FENOC
FirstEnergy Nuclear Operating Company

Perry Nuclear Power Plant
10 Center Road
Perry, Ohio 44081

William R. Kanda
Vice President - Nuclear

440-280-5579
Fax 440-280-8029

January 24, 2003
PY-CEI/NRR-2682L

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Perry Nuclear Power Plant
Docket No. 50-440
Supplement to License Amendment Request Pursuant to 10 CFR 50.90: Inclined Fuel Transfer System (TAC NO. MB4694)

Ladies and Gentlemen:

This letter provides clarification and confirmation regarding Nuclear Regulatory Commission statements pertaining to the Perry Nuclear Power Plant (PNPP) License Amendment Request (LAR) submitted on March 14, 2002 (PY-CEI/NRR-2614L). This risk-informed LAR supplements Amendment 100 and will permit removal of the Inclined Fuel Transfer System (IFTS) blind flange while Primary Containment operability is required during plant operation, startup, or hot shutdown conditions. Supplements to this LAR were submitted on July 17, 2002 (PY-CEI/NRR-2649L) and September 12, 2002 (PY-CEI/NRR-2659L).

The attached information provides clarification and confirmation for the IFTS LAR and does not change the Significant Hazards Consideration submitted with the March 14, 2002 submittal.

If you have questions or require additional information, please contact Mr. Vernon K. Higaki, Manager - Regulatory Affairs, at (440) 280-5294.

Very truly yours,

for William R. Kanda

Attachments:

1. Notarized Affidavit
2. Response to Questions

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III
State of Ohio

A001

I, Timothy S. Rausch, hereby affirm that (1) I am General Manager, Perry Nuclear Power Plant Department of the FirstEnergy Nuclear Operating Company, (2) I am duly authorized to execute and file this certification as the duly authorized agent for The Cleveland Electric Illuminating Company, Toledo Edison Company, Ohio Edison Company, and Pennsylvania Power Company, and (3) the statements set forth herein are true and correct to the best of my knowledge, information and belief.

Timothy S. Rausch

Subscribed to and affirmed before me, the 24th day of January, 2003

Brenda Alward
Notary Public
State of Ohio
Lake County

My commission expires 8-15-06.

The following Nuclear Regulatory Commission (NRC) statements were received electronically and require clarification or confirmation. These statements pertain to the risk-informed License Amendment Request (LAR) submitted by the Perry Nuclear Power Plant (PNPP) on March 14, 2002 (PY-CEI/NRR-2614L) and supplemented on July 17, 2002 (PY-CEI/NRR-2649L) and September 12, 2002 (PY-CEI/NRR-2659L). The proposed LAR supplements Amendment 100 to allow the removal of the Inclined Fuel Transfer System (IFTS) blind flange while Primary Containment operability is required during plant operation, startup, or hot shutdown conditions. The text in each of the NRC statements below is by the NRC reviewer. The bracketed bold-faced text is the specific clarification or confirmation requested. The PNPP response follows each NRC statement.

1. NRC STATEMENT

Catastrophic failure or inadvertent operation of bottom gate valve is unlikely due to the high pressure capacity of the valve relative to the anticipated accident loads, system interlocks, and the licensee's administrative controls for maintaining the valve closed **[check latter point]**.

RESPONSE

The IFTS system operating instruction requires that during long periods when the IFTS is not in use, the IFTS carriage must be stored in the Containment (raised position). With the IFTS carriage in the raised position, the IFTS system interlocks prevent opening of the IFTS bottom gate valve. Interlocks also exist that prevent the IFTS bottom valve from opening when the IFTS tube is flooded, using head pressure of the water column above the bottom gate valve to operate a blocking valve in the bottom valve hydraulics. This ensures the bottom valve will remain closed when the system is not in use.

2. NRC STATEMENT

In the event of excessive leakage through the drain line, the manual gate valve located between the sheave box and the blind flange can also be closed, if necessary **[confirm this is true]**.

RESPONSE

This is true, however manually closing the upper gate valve (1F42-F002) is not proceduralized or credited in the submittal. Also, in the low probability that an accident occurs, such as a small line break, Containment would be evacuated thus making accessibility for manual operation of this valve impractical. Therefore, it is not intended to require the upper gate valve to be closed in the event of excessive leakage through the drain line.

3. NRC STATEMENT

The supporting PSA analysis bounded the expected times for the actual IFTS configurations by assuming the carriage is in the lower position for 10 of the 60 days per year, and in the upper position for 50 of the 60 days per year. A factor of 0.5 was used to estimate the time of IFTS operation prior to the initiating event (p 15 of 18) **[have licensee clarify what this means]**.

RESPONSE

As accepted in PSA practice, the 0.5 represents the standard factor that is applied to the exposure duration when the actual time of the initiating event is unknown. The PSA evaluation assumes the IFTS carriage is in the upper position for 50 days. However, an initiating event requiring the isolation of the drain valve (F0003) could occur at any time during the 50 days. A spurious operation of the drain valve could also occur at any time and is a function of time. The failure of the drain valve to remain closed is only an issue if the IFTS carriage is in the upper position and an initiating event occurs. Regarding the failure of the drain valve, only the time prior to an initiating event is of concern. The concern is whether the valve is open at the time of the initiating event. The mean time to use when an initiating event might occur and the time for a potential failure of F0003 failing open prior to the initiating event is therefore, 0.5 times 50 or 25 days.

4. NRC STATEMENT

The increase in LERF for the proposed change was computed to be 2.5E-7 per reactor year. The baseline LERF for Perry is 3.5E-7 per reactor year **[confirm whether this includes external events, and if not, what the external event CDF would be]**, thus, the total LERF for the configuration proposed by the license amendment is 6E-7 per reactor year **[confirm whether this includes the contribution from loss of SPMU core melt sequences, and the contribution from the unbolted configuration]**.

RESPONSE

The text below provides the response. In addition, a table is provided to summarize the response.

External events were not included in the LAR analysis nor is internal flooding. Therefore, the following information is provided.

Core Damage Frequency (CDF)

- External event hazards were evaluated in the Perry Individual Plant Examination of External Events (IPEEE) to varying levels of conservatism.
  - The seismic CDF contribution reported in the IPEEE was 4.0E-06/yr.
  - The internal fire CDF contribution reported in the IPEEE was 3.1E-5/yr. This fire CDF contribution does not change for the IFTS configuration.

- A recent evaluation of the risk due to internal fires, using current modeling techniques (Calculation PSA-022), resulted in a fire CDF contribution of 7.5E-06/yr.

- Currently, the Perry internal flooding contribution to the baseline CDF is 1.1E-06/yr.

Large Early Release Frequency (LERF)

Summing the internal, fire, seismic and flooding results it is concluded that the total LERF for the baseline and the IFTS configuration are both less than 1.0E-05/yr.

- The total LERF due to internal events for the IFTS configuration (6.0E-07 per year) includes the Suppression Pool Make-Up (SPMU) contribution.

- A recent evaluation of the risk due to internal fires, using current modeling techniques (Calculation PSA-022), resulted in a fire LERF contribution of 3.5E-06/yr.

- The LERF flooding and seismic contributions for the IFTS configuration are no greater than the CDF contributions of 1.1E-06/yr and 4.0E-06/yr, respectively.

EVENT	CDF (baseline)	CDF (IFTS)	LERF (baseline)	LERF (IFTS)
Internal	5.9E-06/yr	5.9E-06/yr	3.5E-07/yr	6.0E-07/yr
Internal Flooding	1.1E-06/yr	1.1E-06/yr	≤ 1.1E-06/yr	≤ 1.1E-06/yr
Fire	7.5E-06/yr	7.5E-06/yr	3.5E-06/yr	3.5E-06
Seismic (IPEEE)	4.0E-06/yr	4.0E-06/yr	≤ 4.0E-06/yr	≤ 4.0E-06/yr
TOTAL	1.9E-05/yr	1.9E-05/yr	≤ 9.0E-06/yr	≤ 9.2E-06/yr

Contribution From Unbolted Configuration

The time while the flange is unbolted is included in the contribution to core damage. However, an additional 1.0E-07/yr (2.5E-04 earthquake frequency * 3.9E-04 CCDP * 1.0 CLERP) should be added during the 20 hours that are estimated for the unbolted configuration due to seismic events. The increased risk while the IFTS flange is unbolted is due to the non-seismic qualification of the unbolted configuration.

5. **NRC STATEMENT**

The pressure to which the IFTS tube and drain line would be exposed is the sum of the containment pressure and the static water head of the overlying water pool. The static head is approximately 45 psig inside the transfer tube at the elevation of the bottom valve. Thus, the containment pressure would have to exceed about 55 psig in order to exceed the IFTS tube pressure of 100 psig used in the engineering calculations. **[The engineering calculation does not appear to have taken the pressure head of the Fuel Transfer Pool into account, which acts in a reverse direction and reduces the differential pressure across the IFTS tube -- have licensee clarify]**.

RESPONSE

The engineering calculation does not take the pressure head of the Fuel Transfer Pool into account. The following provides more precise numbers. The sum of the Containment pressure and the static water head of the IFTS pool is approximately 58 psig, which is made up of Containment accident pressure (15 psig) + static head of the water above the IFTS tube at the bottom valve (43 psig).

The pressure head of the lower Fuel Handling pool was not considered. This approach is conservative, since taking the pressure head of the Fuel Transfer Pool into account would reduce the total pressure assumed for the structural qualification of the IFTS tube and drain line.