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Pete Dietrich
Site Vice President - JAF

JAFP-10-0079
June 25, 2010

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

SUBJECT: James A. FitzPatrick Nuclear Power Plant Application for Amendment to Modify the Technical Specifications Requirements for Testing of Low Pressure Coolant Injection Inverter
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) hereby requests an amendment to the Technical Specifications (TS) for the James A. FitzPatrick Nuclear Power Plant (JAF).

This license amendment submittal requests modifying the TS requirements for testing of the Low Pressure Coolant Injection Inverter by changing the current requirement to open the inverter battery charger AC input breaker to opening the inverter battery charger AC input contactor.

Attachment 1 provides an application for amendment to modify the TS requirements on testing of the Low Pressure Coolant Injection Inverter; Attachment 2 provides the proposed TS changes on marked up pages; Attachment 3 provides the proposed TS changes in final typed format with change bars; and Attachment 4 provides the proposed TS Bases changes on marked up pages.

The TS Bases changes are provided for NRC information only. The final TS Bases pages will be submitted with a future update in accordance with TS 5.5.11, “Technical Specifications (TS) Bases Control Program.”

ENO requests NRC approval of the proposed TS amendment, as revised, by September 15, 2010, with the amendment being implemented within 30 days from approval.

In accordance with 10 CFR 50.91, a copy of this application, with the associated attachments, is being provided to the designated New York State official.

There are no new commitments made in this letter.

Questions concerning this submittal may be addressed to Mr. Joseph Pechacek, Licensing Manager, at (315) 349-6766.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 25th day of June 2010.

Sincerely,

Pete Dietrich
Site Vice President - JAF

PD/JP/ed

Attachments:
1. Application for Amendment to Modify the Technical Specifications Requirements for Testing of the Low Pressure Coolant Injection Inverter
2. Proposed Technical Specification Changes (Marked up)
3. Proposed Technical Specification Changes (Final typed)
4. Proposed Technical Specification Bases Changes (Marked up) (Information Only)

cc: next page

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Document Component(s):
001 Transmittal letter JAFP-10-0079 with Attachments

JAFP-10-0079

Attachment 1

Application for Amendment to Modify the Technical Specifications Requirements for Testing of Low Pressure Coolant Injection Inverters (5 Pages)

Application for Amendment to Modify the Technical Specifications Requirements for Testing of Low Pressure Coolant Injection Inverters

1.0 DESCRIPTION

The proposed amendment would modify a Technical Specifications (TS) Surveillance Requirement (SR) to reflect the new design of the replacement Low Pressure Coolant Injection (LPCI) Motor Operated Valve (MOV) Independent Power Supply (IPS) Rectifier / Inverter. Each LPCI IPS Rectifier / Inverter is being replaced to address parts obsolescence issues. For the purposes of this request, each Inverter (i.e. 71INV-3A and 71INV-3B) consists of an inverter, a rectifier/charger, transformers, and associated circuit breakers (AC input, battery input and output).

2.0 PROPOSED CHANGES

The current ECCS Operating requirements include the following surveillance requirement associated with the LPCI Inverter:
SR 3.5.1.5 “Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input breaker and verify each LPCI inverter output voltage is ≥576 V and ≤624 V while supplying the respective bus” at a frequency of every 31 days.

The proposed change will revise this requirement to state “contactor” instead of “breaker”. The proposed wording for the updated SR is as follows:
SR 3.5.1.5 “Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input contactor and verify each LPCI inverter output voltage is ≥576 V and ≤624 V while supplying the respective bus”

The TS Bases associated with the ECCS – Operating bases (B 3.5.1) and the DC Sources – Operating bases (B 3.8.4) will be affected because they similarly describe the LPCI inverter AC input device as a breaker. Revised Bases pages are attached for information.

3.0 BACKGROUND

The LPCI system provides emergency cooling, should a break in the Reactor Coolant Pressure Boundary occur. During a Loss of Coolant Accident (LOCA), the LPCI inverters [equipment identifiers 71INV-3A and 71INV-3B] provide an independent source of 600 VAC power for certain Class 1E safety related Residual Heat Removal (RHR) and Reactor Water Recirculation (RWR) Motor Operated Valves (MOVs), and also charges its battery bank 71BAT-3A/B. 71INV-3A also provides power to one of two Reactor Core Isolation Cooling enclosure exhaust fans.

LPCI Inverters 71INV-3A/B normally supply power to motor operated valve buses 71MCC-155/165 respectively, while maintaining a float charge on 71BAT-3A/B. On a LPCI automatic actuation signal (i.e. LOCA), the 71INV-3A/B AC input breaker opens and 71BAT-3A/B supplies power via 71INV-3A/B to 71MCC-155/165.

The existing inverters were installed approximately 30 years ago and have a longstanding reliability problem due to equipment age. Spare parts for these inverters are no longer manufactured. Therefore, the existing inverters cannot be economically repaired and need to be replaced.

Engineering Change EC-17239 will implement a plant modification that installs two (2) new inverters. The new inverters will provide an independent source of 600 VAC power to the LPCI motor operated valve buses 71MCC-155 and 71MCC-165. The new inverters are provided by Gutor Electronics LLC and will utilize a contactor as the automatic AC input isolation device instead of a motor operated breaker.

The requested license amendment will align the LPCI Inverter SR 3.5.1.5 to reflect the equipment that will be used to provide the automatic AC input isolation upon receipt of a LOCA signal.

4.0 TECHNICAL ANALYSIS

The 600 VAC LPCI IPS system is comprised of two separate and independent uninterruptible power supplies (UPSs). Each UPS consists of a 419 VDC battery bank (i.e. 71BAT-3A and 71BAT-3B), an inverter, a rectifier/charger, transformers, and associated circuit breakers. All components are enclosed in a common steel cabinet and located outside of its respective battery bank room.

The existing inverter contains motor operated circuit breakers to protect and isolate the UPS for normal and design basis conditions. The AC input breaker is required to open to isolate the inverter on LPCI initiation (Hi Drywell Pressure / Low Reactor Water Level). The battery input breaker and output breaker to the MOV buses are normally closed and have no function other than overload protection and manual isolation for maintenance. SR 3.5.1.5 applies specifically to the AC input breaker.

The new inverter has a manual circuit breaker in series with a contactor for the AC input in order to duplicate the functions of the motor operated breaker. The contactor is energized for normal operation and de-energized to isolate the AC input on LPCI initiation. Thus, the operation of the contactor will satisfy the automatic AC input isolation as provided with the original motor operated breaker. The failure of the contactor has the same consequences as the original motor operated breaker, but is less likely to occur since the mechanism is simpler and has a fail safe design mode (opens to isolate the AC input upon circuit failure). The manual circuit breaker will provide the overload protection and may act as a manual isolation device for maintenance. Therefore, there is no adverse impact to the design or operation of the UPS.

The new battery input breaker and output breaker to the MCC are manual breakers. These breakers provide the same function as the motor operated breakers except they are mechanically opened and closed. The existing and new breakers have no control functions. There are no Technical Specification surveillance requirements associated

with the battery input breaker and output breaker to the MCC.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change modifies the surveillance requirement to reflect the equipment that will demonstrate the operability of the LPCI inverter AC input isolation function. The contactor was specifically chosen in order to maintain the automatic isolation design function. The failure of the AC input contactor has the same consequences as the original AC input motor operated breaker, but is less likely to occur since the mechanism is a less complex design. Based on this, the proposed surveillance requirement changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change aligns the applicable TS surveillance requirement with the type of equipment that will satisfy the automatic isolation of the LPCI inverter AC input upon receipt of a LOCA signal. Alignment of the surveillance requirement to the type of equipment will assure the operability of the equipment. The existing motor operated circuit breaker is designed such that it will open with a loss of power. The contactor will perform the automatic isolation of the LPCI inverter AC input the same as the existing motor operated breaker such that it too will open with a loss of power. The contactor is a less complex design than the motor operated breaker and has a fail safe design mode (opens to isolate the AC input upon circuit failure). The failure modes of the contactor are the same as the failure modes of the power-operated breaker (e.g. opens when it should be closed, fails to open on demand, shorts/grounds the supply). Therefore, the proposed change will not introduce any new failure modes of the automatic AC input isolation function and does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change is requested to reflect the equipment that will perform the LPCI inverter AC input automatic isolation function. The contactor will perform the same function as the existing motor operated breaker - automatic isolation of the LPCI inverter AC input upon receipt of a LOCA signal (high drywell pressure or low reactor water level). The proposed change will ensure the operability of the automatic isolation function is maintained. Therefore, the proposed change does not involve a significant reduction in any margin of safety.

5.2 Applicable Regulatory Requirements / Criteria

10CFR50.36 requires in part that the operating license of a nuclear production facility include technical specifications. Paragraph (c)(2)(ii) of that part requires that a limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of four criteria; the LPCI inverter AC input automatic isolation function identified in LCO 3.5.1 meets Criterion 3, “A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.” Paragraph (c)(3) further requires the establishment of surveillance requirements, “relating to test, calibration, or inspection to assure that the limiting conditions for operation will be met.” As discussed above, the proposed change to the LPCI inverter surveillance requirement 3.5.1.5 is sufficient to demonstrate the operability of the automatic AC input isolation function, and is therefore sufficient to assure that the limiting conditions for operation will be met.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission’s regulations; and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL ASSESSMENT

A review has determined that the proposed changes would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve: (i) a significant hazards consideration; (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet

the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed changes.

7.0 PRECEDENT

There are no known license amendment examples that are similar to this request.

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Attachment 2

Proposed Technical Specification Changes (Marked up)

Pages

FOL Page 3
Technical Specification Page 3.5.1-4

(4) ENO pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, possess, and use, at any time, any byproduct, source and special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration; or associated with radioactive apparatus, components or tools..

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

ENO is authorized to operate the facility at steady state reactor core power levels not in excess of 2536 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. ~~296~~, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Fire Protection

ENO shall implement and maintain in effect all provisions of the approved fire protections program as described in the Final Safety Analysis Report for the facility and as approved in the SER dated November 20, 1972; the SER Supplement No. 1 dated February 1, 1973; the SER Supplement No. 2 dated October 4, 1974; the SER dated August 1, 1979; the SER Supplement dated October 3, 1980; the SER Supplement dated February 13, 1981; the NRC Letter dated February 24, 1981; Technical Specification Amendments 34 (dated January 31, 1978), 80 (dated May 22, 1984), 134 (dated July 19, 1989), 135 (dated September 5, 1989), 142 (dated October 23, 1989), 164 (dated August 10, 1990), 176 (dated January 16, 1992), 177 (dated February 10, 1992), 186 (dated February 19, 1993), 190 (dated June 29, 1993), 191 (dated July 7, 1993), 206 (dated February 28, 1994) and 214 (dated June 27, 1994); and NRC Exemptions and associated safety evaluations dated April 26, 1983, July 1, 1983, January 11, 1985, April 30, 1986, September 15, 1986 and September 10, 1992 subject to the following provision:

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	– – – – – – – – – – – – – – NOTE – – – – – – – – – – – – – – Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. – Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3	Verify ADS pneumatic supply header pressure is ≥ 95 psig.	31 days
SR 3.5.1.4	Verify the RHR System cross tie valves are closed and power is removed from the electrical valve operator.	31 days
SR 3.5.1.5	Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input ~~breaker~~ contactor and verify each LPCI inverter output voltage is ≥ 576 V and ≤ 624 V while supplying the respective bus.	31 days

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Attachment 3

Proposed Technical Specification Changes (Final Typed)

Pages

FOL Page 3
Technical Specification Page 3.5.1-4

(4) ENO pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, possess, and use, at any time, any byproduct, source and special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration; or associated with radioactive apparatus, components or tools..

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

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(1) Maximum Power Level

ENO is authorized to operate the facility at steady state reactor core power levels not in excess of 2536 megawatts (thermal).

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SURVEILLANCE REQUIREMENTS (continued)

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SR 3.5.1.2	– – – – – – – – – – – – – – NOTE – – – – – – – – – – – – – – Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. – Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3	Verify ADS pneumatic supply header pressure is ≥ 95 psig.	31 days
SR 3.5.1.4	Verify the RHR System cross tie valves are closed and power is removed from the electrical valve operator.	31 days
SR 3.5.1.5	Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input contactor and verify each LPCI inverter output voltage is ≥ 576 V and ≤ 624 V while supplying the respective bus.	31 days

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Attachment 4

Proposed Technical Specification Bases Changes (Marked up)
(Information Only)

Pages

B 3.5.1-11
B 3.8.4-2

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.3 (continued)

supply. The 31 day Frequency takes into consideration administrative controls over operation of the pneumatic system and alarms for low pneumatic pressure.

SR 3.5.1.4

Verification every 31 days that the RHR System cross tie valves are closed and power to the motor operated valve is disconnected ensures that each LPCI subsystem remains independent and a failure of the flow path in one subsystem will not affect the flow path of the other LPCI subsystem. Acceptable methods of removing power to the operator include de-energizing breaker control power or racking out or removing the breaker. If one or more of the RHR System cross tie valves are open or power has not been removed from the motor operated valve, both LPCI subsystems must be considered inoperable. In addition, plant procedures require the motor operated cross tie valve to be chain-locked closed and the manual cross tie valve to be locked closed. The 31 day Frequency has been found acceptable, considering that these valves are under strict administrative controls that will ensure the valves continue to remain closed with either control or motive power removed.

SR 3.5.1.5

Cycling open and closed each LPCI motor operated valve independent power supply battery charger AC input ~~breaker~~ contactor and verification that each LPCI inverter output has a voltage of ≥ 576 V and ≤ 624 V while supplying its respective bus demonstrates the capability of the supply to become independent from emergency AC power and that the AC electrical power is available to ensure proper operation of the associated LPCI injection and heat exchanger bypass valves and the recirculation pump discharge valve. Each inverter and battery charger AC input ~~breaker~~ contactor must be OPERABLE for the associated LPCI subsystem to be OPERABLE. The 31 day Frequency has been found acceptable based on operating experience.

(continued)

Bases

BACKGROUND (continued)

Each 419 VDC LPCI MOV independent power supply subsystem is energized by the associated 419 VDC battery or the associated 419 VDC rectifier/charger. Each battery and rectifier/charger is exclusively associated with a 419 VDC LPCI MOV independent power supply subsystem and cannot be interconnected with the other 419 VDC LPCI MOV independent power supply subsystem.

During normal operation, the DC loads are powered from the battery chargers with the batteries floating on the system. In cases where momentary loads are greater than the charger capability, or battery charger output voltage is low, or on loss of normal power to the battery charger, the DC loads are automatically powered from the batteries. Also, on a LPCI automatic actuation signal, the 419 VDC rectifier/charger AC input ~~breakers~~ contactors will open and the 600 VAC LPCI independent power supply inverters will be powered from the 419 VDC LPCI MOV independent power supply batteries.

The DC power distribution system is described in more detail in Bases for LCO 3.8.7, "Distribution System—Operating," and LCO 3.8.8, "Distribution System—Shutdown."

Each 125 VDC and 419 VDC battery is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from its redundant subsystem to ensure that a single failure in one subsystem does not cause a failure in the redundant subsystem. There is no sharing between redundant subsystems such as batteries, battery chargers, or distribution panels.

Each 125 VDC battery has adequate storage capacity to meet the duty cycle(s) discussed in the UFSAR, Chapter 8 (ref. 4). The battery is designed with additional capacity above that required by the design duty cycle to allow for temperature variations and other factors. Each 419 VDC LPCI MOV independent power supply battery has adequate storage capacity for one repositioning of the LPCI subsystem motor operated valves (MOVs) on its respective MOV bus.

The 125 VDC batteries are sized to supply associated DC loads required for safe shutdown of the plant, following abnormal operational transients and postulated accidents, until AC power sources are restored (Ref. 4). The 419 VDC batteries are sized to produce required capacity at 80% of name plate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. The minimum design voltage limit for

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