UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 24, 2000

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - ISSUANCE OF AMENDMENT REGARDING ADMINISTRATIVE CONTROLS FOR OPEN PENETRATIONS DURING REFUELING OPERATIONS, TS 99-09 (TAC NO. MA8372)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 26 to Facility Operating License No. NPF-90 for Watts Bar Nuclear Plant, Unit 1. This amendment is in response to your application dated March 6, 2000. The amendment revises the Technical Specification and associated Bases for Limiting Condition for Operation 3.9.4, "Refueling Operations - Containment Penetrations," to allow the containment personnel airlock doors and certain containment penetrations to be open during refueling activities under appropriate administrative controls. The changes are consistent with Technical Specification Task Force Travelers Number 68, Revision 2 and Number 312, Revision 1.

A copy of the safety evaluation is also enclosed. Notice of issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Robert Martin

Robert E. Martin, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosures: 1. Amendment No. 26 to NPF-90
2. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-390

WATTS BAR NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 26
License No. NPF-90

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated March 6, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-90 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 26 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. TVA shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, and shall be implemented no later than prior to startup following the Unit 1, Cycle 3 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard P. Correia

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Project Licensing Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 24, 2000

ATTACHMENT TO AMENDMENT NO. 26

FACILITY OPERATING LICENSE NO. NPF-90

DOCKET NO. 50-390

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages	Insert Pages
3.9 - 6	3.9 - 6
B 3.9 - 12	B 3.9 - 12
B 3.9 - 13	B 3.9 - 13
B 3.9 - 14	B 3.9 - 14
B 3.9 - 15	B 3.9 - 15
B 3.9 - 16	B 3.9 - 16

3.9 REFUELING OPERATIONS

3.9.4 Containment Penetrations

LCO 3.9.4 The containment penetrations shall be in the following status:

a. The equipment hatch closed and held in place by a minimum of four bolts;

b. One door in each air lock closed; or capable of being closed provided ABGTS is OPERABLE in accordance with TS 3.7.12; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either:

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE Containment Vent Isolation System.

NOTE

Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls provided ABGTS is OPERABLE in accordance with TS 3.7.12.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

B 3.9 REFUELING OPERATIONS

B 3.9.4 Containment Penetrations

BASES

BACKGROUND

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, a release of fission product radioactivity within containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements are referred to as "containment closure" rather than "containment OPERABILITY." Containment closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the Appendix J leakage criteria and tests are not required.

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 100. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 unit operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, containment closure is required; therefore, the door interlock mechanism may remain disabled, but one air lock door must always remain capable of being closed.

The requirements for containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted to within regulatory limits.

(continued)

BASES

BACKGROUND (continued)

The Reactor Building Purge Ventilation System operates to supply outside air into the containment for ventilation and cooling or heating, to equalize internal and external pressures, and to reduce the concentration of noble gases within containment prior to and during personnel access. The supply and exhaust lines each contain two isolation valves. Because of their large size, the 24-inch containment lower compartment purge valves are physically restricted to $\leq$ 50 degrees open. The Reactor Building Purge and Ventilation System valves can be opened in MODES 5 and 6, but are closed automatically by the Engineered Safety Features Actuation System (ESFAS). In MODE 6, large air exchanges are necessary to conduct refueling operations. The normal 24-inch purge system is used for this purpose. The ventilation system must be either isolated or capable of being automatically isolated upon detection of high radiation levels within containment.

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated on at least one side. Isolation may be achieved by an OPERABLE automatic isolation valve, or by a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be NRC approved and may include use of a material that can provide a temporary, atmospheric pressure, ventilation barrier for the other containment penetrations during fuel movements (Ref. 1). Closure by other valves or blind flanges may be used if they are similar in capability to those provided for containment isolation. These may be constructed of standard materials and may be justified on the basis of either normal analysis methods or reasonable engineering judgment (Ref. 4).

APPLICABLE SAFETY ANALYSES

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accidents, analyzed in Reference 3, include dropping a single irradiated fuel assembly and handling tool or a heavy object onto other irradiated fuel assemblies. The requirements of LCO 3.9.7, "Refueling Cavity Water Level," and the minimum decay time of 100 hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100 Standard Review Plan, Section 15.7.4, Rev. 1 (Ref. 3), defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values. The acceptance limits for offsite radiation exposure will be 25% of 10 CFR 100 values or the NRC staff approved licensing basis (e.g., a specified fraction of 10 CFR 100 limits).

Containment penetrations satisfy Criterion 3 of the NRC Policy Statement.

(continued)

BASES (continued)

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE Reactor Building Purge and Ventilation System penetrations, and the containment personnel airlocks. For the OPERABLE Reactor Building Purge and Ventilation System penetrations, this LCO ensures that these penetrations are isolable by the Containment Ventilation Isolation System. The OPERABILITY requirements for this LCO ensure that the automatic purge and exhaust valve closure times specified in the FSAR can be achieved and, therefore, meet the assumptions used in the safety analysis to ensure that releases through the valves are terminated, such that radiological doses are within the acceptance limit.

The containment personnel airlock doors may be open during movement of irradiated fuel in the containment and during CORE ALTERATIONS provided that one door is capable of being closed in the event of a fuel handling accident and provided that ABGTS is OPERABLE in accordance with TS 3.7.12. Should a fuel handling accident occur inside containment, one personnel airlock door will be closed following an evacuation of containment. The LCO is modified by a Note allowing penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated under administrative controls. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, 2) specified individuals are designated and readily available to isolate the flow path in the event of a fuel handling accident, and 3) the ABGTS is OPERABLE in accordance with TS 3.7.12. Operability of ABGTS is required to alleviate the consequences of a FHA inside containment resulting in leakage of airborne radioactive material past the open airlock or penetration flow paths prior to their closure.

APPLICABILITY

The containment penetration requirements are applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment because this is when there is a potential for a fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when CORE ALTERATIONS or movement of irradiated fuel assemblies within containment are not being conducted, the potential for a fuel handling accident does not exist. Therefore, under these conditions no requirements are placed on containment penetration status.

(continued)

BASES (continued)

ACTIONS

A.1 and A.2

If the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the outside atmosphere is not in the required status, including the Containment Ventilation Isolation System not capable of automatic actuation when the purge and exhaust valves are open, the unit must be placed in a condition where the isolation function is not needed. This is accomplished by immediately suspending CORE ALTERATIONS and movement of irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

This Surveillance demonstrates that each of the containment penetrations required to be in its closed position is in that position. The Surveillance on the open purge and exhaust valves will demonstrate that the valves are not blocked from closing. Also the Surveillance will demonstrate that each valve operator has motive power, which will ensure that each valve is capable of being closed by an OPERABLE automatic containment ventilation isolation signal.

The Surveillance is performed every 7 days during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide two or three surveillance verifications during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident that releases fission product radioactivity within the containment will not result in a release of fission product radioactivity to the environment in excess of those recommended by Standard Review Plan Section 15.7.4 (Reference 3).

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.9.4.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. LCO 3.3.6, Containment Ventilation Isolation Instrumentation requires a CHANNEL CHECK every 12 hours and a COT every 92 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements. These Surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.

REFERENCES

1. "Use of Silicone Sealant to Maintain Containment Integrity - ITS," GPU Nuclear Safety Evaluation SE-0002000-001, Rev. 0, May 20, 1988.

2. Watts Bar FSAR, Section 15.4.5, "Design Basis Fuel Handling Accidents."

3. NUREG-0800, Standard Review Plan, Section 15.7.4, "Radiological Consequences of Fuel Handling Accidents," Rev. 1, July 1981.

4. Generic Letter 88-17, "Loss of Decay Heat Removal"

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE NO. NPF-90

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-390

1.0 INTRODUCTION

By letter dated March 6, 2000, the Tennessee Valley Authority (TVA or the licensee) submitted a request for changes to the Watts Bar Nuclear Plant, Unit 1 (WBN), Technical Specifications (TS). The requested changes revise the TS and associated Bases for Limiting Condition for Operation (LCO) 3.9.4, "Refueling Operations - Containment Penetrations," Items (b) personnel airlock doors and (c) penetrations. This revision would allow both sets of containment personnel airlock doors and certain containment penetrations to be open during refueling activities using appropriate administrative controls. The changes are based on Nuclear Regulatory Commission (NRC) staff approved TS Task Force (TSTF) Traveler TSTF-68, Revision 2 and TSTF-312, Revision 1 to the Standard TSs Specifications, with an additional WBN condition on auxiliary building gas treatment system (ABGTS) operability.

1.1 Containment Personnel Airlock Doors

The licensee proposed a revision to LCO 3.9.4, Item (b) and associated TS Bases to permit both doors of the containment personnel airlocks to be open during fuel-handling activities and/or core alterations, provided one door in each airlock is capable of closure, and provided the ABGTS is operable in accordance with TS 3.7.12. Administrative controls will be implemented to ensure that in the event of a fuel- handling accident (FHA) inside containment, the open airlock will be promptly closed following containment evacuation. The proposed change is consistent with TSTF-68, Revision 2, with the additional WBN condition on ABGTS operability.

The current TS LCO 3.9.4 requires that one door in each containment personnel airlock be closed during core alterations and movement of irradiated fuel assemblies within containment. The licensee indicated that this requirement hinders personnel access to and from containment. The proposed revision will allow for more efficient performance of outage activities while continuing to provide an acceptable barrier against the release of radioactive material to the outside atmosphere during refueling operations. This TS change would also eliminate much of the cycling of the personnel airlock doors associated with personnel access and as a result, the personnel airlock door seals would receive less wear, improving their reliability.

ENCLOSURE

1.2 Containment Penetrations

The licensee proposed a revision to LCO 3.9.4, Item (c) and associated TS Bases to add a NOTE to allow unisolating containment penetration flow path(s) under administrative controls to facilitate maintenance activities, such as ice blowing, during refueling operations provided ABGTS is operable in accordance with TS 3.7.12. Administrative controls will be implemented to ensure that in the event of an FHA inside containment, the open penetrations will be promptly closed. These administrative controls include an awareness of the temporary flow path conditions and the designation of individuals to isolate the flow paths in the event of an FHA. This change is consistent with TSTF-312, R1 with the additional WBN condition on ABGTS operability. The proposed change also provides a reference in the TS Bases to Generic Letter (GL) 88-17 regarding containment closure requirements.

The proposed change is also similar to existing LCO 3.6.3, "Containment Isolation Valves," which allows penetration flow paths to be unisolated under administrative controls while the reactor is in Mode 1 through Mode 4. However, such an allowance did not previously apply during refueling operations when the need for containment integrity is less. The revision to LCO 3.9.4 will allow for more efficient performance of outage work, such as ice blowing during ice condenser maintenance concurrent with fuel handling activities, while continuing to provide an acceptable barrier against the release of fission products to the outside atmosphere.

2.0 EVALUATION

The primary containment serves to contain fission product radioactivity that may be released following an accident inside the containment. This ensures that offsite radiation exposures are maintained well within the requirements of Title 10 of the Code of Federal Regulations (10 CFR), Part 100. The requirements for containment penetration closure ensure that a release of fission product radioactivity from containment due to an FHA during refueling will be restricted to within regulatory limits. LCO 3.9.4 establishes containment closure requirements which limit the potential escape paths for fission products by ensuring that there is at least one integral barrier to the release of radioactive material. The original version of LCO 3.9.4 required a minimum of one door in each personnel airlock to be closed and requires that each penetration providing direct access from the containment to the outside atmosphere either be closed by a manual or automatic valve, blind flange, "or equivalent." This LCO also ensures that unisolated containment ventilation penetrations are capable of automatic isolation. As discussed in the Bases of LCO 3.9.4, "equivalent" isolation methods must be approved by the NRC and may include use of a material that can provide a temporary, atmospheric pressure, ventilation barrier for containment penetrations during fuel movement. GL 88-17, "Loss of Decay Heat Removal," allows closure by valves or blind flanges if they are similar in capability to those provided for containment isolation. These may be constructed of standard materials and may be justified on the basis of either normal analysis methods or reasonable engineering judgement. The staff considers the containment isolation methods referred to in GL 88-17 to be acceptable for refueling operations.

The licensee indicated that the proposed TS change to allow the containment personnel airlock doors and penetration flow paths to remain open while using administrative controls is consistent with NRC-approved TS travelers TSTF-68, R2 and TSTF-312, R1. This approach is consistent with administrative controls currently allowed by WBN TSs for more restrictive,

higher operational modes. WBN TS 3.6.3, "Containment Isolation Valves," has provisions to allow penetration flow paths to be unisolated under administrative controls in Modes 1 through 4. The controls include a dedicated operator having continuous communication with control room who can isolate the open valve in the event of an accident. These modes are more significant than during refueling operations due to the reactor coolant system energy. A similar allowance is acceptable for penetrations that are open during fuel movement or core alterations provided appropriate controls are implemented and confirmatory dose calculations of an FHA have been completed and approved by the NRC which indicate acceptable radiological consequences. During refueling operations, since there is no potential motive force to expel radioactive material from containment, the necessary administrative controls to establish containment isolation can be more flexible. These controls are discussed below.

The licensee indicated that under the proposed TS change, containment penetrations that currently require isolation with blind flanges during refueling operations, would now be opened to allow temporary piping, hoses, cabling, wiring, etc., to pass through the penetrations. Once this equipment is in place, the penetration(s) would be sealed with a silicone sealant to maintain a pressure boundary across the penetration. This pressure boundary will contain any pressure surges expected to occur during refueling operations, including a design basis FHA inside containment. Therefore, the penetrations would not "communicate" directly with the outside atmosphere. The temporary fluid lines will incorporate appropriate isolation valves typically located within the containment and/or annulus, which may be opened to support ice loading and other refueling activities only under the administrative controls of the proposed TS change, thereby allowing prompt closure in the event of an FHA. Leakage past the penetration seals and open personnel airlocks would pass into the auxiliary building secondary containment enclosure (ABSCE).

To determine the acceptability of the licensee's proposal to allow both containment airlock doors to be open simultaneously, and certain penetration flow paths with direct access from the containment atmosphere to the outside atmosphere, to be unisolated during fuel movement and CORE ALTERATIONS, the staff reviewed (1) the confirmatory dose calculations of fuel-handling accidents which indicate acceptable radiological consequences and (2) commitments from the licensee to implement acceptable administrative procedures that ensure, in the event of a refueling accident, that the open airlock can and will be promptly closed following containment evacuation, and that the open penetrations can and will be promptly closed. The time allowed for establishing containment integrity is included in the confirmatory dose calculations.

2.1 Dose Calculations

With the personnel airlock and other containment penetrations open, the containment atmosphere communicates with the annulus between the containment building and the shield building. The annulus may, in turn, be open to the auxiliary building, which would include the annulus atmosphere in the ABSCE, which is designed to hold up radioactive gases before filtered release. The licensee states that the ABGTS is capable of mitigating the radiological consequences of an FHA in the ABSCE, whether it occurs inside the auxiliary building or the containment building. The ABGTS initiates filtered ventilation of the ABSCE exhaust air following a Phase A containment ventilation isolation (CVI) signal or a high-radiation signal from

the spent fuel pool (SFP) area. In the event of an FHA which results in the escape of radionuclides through the open airlocks prior to an automatic CVI signal, the purge system will be manually shutdown and isolated so as to establish ABSCE integrity and proper ABGTS operation.

The current Updated Final Safety Analysis (UFSAR) FHA analysis is based on guidance in Regulatory Guide 1.25 and assumes the entire gap activity from one fuel assembly is released to the pool. All the gap activity that escapes the pool is assumed to be released through reactor building purge ventilation system (RBPVS) filters (90 percent elemental iodine, 30 percent organic iodine filter efficiency) for an FHA in containment and through ABGTS filters (99 percent elemental iodine, 99 percent organic iodine filter efficiency) for the FHA in the SFP area. The UFSAR FHA in the containment building analysis assumes the airborne activity is released through the RBPVS even though high radiation in the purge system exhaust would cause automatic isolation of the system.

The current UFSAR FHA in the auxiliary building analysis assumes the activity is filtered and released through the ABGTS. The ABGTS is a standby system and is not running during fuel-handling activities in the SFP area, but initiates on detection of high radiation in the SFP area. TS 3.7.12 requires two trains of the ABGTS to be operable during movement of irradiated fuel in the fuel handling area, and ensures the ability to process ABSCE air through filters to remove radioactive fission products (iodine) before the air is released to the outside atmosphere.

The staff has determined that the current UFSAR FHA analyses bound the proposed configuration. The current UFSAR FHA in containment analysis bounds any release that may happen through the purge system before isolation, while the current UFSAR FHA in the auxiliary building analysis bounds any release that may migrate through the personnel airlock and penetrations to the annulus and auxiliary building and is then released through the filtered ABGTS. The current WBN UFSAR radiological consequences for the limiting FHA in the reactor building indicate an exclusion area boundary thyroid dose of 45.8 rem and whole body dose of 0.66 rem. These results are well within the 10 CFR Part 100 offsite dose limits of 300 rem thyroid and 25 rem whole body, and thus meet the Standard Review Plan (SRP) 15.7.4 acceptance limits of 75 rem thyroid and 6 rem whole body. The control room operator dose is also within the limits of 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 19.

The staff has a generic concern with verification of control room envelope integrity, specifically with the lack of verification of the assumption for unfiltered in-leakage used in licensees' dose calculations. Since the current WBN UFSAR analyses assumed releases to the environment that are expected to bound the releases from an FHA in the containment with the personnel airlock and certain penetrations open, the staff did not find that the control room envelope integrity concerns would be exacerbated by the licensee's unverified control room leakage assumption. The control room unfiltered in-leakage concern is deferred for future generic resolution.

The staff has reviewed the licensee's amendment request and has determined that the current FHA analysis, as documented in the WBN UFSAR, remains bounding for the proposed changes. The staff has determined the proposed changes are acceptable with respect to the radiological consequences of the fuel-handling accident inside containment with both doors of the personnel airlock and certain containment penetrations open.

2.2 Administrative Controls

The licensee indicated that WBN programmatic controls ensure that an FHA inside containment is quickly identified and appropriate actions implemented to assure that post-accident doses are minimized. Abnormal Operating Instruction, AOI-29, "Dropped or Damaged FUEL or Refueling Cavity Seal Failure," provides operator actions to mitigate an FHA. These actions include, but are not limited to the following: (1) Notify personnel in the general area of the radiation concern and announce over the public address system for all personnel to evacuate affected areas, (2) Monitor for increasing radiation levels on radiation monitors including the shield building vent, the auxiliary building vent, and upper containment, (3) Verify CVI has occurred and if not, stop containment purge supply and exhaust fans and instrument room fans and close all purge isolation dampers, and (4) Verify ABGTS is running. These procedural actions are appropriate to ensure that ABGTS is promptly initiated directly in response to the accident. In addition, to ensure ABSCE boundary integrity, WBN procedure(s) will be revised to include a requirement to initiate an auxiliary building isolation in the event an FHA occurs inside containment with the airlock doors open or the annulus open to the auxiliary building. The additional administrative controls of this proposed TS change will be added to the appropriate station procedures. Changes to these procedures will be made pursuant to the requirements of 10 CFR 50.59. These controls include:

1. Appropriate personnel will maintain an awareness of the open status of the personnel airlocks and penetrations flow paths during core alterations and movement of irradiated fuel assemblies within containment.
2. For the open airlock doors, the administrative controls will ensure that the number of lines and hoses that run through the airlock doorways are controlled to ensure timely door closure. The administrative controls will clearly identify the method and responsibility for disconnecting these lines and provisions for venting and draining if necessary. Quick disconnects will be utilized for lines and hoses routed through the doorway. These disconnects will be located near the airlock doorways to allow timely closure of the doors. TVA's controls will ensure that these lines and hoses do not serve any personnel or equipment safety function that would be jeopardized if service is disconnected.
3. Specified individuals will be designated and readily available to close the open personnel airlock. In the event of an FHA inside containment, one personnel airlock door will be closed within 15 minutes after the accident.
4. Specified individuals will be designated and readily available to isolate open penetration flow paths in the event of an FHA inside containment. Isolation of the penetration flow paths is required within 15 minutes.

Having reviewed the licensee's administrative controls, the staff has found them to be acceptable and has concluded that they provide adequate means for supporting the proposed TS change.

The licensee's proposed change to the TSs also incorporates two minor clarifications to the TS Bases for LCO 3.9.4 which are endorsed by NRC-approved TSTF-68, Revision 2. These changes include: (1) Clarification in the Background that the containment closure requirement ensures that a release of fission product radioactivity within containment will be restricted to with regulatory limits rather than restricted from escaping to the environment; and (2) a similar clarification in the Bases for Surveillance Requirement 3.9.4.1, that the release of fission

product radioactivity within containment will not result in a release of fission product radioactivity to the environment in excess of those recommended by SRP Section 15.7.4. The SRP 15.7.4 acceptance limits are currently addressed in the Applicable Safety Analysis portion of the Bases for LCO 3.9.4. The staff finds these clarification changes to be acceptable as they do not affect current acceptance limits for offsite dose consequences for FHA inside containment and have been previously approved by the NRC staff.

3.0 CONCLUSION

Based on the above evaluation, the staff finds the proposed TS and associated TS Bases changes for LCO 3.9.4, "Refueling Operations - Containment Penetrations," to allow the containment personnel airlock doors and containment penetrations to be open during refueling activities, under appropriate administrative controls, to be consistent with GDC-61, "Fuel Storage and Handling and Radioactivity Control" for assuring adequate safety and minimizing the potential spread of radioactive isotopes from the containment to the outside environment during an FHA event and, therefore, acceptable. The changes are also consistent with TSTF-68, Revision 2 and TSTF-312, Revision 1 to the Standard TSs.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (65 FR 31361, dated May 17, 2000). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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