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Paul D. Hinnenkamp
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RBG- 46183

October 21, 2003

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

SUBJECT: License Amendment Request
Deletion of Technical Specification 3.6.4.4 Shield Building Annulus Mixing System; and revision of Main Steam Isolation Valve (MSIV) Surveillance Requirement SR 3.6.1.3.10.
River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

REFERENCES: 1. Letter from US NRC to Entergy Operations, Inc: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: FULL-SCOPE APPLICATION OF ALTERNATIVE SOURCE TERM INSIGHTS (TAC NO. MB5021), dated March 14, 2003.

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for River Bend Station, Unit 1 (RBS). EOI requests modification of the River Bend Technical Specifications (TS) to delete Technical Specification 3.6.4.4 Shield Building Annulus Mixing System and its associated Bases section in their entirety; and to revise Main Steam Isolation Valve (MSIV) leakage limits contained within Technical Specification Surveillance Requirement SR 3.6.1.3.10. EOI also requests changes to delete reference to Technical Specification 3.6.4.4 within TS 3.10.1 Inservice Leak and Hydrostatic Testing Operation.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that these changes involve no significant hazards consideration. The bases for these determinations are included in the attached submittal (attachment 1).

The proposed changes do not include any new commitments. Attachment 2 contains a markup copy of the proposed Technical Specification changes. Attachment 3 contains a markup copy of the proposed Bases changes, which are provided as information only.

Entergy requests approval of the proposed amendment by October 2004 which will allow for implementation during River Bend's next refueling outage (RF12). Once approved, the

amendment shall be implemented during RF12. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions or require additional information, please contact Greg Norris at 225-336-6391.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 21, 2003.

Sincerely,

Paul D. Hinnenkamp
Vice President, Operations
River Bend Station, Unit 1

PDH/GPN

Attachments:
1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Changes to Technical Specification Bases Pages – For Information Only

cc: U. S. Nuclear Regulatory Commission
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NRC Senior Resident Inspector
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Bcc:

File No: G9.5, G9.42

File: RBF1-03-0176

File: LAR 2003-21

Attachment 1

RBG-46183

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-47 for River Bend Station, Unit 1 (RBS).

The proposed changes will revise the Operating License to delete Technical Specification 3.6.4.4 Shield Building Annulus Mixing System and its associated Bases section in their entirety; and also to revise Main Steam Isolation Valve (MSIV) leakage limits contained within Technical Specification Surveillance Requirement SR 3.6.1.3.10. EOI also requests changes to delete reference to Technical Specification 3.6.4.4 within TS 3.10.1 Inservice Leak and Hydrostatic Testing Operation.

RBS has received approval for application of the Alternate Source Term dose methodology (Reference 1). A revision to the dose consequences analysis using the Alternate Source Term dose methodology has been performed assuming the elimination of the annulus mixing function, and to remove the single MSIV leakage limit of 50 scfh. While there is an increase in the calculated off-site and main control room doses, the calculated doses remain below the acceptance criteria in 10CFR50.67.

The motors used to power the annulus mixing fans are obsolete and procuring new motors is costly in both engineering time and materials. The elimination of the Annulus Mixing function is seen as a monetary and labor savings opportunity. The elimination of the single MSIV leakage limit relaxes an overly burdensome requirement and is expected to result in cost savings.

Entergy requests approval of the proposed amendment by October 2004 which will allow for implementation during River Bend's next refueling outage (RF12).

2.0 PROPOSED CHANGE

There are three proposed changes associated with this request: 1) deletion of the annulus mixing function (TS 3.6.4.4) in its entirety, 2) revision of TS SR 3.6.1.3.10 to change the current value of 50 scfh to 150 scfh which is equal to the limit on total MSIV leakage, and, 3) Delete reference to TS 3.6.4.4 within TS 3.10.1. Similarly, Bases 3.6.4.4 will be deleted and Bases 3.6.1.3 will be revised to change the current value of 50 scfh to 150 scfh which is equal to the limit on total MSIV leakage. Bases 3.6.4.1 will also be revised to delete reference to TS 3.6.4.4. Markup copies of these changes are provided in attachments 2 and 3, respectively.

No specific plant modifications are required to implement these proposed changes. Any modification that utilizes the benefits of alternative source term will be evaluated under 10 CFR 50.59 as allowed per Regulatory Guide 1.183.

3.0 BACKGROUND

The secondary containment at RBS consists of two structures, the Auxiliary Building, and the Shield Building. The Shield Building completely encloses the steel primary containment and those components that may be postulated to contain primary system fluid, and serves as a secondary containment. The function of the secondary containment is to contain, dilute, and hold up radioactive fission products that may leak from primary containment following a design-

basis accident (DBA). The secondary containment is designed to function in conjunction with the operation of the Standby Gas Treatment System (SGTS), and the closure of certain valves whose lines penetrate the secondary containment to reduce the activity level of the fission products prior to release to the environment. The secondary containment ventilation system is a safeguard system which maintains a negative pressure in the secondary containment enclosure upon detection of high area radiation. RBS's Updated Final Safety Analysis Report (UFSAR), Section 6.2, describes the containment systems.

The Shield Building Annulus Mixing System, in conjunction with the secondary containment and Standby Gas Treatment System, is currently required to ensure that radioactive materials that leak from the primary containment into the shield building annulus portion of the secondary containment following a Design Basis Accident (DBA) are filtered and adsorbed prior to exhausting to the environment. Specifically, the Shield Building Annulus Mixing System provides thorough mixing of the iodine and noble gases leaking from the primary containment into the volume between the steel containment and the shield building. The Shield Building Annulus Mixing System consists of two fully redundant subsystems, each with its own set of ductwork, dampers, and controls. The Shield Building Annulus Mixing System automatically starts and operates in response to actuation signals indicative of a LOCA. Following initiation, both shield Building Annulus Mixing fans start.

The current design basis for the Shield Building Annulus Mixing System is to mitigate the consequences of a loss of coolant accident. For the events analyzed, the Shield Building Annulus Mixing System is automatically initiated to reduce, via mixing, the quantity of radioactive material processed by the Standby Gas Treatment System. This would result in minimizing the release rates for radioactive material released to the environment.

4.0 TECHNICAL ANALYSIS

The current dose consequences evaluation, which has received NRC approval, incorporates the Alternate Source Term. The revision to the dose consequences evaluation prepared to support this amendment request includes the following changes:

1) The Annulus Mixing System is a system that provides forced mixing of the Shield Building Annulus. The system draws air from various locations in the shield building annulus and discharges the air through a distribution network back to shield building annulus, with a portion of the discharge flow routed to the Standby Gas Treatment System where the air is filtered prior to release to the plant stack. The portion of the flow to the Standby Gas Treatment System is sufficient to maintain the Shield Building Annulus at a vacuum relative to the environment. Post-LOCA operation of the Annulus Mixing System was assumed in the current LOCA dose consequences evaluation by crediting 50% of the Shield Building Annulus volume consistent with Regulatory Guide 1.183. The proposed change would be to lockout, or otherwise disable, the annulus mixing fan motors, thus eliminating forced mixing of the shield building annulus. However, the Standby Gas Treatment system will continue to draw air from the shield building annulus via the annulus mixing system suction and discharge networks, and as such some mixing would occur. The revised dose consequences evaluation conservatively assumes little mixing in the shield building annulus. This is accomplished

in the dose evaluation model by assuming a very small shield building annulus volume of 1.0 ft^3 instead of the 50% shield building annulus volume used in the current evaluation.

2) The single MSIV leakage value is changed from the current value of 50 scfh to 150 scfh which is equal to the limit on total MS-PLCS Division leakage found in TS SR 3.6.1.3.10.

The results of the revised dose consequences evaluation are:

Location	Current Dose (REM)	Revised Dose (REM)	Dose Limit (REM)
EAB	15.3	16.4	25
LPZ	7.7	8.2	25
Control Room	3.1	3.5	5

The results indicate that while there is an increase in the calculated doses with the revised inputs, the doses are still within the 10CFR50.67 acceptance limit.

Therefore, the deletion of the Annulus Mixing System Technical Specification is acceptable because the Shield Building Annulus Mixing System is no longer credited as an accident mitigation function during MODES 1,2, and 3 and does not satisfy any of the criteria of 10 CFR 50.36(c)(2)(ii) for Technical Specification limiting conditions for operations.

In addition, a test was performed during RF11, in the Spring of 2003, to demonstrate that the Standby Gas Treatment System could meet the drawdown requirements without the support of the Shield Building Annulus Mixing System. This was performed by conducting the drawdown test with the Annulus Mixing fans locked out. Test results indicated that the SGTS can meet all of its acceptance criteria under these conditions.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met. The analyses used the assumptions and guidance provided by Regulatory Guide 1.183.

Entergy has determined that the proposed changes do not require any exemptions or relief from regulatory requirements, other than the TS, and do not affect conformance with any General Design Criterion (GDC) differently than described in the Updated Final Safety Analysis Report (UFSAR.)

5.2 No Significant Hazards Consideration

This proposed amendment to the River Bend Technical Specifications (TS) deletes the Shield Building Annulus Mixing System from Technical Specifications and revises MSIV leakage criteria using alternative source term concepts in accordance with NUREG 1465.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   As discussed above, the proposed changes are to delete the annulus mixing function and deletion of the single MSIV leakage rate limit. A review of the safety analysis report indicates that operation (or mis-operation) of the annulus mixing system, or any component of the annulus mixing system is not considered an initiator of any accident evaluated in the Updated Safety Analysis Report. The deletion of the single MSIV leakage limit of 50 scfh in effect establishes a maximum leakage limit of 150 scfh which is the current total MSIV leakage limit. The elimination of the single MSIV acceptable leakage rate limit does not impact any event initiator. As the proposed changes do not involve any accident initiators, there is no increase in the probability of an accident previously evaluated.

   The annulus mixing system and the main steam isolation valves operate following an LOCA to mitigate the consequences of an accident. Elimination of the annulus mixing system and the single MSIV leakage limit will lead to some increase in the dose consequences of a LOCA. The current LOCA dose consequences evaluation for RBS was revised to account for the elimination of the annulus mixing system and for increasing the single MSIV leakage to 150 scfh (applying the total MS-PLCS Division limit to the single MSIV). The results of the revised evaluation with the proposed changes show an increase in the calculated dose consequences, however, the calculated doses were still within the acceptance limits of 10CFR50.67. Thus, while there is an increase in the dose consequences of an accident previously identified, the increase is not deemed to be significant.

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed change does not add any equipment, nor is any equipment replaced with equipment with different performance characteristics. Thus, no new initiators are added, and therefore, no new accident types are created as a result of this change. The

proposed changes affect performance characteristics assumed in the LOCA dose consequences evaluation, however, the nature of the accidents evaluated in the safety analysis report are not changed.

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

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

With respect to dose consequences for the LOCA event, the margin of safety is considered to be that provided by meeting the 10CFR50.67 limits. The revised dose consequences evaluation, which includes the proposed changes, continues to demonstrate that the doses at the exclusion area boundary, the low population zone, and the control room are within the acceptance limits in 10CFR50.67. Therefore, there is no reduction in the margin of safety.

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

Based on the above, Entergy concludes that the proposed amendment(s) present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Attachment 2

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Proposed Technical Specification Changes (mark-up)

Annulus Mixing System
3.6.4.4

3.6 CONTAINMENT SYSTEMS

3.6.4.4 Shield Building Annulus Mixing System

Deleted

LCO 3.6.4.4 Two shield building annulus mixing subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One shield building annulus mixing subsystem inoperable.	A.1	Restore shield building annulus mixing subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.4.4.1	Operate each shield building annulus mixing subsystem for ≥ 15 minutes.	31 days
SR 3.6.4.4.2	Verify each shield building annulus mixing subsystem actuates on an actual or simulated initiation signal, and produces a flow rate of ≤ 57,750 cfm and ≥ 47,250 cfm.	18 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.10	NOTE Only required to be met in MODES 1, 2, and 3.	
	Verify ~~leakage rate through each main steam line is ≤ 50 scfh when tested at ≥ P_a, and~~ the total leakage rate through the valves served by each division of MS-PLCS is ≤ 150 scfh per division when tested at ≥ P_a.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	NOTE Only required to be met in MODES 1, 2, and 3.	
	Verify combined leakage rate through hydrostatically tested lines that penetrate the primary containment is within limits.	In accordance with the Primary Containment Leakage Rate Testing Program

(continued)

3.10 SPECIAL OPERATIONS

3.10.1 Inservice Leak and Hydrostatic Testing Operation

LCO 3.10.1 The average reactor coolant temperature specified in Table 1.1-1 for MODE 4 may be changed to "NA," and operation considered not to be in MODE 3; and the requirements of LCO 3.4.10, "Residual Heat Removal (RHR) Shutdown Cooling System - Cold Shutdown," may be suspended, to allow performance of an inservice leak or hydrostatic test provided the following MODE 3 LCOs are met:

a. LCO 3.3.6.2, "Secondary Containment and Fuel Building Isolation Instrumentation," Functions 1, 2, and 5 of Table 3.3.6.2-1;

b. LCO 3.6.4.1, "Secondary Containment - Operating";

c. LCO 3.6.4.2, "Secondary Containment Isolation Dampers (SCIDs) and Fuel Building Isolation Dampers (FBIDs)";

d. LCO 3.6.4.3, "Standby Gas Treatment (SGT) System"; and

~~e. LCO 3.6.4.4, "Annulus Mixing System"; and~~

e. ~~f.~~ LCO 3.6.4.5, "Fuel Building";

APPLICABILITY: MODE 4 with average reactor coolant temperature > 200°F.

Attachment 3

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Changes to Technical Specification Bases Pages
For Information Only

B 3.6 CONTAINMENT SYSTEMS

Deleted

B 3.6.4.4 Shield Building Annulus Mixing System

BASES

BACKGROUND	The Shield Building Annulus Mixing System, in conjunction with the secondary containment and Standby Gas Treatment System, is required to ensure that radioactive materials that leak from the primary containment into the shield building annulus portion of the secondary containment following a Design Basis Accident (DBA) are filtered and adsorbed prior to exhausting to the environment. Specifically, the Shield Building Annulus Mixing System provides thorough mixing of the iodine and noble gases leaking from the primary containment into the volume between the steel containment and the shield building. The Shield Building Annulus Mixing System consists of two fully redundant subsystems, each with its own set of ductwork, dampers, and controls. The Shield Building Annulus Mixing System automatically starts and operates in response to actuation signals indicative of a LOCA. Following initiation, both shield Building Annulus Mixing fans start.
APPLICABLE SAFETY ANALYSIS	The design basis for the Shield Building Annulus Mixing System is to mitigate the consequences of a loss of coolant accident (Ref. 1). For the events analyzed, the Shield Building Annulus Mixing System is shown to be automatically initiated to reduce, via mixing, the quantity of radioactive material processed by the Standby Gas Treatment System. This results in minimizing the release rates for radioactive material released to the environment. The Shield Building Annulus Mixing System satisfies Criterion 3 of the NRC Policy Statement.
LCO	Following a DBA, a minimum of one shield building annulus mixing subsystem is required to adequately mix gaseous releases for processing by the Standby Gas Treatment System. Meeting the LCO requirements for two operable subsystems ensures operation of at least one shield building annulus mixing subsystem in the event of a single active failure.

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, and 3, a DBA LOCA could lead to a fission product release to primary containment that leaks to secondary containment, including the annulus. Therefore, Shield Building Annulus Mixing System OPERABILITY is required during these MODES.

In MODES 4 and 5, the probability and consequences of a DBA LOCA event is reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the Shield Building Annulus Mixing System OPERABLE is not required in MODE 4 or 5.

ACTIONS

A.1

With one shield building annulus mixing subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. In this condition, the remaining OPERABLE shield building annulus mixing subsystem is adequate to perform the required radioactivity release mixing function. However, the overall system reliability is reduced because a single failure in the OPERABLE subsystem could result in the radioactivity release mixing function not being adequately performed. The 7 day Completion Time is based on consideration of such factors as the availability of the OPERABLE redundant shield building annulus mixing subsystem and the low probability of a DBA occurring during this period.

B.1 and B.2

If the shield building annulus mixing subsystem(s) cannot be restored to OPERABLE status within the required 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)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.4.1

Operating each shield building annulus mixing subsystem for ≥ 15 minutes ensures that both subsystems are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

SR 3.6.4.4.2

This SR requires verification that each shield building annulus mixing subsystem starts upon receipt of an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. USAR, Section 15.6.5.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.9 (continued)

evaluations of Reference 4 are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves) unless the penetration is isolated by use of one closed and de-activated power operated or automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. This method of quantifying maximum pathway leakage is only to be used for this SR (i.e., Appendix J, Option B maximum pathway leakage limits are to be quantified in accordance with Appendix J, Option B). The Frequency is required by the Primary Containment Leakage Rate Testing Program (Ref. 5).

A note is added to this SR which states that these valves are only required to meet this leakage limit in MODES 1, 2 and 3. In the other conditions the Reactor Coolant System is not pressurized and primary containment leakage limits are not required.

SR 3.6.1.3.10

The analyses in References 2 and 3 are based on leakage out of the primary containment that is less than the specified leakage rate. The leakage rate of ~~60~~ 150 scfh when pressurized to $\geq P_a$, 7.6 psig, per main steam line provides assurance that the assumptions in the radiological evaluations of Reference 4 are met. Leakage through the valves sealed in each division of MS-PLCS must be $\leq$ 150 scfh per division when tested at $\geq P_a$, 7.6 psig. The leakage rate must be verified to be in accordance with the leakage test requirements of Reference 4, as modified by approved exemptions.

A note is added to this SR which states that these valves are only required to meet this leakage limit in MODES 1, 2 and 3. In the other conditions, the Reactor Coolant System is not pressurized and specific primary containment leakage limits are not required. The Frequency is required by the Primary Containment Leakage Rate Testing Program (Ref. 5).

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4.1 Secondary Containment–Operating

BASES

BACKGROUND

The function of the secondary containment is to contain, dilute, and hold up fission products that may leak from primary containment following a Design Basis Accident (DBA). In conjunction with operation of the Standby Gas Treatment (SGT) System and closure of certain valves whose lines penetrate the secondary containment, the secondary containment is designed to reduce the activity level of the fission products prior to release to the environment and to isolate and contain fission products that are released during certain operations that take place inside primary containment, when primary containment is not required to be OPERABLE, or that take place outside primary containment.

The secondary containment consists of the shield building and auxiliary building, and completely encloses the primary containment and those components that may be postulated to contain primary system fluid. This structure forms a control volume that serves to hold up and dilute the fission products. It is possible for the pressure in the control volume to rise relative to the environmental pressure (e.g., due to pump/motor heat load additions). To prevent ground level exfiltration while allowing the secondary containment to be designed as a conventional structure, the secondary containment requires support systems to maintain the control volume pressure at less than the external pressure. Requirements for these systems are specified separately in LCO 3.6.4.2, "Secondary Containment Isolation Dampers (SCIDs) and Fuel Building Isolation Dampers (FBIDs)," LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," ~~and LCO 3.6.4.4, "Shield Building Annulus Mixing System."~~ and

The isolation devices for the penetrations in the secondary containment boundary are a part of the secondary containment barrier. To maintain this barrier:

a. All Auxiliary Building penetrations and Shield Building annulus penetrations required to be closed during accident conditions are either:

(continued)