GL-90-06 and a Farley specific study (WCAP-12933). The conclusions of this study are:

- 1) The most vulnerable time for an overpressure transient is when the RCS is water-solid; therefore, a reduction in the allowed outage time while operating under water-solid conditions is appropriate. (revised Action Statement - 3.4.10.3a)
- 2) If the plant is not water-solid, reduction of the AOT from 7 days to 24 hours is an insignificant contribution to the likelihood of brittle reactor pressure vessel failure (through wall crack), therefore the current AOT requirement of 7 days is appropriate. This conclusion is consistent with the Staff recommendation of NUREG-1326 (Alternative 6).

Analysis

Action statement (a) for technical specification 3.4.10.3 (overpressure protection systems) defines a maximum AOT for one inoperable RHR relief valve. This proposed modification to the action statement would reduce the AOT from the current 7 days to 24 hours for one inoperable RHR relief valve during water-solid operation. Modification of the AOT for non-water solid conditions is not needed since the risk from an overpressure event is insignificant. These AOT's have been shown to be appropriate for the Farley Units based on Farley-specific work documented in WCAP-12933. Associated Bases have also been appropriately modified.

Using information provided for the resolution of Generic Issue 70 and 94 (Generic Letter 90-06, NUREG-1326, and NUREG/CR-5186) and using specific inputs developed for the Farley Units, the most vulnerable time for an LTOP event has been confirmed to be the water-solid condition. A reduction in core damage frequency of approximately 54 percent can be achieved by reducing the allowable outage time for one RHR relief valve from 7 days to 24 hours when operating in a water solid condition. The reduction of AOT from 7 days to 24 hours is appropriate for both of the Farley Units for water-solid operation. A similar reduction in AOT from 7 days to 24 hours was analyzed for operation in low temperature conditions other than water-solid and

it was found that the resulting contribution to core damage frequency (i.e., reactor pressure vessel fracture (through wall crack)) was insignificant (approximately 6×10^{-8} / year) and therefore need not be considered. The current AOT of 7 days for low temperature operation other than water-solid operation is still appropriate.

Based on the preceding evaluation and the analysis performed, the following conclusion with respect to 50.92 can be reached.

- 1) The proposed modification to the AOT for one inoperable RHR relief valve with the RCS in a water-solid condition does not significantly increase the probability or consequences of an accident previously evaluated in the FSAR. The proposed reduction in AOT is an enhancement to the existing technical specification, and affords increased protection for an LTOP event postulated during water-solid operation. As previously discussed, this reduction in AOT is being proposed to assure proper overpressure protection is afforded for the most vulnerable situation (water-solid operation). This modification does not directly initiate an accident. Since no changes in relief valve design, setpoint or operation are involved, the probability of brittle reactor vessel failure has not significantly increased by the proposed change. The consequences of accidents previously evaluated in the FSAR are unaffected by this proposed change.
- 2) The proposed change does not create the possibility of a new or different kind of accident than any accident already evaluated in the FSAR. Cold overpressure events have been analyzed and their bases are presented in the Bases to Technical Specification 3/4.4.10. The reduction in the allowed outage time for one inoperable RHR relief valve will not alter the conclusion of the cold overpressure analysis. This technical specification change enhances the plant ability to prevent an overpressure event by applying greater restriction upon operations during times of highest risk (i.e., water-solid conditions). No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of this proposed change. The proposed technical specification modification does not challenge the performance or integrity of any safety-related systems. Therefore, the possibility of a new or different kind of accident is not created.

- 3) The proposed technical specification change does not involve a significant reduction in the margin of safety. The proposed reduction in AOT for water solid conditions assures proper protection is afforded for all modes of low temperature operation. The margin of safety from an accident is improved by significantly limiting the time allowed with one train of a protection feature inoperable during the time that the plant is in a vulnerable configuration. The LTOP basis for one RHR relief valve capacity has not changed. Therefore there is no significant reduction in the margin of safety.

Based on the preceding information, it has been determined that this proposed change to the AOT for cold overpressure protection for water solid conditions does not involve a significant hazards consideration as defined in 10CFR50.92(C).

ATTACHMENT 3

WCAP-12933	"Allowable Outage Time Study for Residual Heat Removal Valves for Farley Nuclear Plants 1 and 2" (proprietary)
WCAP-12955	"Allowable Outage Time Study for Residual Heat Removal Valves for Farley Nuclear Plant Units 1 and 2" (non-proprietary)
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