Template # NRR-058

February 11, 2000

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

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING REVISION OF REQUIREMENTS FOR CONTAINMENT PENETRATIONS DURING REFUELING OPERATIONS (TAC NOS. MA6817 AND MA6818) (TS 99-15)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 249 to Facility Operating License No. DPR-77 and Amendment No. 240 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated October 12, 1999, which requested approval to revise the Technical Specifications (TS) and their associated Bases to provide for unisolation of certain reactor containment building penetrations under administrative controls. This revision adds a footnote to TS 3.9.4.c indicating this allowance and the necessary Bases addition for this section to clarify the use of this allowance.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,
/RA/
Ronald W. Hernan, Sr. Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosures: 1. Amendment No. 249 to License No. DPR-77
2. Amendment No. 240 to License No. DPR-79
3. Safety Evaluation

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

February 11, 2000

Mr. J. A. Scalice
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SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING REVISION OF REQUIREMENTS FOR CONTAINMENT PENETRATIONS DURING REFUELING OPERATIONS (TAC NOS. MA6817 AND MA6818) (TS 99-15)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 249 to Facility Operating License No. DPR-77 and Amendment No. 240 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated October 12, 1999, which requested approval to revise the Technical Specifications (TS) and their associated Bases to provide for unisolation of certain reactor containment building penetrations under administrative controls. This revision adds a footnote to TS 3.9.4.c indicating this allowance and the necessary Bases addition for this section to clarify the use of this allowance.

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Sincerely,

Ronald W. Hernan

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Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosures: 1. Amendment No. 249 to License No. DPR-77
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3. Safety Evaluation

cc w/enclosures: See next page

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 249
License No. DPR-77

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated October 12, 1999, 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. DPR-77 is hereby amended to read as follows:

   (2) Technical Specifications

   (3) The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 249 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented no later than 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment: Changes to the Technical Specifications

Date of Issuance: February 11, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 249

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

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

REMOVE	INSERT
3/4 9-4	3/4 9-4
B 3/4 9-1	B 3/4 9-1
B 3/4 9-2	B 3/4 9-2

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

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

a. The equipment door closed and held in place by a minimum of four bolts,

b. A minimum of one door in each airlock is closed, **or** both doors of both containment personnel airlocks may be open if: R213

1. One personnel airlock door in each airlock is capable of closure, and

2. One train of the Auxiliary Building Gas Treatment System is OPERABLE in accordance with Technical Specification 3.9.12, and

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

1. Closed by an isolation valve, blind flange, or manual valve, or

2. Be capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its required condition or capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building by: R213

a. Verifying the penetrations are in their required condition, or

b. Testing the Containment Ventilation isolation valves per the applicable portions of Specification 4.6.3.2. R16

* Penetration flow path(s) providing direct access from the containment atmosphere that transverse and terminate in the Auxiliary Building Secondary Containment Enclosure may be unisolated under administrative controls.

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. Maintaining the listed valves in the closed position precludes an uncontrolled boron dilution accident by closing the flow paths for possible sources of unborated water. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Both sets of the containment personnel airlock doors may be open during movement of irradiated fuel in containment and during core alterations provided one train of Auxiliary Building Gas Treatment System (ABGTS) is available for manual operation. The basis of this is that SQN is analyzed for a fuel handling accident (FHA) in either the containment or the auxiliary building; however, a manual ABGTS start may be necessary for a containment FHA. The requirement for an airlock door to be capable of closure is provided to allow for long-term recovery from a FHA in containment. R213

The LCO is modified by a footnote allowing penetration flow paths with direct access from the containment atmosphere to the Auxiliary Building Secondary Containment Enclosure (ABSCE) to be unisolated under administrative controls. These flow paths must be within the ABSCE structure or in qualified piping that constitutes the ABSCE boundary and either terminate or have an isolation device within the ABSCE. 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 an FHA, and 3) one train of the ABGTS is OPERABLE in accordance with Technical Specification 3.9.12. As discussed above for the containment airlock doors, the basis for this allowance is the SQN analysis for an FHA in containment or the auxiliary building and the potential need for a manual start of the ABGTS for an FHA in containment. This allowance is not applicable to the containment ventilation isolation flow paths because of the potential motive force associated with the containment purge system that could result in additional releases of radioactivity. Additionally, this allowance is not applicable to those flow paths that terminate or are routed outside the ABSCE in piping that does not meet the requirements for an ABSCE boundary.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.

3/4.9.6 MANIPULATOR CRANE

The OPERABILITY requirements for the manipulator cranes ensure that: 1) manipulator cranes will be used for movement of drive rods and fuel assemblies, 2) each crane has sufficient load capacity to lift a drive rod or fuel assembly, and 3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

3/4.9.7 CRANE TRAVEL - SPENT FUEL PIT AREA

This specification is deleted. R208

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal (RHR) loop be in operation ensures that; 1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and 2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification. The minimum required flow rate of 2000 gpm ensures decay heat removal, minimizes the probability of losing an RHR pump by air-entrainment from pump vortexing, and minimizes the potential for valve damage due to cavitation or chatter. Losing an RHR pump is a particular concern during reduced RCS inventory operation. The 2000 gpm value is limited by the potential for cavitation in the control valve and chattering in the 10-inch check valve. R133

The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor pressure vessel flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 240
License No. DPR-79

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated October 12, 1999, 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. DPR-79 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 240, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented no later than 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment: Changes to the Technical Specifications

Date of Issuance: February 11, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 240

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

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

REMOVE	INSERT
3/4 9-5	3/4 9-5
B 3/4 9-1	B 3/4 9-1
B 3/4 9-2	B 3/4 9-2

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

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

a. The equipment door closed and held in place by a minimum of four bolts,

b. A minimum of one door in each airlock is closed, or both doors of both containment personnel airlocks may be open if: R199

1. One personnel airlock door in each airlock is capable of closure, and

2. One train of the Auxiliary Building Gas Treatment System is OPERABLE in accordance with Technical Specification 5.9.12, and

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

1. Closed by an isolation valve, blind flange, or manual valve, or

2. Be capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its required condition or capable of being closed by an OPERABLE automatic Containment Ventilation isolation valve once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building by: R199

a. Verifying the penetrations are in their required condition, or

b. Testing the Containment Ventilation isolation valves per the applicable portions of Specification 4.6.3.2.

* Penetration flow path(s) providing direct access from the containment atmosphere that transverse and terminate in the Auxiliary Building Secondary Containment Enclosure may be unisolated under administrative controls.

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. Maintaining the listed valves in the closed position precludes an uncontrolled boron dilution accident by closing the flow paths for possible sources of unborated water. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Both sets of the containment personnel airlock doors may be open during movement of irradiated fuel in containment and during core alterations provided one train of Auxiliary Building Gas Treatment System (ABGTS) is available for manual operation. The basis of this is that SQN is analyzed for a fuel handling accident (FHA) in either the containment or the auxiliary building; however, a manual ABGTS start may be necessary for a containment FHA. The requirement for an airlock door to be capable of closure is provided to allow for long-term recovery from a FHA in containment. R199

The LCO is modified by a footnote allowing penetration flow paths with direct access from the containment atmosphere to the Auxiliary Building Secondary Containment Enclosure (ABSCE) to be unisolated under administrative controls. These flow paths must be within the ABSCE structure or in qualified piping that constitutes the ABSCE boundary and either terminate or have an isolation device within the ABSCE. 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 an FHA, and 3) one train of the ABGTS is OPERABLE in accordance with Technical Specification 3.9.12. As discussed above for the containment airlock doors, the basis for this allowance is the SQN analysis for an FHA in containment or the auxiliary building and the potential need for a manual start of the ABGTS for an FHA in containment. This allowance is not applicable to the containment ventilation isolation flow paths because of the potential motive force associated with the containment purge system that could result in additional releases of radioactivity. Additionally, this allowance is not applicable to those flow paths that terminate or are routed outside the ABSCE in piping that does not meet the requirements for an ABSCE boundary.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.

3/4.9.6 MANIPULATOR CRANE

The OPERABILITY requirements for the manipulator cranes ensure that: 1) manipulator cranes will be used for movement of drive rods and fuel assemblies, 2) each crane has sufficient load capacity to lift a drive rod or fuel assembly, assembly, and 3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

3/4.9.7 CRANE TRAVEL - SPENT FUEL PIT AREA

R194

This specification is deleted.

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal (RHR) loop be in operation ensures that; 1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and 2) sufficient coolant circulation is maintained thru the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification. The minimum required flow rate of 2000 gpm ensures decay heat removal, minimizes the probability of losing an RHR pump by air-entrainment from pump vortexing, and minimizes the potential for valve damage due to cavitation or chatter. Losing an RHR pump is a particular concern during reduced RCS inventory operation. The 2000 gpm value is limited by the potential for cavitation in the control valve and chattering in the 10-inch check valve.

R121

The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor pressure vessel flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 249 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 240 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By application to the U.S. Nuclear Regulatory Commission (NRC) dated October 12, 1999, the Tennessee Valley Authority (TVA, the licensee) proposed amendments to the Technical Specifications (TS) for Sequoyah Nuclear Plant (SQN), Units 1 and 2, that would revise the TS and their associated Bases to provide for unisolation of certain reactor containment building penetrations under administrative controls. Specifically, this revision adds a footnote to TS 3.9.4.c denoting this provision and the necessary Bases addition for this section to clarify the use of this allowance.

2.0 BACKGROUND

TVA has proposed a revision to Specification 3.9.4, "Containment Building Penetrations," that will add a footnote to Item "c" of the limiting condition for operation (LCO) statement. Current TS 3.9.4.c reads as follows:

> 3.9.4 The containment building penetrations shall be in the following status:
>
> c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:
>
> 1. Closed by an isolation valve, blind flange, or manual valve, or
>
> 2. Be capable of being closed by an OPERABLE automatic containment ventilation isolation valve.

The TS is applicable during core alterations or movement of irradiated fuel within the containment. The proposed footnote (denoted by an * after the word "penetration") would allow temporary penetration flow paths that travel outside the containment, but are routed through and terminate within the Auxiliary Building Secondary Containment Enclosure (ABSCE), to be unisolated provided specific administrative controls are utilized. The proposed footnote would read as follows:

Penetration flow path(s) providing direct access from the containment atmosphere that transverse and terminate in the Auxiliary Building Secondary Containment Enclosure may be unisolated under administrative controls.

The details of the administrative controls would be added to the TS Bases discussion for this specification and include awareness of the open flow path condition, the designation of individuals to isolate the flow path in the event of a fuel handling accident (FHA), and the operability of at least one train of the auxiliary building gas treatment system (ABGTS). The proposed Bases discussion also delineates the scope of flow paths that can utilize this allowance and exclude the containment ventilation isolation valves and other flow paths that are routed, isolated, or terminated outside the ABSCE.

TVA currently has a TS provision at SQN for opening penetration flow paths in Modes 1 through 4 but this allowance does not apply in lower modes. TVA believes that the ability to keep certain penetrations open with administrative controls in place while moving irradiated fuel or during core alterations would enhance the performance of refueling outage activities without a significant increase in risk. With the current TS requirements, several outage tasks must be interrupted (e.g., ice condenser servicing) as a result of required penetration isolation until the completion of fuel handling activities. The proposed revision would allow more efficient performance of outage activities while continuing to provide an acceptable barrier against the release of radioactivity to the outside atmosphere. TVA did not propose the inclusion of this allowance for the containment ventilation isolation valves or other flow paths that communicate with the unfiltered areas outside the ABSCE, based on the higher potential for the release of radioactivity to the outside environs associated with flow paths that (a) do not have the ability to be filtered or (b) have a motive force sufficient to expel radioactivity beyond the ABSCE.

3.0 PROPOSED CHANGES AND EVALUATION

The reactor containment building serves to contain fission product radioactivity that may be released from the reactor core following a reactor accident, such that offsite radiation exposures would be maintained well within the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 100, which deals with reactor siting and offsite radiation exposure. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions. The requirements for containment penetration closure ensure that a release of fission product radioactivity within containment will be restricted from escaping to the outside environment. The containment closure restrictions need to be sufficient to restrict fission product radioactivity release from containment due to a Fuel Handling Accident (FHA) during refueling.

During core alterations or movement of irradiated fuel assemblies within the containment, a release of fission product radioactivity within containment will be restricted from escaping to the outside environment when the containment building penetration requirements are met. In Modes 1, 2, 3, and 4, this is accomplished by maintaining containment operable as described in LCO 3.6.1, "Primary Containment." During fuel movement, 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.

The provisions of LCO 3.9.4, "REFUELING OPERATIONS - CONTAINMENT BUILDING PENETRATIONS," limit the consequences of an FHA in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO includes closure requirements or acceptable administrative controls for the equipment door, the containment personnel airlocks, and any penetration providing direct access from the containment atmosphere to the outside atmosphere. For the "OPERABLE" containment ventilation penetrations, this LCO ensures that these penetrations are capable of automatic isolation by the containment ventilation isolation system.

The SQN TS currently allow penetration flow paths to be unisolated intermittently under administrative controls in Modes 1 through 4. This provision is found in TS 3.6.3 for containment isolation valves and includes an operator in constant communication with the control room, closure of the valve in the event of an accident, and suitable environmental conditions to complete the isolation action. This allowance has been determined to be an acceptable means to allow the opening of flow paths in consideration of the administrative controls that minimize the impact of an accident. In these modes, the reactor has the potential to provide a significant motive force for the expulsion of radioactivity.

The same allowance is acceptable for penetrations that are open during fuel movement or core alterations provided appropriate administrative controls are utilized. In these cases, because there is no potential motive force to expel radioactivity from the containment, the necessary administrative controls can be more flexible. In place of constant communication with an operator, the awareness of the open condition by appropriate operation personnel ensures knowledge of the condition such that isolation can be implemented as needed. The designation of individuals to isolate the penetration ensures that closure can be accomplished in a reasonable length of time. This isolation provision is necessary to support mitigation and long-term recovery from an FHA in containment similar to the closure provision for the airlock doors in TS 3.9.4.b. The additional requirement to have one train of ABGTS operable ensures the ability to process radioactivity in the ABSCE through filters before being released to the outside atmosphere. The ABGTS is fully capable of mitigating the radiological consequences of an FHA in the ABSCE or any releases to the ABSCE from an FHA in containment. ABGTS operation may not be necessary because of the unlikely transmission of radiation resulting from an FHA in containment to the ABSCE. Should radiation enter the ABSCE, while unlikely, the ABGTS automatic actuation cannot be guaranteed. This is because dispersion of radiation from the affected penetrations may not reach the spent fuel pit radiation monitors, which are assumed to initiate ABGTS operation for an FHA in the auxiliary building. Therefore, manual initiation may be required to minimize the release of radioactivity for the FHA in containment event.

Analysis of the postulated FHA in containment has determined that an operating containment purge system is the most significant contributor to offsite dose. This is based on the conservative assumption that the purge system and the associated components for containment ventilation isolation will be in service at the time of the accident. The purge system provides a motive force to expel the atmosphere from the containment to the outside environment. The short-time delay associated with the detection of radioactivity and the associated isolation of the purge system results in the release of radioactivity. The release amounts are well within the 10 CFR Part 100 limits and are calculated without any credit for the clean-up filtration in the exhaust path as described in Section 9.4.7 of the Updated Final Safety Analysis Report (UFSAR). It is for this reason that the containment ventilation isolation valves,

which limit the release from the containment purge system flow path, have not been included in the proposed allowance. For other containment penetrations, the motive force that is provided by the purge system is not applicable and would not support the transport of radioactivity that results from an FHA in containment.

While the motive force necessary to transport radioactivity from the radioactivity source (i.e., irradiated fuel) to other areas during an FHA would not likely be developed, the proposed allowance would also be excluded from those penetration flow paths that communicate with the atmosphere outside the containment and ABSCE (i.e., outside environs). This would include flow paths from the containment that terminate outside the ABSCE or are routed through piping outside the ABSCE that do not meet the criteria for an ABSCE boundary. Flow paths from containment that are routed through qualified ABSCE piping and structures and either terminate or are able to be isolated within the ABSCE are within the scope of the proposed allowance to be unisolated under administrative controls. The basis for these limitations considers the effect of an FHA in containment being no more significant than an FHA in the ABSCE where the ABGTS can perform the same mitigative functions. Flow paths from containment that are not totally within the ABSCE could contribute to the unfiltered release of radioactivity even though the potential is very low and the radiological significance of such a release is expected to be negligible.

Based on the administrative controls required for the proposed allowance to unisolate specific penetration flow paths, the proposed revision to Specification 3.9.4 is acceptable from a nuclear safety standpoint. The proposed allowance is consistent with, and provides a level of protection equivalent to the personnel airlock door provisions that were previously approved by the NRC in Amendments Nos. 209 and 199 for Units 1 and 2, respectively. The NRC staff's Safety Evaluation for those amendments, issued on September 6, 1995, discusses in detail the acceptability of allowing both personnel airlock doors to be open simultaneously with respect to the NRC Standard Review Plan and the SQN UFSAR. Therefore, those discussions are not repeated here because of the similarity of the present request and that previously evaluated by the NRC staff. The proposed revision, considering the associated administrative controls, will maintain acceptable offsite dose levels associated with an FHA in containment and will support the ability to complete long-term recovery activities. Therefore, the staff finds the proposed TS revision to be acceptable.

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 1928, dated January 12, 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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