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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
License Amendment Request (LAR) 2000-27, "IFTS Operation in Modes 1,2 and 3."

File Nos.: G9.5, G9.42

References:

1) Entergy Operations, Inc. (EOI) letter to the USNRC, RBG-45202, dated December 20, 1999.
2) EOI letter to the USNRC, RBG-45562, dated November 29, 2000.

RBEXEC-01-009
RBF1-01-0005
RBG-45632

Gentlemen:

In accordance with 10CFR50.90, Entergy Operations, Inc. (EOI) hereby applies for amendment of Facility Operating License No. NPF-47, for River Bend Station (RBS). This request consists of a change to Technical Specification 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," to permit the operation of the IFTS Bottom valve after removal of the inclined fuel transfer system (IFTS) primary containment isolation blind flange while the primary containment is required to be OPERABLE. This request is predicated on the approval of License Amendment Request (LAR) 1999-30 (Reference 1). This amendment request will permit full operation of the IFTS during power operations, thus enabling River Bend to fully test and exercise the system, and also to allow for future transfer of new fuel into the containment storage pool prior start of refueling outages. A time limit of 60 days per operating cycle is also established for the removal of the IFTS Blind Flange in Modes 1,2 or 3. The proposed change has been developed for implementation prior to the next refueling outage (RF-10), which is scheduled to begin in the Fall of 2001. In order to support the outage schedule, issuance of this amendment is requested by July 30, 2001. To facilitate an expeditious review by the NRC Staff in this regard, EOI has developed this amendment request in the fashion of the similar previous request.

A001

The proposed change was reviewed against the criteria of 10 CFR 50.92, and was determined to not involve a significant hazards consideration. Attachment 1 provides a description of the proposed changes and the associated justification (including the determination of no significant hazards consideration). The commitments contained in this submittal are listed on the Commitment Identification Form, in Attachment 2. Two commitments submitted within LAR 1999-30 (Reference 1) are revised based on this request. The commitment "To provide added assurance that the bottom valve remains closed, it will be hydraulically locked (i.e., deactivated)" is deleted. Also, the commitment which states, "A leakage rate test will be performed prior to removal of the IFTS blind flange before RF9", is changed to perform this test prior to the first removal of the IFTS blind flange in Modes 1,2 or 3 as indicated on Attachment 2. Attachment 3 contains, for information only, a copy of the Commitment Identification Form from LAR 1999-30 with the changes shown. Attachment 4 contains marked-up pages reflecting the amendment being requested. The marked-up Technical Specification Bases changes contained in Attachment 5 are for information only, since the Bases are controlled by the Technical Specification Bases Control Program (*see* Technical Specification 5.5.11). This request has been reviewed and approved by the RBS Facility Review Committee and the Safety Review Committee.

EOI has reviewed this request against the criteria of 10CFR51.22 for environmental considerations. As stated above, the proposed change does not involve a significant hazards consideration. Also, the type and amount of effluent released from RBS is not changed. Further, the amount of individual or cumulative occupational dose does not increase significantly as a result of this change. Therefore, based on the foregoing, EOI concludes that the proposed change meets the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

If you have any questions regarding this request or require additional information, please contact Mr. Gregory P. Norris at 225-336-6391.

Pursuant to 28 U.S.C.A. Section 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 24, 2001.

Very truly yours,

Randall K. Edington

RKE/RJK/GPN
attachments (5)

cc:

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ATTACHMENT 1

TO

LETTER NO. RBF1-01-0005

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

IFTS OPERATION IN MODES 1,2 AND 3 (LAR 2000-27)

LICENSING DOCUMENT INVOLVED

River Bend Station (RBS) Technical Specification 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)."

BACKGROUND

The inclined fuel transfer system (IFTS) is a plant system designed to transport new fuel, irradiated fuel, control rods, and various other items between the upper containment fuel storage pool (the "upper pool") inside of primary containment, and the spent fuel storage pool (the "lower pool") inside the fuel building (outside primary containment). Throughout the operating cycle, a flexible bellows and a blind flange form the primary containment boundary near the upper fuel pool containment penetration, except as provided by License Amendment Request (LAR) 1999-30 (Reference 1).

License Amendment Request (LAR) 1999-30 requested changes that allow for the removal of the IFTS Blind Flange under specified conditions. The changes requested within this License Amendment Request allow for the operation of IFTS Bottom valve after removal of the inclined fuel transfer system (IFTS) primary containment isolation blind flange while the primary containment is required to be OPERABLE.

Entergy intends to use this allowance to transfer new fuel into the containment prior to the start of the next refueling outage (RF10). Similar changes have already been approved for two other BWR6s (Clinton and Perry stations). To provide for the future transfer of new fuel into the containment in Modes 1,2 or 3, River Bend will perform an evaluation in accordance with 10 CFR 50.59.

System Description of the IFTS

The IFTS (see Figures 1 and 2) is used to transfer fuel, control rods, defective fuel storage containers, and other small items between the containment and the fuel building pools by means of a carriage traveling in a water-filled transfer tube (a 23-in I.D. stainless steel pipe). At the upper end of the IFTS, the transfer tube penetrates primary containment and connects to a sheave box in the upper pool. Connected to the sheave box are a 24-in flap valve, a vent pipe, cable enclosures, and a fill valve. At the bottom end of the IFTS, the transfer tube enters the fuel building and connects to a 24-inch hydraulically-operated gate valve in the lower pool. A bellows connects the building penetration to the valve and transfer tube to prevent water entrapment between the tube and penetration. A 4-in weldolet located on the transfer tube approximately 2 ft above the fuel building pool water level and a motor-operated valve are provided for connections to a drain pipe for water level control in the transfer tube. The drain pipe connects to the IFTS drain tank, located in the fuel building. Two motor operated valves provide isolation of the drain tank.

A containment isolation assembly containing a blind flange and a bellows, which connects from the containment penetration to the assembly, provides containment isolation. A hand-operated 24-in gate valve isolates the upper pool from the transfer tube so the blind flange can be installed. Containment is made by the containment isolation assembly and blind flange, containment bellows, and the steel containment penetration. Special gaskets and double-ply bellows are provided for leak checking to assure containment isolation.

A hydraulically actuated "up-ender" is provided in each pool for rotating part of the carriage – the tilt tube – to the vertical position for loading and unloading, and to the inclined position for transfer. The carriage consists of the tilt tube and a follower connected with a pivot pin, which allows upending of the tilt tube while maintaining the follower in the inclined position. The carriage has rollers and wheels that ride on tracks within both the transfer tube and the up-enders, to assure low friction, correct carriage orientation, and smooth transition across valves and between other components. The tilt tube is designed to accept two different inserts - a fuel bundle insert with a two-bundle capacity, and a control rod insert for control rods, defective fuel storage containers, and other small items.

A winch, located on the refueling floor inside of containment, uses two cables attached to the lower end of the follower for pulling the carriage from the fuel building to the containment, and for controlling the carriage descent velocity. A slow winch speed is provided for starting and stopping the carriage to limit the acceleration on the fuel assemblies. A load cell provides cable underload and overload protection. Carriage position readout is provided. Cable enclosures, attached to the sheave box and projecting above the upper pool water level, provide the means for cable exit from the transfer tube while isolating the pool water from the tube.

A vent pipe with a fluid stop connected to the containment ventilation system isolates the displaced air in the tube during filling from the reactor building atmosphere and confines the surge of water from the filling tube into the pool water.

In both buildings, the transfer system components reside in a separate pool area. This pool area is physically separated from the fuel storage area by a concrete wall, which serves as a positive barrier to prevent fuel in the storage area from being uncovered in the event of loss of pool water through the transfer system. In addition, these walls are provided with gates to allow drainage of the transfer pool areas for maintenance and/or removal of the transfer tube and components.

Control panels are provided in close proximity to each transfer pool area and are connected for voice and interlock communication. Each panel has control buttons for actuating the up-ender, a button for initiating the transfer sequence to the other building, and a stop button. The transfer operation functions on an automatic basis with provision made for manual override. Automatic sequencing is accomplished by use of an electronic controller located in the fuel building, utilizing sensors for confirming the successful completion of each step before initiating the next step. The completion of a transfer sequence is signaled at the control panels.

The inclined fuel transfer control system is operated on a semiautomatic basis. Safety interlocks prevent opening the transfer tube bottom valve when the flap valve is open, and vice versa, to prevent drainage of the upper pool to the lower pool. The function of this interlock has been successful at RBS. (Note that the water in the upper pool does not have a role in any accident analysis, e.g., River Bend has no "upper pool dump.") The interlock control system has dual channel logic, which provides a backup sensor for each required sensor and provides the redundancy necessary for the system to function safely. The failure of a channel to perform its intended function causes an alarm, which identifies the failed channel.

DESCRIPTION OF PROPOSED CHANGE

The proposed change contained in this license amendment request is a change to Technical Specification 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," to allow the operation of the IFTS Bottom valve when the IFTS primary containment isolation blind flange is removed during MODE 1, 2, or 3. A time limit of 60 days is also established for the removal of IFTS Blind Flange in Modes 1, 2 or 3. The primary containment function will still be maintained during operation of the IFTS Bottom valve while the IFTS Blind Flange is removed by ensuring a sufficient depth of water in the lower pool and ensuring the IFTS transfer tube drain line can be isolated under all accident conditions. Hence, Surveillance Requirement (SR) 3.6.1.3.3 is proposed to be modified. The SR currently reads, "Verify each primary containment isolation ... blind flange that is ... required to be closed during accident conditions is closed." A revision to NOTE 4, as submitted in LAR 1999-30, is proposed which removes the requirement to maintain the IFTS bottom valve closed, as follows:

> "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 building spent fuel storage pool water level is maintained greater than 23 feet above the top of the fuel, 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 operating cycle while in Modes 1,2 or 3."

Additionally, the paragraph in the Bases for SR 3.6.1.3.3 that explains the justification for the note will be revised. The proposed paragraph is included in Attachment 4 for information only, since Bases changes are processed per the Technical Specification Bases Control Program (Technical Specification 5.5.11).

System interlocks are not affected by the proposed changes. As with the current IFTS operations during refueling outages, the system interlocks will continue to ensure that the upper flap valve is closed whenever the bottom valve is open, and vice versa, to preclude draining the upper containment pool into the lower spent fuel pool.

JUSTIFICATION FOR PROPOSED CHANGE

The primary function for the containment is to maintain its integrity following accident conditions, including a design basis loss of coolant accident (LOCA) within the structure while also accommodating the dynamic effects of the pipe break coincident with a safe shutdown earthquake and a loss of offsite power (see USAR Section 6.2). With the IFTS blind flange removed, components of the IFTS will act as the primary containment boundary. Regarding a postulated design basis LOCA, however, the additional post-accident peak pressure load to be imposed upon the components in the IFTS if the blind flange is removed is a small fraction of their design capability. Thus, the design margin of these components is more than adequate. Even though only a portion of the IFTS at the containment penetration point was designed and built to the newer standards for a primary containment boundary (ASME Section III, Class 2), the remainder of the tube and its drain line piping is nonetheless specified and built to withstand the rigors of a commercial nuclear application (B31.1). This transfer system is reliable to permit safe movement of spent fuel bundles from containment into the fuel building. (NOTE: This proposed change does not include allowances for the IFTS to handle spent fuel bundles during periods when the plant is in MODE 1, 2, or 3.)

EOI performed several evaluations in order to substantiate the adequacy of the IFTS when performing its role as a containment boundary. The results of the evaluations were presented in LAR 1999-30, submitted December 20, 1999 (Reference 1).

As discussed in LAR 1999-30, the water seal created by the water in the lower pool is sufficient to protect against a containment breach in the event of a postulated design basis large break LOCA. This protection is provided without any credit for closure of the gate valve in the lower end of the transfer tube.

Table 1 - Elevations

	Elevation (Sea Level Reference)	Elevation (Top of Fuel Reference)	Difference (Delta) from Proposed Technical Specification Limit
Normal water level (a range)	112'-1" to 112'-8"	26'-9" to 27'-4"	+ 3'-9" to +4'-4"
Low level alarm setpoint	112'-1"	26'-9"	+ 3'-9"
Proposed Technical Specification limit	108'-4"	23'-0"	Same
Outlet of bottom valve in IFTS tube	~86'-10 ¼"	~1'-6 ¼"	- 21'-5 ¾" (1)
Top of fuel	85'-4"	0'-0"	- 23'-0"

NOTE (1) – This value is the amount of water coverage over the bottom valve up to the proposed Technical Specification limit. This as approximately 3'-2" more water than necessary to counteract the peak post-DBA pressure (7.6 psig – 18.3' of water)

Also, as discussed in LAR 1999-30, the large break LOCA (LBLOCA) peak containment pressure was used in evaluating the ability of the IFTS transfer tube to maintain containment integrity, since its radiological effects have the greatest potential for offsite releases. Other scenarios exist, however, in which the peak containment pressure is greater than the 7.6 psig assumed in the large break LOCA analysis. One such scenario is the small break LOCA (SBLOCA). During a SBLOCA, the containment-to-annulus differential pressure peaks at 14.8 psid. (Note that the annulus is maintained at a negative pressure, so the gauge pressure will be slightly lower.) Entergy has considered the impact of this amendment to the SBLOCA analysis but believes that the LBLOCA is more pertinent to the evaluation of this amendment. The LBLOCA peak pressure is used in containment leakage testing and is bounding for offsite dose consequences because the LBLOCA results in the greater fuel failures and consequently the greater dose release. The SBLOCA is normally the bounding event for confirming containment structural design capability. An evaluation that included the application of the conservatisms associated with the SBLOCA analysis would be overly conservative for the temporary configuration proposed by this amendment. This temporary configuration is not part of the original containment boundary design. Nevertheless, Entergy has qualitatively assessed the impact of a SBLOCA on the proposed configuration and concluded that the proposed configuration would not result in any significant adverse consequences. Additional discussion of this consideration is provided below.

Consideration of Small Break LOCA

This scenario includes containment pressures resulting from a SBLOCA with a maximum steam bypass of the suppression pool. NRC documents describe containment design relating to steam bypass as a capability, as in Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Section 6.2.1.1, Item 3.c, which states that the SAR will "Provide the results of the capability *(underline added)* of the containment to tolerate direct steam bypass of the suppression pool for the spectrum of break sizes." NUREG 0800, "Standard Review Plan", Section 6.2.1.1.C, Item I.5 includes a similar statement.

Previous submittals by licensees for removal of the IFTS blind flange also used P_a (the value of the peak containment pressure calculated at DBA LOCA conditions) rather than a pressure related to their steam bypass analysis. Both the Perry Nuclear Power Plant and the Clinton Power Station approved amendments are based on P_a (as the pressure against which the removal of the blind flange must be evaluated).

There are a number of factors that support the conclusion that even if the conservative assumptions associated with steam bypass capability were applied to the evaluation of this temporary configuration, it would not result in any significant adverse consequences. These factors include:

a) As described in USAR 6.2.1.1.3.4, a small break LOCA in which the reactor remains pressurized longer is the worst case for steam bypass considerations. However as described in USAR 6.2.1.1.3.1.7.3, this type of accident results in a scram from high drywell pressure followed by "an orderly shutdown using the RHR heat exchangers and the main condenser while limiting the reactor cooldown rate to 100 deg F per hour." In this milder LOCA, it is reasonable to assume that fuel failure, if it even occurs, is significantly less than that assumed consistent with RG 1.3 for the DBA LOCA, and subsequent radioactivity levels inside containment are much less severe than those that must be assumed for the design basis event.

b) Technical Specification 3.6.5.1.3 requires a drywell bypass leakage less than the acceptable design value of 1.0 ft^2. In order to conservatively allow for degradation during the surveillance interval, the Technical Specification requires as-left leakage (prior to startup) to be no greater than 10 percent of that, i.e., 0.1 ft^2. The most recent drywell bypass leakage surveillance produced a measured $A/\sqrt{K}$ of approximately 0.027 ft^2. To speculate that an event occurred with a bypass value at the allowable leakage limit would be extremely conservative.

c) The analysis described in USAR Section 6.2.1.1.3.4 assumes an $A/\sqrt{K}$ of 1.15 ft^2. The Technical Specification limit is a 1.0 ft^2 value, thereby providing additional conservatism.

d) Since bypass is not a concern for a large break LOCA (only of impact for the smaller break LOCA), the probability of having the right size small break LOCA event, combined with having a LOCA at the end of the allowable bypass leakage surveillance frequency, combined with the probability of the event occurring during the relatively short window expected for actual time the IFTS blind flange is removed with the reactor at power makes the occurrence of such an event a very low probability.

e) Per EOP-0003, operators are instructed to isolate any leakage paths between the containment and the secondary containment/fuel building.

Hence, effects of a small break LOCA have been excluded from consideration in the evaluation of a water seal existing above the bottom end of the IFTS transfer tube.

Leak Rate Testing of Drain Line Isolation Valve

As discussed in LAR 1999-30, the drain piping motor-operated isolation valve will be treated as a primary containment isolation valve and be added to the Primary Containment Leakage Rate Testing Program. This will ensure that leakage past this valve will be maintained consistent with the leakage rate assumptions of the RBS radiological analysis. 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). Due to the test methodology, the portion of the large transfer tube outboard of the blind flange (the portion of the tube which becomes exposed to containment air during the draining portion of the IFTS operation) will also be part of the leakage rate test boundary and will therefore, also be tested. This leak rate test on the IFTS tube will also check other potential (but unlikely) leak paths such as, past the liquid level sensors for the tube. Therefore, no unidentified leakage paths will exist from the piping and components that are outboard of the blind flange, and the leakage rate assumptions of the RBS radiological accident analysis will be maintained. A leakage rate test will be performed prior to the first removal of the IFTS blind flange in Modes 1,2 or 3 as indicated on Attachment 2

A second motor-operated valve is located in this drain line downstream of the motor-operated valve described above. No credit has been taken for manual operation of this valve.

Effect on Emergency Operating Procedures

The current RBS EOP Appendix C calculation assumes a containment failure pressure of 53 psig based on a detailed containment analysis. This evaluation assumes that the IFTS blind flange is installed. The IFTS tube was evaluated to withstand a pressure of 40 psig, with the blind flange removed. Additionally, the containment would begin to vent into the fuel building at a containment pressure of 9 psig. Revision of the EOPs, assuming a containment failure pressure lower than 53 psig, would affect both PSP (pressure suppression pressure) and PCPL (primary containment pressure limit). Revision of the EOPs, assuming the containment failure pressure is that of the IFTS water seal, would cause a large change in both PCPL and PSP curves. The reduction of PCPL would be such that emergency depressurization would be required prior to the containment reaching 9 psig, which is well below the containment design basis pressure. However, this reduction in containment failure pressure will only be present a maximum of 60 days during an 18-month cycle and is considered a plant evolution. Additionally, per EOP-0003, operators are instructed to isolate any leakage paths between the containment and the secondary containment/fuel building. Therefore, this change does not affect the EOPs or the pressure at which intentional containment venting would occur.

Effect on Probabilistic Safety Assessment (PSA)

The RBS base Large Early Release Frequency (LERF) is 5.915E-9/yr. Removal of the blind flange increases the LERF by 6.315E-9/yr to 1.223E-8/yr. This increase in LERF is due to the reduced failure pressure of the IFTS tube. With the blind flange installed, the IFTS tube has a median failure pressure of approximately 80 psig. The IFTS tube was evaluated to withstand a pressure of 40 psig, with the blind flange removed. This lower IFTS failure pressure increases the probability of gross failure versus penetration failure at a given containment pressure. This shift in failure probability means that some of the less severe pressurization events (i.e. small hydrogen deflagrations) have a higher probability of causing a LERF. The operation of the bottom valve has no affect on LERF. The operations of the bottom valve has no affect for two reasons:

1) The bottom valve can not be opened unless the top valve is closed. Therefore, the design mitigates a large release path from the containment to the fuel building. The 4" vent line does present a release path once the pressure in the containment reaches approximately 9 psig. The 4" vent line ,however, only represents a penetration failure and, therefore, does not affect LERF, and

2) Venting the containment through the 4" vent line will not prevent further containment pressurization. Therefore, even though the containment will begin to vent at 9 psig, the probability of gross failure is not reduced. This is unchanged from the previous IFTS submittals.

The increase in LERF frequency is only 6.32E-9/yr, which represents an approximate 107% change in LERF. Due the River Bend low baseline LERF, any change under a 131.5% increase is considered non-risk-significant. This is according to the methodology defined in ERPI document EPRI TR-105396, PSA Applications Guide. This change is also well within the 1.0E-7 criteria for LERF changes provided in Reg. Guide 1.174.

Further, the RBS PRA analysis was done assuming no time limit on removal of IFTS blind flange. Inclusion of a 60-day time limit further reduces the risk significance of removal of the IFTS blind flange.

10 CFR 50, Appendix A, Criterion (GDC) 56

Criterion 56, "Primary Containment Isolation," states, "Each line that connects directly to the containment atmosphere and penetrates primary reactor containment shall be provided with containment isolation valves as follows, unless it can be demonstrated that the containment isolation provisions for a specific class of lines, such as instrument lines, are acceptable on some other defined basis: (1) One locked closed isolation valve inside and one locked closed isolation valve outside containment; or (2) One automatic isolation valve inside and one locked closed isolation valve outside of containment; or (3) One locked closed isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment; or (4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment. Isolation valves outside containment shall be located as close to the containment as practical and upon loss of actuating power, automatic valves shall be designed to take the position that provides greater safety."

None of the proposed administrative controls or design features of the IFTS system constitute either a locked closed or an automatic isolation. In this case, however, the first "specific class of lines" are those IFTS penetrations which are water sealed against a containment pressure equal to the post-LOCA peak containment. The second "specific class of lines" are those IFTS penetrations which are easily isolated by a leak rate tested valve, and controlled administratively so that the valve may be closed under all accident conditions (i.e., the drain valve).

Hence, the IFTS transfer tube and drain lines are considered acceptable on the basis contained in the preceding discussions.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

Entergy Operations, Inc. (EOI) proposes to change the River Bend Station (RBS) Technical Specifications, to permit the operation of the IFTS Bottom valve after removal of the inclined fuel transfer system (IFTS) primary containment isolation blind flange while the primary containment is required to be OPERABLE. EOI has reviewed the proposed change and has concluded that it does not involve a significant hazards consideration. The Commission has provided standards for determining whether an amendment involves no significant hazards consideration. These standards are stated in 10 CFR 50.92(c). A proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. EOI has evaluated the proposed license amendment in accordance with 10 CFR 50.91(a), and is providing its analysis of the issue of no significant hazards consideration using the three standards in 10 CFR 50.92(c).

1. The proposed changes do not significantly increase the probability or consequences of an accident previously evaluated.

The proposed change permits the operation of the IFTS Bottom valve after removal of the inclined fuel transfer system (IFTS) primary containment isolation blind flange when primary containment operability is required in MODE 1, 2, and 3. This will permit the full operation of the IFTS while the plant is operating. With respect to the probability of an accident, this aspect of the containment structure does not directly interface with the reactor coolant pressure boundary. Operation of the IFTS bottom valve after the removal of the blind flange does not involve modifications to plant systems or design parameters that could contribute to the initiation of any accidents previously evaluated. Operation of IFTS is unrelated to the operation of the reactor, and there is no aspect of IFTS operation that could lead to or contribute to the probability of occurrence of an accident previously evaluated. Operation of the IFTS bottom valve during operation of IFTS system after removal of the blind flange does not result in changes to procedures that could impact the occurrence of an accident.

With respect to the issue of consequences of an accident, the function of the containment is to mitigate the radiological consequences of a loss of coolant accident (LOCA) or other postulated events that could result in radiation being released from the fuel inside containment. While the proposed change does not change the plant design, it does permit an alteration of the containment boundary for the IFTS penetration. Altering the containment boundary in this case (i.e., Opening the IFTS bottom valve) would not result in any additional IFTS components being subjected to containment pressure in the event of a LOCA. However, the additional post-accident peak pressure load to be imposed upon the components in the IFTS if the blind flange is removed is a small fraction of their design capability. Therefore, they are considered an acceptable barrier to prevent uncontrolled release of post-accident fission products for this proposed change.

As discussed in LAR 1999-30, the proposed change required examination of two potential leakage pathways. The larger is the IFTS transfer tube, itself. The other, much smaller one, is a branch line used for draining the IFTS transfer tube during its operation. The bottom of the IFTS transfer tube is always water sealed, and maintained so by the submergence of the water in the transfer tube and in the fuel building spent fuel storage pool (the lower pool). The height of this water seal is greater than that necessary to prevent leakage from the bottom of the transfer tube during accidents that result in the calculated peak post-DBA LOCA pressure, P_a. The potential leakage pathway from the drain piping that attaches to the transfer tube will be isolated if required, via administrative controls on the drain piping isolation valve. Additionally, as committed to in LAR 1999-30, the drain piping isolation valve will be added to the Primary Containment Leakage Rate Testing Program (Technical Specification 5.5.13) to ensure that leakage past this valve will be maintained consistent with the leakage rate assumptions of the accident analysis. Due to the test methodology, the portion of the large transfer tube piping outboard of the blind flange (the portion of the tube which becomes exposed to the containment atmosphere during the draining portion of the IFTS operation) will also be part of the leakage rate test boundary and will therefore also be tested. Therefore, no unidentified leakage will exist from the piping and components that are outboard of the blind flange, and the leakage rate assumptions of the accident analysis will be maintained.

Therefore, the proposed change does not result in a significant increase in the probability or the consequences of previously evaluated accidents.

2. The proposed changes would not create the possibility of a new or different kind of accident from any previous analyzed.

The proposed change consists of permitting operation of the IFTS Bottom valve after the removal of a the IFTS Blind Flange which is not part of the primary reactor coolant pressure boundary nor involved in the operation or shutdown of the reactor. Being passive, the presence or absence of the IFTS Blind Flanges does not affect any of the parameters or conditions that could contribute to the initiation of any incidents or accidents that are created from a loss of coolant or an insertion of positive reactivity. Realigning the boundary of the primary containment to include portions of the IFTS is also passive in nature and therefore has no influence on, nor does it contribute to the possibility of a new or different kind of incident, accident or malfunction from those previously analyzed. Furthermore, operation of the IFTS is unrelated to the operation of the reactor and there is no mishap in the process that can lead to or contribute to the possibility of losing any coolant from the reactor or introducing the chance for an insertion of positive or negative reactivity, or any other accidents different from and not bounded by those previously evaluated.

Therefore, the proposed change does not result in creating the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed changes do not involve a significant reduction in a margin of safety.

The proposed change involves the operation of the IFTS Bottom Valve after realignment of the primary containment boundary by removing the blind flange which is a passive component. The margin of safety that has the potential of being impacted by the proposed change involves the dose consequences of postulated accidents which are directly related to potential leakage through the primary containment boundary. The potential leakage pathways due to the proposed change have been reviewed, and leakage can only occur from the administratively controlled IFTS transfer tube drain piping, and from the IFTS transfer tube itself. A dedicated individual will be designated to provide timely isolation of this drain piping during the duration of time when this proposed change is in effect. The conservatively calculated dose which might be received by the designated individual while isolating the drain piping is calculated to be 3.8 rem TEDE, which remains within the guidelines of General Design Criterion (GDC) 19 (10 CFR 50, Appendix A, Criterion 19).

Furthermore, the drain piping isolation valve will be added to the Primary Containment Leakage Rate Testing Program (Technical Specification 5.5.13) to ensure that leakage from the piping and components located outboard of the blind flange will be maintained consistent with the leakage rate assumptions of the accident analysis.

Studies of the capability of the IFTS system to withstand containment pressurization under severe accident conditions have been conducted. These studies conclude that IFTS, including the transfer tube and its valves, has a capability to withstand beyond design basis severe accident containment pressures which is greater than that of the containment structure itself. The RBS Emergency Operating Procedures (EOPs) are based on an ultimate containment failure pressure capability of 53 psig, which represents a margin of safety of 38 psi above the 15 psig containment design pressure.

This capability to withstand containment pressurization under severe accident conditions envelops other non-DBA LOCA scenarios, such as the small break LOCA. For the large break LOCA, additional defense-in-depth is provided by maintaining a water seal greater than P_a above the outlet of the IFTS transfer tube in the lower pool.

The RBS base LERF is 5.915E-9/yr. Removal of the blind flange increases the LERF by 6.315E-9/yr to 1.223E-8/yr. This increase in LERF is due to the reduced failure pressure of the IFTS tube. With the blind flange installed, the IFTS tube has a median failure pressure of approximately 80 psig. The IFTS tube was evaluated to withstand a pressure of 40 psig, with the blind flange removed. This lower IFTS failure pressure increases the probability of gross failure versus penetration failure at a given containment pressure. This shift in failure probability means that some of the less severe pressurization events (i.e. small hydrogen deflagrations) have a higher probability of causing a LERF. Based on the RBS PRA Analysis, the operation of the bottom valve has no affect on LERF.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The commission has provided guidance concerning the application of the standards of 10 CFR 50.92 by providing certain examples (51FR7751, March 6, 1986) of amendments that are not considered likely to involve a significant hazards consideration. While the proposed change is not enveloped by a specific example, it has been shown that the proposed change changes to the Technical Specifications are safe and do not constitute a significant hazards consideration.

ENVIRONMENTAL IMPACT CONSIDERATION

EOI has reviewed this request against the criteria of 10CFR51.22 for environmental considerations. As discussed above, the proposed change does not involve a significant hazards consideration. Also, the type of effluent released from RBS is not changed, and the increase in amount of effluent remains not significant (i.e., a small fraction of the guidelines of 10 CFR 100. Further, the amount of individual or cumulative occupational dose is not considered to increase significantly, since the doses themselves are not considered to increase significantly, and remain within appropriate guidelines (e.g., GDC 19 for the IFTS operator). Therefore, based on the foregoing, EOI concludes that the proposed change meets the criteria given in 10CFR51.22 (c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

CONCLUSION

The containment safety function can be maintained during periods of IFTS operation, even with the blind flange removed and bottom valve opened with the plant at power. With the blind flange removed and certain restrictions and administrative controls in place, the IFTS penetration does not represent an uncontrolled breach of the containment boundary. This approach is similar to the existing NOTE 3 in SR 3.6.1.3.3, which allows for PCIVs to be open under administrative controls. The IFTS transfer tube terminates deep in the fuel transfer pool in the fuel handling building (see Figure 1). This effectively seals the tube and precludes it from becoming a potential leak path from the containment atmosphere into the fuel building in the event of a design basis accident LOCA..

REFERENCES

1. River Bend Updated Safety Analysis Report (USAR), Section 9.1
2. GE Report, "Prediction of the Onset of Fission Gas Release from Fuel In Generic BWR," dated July 1996

Figure 1. – IFTS Tube Details

(For Information Only)

No.	***Component Identification***
1	Winch
2	Hydraulic power supply
3	Fluid Stop
4	Vent pipe
5	Cable enclosures
6	Top horizontal guide arms
7	Upper pool upender
8	Trunnion box
9	Hydraulic cylinder
10	Upper pool framing
11	Sheave box cover
12	Hydraulic cylinder
13	Fill valve
14	Sheave box
15	Sheave pipe
16	Hydraulic cylinder
17	Manual gate valve
18	Containment isolation
19	Containment bellows
20	Transfer tube
21	Hydraulic power supply
22	Mid-support
23	Wire rope (cables)
24	Carriage
24A	Tilt tube
24B	Follower
25	Gate valve
26	Bellows
27	Drain valve
28	Horizontal guide arms
29	Valve support structure
30	Lower pool framing
31	Lower pool upender
32	Pivot arm framing control system

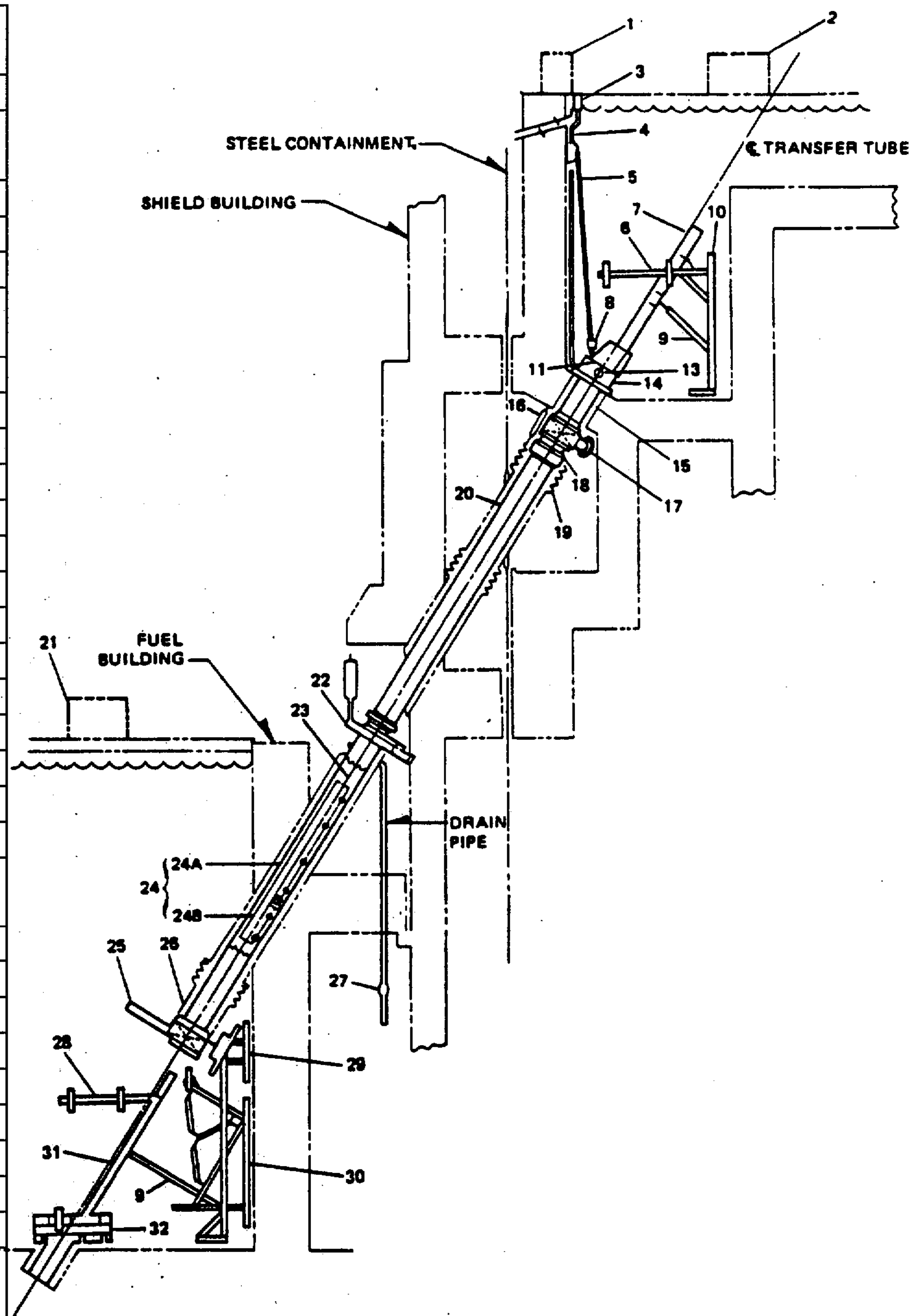
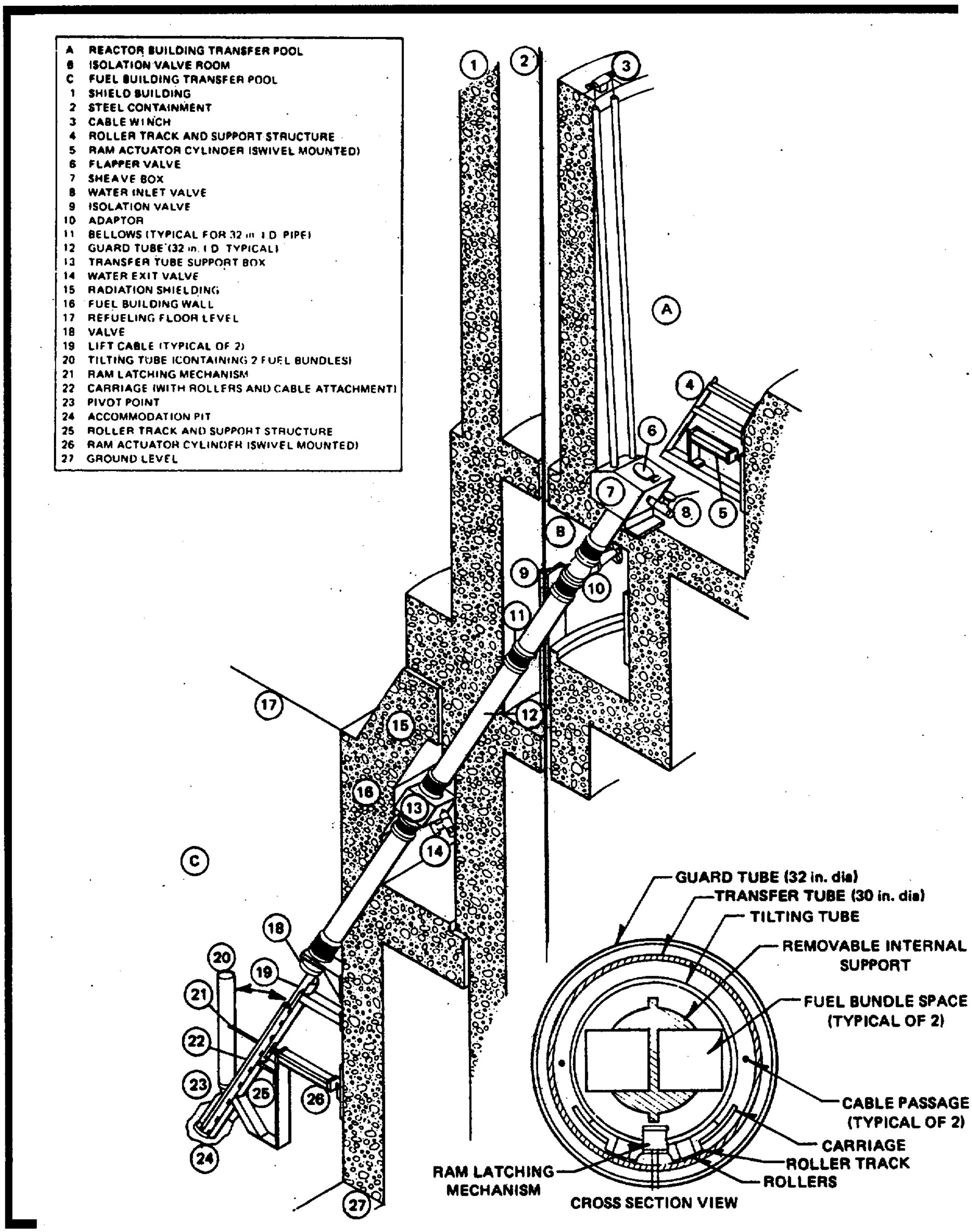


Figure 2. – Inclined Fuel Transfer System
(For Information Only)



ATTACHMENT 2

TO

LETTER NO. RBF1-01-0005

COMMITMENT IDENTIFICATION FORM

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

Commitment Identification Form

COMMITMENT	ONE-TIME ACTION*	CONTINUING COMPLIANCE *
A leakage rate test of the IFTS drain isolation valve will be performed prior to the first removal of the IFTS blind flange in Modes 1,2 or 3	X	

*Check one only

ATTACHMENT 3

TO

LETTER NO. RBF1-01-0005

LAR 1999-30 COMMITMENT IDENTIFICATION FORM
(FOR INFORMATION ONLY)

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

LAR 1999-30 Commitment Identification Form
(For Information only)

COMMITMENT	ONE-TIME ACTION*	CONTINUING COMPLIANCE*
Add a paragraph to the Bases for TS 3.6.1.3 to explain the addition of the fourth note to the surveillance requirement.	X	
Structural modifications as a result of the increase in load, including additional pipe supports as needed, will be incorporated in the field prior to removal of the blind flange during power operation. Calculations that coincide with the piping evaluations will be completed prior to implementation of the amendment. (i.e., calculation AX-144B Rev 1A and F42-D001, Rev 0A.)	X	
Implement administrative controls to maintain the gate open between the lower pool and the lower IFTS transfer pool, and between the lower pool and the cask pool, while the blind flange has been removed during power operations.		X
~~To provide added assurance that the bottom valve remains closed, it will be hydraulically locked (i.e., deactivated).~~		~~X~~
Implement administrative controls to maintain the gates open between the upper pool, the upper IFTS transfer pool, and the upper cavity, while the blind flange has been removed during power operations.		X
Implement administrative controls such that, when draining a percentage of the upper pool (e.g., pre-outage), a nominal maximum of seven feet of water will be permitted to be drained.		X
Implement administrative controls to ensure the IFTS transfer tube drain line can be isolated under any accident scenario. This involves stationing a dedicated operator in a low dose area in the vicinity of the IFTS drain line isolation valve whenever the drain valves are opened with the blind flange removed during power MODE 1, 2, or 3. This operator is to manually close the IFTS drain valve if it fails to close properly. This operator is in addition to the normal shift crew composition. The operator will be equipped with portable lighting, and will remain in continuous communication with the control room. The operator will be properly trained, and will be in addition to the normal shift crew composition required to be on site.		X
The IFTS transfer tube drain line isolation valve will be maintained in accordance with the Primary Containment Leakage Rate Testing Program (Technical Specification 5.5.13), which helps to ensure its reliability and leak tightness. Due to the test methodology, the portion of the large transfer tube outboard of the blind flange will also be part of the test boundary. This leak rate test on the IFTS tube will also check other potential (but unlikely) leak paths, such as past the liquid level sensors for the tube.		X
~~A leakage rate test will be performed prior to removal of the IFTS blind flange before RF-09.~~	~~X~~	
USAR changes will be incorporated which will describe the valve configuration and testing configuration, and also contain a description of the actions to be performed by the dedicated operator.	X	

*Check one only

ATTACHMENT 4

TO

LETTER NO. RBF1-01-0005

PROPOSED TECHNICAL SPECIFICATION MARK-UPS

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.1.3.2	-----------------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. --------------------------------------- Verify each primary containment isolation manual valve and blind flange that is located outside primary containment, drywell, and steam tunnel and is required to be closed during accident conditions is closed.	31 days
SR 3.6.1.3.3	-----------------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. INSERT → --------------------------------------- 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

(continued)

Insert for SR 3.6.1.3.3

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 building spent fuel storage pool water level is maintained greater than 23 feet above the top of the fuel, 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 operating cycle while in Modes 1,2 or 3.

Insert for SR 3.6.1.3.3

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 building spent fuel storage pool water level is maintained greater than 23 feet above the top of the fuel, and the IFTS transfer tube drain valve and bottom gate valve remain closed. The IFTS transfer tube drain valve may be opened under administrative controls.

Delete Note submitted in LAR 1999-30.

ATTACHMENT 5

TO

LETTER NO. RBF1-01-0005

PROPOSED TECHNICAL SPECIFICATION BASES MARK-UPS
(FOR INFORMATION ONLY)

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.3

This SR verifies that each primary containment manual isolation 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 ~~Three~~ 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 controls. Allowing verification by administrative controls is considered acceptable since access to these areas is typically restricted during MODES 1, 2, and 3. Therefore, the probability of misalignment of these 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.

INSERT →

SR 3.6.1.3.4

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 full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time and Frequency of this SR are in accordance with the Inservice Testing Program.

(continued)

<u>Insert for B 3.6.1.3 (SR 3.6.1.3.3)</u>

Note 4 allows for removal of the Inclined Fuel Transfer System (IFTS) blind flange when primary containment operability is required. This provides the option of performing testing and maintenance of the IFTS system during MODE 1, 2, or 3. Requiring the fuel building spent fuel storage pool water level to be > el. 108'-4" (23 feet above the top of the fuel in the lower pool) ensures a sufficient depth of water over the outlet of the transfer tube bottom valve. This water prevents direct communication between the containment building atmosphere and the fuel building atmosphere via the inclined fuel transfer tube under DBA LBLOCA conditions. The spent fuel storage pool gate to the IFTS transfer pool will remain open, in order for the safety-related spent fuel storage pool instrumentation to provide level indication for the transfer pool. Since the IFTS transfer tube drain line is not isolated in a manner similar to the transfer tube, and the motor-operated drain valve may be opened while the blind flange is removed, administrative controls are required to ensure the drain line flow path is quickly isolated in the event of a LOCA. In this instance, administrative control of the IFTS transfer tube drain line isolation valve includes stationing a dedicated individual, who is in continuous communication with the control room, in the vicinity of the IFTS drain tank in the fuel building. This individual will initiate closure of the IFTS transfer tube drain line motor-operated isolation valve (F42-MOVF003) if a need for primary containment isolation is indicated. The pressure integrity of the IFTS transfer tube, the seal created by water depth of the fuel building spent fuel storage pool, and the administrative control of the drain line flow path create an acceptable barrier to prevent the post-DBA LOCA containment building atmosphere from leaking into the fuel building.

Insert for B 3.6.1.3 (SR 3.6.1.3.3)

A fourth note is added to allow for removal of the Inclined Fuel Transfer System (IFTS) blind flange when primary containment operability is required. This provides the option of performing limited testing and maintenance of the IFTS system during MODE 1, 2, or 3. Requiring the fuel building spent fuel storage pool water level to be > el. 108′-4″ (23 feet above the top of the fuel in the lower pool) ensures a sufficient depth of water over the outlet of the transfer tube bottom valve. This water prevents direct communication between the containment building atmosphere and the fuel building atmosphere via the inclined fuel transfer tube under DBA LBLOCA conditions. The spent fuel storage pool gate to the IFTS transfer pool will remain open, in order for the safety-related spent fuel storage pool instrumentation to provide level indication for the transfer pool. The bottom valve is to remain closed while the blind flange is removed during MODE 1, 2, or 3, in order to ensure containment integrity during higher-pressure transients (e.g., under severe accidents). Since the IFTS transfer tube drain line is not isolated in a manner similar to the transfer tube, and the motor-operated drain valve may be opened while the blind flange is removed, administrative controls are required to ensure the drain line flow path is quickly isolated in the event of a LOCA. In this instance, administrative control of the IFTS transfer tube drain line isolation valve includes stationing a dedicated individual, who is in continuous communication with the control room, in the vicinity of the IFTS drain tank in the fuel building. This individual will initiate closure of the IFTS transfer tube drain line motor-operated isolation valve (F42-MOVF003) if a need for primary containment isolation is indicated. The pressure integrity of the IFTS transfer tube, the seal created by water depth of the fuel building spent fuel storage pool, and the administrative control of the drain line flow path create an acceptable barrier to prevent the post-DBA LOCA containment building atmosphere from leaking into the fuel building.

Delete Note
Submitted
in LAR 1999-30