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JPN-92-062

U.S. Nuclear Regulatory Commission
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SUBJECT: **James A. FitzPatrick Nuclear Power Plant**
Docket No. 50-333
Inservice Inspection Program Revision and Hydrostatic Relief Request

REFERENCES:
1. U.S. NRC Regulatory Guide 1.147, Revision 9, dated April 1992, "Inservice Inspection Code Case Acceptability."
2. NYPA letter, H. P. Salmon to the NRC, dated June 15, 1992 (JAFP-92-0463), Licensee Event Report: 92-022 - ASME Class III Pressure Tests Performed for ten minutes Instead of four Hours.

Dear Sir:

This letter provides the Authority's plans to revise the James A. FitzPatrick Inservice Inspection (ISI) Program and requests the NRC review for approval the ISI Relief Request in Attachment II.

ASME Code Case N-498, "Alternate Rules for 10-Year Hydrostatic Pressure Testing for Class I and II Systems," has been found acceptable by the NRC for implementation in the inservice inspection of light-water-cooled nuclear power plants (Reference 1). The Authority's plan to revise the FitzPatrick ISI program to apply this Code Case for the remainder of the current Second Interval Inservice Inspection Program on selected Class I and Class II systems is provided in Attachment I.

In support of implementing Case N-498, the Authority is submitting Attachment II, "RCIC Hydrostatic Relief Request," for NRC review. This relief request provides the justification for applying Code Case N-498 to the FitzPatrick Class III Reactor Core Isolation Cooling (RCIC) system. The Code Case has been approved for use on Class II systems including the High Pressure Coolant Injection (HPCI) system which has a similar function and configuration to the Class III RCIC system. The acceptable level of quality and safety that the Code Case ensures for Class II systems is also applicable to high pressure Class III systems, such as RCIC. The application of Code Case N-498 to the RCIC system will reduce person-rem exposure and simplify the ISI program by having consistent pressure testing between the HPCI (Class II) and RCIC (Class III) systems.

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The Authority will also revise the ISI Program to incorporate pressure testing requirements for Emergency Diesel Generator (EDG) Augmented ISI Class III Subsystems. The current revision of the James A. FitzPatrick Second Interval Inservice Program does not provide the scope and basis for pressure testing these Augmented ISI Class III Subsystems. Reference 2 documented this identified weakness and stated that the Authority would submit a clarification of the EDG Augmented ISI Class III Subsystem testing program to the NRC. Attachment III provides this clarification.

If you have any questions, please contact J. A. Gray, Jr.

Very truly yours,

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ATTACHMENT I TO JI N-92-062

INSERVICE INSPECTION SYSTEM PRESSURE TEST PROGRAM

IMPLEMENTATION OF ASME CODE CASE N-498

The James A. FitzPatrick Nuclear Power Plant is revising its Inservice Inspection Program to include the use of ASME Boiler and Pressure Vessel Code Case N-498, "Alternate Rules for 10-Year Hydrostatic Pressure Testing for Class I and II Systems." Code Case N-498 has been found to be acceptable by the NRC for implementation in the inservice inspection of light-water-cooled nuclear power plants and has been incorporated in Regulatory Guide 1.147 Revision 9, "Inservice Inspection Code Case Acceptability, ASME Section XI Division 1."

ASME Code Case N-498 provides alternate rules for the 10-Year hydrostatic pressure tests required by the ASME Boiler and Pressure Vessel Code, Section XI, Table IWB-2500-1, Category B-P, and Table IWC-2500-1, Category C-H. This code case accepts an inservice test at nominal operating pressure in lieu of a hydrostatic test at elevated pressures on Class I and II systems.

Hydrostatic testing requires extensive preparation work including the installation of blank flanges, temporary supports, hydrostatic test rig, pressure hoses, and pressure gages. Preparation for inservice testing requires significantly less craft labor, therefore, the Authority expects a reduction in person-rem exposure by performing inservice tests at nominal pressure.

The Authority understands its responsibility to make certain that there are no conflicts with other requirements resulting from Code Case usage. A review of FitzPatrick pressure testing commitments has been performed to ensure there are no conflicting requirements with ASME Code Case N-498. FitzPatrick plans to incorporate ASME Code Case N-498 in the next revision to the ISI Program and apply the Code Case for the remainder of the current Second Interval Inservice Inspection Program on selected Class I and II systems. The Code Case cannot be applied to all Class I and II systems. For example, sections of Control Rod Drive system require a scram be initiated to establish nominal operating pressures making application of the Code Case impracticable. Hydrostatic testing will continue to be performed on Class I and II systems which cannot be tested in accordance with the Code Case.

ATTACHMENT II TO JPN-92-062

INSERVICE INSPECTION SYSTEM PRESSURE TEST PROGRAM

HYDROSTATIC RELIEF REQUEST

Systems:	RCIC
Components:	Piping
Code Class:	III
Code Test Requirements:	2nd Interval ASME Section XI 1980 Edition through Winter 1981 Addenda Subsection IWD-5223(a) states: The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F. For systems (or portions of systems) not provided with safety or relief valves, the system design pressure P_d shall be substituted for P_{sv}.
Basis for Relief:	Relief from the reference test pressure is requested in accordance with 10CFR 50.55a(a)(3)(i). The proposed alternative will provide an acceptable level of quality and safety. ASME Code Case N-498 provides alternative rules for the 10-year hydrostatic pressure tests required by the ASME Boiler and Pressure Vessel Section XI Code for pressure retaining components in Class I and Class II systems. The Code Case alternative rules allows replacement of the 10 year hydrostatic test with a system inservice test performed at nominal operating pressure. Use of these alternative rules are acceptable because they ensure equal quality and structural integrity in comparison hydrostatic testing. The acceptable level of quality and safety that the Code Case ensures for Class II systems can also be applied to the Class III RCIC system, therefore, the performance of a RCIC pressure test in accordance with Code Case N-498 would have an insignificant effect on the ability to detect leakage from the pressure boundary when compared to hydrostatic testing. In addition, a reduction in person-rem exposure will be achieved by performing a RCIC pressure test in accordance with Code Case N-498 in lieu of the hydrostatic test. The application of this Code Case to the Class III RCIC system would provide an acceptable level of quality and safety compared to the 10-year hydrostatic test.
Alternate Testing:	A system pressure test is performed in accordance with ASME Code Case N-498 Section (b) (1) through (4) in lieu of the hydrostatic test.

ATTACHMENT II TO JPN-92-062

INSERVICE INSPECTION SYSTEM PRESSURE TEST PROGRAM

TESTING REQUIREMENTS FOR AUGMENTED CLASS III EDG SUBSYSTEMS

Background

Revision 1 of the James A. FitzPatrick Second Interval Inservice Inspection (ISI) Program does not provide the scope and basis for pressure testing Augmented ISI Class III Emergency Diesel Generator (EDG) subsystems. LER 92-022 documented this identified weakness and stated that the Authority would submit to the NRC a clarification of the testing program for these EDG subsystems. The Authority will revise the FitzPatrick ISI Program to include Augment Class III EDG subsystem pressure testing requirements by December 30, 1992.

EDG Augmented Class III Subsystems

The following EDG subsystems are classified as Augmented Class III in FitzPatrick's ISI program:

- Emergency Diesel Generator Fuel Oil Transfer System
- Emergency Diesel Generator Fuel Oil Service System
- Emergency Diesel Generator Combustion Air
- Emergency Diesel Generator Lube Oil System
- Emergency Diesel Generator Cooling Water System
- Emergency Diesel Generator Air Start System

These EDG subsystems do not meet ISI program boundaries as defined in 10CFR 50.55a, "Codes and Standards", or Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive Waste-Containing Components of Nuclear Power Plants." However, in accordance with Regulatory Guide 1.26, the Authority has classified these subsystems as Augmented ISI systems which are tested to quality standards commensurate with the safety function they perform.

Pressure Testing Methodologies

The Authority has defined the testing requirements of the Augmented Class III EDG subsystems to ensure the integrity of the pressure boundary. Testing in strict accordance with the code is not possible since the systems were designed and constructed prior to current inspection requirements and is not required based on an "Augmented" classification.

ATTACHMENT III TO JPN-92-062

INSERVICE INSPECTION SYSTEM PRESSURE TEST PROGRAM

TESTING REQUIREMENTS FOR EDG AUGMENTED CLASS III SUBSYSTEMS

The following guidelines from Section XI of the 1980 Edition of the ASME Boiler and Pressure Code through the Winter 1981 Addenda and the James A. FitzPatrick (JAF) Nuclear Power Plant Inservice Inspection (ISI) Program for Welds and Supports, Second Interval, Revision 1, were used to develop the EDG subsystem testing requirements:

- Because Hydrostatic Testing is not possible, 4 pressure tests will be perform during the 10-year Interval (JAF ISI Program Relief Request 12, Class III Systems and Components).

- Inservice pressure tests with 4 hour hold times will be performed on systems that are normally in service and do not require EDG operation (1980 ASME Section XI Code Paragraph IWA-5211c).

- Functional pressure testing with 10 minute hold times will be performed on systems that are normally in standby and require EDG operation (1980 ASME Section XI Code Paragraph IWA-5211b).

- Flow Verification will be performed on open ended systems (1980 ASME Section XI Code Paragraph IWD-5223d).

The table on the following page outlines EDG subsystem testing requirements.

ATTACHMENT III TO JPN-92-062

INSERVICE INSPECTION SYSTEM PRESSURE TEST PROGRAM

TESTING REQUIREMENTS FOR EDG AUGMENTED CLASS III SUBSYSTEMS

To ensure the EDG subsystem pressure boundary integrity the following tests are performed on the Augmented Class III Systems.

EDG Augmented ISI Class III Pressure Testing		
System	Test Method	Test Basis
Fuel Oil Transfer (Fuel Storage Tanks to Day Tanks)	Flow Verification during Functional Test (4x per interval)	Flow Verification because system is open ended from Fuel Storage Tank to Day Tank. Verification of flow is determined by an increase in Day Tank Level. Functional Test performed because system is not normally in service.
Fuel Oil Service (Day Tanks to Fuel Injectors)	Flow Verification during Functional Test (4x per interval)	Flow Verification because system is open ended from Day Tank to Fuel Injectors. Verification of flow is determined by EDG operation. Functional Test performed because system is not normally in service.
Combustion Air (Intake and Exhaust)	Flow Verification during Functional Test (4x per interval)	Flow Verification because system is open ended from air intake to EDG exhaust. Verification of flow is determined during EDG operation. Functional Test performed because system is not normally in service.
Lube Oil	VT-2 Inspection during Functional Test (4x per interval)	VT-2 Inspection on closed loop piping while system is in service under operating pressure. Functional Test performed because system is not normally in service.
Cooling Water	VT-2 Inspection during Functional Test (4x per interval)	VT-2 Inspection on closed loop piping while system is in service under operating pressure. Functional Test performed because system is not normally in service.
Air Start	VT-2 Inspection during Inservice Test (4x per interval) Flow Verification during Functional Test (4x per interval)	VT-2 Inspection on closed loop piping while system is in service under operating pressure. Inservice Test performed because system is normally in service and pressurized. Flow Verification is performed on open ended portion of system, air start solenoids and motors.