Entergy

Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
James A. Fitzpatrick NPP
P.O. Box 110
Lycoming, NY 13093
Tel 315-342-3840

March 30, 2009
JAFP-09-0038

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

Subject: **Entergy Nuclear Operations, Inc.**
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

James A. FitzPatrick Nuclear Power Plant – Response to Request For Information Required for Acceptance Review Regarding: Request For Exemption (TAC NO. ME0727)

References: 1) Entergy Letter, JAFP-09-0025, James A. FitzPatrick Nuclear Power Plant Request for Exemption from 10 CFR 50 Appendix R Section III.G.2 Requirements Based on Manual Actions (TAC No. ME0727), dated February 18, 2009.

2) USNRC Letter, James A. FitzPatrick Nuclear Power Plant – Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727), dated March 20, 2009.

Dear Sir or Madam:

Entergy Nuclear Operations Inc., (ENO) submitted James A. FitzPatrick Nuclear Power Plant Request for Exemption from 10 CFR 50 Appendix R Section III.G.2 Requirements Based on Manual Actions (TAC No. ME0727), dated February 18, 2009 [Reference 1]. Subsequently ENO received James A. FitzPatrick Nuclear Power Plant – Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727), dated March 20, 2009 [Reference 2].

This letter provides the information requested in reference 2 as discussed via telephone with the NRC staff.

There are no new commitments made in this letter.

If you have any questions or require additional information, please contact Mr. Joseph Pechacek, Licensing Manager, at 315-349-6766.

Sincerely,

Joseph Pechacek
Licensing Manager

Enclosure 1: Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

JP/ed

cc:
Mr. Samuel J. Collins, Regional Administrator
U.S. Nuclear Regulatory Commission, Region
475 Allendale Road
King of Prussia, PA 19406-1415

Office of NRC Resident Inspector
James A. Fitzpatrick Nuclear Power Plant
P.O. Box 136
Lycoming, New York 13093

Mr. Paul Tonko, President
New York State Energy Research and Development Authority
17 Columbia Circle
Albany, New York 12203-6399

Mr. Bhalchandra Vaidya, Project Manager
Plant Licensing Branch
U.S. Nuclear Regulatory Commission
Mail Stop O-8-G14
Washington, DC 20555

Mr. Paul Eddy
New York State Department of Public Services
3 Empire State Plaza
Albany, New York 12223-1350

JAFP-09-0038

Enclosure 1

Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

Question 1:

Lack of justification for why the exemption meets the special circumstances. The exemption does not include this regulatory justification. Below is a question that, if answered, we believe would solicit an adequate answer:

Please provide a summary including relevant factors that describe the special circumstances that are present. Additional information is required for a regulatory evaluation of the licensee's justification for special circumstances. For example, if the special circumstances are that the protection in accordance with III.G.2 are not required to meet the underlying purpose of the rule, the technical explanation and/or justification for how the proposed methods will result in an equivalent level of protection to what the request is asking for an exemption from (specifically 10 CFR Part 50, Appendix R, Section III.G.2). Note that it is the NRC staffs position that manual actions alone, regardless of their feasibility and reliability, do not meet the underlying purpose of the rule without specific consideration of the scenario's defense-in-depth elements.

Question 1 Response:

<u>Justification For Exemption</u>

The requested exemption satisfies the 10 CFR 50.12 criteria as stated below:

1. **The requested exemption is authorized by law, does not present an undue risk to the public health and safety, and is consistent with the common defense and security.**

   10 CFR 50.12(a) authorizes the Nuclear Regulatory Commission to grant this exemption. Granting of this exemption would not present an undue risk to the public health and safety as it provides an equivalent level of protection to the public as that provided by literal compliance to Appendix R, Section III.G.2. In the unlikely event that the Safety Relief Valve (SRV) control cables are damaged during a fire in the northwest quadrant of the Reactor Building 272' elevation (Fire Area 10) the SRVs can be controlled by cables and components that are maintained free of fire damage at the local SRV Control Panel on the Reactor Building 300' elevation (Fire Area 8). This action has been shown to be feasible and reliable.

   The common defense and security are not affected by this exemption request.

2. **Special circumstances are present as defined in 10 CFR 50.12(a)(2)**

   10 CFR 50.12(a)(2) states, in part:

   "The commission will not consider granting an exemption unless special circumstances are present. Special circumstances are present whenever...(ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule;..."

Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

Question 1 Response (continued):

The underlying purpose of 10 CFR 50 Appendix R, is to provide reasonable assurance that at least one means of achieving and maintaining safe shutdown conditions will remain available during and after any postulated fire in the plant. Although JAF does not meet the separation requirements of Appendix R Section III.G.2 for Fire Area 10, redundant cables and components are maintained free of fire damage, but require action outside the Control Room.

The manual operator action required for a fire in Fire Area 10 consists of operating the SRVs from the Local SRV Control Panel in the Reactor Building 300' elevation. While use of this action is not specifically allowed by 10 CFR 50, Appendix R, Section III.G.2, it is being performed at a panel specifically installed and designated for use during an Appendix R fire event. The required components, cables and power supplies required to operate the SRVs from the local panel are maintained free of fire damage for a fire occurring in Fire Area 10.

A fire occurring in Fire Area 10 will have no adverse impact on the ability of the Operator to travel to the local control panel or manually operate the SRV switches at the panel.

The Manual Operator Action discussed above has been repeatedly demonstrated as being feasible and reliable. This action is relied upon for a fire in the Control Room which is inherently more challenging to the Operations staff than a fire in Fire Area 10. Based on the information provided above JAF demonstrates reasonable assurance that safe shutdown can be achieved and maintained for a fire occurring in Fire Area 10. Therefore JAF meets the underlying purpose of the rule for a fire occurring in Fire Area 10.

Question 2:

Lack of description of the reliability of the manual actions.

The NRC review guide for operator manual actions is NUREG-1852, Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire. The exemption request does not provide a technical explanation of the reliability of the manual action, either using a NUREG-1852 method, such as time margin, or any other rigorous treatment of reliability for the NRC staff to review.

Question 2 Response:

<u>Reliability Of Operator Manual Actions</u>

No shutdown timelines were performed at JAF for those areas where shutdown is accomplished from the control room (i.e., normal shutdown), however, a detailed timeline was performed for alternate shutdown which requires Control Room evacuation. Alternate safe shutdown from outside the control room is considered worse-case as it is inherently more challenging to the Operations staff and will bound the normal shutdown actions for a fire in Fire Area 10 that involves shutting down from the Control Room, and controlling the SRVs from

Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

Question 2 Response (continued):

the Local SRV Control Panel (02ADS-071). Alternate shutdown at JAF is achieved using the Automatic Depressurization System (ADS) and the Residual Heat Removal system Low Pressure Coolant Injection mode (RHR-LPCI). Based on the alternate shutdown timeline, 30 minutes are available from the initiation of the Appendix R event before required safe shutdown systems and components (i.e., reactor vessel depressurization and RHR-LPCI injection) need to be placed into service. This alternate shutdown timeline was previously submitted to the NRC in letter dated December 22, 1992 (Reference 1).

The alternate shutdown scenario discussed above is considered worse-case because it requires a Control Room evacuation and numerous Operator Actions outside the Control Room. For a fire in Fire Area 10 shutdown actions are being taking in the Control Room, which minimizes the time required, with minimal actions required outside the Control Room. Based on walkthroughs of Abnormal Operating Procedure 28 (AOP-28) (Reference 2) for a fire in Fire Area 10, an Operator would be stationed at the Local SRV Control Panel (02ADS-071) within 15 minutes. This time is well within the time required to affectively achieve and maintain safe shutdown before an unrecoverable plant condition would occur. In addition, the action involves operating switches at a local control panel that was specifically designed and installed for this purpose. The action requires no special tools or abilities to complete.

Eight hour Appendix R emergency lighting is present for the travel paths throughout the plant and at the panel (02ADS-071) to ensure the Operator Actions can be successfully performed. This ensures the actions can be reliably carried out if a loss of offsite power occurred concurrent with and Appendix R fire.

Question 3:

Lack of description of fires that could cause the manual action to be relied upon.

The submittal lacks a discussion of the fire ignition sources, combustibles, and the relationship between the possible fires and the equipment that may be subject to damage requiring the performance of the manual action.

Question 3 Response:

<u>Description Of Fires That Will Result In Manual Action Reliance</u>

The ability to control the SRVs from the Control Room may be lost for a fire in Fire Area 10 due to potential control cable damage. For each Safety Relief Valve, one of the two solenoids that control the valves (i.e., A1 - L1 excluding I1) is operable from the Control Room Panel 09-4. The other solenoid on each valve (i.e. A2 - L2 excluding I2) is operated from the Local SRV Control Panel 02ADS-071 located in Fire Area 8 (Reactor Building, Elevation 300' North). The X1 and X2 solenoids are completely redundant and are powered from two redundant DC power sources.

All of the cables located in Fire Area 10 whose failure could result in loss of control power to the X1 solenoids are located in the same cable tray and conduit. The cables enter the Reactor Building through the north wall approximately 21 feet above the floor. The cable trays travel a

Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

Question 3 Response (continued):

short distance before dropping one foot (20 feet above the floor). The cables continue to run in the tray until they transition to conduit and run into the Primary Containment (Fire Area 14). The total distance the cables are routed through Fire Area 10 in open tray is approximately 50 feet.

A walkdown of the area containing the cable trays reveals no credible fire hazards that could cause a loss of the SRV control cables if a fire were to occur. Two Motor Control Centers (MCCs) are located on the floor (272' elevation) but are not directly below the tray. 71MCC-133 is six feet from being within the vertical plane of the tray and 71MCC-152 is located approximately 9 feet from the vertical plane of the tray. Attachment 1 shows the approximate routing of the cable tray and location of the MCCs. The affected cable tray is also located approximately 6 feet below the ceiling level.

Based on the configuration of the area, including the open stairwells and equipment hatches in the Reactor Building, it is unlikely that sufficient heat build up would occur at the ceiling level to cause cable damage in a tray six (6) feet below the ceiling. If a fire were to occur in one of the MCCs, the maximum heat energy from the fire plume would be above the MCCs. Although there are loaded cable trays above both of the MCCs, the cables in the trays are IEEE-383 qualified, or equivalent, and would not be expected to propagate the fire. The cable tray containing the SRV control cables is part of a group of six cable trays running together stacked vertically. The tray in question is the fourth tray up from the bottom, thus resulting in three cable trays directly below it which would shield the subject tray from direct heat impingement that may result from a fire below.

The only fixed fire hazards that exist in the vicinity of the cable tray containing the SRV control cables are the MCCs discussed above. The remainder of the area is open floor and the shield doors for the Primary Containment entrance. In addition, JAF has administrative controls in place to strictly control ignition sources (Reference 3) and transient combustibles (Reference 4).

The Reactor Building is protected throughout (with the exception of the Refuel Floor, elevation 369') by early warning ionization smoke detectors installed in accordance with NFPA 72E – 1978. These detectors will ensure any fire occurring that could potentially result in cable damage is detected in its incipient stages and the Fire Brigade is dispatched to extinguish the fire. If the detection systems are out of service for any reason, compensatory measures are established in accordance with the Technical Requirements Manual (Reference 5). The Reactor Building also contains manual fire hose stations and portable fire extinguishers throughout to support manual fire extinguishment.

Based on the location of the cables (Reactor Building 272' northwest) and the fire hazards present in the area, the potential to have a fire of sufficient size and energy to damage the cables and cause a loss of SRV control from the Control Room is minimal. It is expected that a fire occurring in this area would be detected by the fixed ionization smoke detection in its incipient stages and would be rapidly extinguished by the fire brigade. However, if a fire were allowed to burn unmitigated for an extended period of time, the potential for cable damage would still be minimized based on the location of the tray in relation to the MCCs.

Response to Request For Information Required for Acceptance Review Re: Request For Exemption (TAC NO. ME0727)

REFERENCES

1. JAF Letter, Ralph E. Beedle to U.S. Nuclear Regulatory Commission, "Safe Shutdown Scenario and Timetable", dated December 22, 1992

2. AOP-28, "Operation During Plant Fires", Revision 18

3. EN-DC-127, "Control of Hot Work and Ignition Sources", Revision 5

4. EN-DC-161, "Control of Combustibles", Revision 3

5. "Technical Requirements Manual", Revision 38

ATTACHMENTS

1. Sketch of Reactor Building, Elevation 272' – West

This page redacted in accordance with SECY 04-0191.