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July 17, 2002
PY-CEI/NRR-2649L

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 (IFTS)

Ladies and Gentlemen:

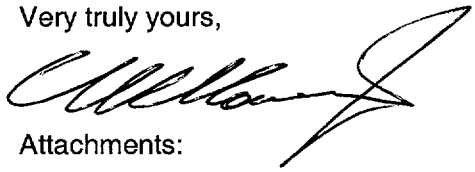
This letter supplements the March 14, 2002 (PY-CEI/NRR-2614L) License Amendment Request (LAR) submitted for the Perry Nuclear Power Plant (PNPP) Technical Specifications to permit removal of the Inclined Fuel Transfer System (IFTS) blind flange while Primary Containment operability is required during plant operation, startup, or hot shutdown conditions.

The intent of this letter is to provide the justification for deleting the commitment to modify the Fuel Pool Cooling and Clean-up siphon breaker lines. Subsequent to the submittal of the March 14, 2002 LAR, an engineering evaluation was conducted demonstrating that additional controls on water inventory will negate the need for the siphon breaker modification. The enclosed attachments provide the support for this change.

The Significant Hazards Consideration provided with the March 14, 2002 letter remains unchanged by this supplemental letter.

There are no new regulatory commitments contained in this letter or its attachments. If you have questions or require additional information, please contact Mr. Gregory A. Dunn, Manager - Regulatory Affairs, at (440) 280-5305.

Very truly yours,



Attachments:

1. Notarized Affidavit
2. An evaluation of the change, including a Description of the Proposed Change, Technical Analysis and Conclusion
3. Revised proposed Technical Specification changes (mark-up)
4. Information copy of revised Technical Specification Bases (mark-up)

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

A001

I, William R. Kanda, hereby affirm that (1) I am Vice President – Perry, 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.

William R. Kanda

Subscribed to and affirmed before me, the 17 day of July 2002

Jane E Mott

JANE E. MOTT
Notary Public, State of Ohio
My Commission Expires Feb. 20, 2005
(Recorded in Lake County)

DESCRIPTION OF THE PROPOSED CHANGE

This letter supplements the March 14, 2002 (PY-CEI/NRR-2614L), License Amendment Request (LAR) for the Perry Nuclear Power Plant (PNPP) Technical Specifications to 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 (MODES 1, 2 or 3).

A comprehensive technical evaluation was completed to support the March 14, 2002 LAR. In support of this evaluation, a commitment was made to install a modification to extend the elevation of the affected Fuel Pool Cooling and Clean-up (FPCC) system siphon breaker lines that discharge to the upper IFTS Containment pool to above the minimum required Suppression Pool Make-Up (SPMU) level (reference letter PY-CEI/NRR-2614L, Commitment Number 3). It was conservatively determined that this modification was required to ensure the minimum required upper containment pool inventory to support the SPMU system's post accident function. This modification was to be completed before the proposed LAR was implemented.

After a more detailed engineering evaluation of the siphon breaker lines, it has been determined that this modification is not necessary provided the suppression pool level is raised to ≥ 17 ft – 11.7 inches and the upper containment pool is maintained at or above the normal minimum Technical Specification level of ≥ 22 ft – 9 inches during periods when the IFTS blind flange is removed in plant MODES 1, 2 or 3. These water levels are consistent with Technical Specification Surveillance Requirement (SR) 3.6.2.4.1.b for the SPMU system, which allows an upper containment pool water level of ≥ 22 ft – 5 inches if the suppression pool water level is raised to ≥ 17 ft – 11.7 inches. Also, as a preventive measure, the FPCC fuel transfer and storage pool supply isolation valve shall be closed to isolate the normal flow of supply water to the IFTS pool area.

As a result of this amendment supplement, the proposed wording for Technical Specification SR 3.6.1.3.4, Note 4, is as follows (new wording is bolded):

> "Not required to be met for the Inclined Fuel Transfer System (IFTS) penetration when the associated primary containment blind flange is removed, provided that the Fuel Handling Building fuel transfer pool water level is maintained ≥ 40 feet, **the upper containment pool water level is ≥ 22 ft – 9 inches above the reactor pressure vessel flange and the suppression pool water level is maintained at ≥ 17 ft – 11.7 inches, the fuel transfer and storage pool supply isolation valve is closed,** the upper pool IFTS gate is installed, and the IFTS transfer tube drain valve remains closed. The IFTS transfer tube drain valve may be opened under administrative controls. Removal of the IFTS blind flange shall not exceed 60 days per cycle while in MODES 1, 2 or 3."

Attachment 3 provides new Technical Specification mark-ups designed to replace the mark-ups submitted with the original March 14, 2002 letter in their entirety. Additionally, the proposed changes to the Technical Specification Bases are included as Attachment 4 to this LAR supplement for information only, since the Bases are not a formal part of the Technical Specifications. These mark-ups are also designed to replace the Technical Specification Bases mark-ups submitted with the original March 14, 2002 letter in their entirety.

Also, for your information, a typographical error existed in the March 14, 2002 License Amendment Request (LAR). The Licensee Event Report (LER) referenced was incorrectly numbered as LER 2001-001. The correct LER number is 2000-001.

TECHNICAL ANALYSIS

Following a Loss Of Coolant Accident (LOCA), the SPMU system provides water from the upper containment pool to the suppression pool by gravity flow. The dump of the upper pool on low-low suppression pool water level ensures adequate water volume to maintain the necessary coverage over the suppression pool vents for all break sizes while the Emergency Core Cooling System (ECCS) pumps draw down the suppression pool. Therefore, during plant operating MODES 1, 2 and 3, the upper containment pool contains an inventory of water that is credited for the mitigation of postulated accidents. This water volume is part of the SPMU system.

A LAR was recently submitted to allow removal of the IFTS blind flange to accommodate exercising and testing of the IFTS system in plant MODES 1, 2 or 3. Within the safety analysis supporting this LAR, the potential for these operations to compromise the SPMU water inventory was evaluated. As part of the March 14, 2002 LAR, a regulatory commitment was made to complete a design modification to the FPCC piping siphon breaker lines. This modification was proposed to prevent the unacceptable loss of SPMU water from the upper containment pool if the IFTS pool was to begin to drain down.

The siphon breaker lines terminate in the upper containment IFTS pool below the required SPMU water level. During a design basis LOCA, with a postulated component failure or a receipt of a spurious opening signal for one of the non-safety, non-seismic IFTS components, the upper IFTS pool could begin to drain to the lower pools. Should the IFTS pool drain, it was conservatively assumed that the other upper containment pools would potentially begin to drain into the IFTS pool via the one-inch siphon breaker lines. This would reduce the available SPMU inventory, which could adversely impact its design function.

As part of the approval process for the proposed siphon breaker modification, a detailed engineering evaluation was conducted. The engineering review resulted in a calculation that determined the maximum inventory loss from the upper containment pool (Steam Separator Storage pool + Reactor Cavity + Dryer Storage pool/Fuel Storage pool, excluding the IFTS pool) is 3480 gallons. This represents a maximum water volume loss from all sources, which includes reverse flow from the siphon breaker lines and upper pool IFTS gate seal leakage after 40 minutes assuming a flow rate of 87 gpm. This inventory loss results in a reduction in the upper pool level of less than 2 inches. Therefore, the lowest possible upper pool level that results from this postulated leakage will be the initial minimum level (22 ft – 9 inches) minus 2 inches, which is an equivalent measured level of 22 ft – 7 inches. This value is still 2 inches above the minimum allowable upper pool level of 22 ft – 5 inches per Technical Specification SR 3.6.2.4.1.b. Therefore, in order to account for the upper containment pool water loss that could result from all leakage sources, the upper containment pool level shall be maintained at $\geq$ 22 ft – 9 inches, and to conservatively account for these potential leakage sources, the suppression pool is to be maintained at $\geq$ 17 ft – 11.7 inches, similar to Technical Specification SR 3.6.2.4.1.b. A lower suppression pool level requirement could have been justified, but use of the currently proceduralized value of $\geq$ 17 ft – 11.7 inches is preferred from an administrative viewpoint.

Also, as a preventive measure, the FPCC (G41) fuel transfer and storage pool supply isolation valve (G41-F0524) shall be closed prior to IFTS blind flange removal to isolate the normal flow of FPCC supply water to the IFTS pool area. This will prevent any cross-connected drainage to the IFTS pool from the rest of the upper pool area if the IFTS pool level is lowered.

The FPCC system provides the normal make-up water to the upper containment pools. Reverse flow may occur through the upper pool supply headers should the supply of FPCC water be terminated. The reverse flow through the headers will be terminated with the closing of valve G41-F0524. This valve is a manual safety related six-inch butterfly valve with an ultra high molecular weight polyethylene seat. This valve is designed to Type I ("tight shut-off") requirements. Since there is a large margin of excess water available in the upper pool, it is not necessary to quantify any potential leakage through this valve at an ongoing test frequency.

CONCLUSION

Based on a detailed engineering evaluation, it is concluded that the siphon breaker lines do not compromise the required SPMU water inventory for LOCA mitigation during the periods of time when the IFTS blind flange is removed if pre-established controls are put in place. In lieu of the siphon breaker modification, the proposed administrative controls, i.e., maintaining upper containment pool and suppression pool levels, and closing the FPCC fuel transfer and storage pool supply isolation valve, will effectively preserve the initial conditions for SPMU water inventory.

MARKED-UP

TECHNICAL SPECIFICATION PAGES

REFLECTING THE PROPOSED AMENDMENT

(*REVISED TO REFLECT SUPPLEMENTAL LETTER*)

NOTE: THERE IS NO CHANGE TO THIS MARK-UP FROM THE MARCH 14, 2002 SUBMITTAL

3.6 CONTAINMENT SYSTEMS

3.6.1.1 Primary Containment–Operating

LCO 3.6.1.1 Primary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment inoperable.	A.1 Restore primary containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

NOTE

Applicable Conditions and Required Actions are not required to be entered for the Inclined Fuel Transfer System (IFTS) penetration for up to 20 hours per 12 month period when the IFTS blind flange is unbolted.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.6.1.3.4 ----------NOTES---------- 1. Only required to be met in MODES 1, 2, and 3. 2. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 3. Not required to be met for PCIVs that are open under administrative controls. 4. Not required to be met for the Inclined Fuel Transfer System (IFTS) penetration when the associated primary containment blind flange is removed, provided that the Fuel Handling Building Fuel Transfer Pool water level is maintained ≥40' and the IFTS transfer tube drain valve remains closed. The IFTS transfer tube drain valve may be opened under administrative controls. Removal of the IFTS blind flange shall not exceed 60 days per cycle while in MODES 1, 2 or 3. ---------- Verify each primary containment isolation manual valve and blind flange that is located inside primary containment, drywell, or steam tunnel and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days

, the upper containment pool water level is ≥ 22 ft - 9 inches above the reactor pressure vessel flange and the suppression pool water level is maintained at ≥ 17 ft - 11.7 inches, the fuel transfer and storage pool supply isolation valve is closed, the upper pool IFTS gate is installed,

(continued)

MARKED-UP

TECHNICAL SPECIFICATION BASES PAGES

REFLECTING THE PROPOSED AMENDMENT

(*REVISED TO REFLECT SUPPLEMENTAL LETTER*)

(*For Information Only*)

NOTE: THERE IS NO CHANGE TO THIS MARK-UP FROM THE MARCH 14, 2002 SUBMITTAL

BASES (continued)

LCO

Primary containment OPERABILITY is maintained by limiting leakage to < 1.0 L_a, except prior to the first unit startup after performing a required leakage test in accordance with the Primary Containment Leakage Rate Testing Program. At this time, the applicable leakage limits must be met. Compliance with this LCO will ensure a primary containment configuration, including the equipment hatch, that is structurally sound and that will limit leakage to those leakage rates assumed in the safety analysis. Individual leakage rates specified for the primary containment air locks are addressed in LCO 3.6.1.2.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, primary containment leakage limits are not required to be met in MODES 4 and 5 to prevent leakage of radioactive material from primary containment, (refer to LCO 3.6.1.10, "Primary Containment-Shutdown").

ACTIONS

INSERT 1

A.1

In the event that primary containment is inoperable, primary containment must be restored to OPERABLE status within 1 hour. The 1 hour Completion Time provides a period of time to correct the problem that is commensurate with the importance of maintaining primary containment OPERABILITY during MODES 1, 2, and 3. This time period also ensures that the probability of an accident (requiring primary containment OPERABILITY) occurring during periods when primary containment is inoperable is minimal.

B.1 and B.2

If primary containment cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

NOTE: THERE IS NO CHANGE TO THIS MARK-UP FROM THE MARCH 14, 2002 SUBMITTAL

BASES

REFERENCES
(continued)

6. PNPP Safety Evaluation Report Supplement 7, Section 6.2.6 "Containment Leakage Testing," November 1985.

7. Letter from NRC (T. Colburn) to CEI (A. Kaplan), "Exemption from 10 CFR Part 50, Appendix J", dated January 22, 1988.

8. Letter from NRC (J. Hopkins) to Centerior Services Company (D. Shelton), "Issuance of Exemption from the Requirements of 10 CFR Part 50, Appendix J - Perry Nuclear Power Plant, Unit 1", dated December 4, 1995.

INSERT 2

NOTE: THERE IS NO CHANGE TO THIS MARK-UP FROM THE MARCH 14, 2002 SUBMITTAL

INSERT 1 - TO TS BASES PAGE B 3.6-3:

A Note has been provided to indicate that when the Inclined Fuel Transfer System (IFTS) blind flange is unbolted for removal or re-installation, entry into associated Conditions and Required Actions may be delayed for up to 20 hours per 12 month period. This note only applies to the IFTS penetration and not to any other Primary Containment penetration. During removal and re-installation of the blind flange, a temporary condition will exist where the bolting will be loosened, hydraulic jacks will spread the flange faces, and normally about one half of the bolts will be removed while the blind is rotated. This condition is expected to exist for no more than 20 hours (10 hours to rotate out the blind and an additional ten hours to re-install the blind). Upon expiration of the 20 hour allowance for this maintenance activity, if the IFTS blind flange has not yet been re-bolted, the applicable Condition must be entered and the Required Actions taken. With the bolts removed, the seismic restraint for the IFTS penetration is potentially challenged. The risk is to the bellows assembly, as exact displacements are not quantified. Failure of the ASME Class 2 bellows could result in a potential bypass of Containment. This Note is based on a risk analysis (Ref. 9) of the time required to perform IFTS blind flange removal or installation. That analysis demonstrated that a 20 hour allowance per 12 month period does not significantly reduce the probability that the Primary Containment will be OPERABLE when necessary. Therefore, the total number of hours that the blind flange is unbolted per 12 month period shall be tracked to ensure the 20 hour assumption in the risk analysis is maintained. The 20 hour duration conservatively limits the seismic risk associated with the unbolted IFTS flange, yet provides adequate time to complete flange rotation.

INSERT 2 - TO TS BASES PAGE B 3.6-6:

9. Letter PY-CEI/NRR-2614L, "License Amendment Request Pursuant to 10 CFR 50.90: Inclined Fuel Transfer System (IFTS)," March 14, 2002.

NOTE: THERE IS NO CHANGE TO THIS MARK-UP FROM THE MARCH 14, 2002 SUBMITTAL

BASES

SURVEILLANCE REQUIREMENT

SR 3.6.1.3.3 (continued)

verified to be in the proper position, is low. A third Note is included to clarify that PCIVs open under administrative controls are not required to meet the SR during the time the PCIVs are open.

SR 3.6.1.3.4

This SR verifies that each primary containment isolation manual valve and blind flange located inside primary containment, drywell, or steam tunnel, and required to be closed during accident conditions, is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits. For devices inside primary containment, drywell, or steam tunnel, the Frequency of "prior to entering MODE 2 or 3 from MODE 4, if not performed within the previous 92 days," is appropriate since these devices are operated under administrative controls and the probability of their misalignment is low.

Four Notes are added to this SR. Note 1 provides an exception to meeting this SR in MODES other than MODES 1, 2, and 3. When not operating in MODES 1, 2, or 3, the primary containment boundary, including verification that required penetration flow paths are isolated, is addressed by LCO 3.6.1.10, "Primary Containment- Shutdown" (SR 3.6.1.10.1). The second Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in their proper position, is low. A third Note is included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

A fourth Note addresses removal of the Inclined Fuel Transfer System (IFTS) blind flange in MODES 1, 2, and 3 ~~Requiring~~ the Fuel Handling Building Fuel Transfer Pool water level to be ≥ 40' above the bottom of the pool ensures sufficient submergence of water over the bottom gate valve in the transfer tube to prevent direct communication between the Containment Building atmosphere and the Fuel

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NOTE: THERE IS NO CHANGE TO THIS MARK-UP FROM THE MARCH 14, 2002 SUBMITTAL

SURVEILLANCE REQUIREMENT

SR 3.6.1.3.4 (continued)

Handling Building atmosphere, even upon occurrence of the peak post-accident pressure, P_a. Forty feet (40') above the bottom of the pool is equivalent to 22' 8 ¼" above the top of the flange for the IFTS bottom gate valve, which is approximately 3' 10" more water than needed to counteract the peak accident pressure of 7.8 psig. Also, since the IFTS drain piping does not have the same water seal as the transfer tube, administrative controls are required to ensure that the drain flow path can be quickly isolated whenever necessary.

These controls consist of designating an individual, whenever the 1F42-F003 valve is to be opened with the blind flange removed in MODE 1, 2, or 3, to be responsible for verifying closure of the valve if an accident occurs. This designated individual will remain in continuous communication with the control room, and be located at the 620' elevation in the Fuel Handling Area of the Intermediate Building. This person will be in addition to the minimum shift crew composition required to be at the plant site. Once the designated person is notified by the control room of the occurrence of an accident, his only assigned function will be to close this valve. The designated individual will verify the valve is closed from the controls at the IFTS panel if they are available. If this is not successful, the valve will be closed manually at the valve location. The designated person will be equipped with portable lighting (e.g., a flashlight) to supplement emergency lighting.

INSERT 4

Also, the drain piping motor-operated isolation valve is tested in accordance with the Primary Containment Leak Rate Test Program. The leakage rate on this valve will be controlled by the strict limits on potential secondary containment bypass leakage (SR 3.6.1.3.9). Thus, the combination of water seal in the Fuel Handling Building pressure integrity of the IFTS transfer tube, and various administrative controls, ~~on the motor operated drain valve in the drain piping,~~ creates ~~an~~ acceptable barriers against post-accident leakage to the environment.

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SR 3.6.1.3.5

Verifying the isolation time of each power operated and each automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV

(continued)

INSERT 3 - TO TS BASES PAGE B 3.6-28:

for up to 60 days per cycle. The 60 days per operating cycle is a risk-informed duration that provides the option of performing testing and maintenance of the IFTS during MODES 1, 2 or 3 prior to an outage. However, it is not meant for the movement of fuel. Removal of the IFTS blind flange during MODES 1, 2 or 3 requires the upper pool IFTS gate to be installed and requires...

INSERT 4 - TO TS BASES PAGE B 3.6-28a:

The upper Containment pool gate between the IFTS pool and the dryer storage pool is required to be installed prior to IFTS blind flange removal during MODES 1, 2 or 3. With this gate installed, should a failure of an IFTS tube component occur the amount of water drained to the lower pools will be limited. Therefore, installing the upper pool IFTS gate provides single failure protection of upper pool water inventory for supporting the SPMU system. If the IFTS gate was not installed, the potential would exist to drain the upper pool volume, reducing the inventory available to the SPMU system to support make up to the suppression pool, which supports the ECCS design function during a LOCA. Reduced suppression pool volume and increased suppression pool temperature could result in a subsequent loss of suction pressure for the ECCS.

Also, to account for the upper containment pool water loss that would result from all leakage sources, including leakage through the upper Containment pool gate and leakage through the Fuel Pool Cooling and Clean-up (FPCC) siphon breaker supply lines; when the IFTS blind flange is removed in MODES 1, 2 or 3, the upper containment pool level shall be maintained at $\geq$ 22 ft – 9 inches; and to account for possible leakage, the suppression pool is to be raised to $\geq$ 17 ft – 11.7 inches. These levels were determined via engineering calculation. Also, as a leakage prevention measure, the fuel transfer and storage pool supply isolation valve (G41-F0524) shall be closed to isolate the normal flow of FPCC supply water to the IFTS pool area.

Additional regulatory commitments to the NRC are required when the IFTS blind flange is removed in MODES 1, 2 or 3. These prerequisite administrative controls are controlled by plant procedures and are 1) the lower fuel transfer pool gates must be removed, and 2) Fuel Handling Building closure shall be in effect. Removal of the lower fuel transfer pool gates ensures control room monitoring exists for spent fuel pool level, which would assist in detecting a change in the fuel transfer pool water level in the event of an IFTS component failure. Establishing administrative controls for Fuel Handling Building closure when the IFTS blind flange is removed ensures that the Fuel Handling Area exhaust ventilation subsystem is in operation.