ENTERGY

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April 4, 1995

2CAN049510

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station P1-137
Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Technical Specification Change Request Concerning Turbine Valve Testing Interval

Gentlemen:

Attached for your review and approval is a proposed Arkansas Nuclear One-Unit 2 (ANO-2) Technical Specification (TS) amendment revising the TS surveillances 4.3.4.1.2.a and 4.3.4.1.2.b. These surveillances demonstrate the operability of the turbine overspeed protection system by cycling the turbine stop, control and combined stop and intercept valves at least one complete cycle. The current ANO-2 TS require cycling the main turbine-generator (MTG) high pressure stop and combined stop and intercept valves at least once per 7 days. The high pressure stop valves, high pressure control valves and the combined stop and intercept valves are also tested by direct observation of movement through at least one complete cycle at least once per 31 days. The proposed change combines these surveillance requirements and increases the surveillance interval to at least once per 92 days. The proposed change is made in accordance with the provisions of NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," and Generic Letter 93-05, "Line Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation."

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal.

Entergy Operations requests that the effective date for this change be within 30 days of NRC issuance of the amendment to allow for distribution and procedural revisions necessary to implement the change. Although this request is neither exigent nor emergency, your prompt review is requested.

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Very truly yours,

J W Yelverton

JWY/lgm
Attachments

To the best of my knowledge and belief, the statements contained in this submittal are true.

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for Johnson **County and the State of Arkansas, this** 4 **day of** April **, 1995.**

Juana M. Tapp
Notary Public
My Commission Expires 11-8-2000

OFFICIAL SEAL
JUANA M. TAPP
NOTARY PUBLIC - ARKANSAS
JOHNSON COUNTY
My Commission Expires: 11 - 8 - 2000

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ATTACHMENT

TO

2CAN049510

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT TWO

DOCKET NO. 50-368

DESCRIPTION OF PROPOSED CHANGES

- The turbine overspeed protection system surveillance to cycle the stop and combined stop and intercept valves at least once per 7 days and the surveillance to cycle the stop, control and combined stop and intercept valves at least once per 31 days have been combined and the surveillance frequency extended to at least once per 92 days.

- Minor administrative changes were made to consolidate and renumber the remaining surveillances and to delete page 3/4 3-59 to improve the usability of the document.

BACKGROUND

The turbine overspeed protection system is designed to prevent the main turbine-generator (MTG) rotating assembly from attaining a catastrophic overspeed condition. If this condition were to exist, the turbine could mechanically fail and generate potentially damaging missiles which might impact and damage safety related components, equipment or structures. This system is comprised of both a mechanical overspeed trip device and a backup electric overspeed trip device. Both devices function by dumping electro-hydraulic oil pressure from the stop, control and combined stop and intercept valve actuators allowing them to cycle closed upon the MTG reaching the overspeed trip setpoint. The turbine overspeed protection system is described in ANO-2 Safety Analysis Report section 10.2.2.3.

The ability of the turbine valves to close is verified by performing a periodic surveillance test which cycles each valve fully closed, one at a time. The main stop valves and the combined stop and intercept valves are tested weekly. This test impacts the operation of the unit by creating steam flow imbalances during the stop valve cycles, which are compensated for by the main feedwater system, and load swings during the cycling of the combined stop and intercept valves. The turbine control valves are tested on a monthly frequency. A reduction in MTG load is necessary to close the #3 and #4 control valves until there is sufficient capacity available to compensate for the cycling of the control valves. The typical load reduction required for this surveillance is 10-12% turbine load, or approximately 100 megawatts. Once the load reduction is complete, MTG load control is transferred from the load limit potentiometer to the load set motor. At the completion of valve cycling load control is transferred back to the load limit potentiometer and MTG load restored to the pre-test value. This transfer procedure can cause MTG load swings and secondary system instability as the MTG load control is shifted between the two control systems.

In addition to the routine operational transients mentioned above, Arkansas Nuclear One-Unit 2 (ANO-2) has experienced more severe transients during the performance of these tests. During a weekly stop valve test, the unit tripped from 90% power when all stop valves shut as a result of a test relay failure. In another example, the unit was forced off-line by gross secondary impurities introduced through a failed condenser tube. The tube failed when a turbine bypass valve was opened in preparation for the monthly control valve test.

DISCUSSION OF CHANGE

The current ANO-2 technical specifications (TS) require the turbine overspeed protection system be demonstrated operable:

- At least once per 7 days by cycling the high pressure turbine stop valves and the combined intercept and stop valves through at least one complete cycle from the running position.

- At least once per 31 days by direct observation of the movement of each of the high pressure turbine stop valves, the high pressure turbine control valves and the low pressure turbine combined stop and intercept valves through one complete cycle from the running position.

Pursuant to the recommendations of NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," and Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," the ANO-2 TS have been changed to require these tests be performed at least once per 92 days. This test frequency is endorsed by the vendor, General Electric (GE) in Technical Information Letter (TIL) 969-3 R1, "Periodic Turbine Steam Valve Test-Nuclear Steam Turbines," dated December 27, 1993. TIL 969-3 R1 states, "Specifically, this revised recommendation permits a valve test interval of three months for 1) units having all monoblock (integral) turbine rotors,..." The ANO-2 MTG is equipped with monoblock turbine rotors.

In addition to relaxing the test frequency of the turbine valves, the revised surveillance specifies "direct observation of the movement" of these valves as necessary to demonstrate operability. Direct observation is currently required during the performance of the monthly surveillance and is procedurally required for the weekly surveillance.

The administrative changes made in this amendment consist of renumbering the surveillance requirement 4.3.4.1.2 due to the consolidation of requirements a. and b. into one test. The remaining surveillance requirements, 4.3.4.1.2.c and d were moved to page 3/4 3-58 and page 3/4 3-59 was deleted.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1) regarding no significant hazards considerations using the standards in 10CFR50.92(c). A discussion of these standards as they relate to this amendment request follows:

Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

Modifying the surveillance frequency of the main turbine-generator (MTG) overspeed protection system introduces no new failure mechanism for the machine, so the consequences of a postulated MTG overspeed event are no different than those previously evaluated.

As explained in NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," the present surveillance test frequency requirements were developed for fossil units and carried over to nuclear units due to the similarity in design. However, the particulate concentration, phosphate chemistry and higher steam temperatures present in earlier fossil secondary systems, which were major contributing factors to problems identified by these tests, are not present in the Arkansas Nuclear One-Unit 2 (ANO-2) secondary systems. The operating history of turbine valves at ANO-2 is very good, with no failures identified during the performance of overspeed protection system surveillance testing. Therefore, this change does not involve a significant increase in the probability of any accident previously evaluated.

Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.

Because the proposed changes do not alter the design, configuration, or method of operation of the plant, they do not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety.

These proposed changes do not alter the acceptance criteria of any surveillance requirements, alter any assumptions used in accident analysis, change any actuation setpoints, nor allow operations in any configuration not previously evaluated. This change in surveillance frequency is based on an operating history of the turbine overspeed protection system which indicates that reducing the test frequency will have no adverse impact on the continued safe operation of the unit.

Therefore, this change does not involve a significant reduction in the margin of safety.

Therefore, based upon the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested change does not involve a significant hazards consideration.