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SUBJECT: Application for amends to licenses DPR-58 & DPR-74, requesting rev of reactor coolant pump flywheel insp frequency.

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Indiana Michigan
Power Company
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Buchanan, MI 49107 1395

INDIANA MICHIGAN POWER

December 20, 1996

AEP:NRC:1245
10 CFR 50.90

Docket No: 50-315
50-316

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
LICENSE NOS. DPR-58 AND DPR-74
PROPOSED LICENSE AND TECHNICAL SPECIFICATION CHANGES
OF REACTOR COOLANT PUMP FLYWHEEL INSPECTION FREQUENCY

This letter and its attachments constitute an application for amendment of the technical specifications (T/S) for Cook Nuclear Plant units 1 and 2. Changes are proposed to reduce the frequency and scope of reactor coolant pump flywheel inspections consistent with your staff's evaluation of WCAP-14535, "Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination."

A description of the proposed changes and an analysis concerning significant hazards consideration pursuant to 10 CFR 50.92 is contained in attachment 1. Attachment 2 contains the existing T/S pages marked to reflect the proposed changes. Attachment 3 contains the proposed, revised T/S pages.

We believe the proposed T/S changes will not result in a significant change in the types of effluents or a significant increase in the amount of effluent that might be released offsite, or a significant increase in individual or cumulative occupational radiation exposure.

These proposed changes have been reviewed by the Plant Nuclear Safety Review Committee and the Nuclear Safety and Design Review Committee.

In compliance with the requirements of 10 CFR 50.91(b)(1), copies of this letter and its attachments have been transmitted to the Michigan Public Service Commission and the Michigan Department of Public Health.

Sincerely,

E. E. Fitzpatrick
Vice President

jmb

Attachments

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 20th DAY OF December 1996

Jan Watson
Notary Public

My Commission Expires: _____

JAN WATSON
NOTARY PUBLIC, BERRIEN COUNTY, MI
MY COMMISSION EXPIRES FEB. 10, 1999

260036

A001 1/1

cc: A. A. Blind
A. B. Beach
MDEQ - DW & RPD
NRC Resident Inspector
J. R. Padgett

ATTACHMENT 1 TO AEP:NRC:1245

10 CFR 50.92 ANALYSIS FOR CHANGES TO THE

DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2

TECHNICAL SPECIFICATIONS

1.0 SECTION TO BE CHANGED

1. Unit 1 technical specification (T/S) 4.4.10.1

2. Unit 2 T/S 4.4.10.1

2.0 EXTENT OF CHANGES

1. We are proposing to change unit 1 T/S 4.4.10.1 to require reactor coolant pump (RCP) flywheel inspections once every 10 years in the manner described below.

2. We are proposing to change unit 2 T/S 4.4.10.1 to require RCP flywheel inspections once every 10 years in the manner described below.

3.0 CHANGES REQUESTED

We are proposing to make the following change to the unit 1 and unit 2 T/Ss.

1. Currently T/S section 4.4.10.1 requires that each reactor coolant pump flywheel be inspected per the recommendations of regulatory position C.4.b of Regulatory Guide (RG) 1.14, Revision 1, August 1975. The regulatory position of RG 1.14 concerning ISI calls for an in-place ultrasonic volumetric examination of the areas of higher stress concentration at the bore and keyway at approximately 3-year intervals and a surface examination of all exposed surfaces and complete ultrasonic volumetric examination at approximately 10-year intervals. The proposed T/S requires that either a qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or a surface examination (MT and/or PT) of exposed surfaces defined by the volume of the disassembled flywheels be conducted once every 10 years.

4.0 DISCUSSION

Technical Specification 4.4.10.1 Bases

T/S 4.4.10.1 ensures that the structural integrity of the reactor coolant pump flywheels will be maintained at an acceptable level throughout the life of the plant.

Justification for Proposed Technical Specification Changes

The proposed T/S amendment request to reduce the frequency and scope of surveillance of the RCP flywheels is justified for several reasons. This change is consistent with Mr. Sheron's (Director Division of Engineering, Office of Nuclear Reactor Regulation) letter entitled "Acceptance for Referencing of Topical Report WCAP-14535, 'Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination'" and related attachments. Per the requirement of this letter, we have confirmed that the RCP flywheels in place at Cook Nuclear Plant are composed of SA 533 B material. Though Westinghouse Electric Corporation report WCAP-14535, entitled "Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination", seeks elimination of flywheel inspections, we only

seek to reduce the frequency of these inspections to once every 10 years. WCAP-14535 concludes the following.

1. Flywheels are carefully designed and manufactured from excellent quality steel, which has a high fracture toughness.

2. Flywheel overspeed is the critical loading, but leak before break has limited the maximum speed to less than 1500 rpm.

3. Flywheel inspections have been performed for 20 years, with no indications of service induced flaws.

4. Flywheel integrity evaluations show very high flaw tolerance for the flywheels.

5. Crack extension over a 60 year service life is negligible.

6. Structural reliability studies have shown that eliminating inspections after 10 years of plant life will not significantly change the probability of failure. Most flaws which could lead to failure would be detected during preservice inspection or at worst early in plant life, and crack growth over plant life is negligible. As stated in the SER associated with WCAP-14535, assuming an initial crack of 10% of the distance from the keyway to the flywheel outer radius and a maximum fatigue crack growth, ASME margins would be maintained during the 10-year inspection period.

7. Inspections result in man rem exposure and the potential for flywheel damage during disassembly and reassembly.

Based on the above conclusions, inspections of RCP flywheels with a 10-year frequency and modified scope are justified.

5.0 NO SIGNIFICANT HAZARDS CONSIDERATION

We have evaluated the proposed T/S changes and have determined they do not represent a significant hazards consideration based on the criteria established in 10 CFR 50.92(c). Operation of Cook Nuclear Plant in accordance with the proposed amendment will not:

1. Involve a significant increase in the probability or consequence of an accident previously evaluated.

   This change will reduce tne frequency and scope of the surveillance testing on the reactor coolant pump flywheels. Operating power plants have been inspecting their flywheels for over 20 years with no flaws identified which affect flywheel integrity. Past examinations performed to satisfy T/S 4.4.10.1 have not revealed any cracking of flywheel plates at Cook Nuclear Plant. Crack extension over a 60 year service life is negligible. Structural reliability studies have shown that eliminating inspections after 10 years of plant life will not significantly change the probability of failure. Most flaws which could lead to

failure would be detected during preservice inspection or, at worst, early in plant life, and crack growth over plant life is negligible. As stated in the SER associated with WCAP-14535, assuming an initial crack of 10% of the distance from the keyway to the flywheel outer radius and a maximum fatigue crack growth, ASME margins would be maintained during the 10-year inspection period. Therefore, the change in test frequency will not endanger public health or safety. For these reasons, it is our belief the proposed changes do not involve a significant increase in the probability or consequences of a previously evaluated accident.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The changes will not introduce any new modes of plant operation, nor will any physical changes to the plant be required. Thus, the changes will not create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated.

3. Involve a significant reduction in a margin of safety.

This change will reduce the frequency and scope of the surveillance testing on the reactor coolant pump flywheels. Operating power plants have been inspecting their flywheels for over 20 years with no flaws identified which affect flywheel integrity. Past examinations performed to satisfy T/S 4.4.10.1 have not revealed any cracking of flywheel plates at Cook Nuclear Plant. Crack extension over a 60 year service life is negligible. Structural reliability studies have shown that eliminating inspections after 10 years of plant life will not significantly change the probability of failure. Most flaws which could lead to failure would be detected during preservice inspection or at worst early in plant life, and crack growth over plant life is negligible. As stated in the SER associated with WCAP-14535, assuming an initial crack of 10% of the distance from the keyway to the flywheel outer radius and a maximum fatigue crack growth, ASME margins would be maintained during the 10-year inspection period. For these reasons, it is our belief the proposed changes do not involve a significant reduction in a margin of safety.

6.0 PENDING T/S PROPOSALS IMPACTING THIS SUBMITTAL

There are no other T/S proposals under review that impact this submittal.