



Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247

November 16, 1998
LIC-98-0146

U. S. Nuclear Regulatory Commission, Region IV
Mr. E. W. Merschoff, Regional Administrator
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Reference: Docket No. 50-285

SUBJECT: Omaha Public Power District Position Regarding an Unresolved Item Briefed By the Lead Inspector at the Exit Meeting for the Corrective Action Team Inspection (IER 98-19)

The Omaha Public Power District (OPPD) is providing information in reference to an item which was brought forth in the recent Corrective Action Team Inspection of Fort Calhoun Station. The Corrective Action Team Inspection was conducted at Fort Calhoun Station (FCS) the weeks of October 5 and 19, 1998. The lead inspector briefed two potential violations and one unresolved item at the exit meeting. The purpose of this letter is to clarify the OPPD position on the item the inspectors identified as unresolved.

In the inspection exit meeting, the inspectors briefed Fort Calhoun Station Management that they reviewed a 10 CFR 50.59 safety evaluation concerning a modification that installed overpressure trip protection on steam driven auxiliary feedwater pump FW-10. The inspectors noted that although small, the probability of a malfunction of equipment important to safety previously evaluated in the USAR had increased and that this increase was not recognized by FCS. OPPD disagrees with this conclusion.

Following the FW-10 overspeed event, a Special Inspection of Fort Calhoun Station was completed and documented in Inspection Report 50/285-98-12. In the report details, Section E8.1(b), pages 7-8, the NRC stated that the inspector had reviewed the 10 CFR 50.59 in question and determined that it was satisfactory, that no unreviewed safety question resulted and that the modification would correct the identified design deficiency. OPPD concurs with this conclusion.

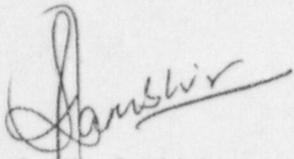
9811240031 981116
PDR ADOCK 05000285
G PDR

U. S. Nuclear Regulatory Commission
LIC-98-0146
Page 2

Therefore, OPPD is providing the attached discussion detailing OPPD's position.

If you should have any questions, please contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "S. K. Gambhir".

S. K. Gambhir
Division Manager
Nuclear Operations

SKG/grc

Attachment

c: NRC Document Control Desk
L. R. Wharton, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector
Winston & Strawn

LIC-98-0146 Attachment

SUBJECT:

Fort Calhoun Station (FCS) review of the 10 CFR 50.59 safety evaluation for the design of the additional Auxiliary Feedwater (AFW) pump (FW-10) overspeed protection (installed by modification MR-FC-98-008)

Background:

During the Corrective Action Inspection, the NRC team raised a question regarding whether the 10 CFR 50.59 safety evaluation for modification MR-FC-98-008 was answered correctly. The modification added an automatic closure signal (high FW-10 discharge pressure) to the FW-10 steam inlet valve (YCV-1045) as backup overspeed protection.

The portion of the analysis in question asks:

Could the proposed activity increase the probability of a malfunction of equipment important to safety previously evaluated in the USAR?

Specifically, the question is, since a trip circuit was added to FW-10, did this in fact increase the probability of a failure of FW-10? Consequently, would this require a "yes" answer to the Unreviewed Safety Question Determination (Form FC-154)? The answer, provided by FCS, was "no" and a basis for "no" was provided.

Discussion

Following the Corrective Action Inspection, the 10 CFR 50.59 safety evaluation for modification MR-FC-98-008 was reviewed to determine if question B.7 of the FCS safety evaluation form was answered correctly, as "no".

The modification added a diverse overspeed protection circuit to close YCV-1045 in the event of excessive pump discharge pressure resulting from a turbine overspeed. This modification was added to correct an original system design deficiency where a single failure of the governor speed limiter could cause degradation of the safety related AFW system function. The degradation of the AFW system results from a pump overspeed causing a pump discharge pressure that could result in significant gasket leakage and potential failure of the pump itself. The governor speed limiter is the point of single failure, because the normal governor speed control depends on instrument air which is not a safety related system and is assumed to be lost in a Design Basis Accident (DBA). The normal governor control thus fails, allowing the turbine to operate on the speed limiter only.

It was determined that a single failure could cause possible degradation of the AFW System and adversely affect system reliability. As a result, a modification was installed to improve system reliability in compliance with the single failure criteria. The addition of the backup overspeed protection circuit to close YCV-1045 was judged to result in a net increase in the AFW system reliability (reduce the probability of the degradation of the system) as compared to the system as originally installed without the overspeed protection. The guidance provided in the 10 CFR 50.59 safety evaluation preparation guideline indicates that the modified system should be equal to or more reliable than before the modification. During the modification process, including preparation of a 10 CFR 50.59 safety evaluation, OPPD determined that the guidance is judged to have been met.

At the time the modification was designed and installed, FCS recognized that the addition of the diverse overspeed protection circuit to close YCV-1045 could result in the unanticipated loss of FW-10 due to a new failure mechanism. This was appropriately considered in the design single failure criteria. Also, the components used are highly reliable safety related quality components installed to meet the plant's seismic design criteria. This design also included a feature for manual reset of the diverse overspeed protection to enhance AFW system reliability. In addition, if the overspeed protection circuit failed in such a manner as to not allow manual reset, station procedures provide guidance for a local start where the instrument air isolation valve is closed and the air bleed-off valve opened. This effectively bypasses the overspeed protection.

The design package (MR-FC-98-008) also included a PRA perspective, Section 2.3, Performance Analysis. This section discusses the modification from a "Beyond Design Basis" perspective and from the "Loss of FW-10" perspective. The conclusion is as follows:

The reliability of this design and the operator recovery are expected to result in a minimal impact in the failure to run of FW-10. The effect of this design change on severe accident risk, whether positive or negative, is expected to be very small.

Additionally, the Part 9900: 10 CFR Guidance (NRC Inspection Manual), Interim guidance on the Requirements Related to Changes to Facilities, Procedures and Tests (or experiment); Change Notice 96-008, issued April 9, 1996, states, in part:

Licenses are expected to utilize a combination of reasonable engineering practices, engineering judgement, and analytical techniques, as

appropriate, in determining whether the probability increases as a result of implementing a proposed change. A large body of knowledge has been developed in the area of equipment reliability and initiating event frequency through plant-specific and generic studies. Licensees are expected to draw on this knowledge when determining what constitutes an increase in the probability of occurrence of an accident or malfunction of equipment important to safety and should include any equipment that could either cause, exacerbate, or mitigate events or accident sequences described in the updated SAR.

Consequences of failure of an additional active component installed in the FW-10 speed control circuit was evaluated against the consequences of failure of the speed limiting governor in the overall reliability of FW-10. OPPD determined that the benefit of adding the new components for additional overspeed protection of FW-10 out-weighed the consequences of a premature pump trip.

The failure mode introduced by adding a pressure switch to the FW-10 speed control circuit is the premature trip of FW-10 (when an overpressure condition does not exist). However, because of the design of the circuitry, FW-10 could be restarted in sufficient time, should FW-10 trip prematurely, to have negligible affect on steam generator heat removal capability, post-accident. Additionally, the components used in the modification are of high quality. Therefore, the components should be highly reliable, thus minimizing the potential for premature pump trip. Failure of the speed limiting governor in the existing design, on the other hand, could result in an overspeed of FW-10 with subsequent pump and system piping degradation. OPPD determined that degradation of FW-10 and portions of AFW system piping was unacceptable.

Furthermore, please consider that SECY-98-171, dated July 10, 1998, "Proposed Rulemaking on 10 CFR Parts 50, 52 and 72 Requirements Concerning Changes, Tests, and Experiments and Staff Recommendations on Changes to Other Regulations," Section 4, "Enforcement Policy," states, in part:

In addition, the staff will exercise enforcement discretion, during the rulemaking period, for violations of § 50.59 that are not safety significant and do not pose regulatory concerns that warrant escalated action. The staff considered exercising discretion to not take enforcement action for violations of the existing rule that would not be violations of the proposed rule. However, such an approach would in essence implement the revised rule without completing the rulemaking. Therefore, the staff intends to reduce the severity level of violations in

such instances. The Commission requested specifics regarding the nature and type of situations for which discretion will be considered. The staff plans to apply the guidance described below to violations involving § 50.59 (and § 72.48) while the rulemaking is in progress. The staff believes that the use of this discretion is consistent with the existing enforcement policy, which recognizes the need to exercise judgment in determining severity levels and that the existing examples are not controlling. Therefore, a revision to the policy is not needed at this time.

In the Federal Register, Vol. 63, No. 203, Wednesday, October 21, 1998, Proposed rules, page 56120, a 50.59 change is detailed.

The change in § 50.59 (c)(2):

A licensee shall obtain an amendment to the license pursuant to § 50.90 prior to implementing a change, test or experiment if it would:

...(iv) Result in more than a minimal increase in the consequences of a malfunction of equipment important to safety previously evaluated within the final safety analysis report (as dated), or in evaluations performed pursuant to this section and safety analysis performed pursuant to § 50.90 after the last final safety analysis report was updated pursuant to § 50.71 of this part:...

When considering the proposed rulemaking in conjunction with SECY 98-171, OPPD concludes that the NRC is obliged to consider not taking enforcement action for perceived violations of the existing rule that would not be violations of the proposed rule.

Conclusion

The additional review of the package indicates that question B.7 of the FCS safety evaluation form for the modification design was answered correctly as "no." The modification has improved system reliability.