May 31, 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 CONTROL ROOM EMERGENCY VENTILATION SYSTEMS (TAC NOS. MA5382 AND MA5383)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 256 to Facility Operating License No. DPR-77 and Amendment No. 247 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your license amendment application dated April 29, 1999.

These amendments revise Technical Specification (TS) Section 3/4.3.3, "Radiation Monitoring Instrumentation," TS Section 3/4.7.7, "Control Room Emergency Ventilation System," and the associated bases. Actions are added and modified regarding inoperable equipment.

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

Sincerely,

/RA/

Ronald W. Hernan, Senior 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. 256 to DPR-77
2. Amendment No. 247 to DRP-79
3. Safety Evaluation

cc w/enclosures: See next page

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* See previous concurrence

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Date	5/11/00	/00	5/4/00	5/10/00	/26/00	5/31/00

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

May 31, 2000

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Executive Vice President
Tennessee Valley Authority
6A Lookout Place
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Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING CONTROL ROOM EMERGENCY VENTILATION SYSTEMS (TAC NOS. MA5382 AND MA5383)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No.256 to Facility Operating License No. DPR-77 and Amendment No. 247to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your license amendment application dated April 29, 1999.

These amendments revise Technical Specification (TS) Section 3/4.3.3, "Radiation Monitoring Instrumentation," TS Section 3/4.7.7, "Control Room Emergency Ventilation System," and the associated bases. Actions are added and modified regarding inoperable equipment.

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

Sincerely,

Ronald W. Hernan

Ronald W. Hernan, Senior 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. 256 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. 256
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 April 29, 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

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 256, 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 and shall be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard L. Emch, Jr.

for 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: May 31, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 256

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

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

REMOVE	INSERT
3/4 3-40	3/4 3-40
3/4 3-41	3/4 3-41
3/4 7-17	3/4 7-17
B 3/4 3-2	B 3/4 3-2
- - - - -	B 3/4 3-2a
- - - - -	B 3/4 7-4a

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION	
1. AREA MONITOR						R116
a. Fuel Storage Pool Area	1	*	≤200 mR/hr	10^{-1} - 10^{4} mR/hr	26	R64
2. PROCESS MONITORS						R116
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤8.5×10^{-3} µCi/cc	10 - 10^{7} cpm	28	R16
b. Containment						
i. Gaseous Activity						R172
RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27	R16
ii. Particulate Activity						R172
RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27	R16
c. Control Room Isolation	2	ALL MODES and during movement of irradiated fuel assemblies	≤400 cpm**	10 - 10^{7} cpm	29	

* With fuel in the storage pool or building

** Equivalent to 1.0×10^{-5} µCi/cc.

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 26 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours. R16

ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 28 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9 (MODE 6) and 3.3.2.1 (MODES 1, 2, 3, and 4). R172

ACTION 29 - a With one channel inoperable, place the associated control room emergency ventilation system (CREVS) train in recirculation mode of operation within 7 Days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b With two channels inoperable , within 1 hour initiate and maintain operation of one CREVS train in the recirculation mode of operation and enter the required Actions for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.

Or

place both trains in the recirculation mode of operation within one hour.

If the completion time of Action 29b cannot be met in MODES 1, 2, 3, and 4, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the completion time of Action 29b cannot be met during the movement of irradiated fuel assemblies, suspend core alterations and suspend movement of irradiated fuel assemblies.

If the completion time of Action 29b cannot be met in MODES 5 and 6, initiate action to restore one CREVS train. R116

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent control room emergency ventilation systems (CREVS) shall be OPERABLE. R191

APPLICABILITY: ALL MODES and During Movement of Irradiated Fuel Assemblies

ACTION:

MODES 1, 2, 3 and 4

a. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both CREVS inoperable due to actions taken as a result of a tornado warning, restore at least one train to operable status within 8 hours or be in a least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. R191

c. With both CREVS inoperable for other than Action b., be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5, 6, and During Movement of Irradiated Fuel Assemblies

a. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the operable CREVS in the recirculation mode R191

   or

   suspend core alterations and suspend movement of irradiated fuel assemblies.

b. With both CREVS inoperable, suspend all operations involving CORE ALTERATIONS and suspend movement of irradiated fuel assemblies.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.7 Each CREVS shall be demonstrated OPERABLE: R191

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 104°F.

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable in the updated final safety analysis report. R194

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

Action 15 of Table 3.3-1, Reactor Trip System Instrumentation, allows the breaker to be bypassed for up to 4 hours for the purpose of performing maintenance. The 4 hours is based on a Westinghouse analysis performed in WCAP-10271, Supplement 1, which determines bypass breaker availability. R58

The placing of a channel in the trip condition provides the safety function of the channel. If the channel is tripped for testing and no other condition would have indicated inoperability, the channel should not be declared inoperable. BR-9

The Auxiliary Feedwater (AFW) Suction Pressure-Low function must be OPERABLE in MODES 1, 2, and 3 to ensure a safety grade supply of water for the AFW System to maintain the steam generators as the heat sink for the reactor. This function does not have to be OPERABLE in MODES 5 and 6 because heat being generated in the reactor is removed via the Residual Heat Removal (RHR) System and does not require the steam generators as a heat sink. In MODE 4, AFW automatic suction transfer does not need to be OPERABLE because RHR will already be in operation, or sufficient time is available to place RHR in operation to remove decay heat. R242

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

Relative to the control room instrumentation isolation function, one set of process radiation monitors acts to automatically initiate control room isolation. The actuation instrumentation consists of redundant radiation monitors. A high radiation signal from the detector will initiate its associated train of the Control Room Emergency Ventilation System (CREVS). The CREVS is also automatically actuated by a safety injection (SI) signal from either unit. The SI function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." In addition, the control room operator can manually initiate CREVS.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

Relative to the control room instrumentation isolation function, one set of process radiation monitors acts to automatically initiate control room isolation. The actuation instrumentation consists of redundant radiation monitors. A high radiation signal from the detector will initiate its associated train of the Control Room Emergency Ventilation System (CREVS). The CREVS is also automatically actuated by a safety injection (SI) signal from either unit. The SI function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." In addition, the control room operator can manually initiate CREVS.

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve.

For the purpose of measuring $F_Q(X,Y,Z)$ or $F_{\Delta H}(X,Y)$ a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in recalibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the QUADRANT POWER TILT RATIO when one Power Range Channel is inoperable.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

LCOs are based on two independent and redundant CREVS trains being required to be OPERABLE to ensure that at least one is available assuming a single failure disables the other train. Total system failure could result in exceeding a dose of 5 rem to the control room operator in the event of a large radioactive release.

The CREVS is considered OPERABLE when the individual components necessary to limit operator exposure are OPERABLE in both trains. A CREVS train is OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

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. 247
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 April 29, 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. 247, 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 and shall be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard L. Emch, Jr

for 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: May 31, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 247

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

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

REMOVE	INSERT
3/4 3-41	3/4 3-41
3/4 3-42	3/4 3-42
3/4 7-17	3/4 7-17
B 3/4 3-2	B 3/4 3-2
- - - - -	B 3/4 3-2a
- - - - -	B 3/4 7-4a

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION	
1. AREA MONITOR						R102
a. Fuel Storage Pool Area	1	*	≤200 mR/hr	10^{-1} - 10^{4} mR/hr	26	R52
2. PROCESS MONITORS						R102
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤8.5×10^{-3} µCi/cc	10 - 10^{7} cpm	28	
b. Containment						
i. Gaseous Activity						R158
RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27	
ii. Particulate Activity						R158
RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27	
c. Control Room Isolation	2	ALL MODES and during movement of irradiated fuel assemblies	≤400 cpm**	10 - 10^{7} cpm	29	

* With fuel in the storage pool or building

** Equivalent to 1.0×10^{-5} µCi/cc. R102

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 26 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 28 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9 (MODE 6) and 3.3.2 (MODES 1, 2, 3, and 4). R158

ACTION 29 -

a With one channel inoperable, place the associated control room emergency ventilation system (CREVS) train in recirculation mode of operation within 7 Days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b With two channels inoperable , within 1 hour initiate and maintain operation of one CREVS train in the recirculation mode of operation and enter the required Actions for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.

Or

place both trains in the recirculation mode of operation within one hour.

If the completion time of Action 29b cannot be met in MODES 1, 2, 3, and 4, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the completion time of Action 29b cannot be met during the movement of irradiated fuel assemblies, suspend core alterations and suspend movement of irradiated fuel assemblies.

If the completion time of Action 29b cannot be met in MODES 5 and 6, initiate action to restore one CREVS train. R102

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent control room emergency ventilation systems (CREVS) shall be OPERABLE. R179

APPLICABILITY: ALL MODES and During Movement of Irradiated Fuel Assemblies

ACTION:

MODES 1, 2, 3 and 4

a. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both CREVS inoperable due to actions taken as a result of a tornado warning, restore at least one train to operable status within 8 hours or be in a least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. R179

c. With both CREVS inoperable for other than Action b., be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5, 6, and During Movement of Irradiated Fuel Assemblies

a. With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the operable CREVS in the recirculation mode R179

   or

   suspend core alterations and suspend movement of irradiated fuel assemblies.

b. With both CREVS inoperable, suspend all operations involving CORE ALTERATIONS and suspend movement of irradiated fuel assemblies.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.7 Each CREVS shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 104°F. R179

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION (Continued)

The measurement of response time at the specified frequencies provides assurance that the protective and engineered safety feature actuation associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable in the updated final safety analysis report. R182

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

Action 15 of Table 3.3-1, Reactor Trip System Instrumentation, allows the breaker to be bypassed for up to 4 hours for the purpose of performing maintenance. The 4 hours is based on a Westinghouse analysis performed in WCAP-10271, Supplement 1, which determines bypass breaker availability. R46

The placing of a channel in the trip condition provides the safety function of the channel. If the channel is tripped for testing and no other condition would have indicated inoperability, the channel should not be declared inoperable. BR-10

The Auxiliary Feedwater (AFW) Suction Pressure-Low function must be OPERABLE in MODES 1, 2, and 3 to ensure a safety grade supply of water for the AFW System to maintain the steam generators as the heat sink for the reactor. This function does not have to be OPERABLE in MODES 5 and 6 because heat being generated in the reactor is removed via the Residual Heat Removal (RHR) System and does not require the steam generators as a heat sink. In MODE 4, AFW automatic suction transfer does not need to be OPERABLE because RHR will already be in operation, or sufficient time is available to place RHR in operation to remove decay heat. R228

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

Relative to the control room instrumentation isolation function, one set of process radiation monitors acts to automatically initiate control room isolation. The actuation instrumentation consists of redundant radiation monitors. A high radiation signal from the detector will initiate its associated train of the Control Room Emergency Ventilation System (CREVS). The CREVS is also automatically actuated by a safety injection (SI) signal from either unit. The SI function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." In addition, the control room operator can manually initiate CREVS.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

Relative to the control room instrumentation isolation function, one set of process radiation monitors acts to automatically initiate control room isolation. The actuation instrumentation consists of redundant radiation monitors. A high radiation signal from the detector will initiate its associated train of the Control Room Emergency Ventilation System (CREVS). The CREVS is also automatically actuated by a safety injection (SI) signal from either unit. The SI function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." In addition, the control room operator can manually initiate CREVS.

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve.

For the purpose of measuring $F_Q(X,Y,Z)$ or $F\Delta_H(X,Y)$ a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in recalibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the QUADRANT POWER TILT RATIO when one Power Range Channel is inoperable.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

LCOs are based on two independent and redundant CREVS trains being required to be OPERABLE to ensure that at least one is available assuming a single failure disables the other train. Total system failure could result in exceeding a dose of 5 rem to the control room operator in the event of a large radioactive release.

The CREVS is considered OPERABLE when the individual components necessary to limit operator exposure are OPERABLE in both trains. A CREVS train is OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.256 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 247TO 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 dated April 29, 1999, the Tennessee Valley Authority (TVA, the licensee) proposed an amendment to the Technical Specifications (TSs) for Sequoyah Nuclear Plant (SQN), Units 1 and 2, which are Westinghouse 4-loop pressurized water reactors located near Chattanooga, Tennessee. The requested changes would revise action statements for TS Section 3/4.3.3, "Radiation Monitoring Instrumentation," TS Section 3/4.7.7, "Control Room Emergency Ventilation System [CREVS]," and the associated bases. Actions would be added and modified regarding inoperable equipment. The CREVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity. The CREVS consists of two independent, redundant trains that recirculate and filter the control room air.

2.0 BACKGROUND

As discussed in U.S. Nuclear Regulatory Commission (NRC) Administrative Letter 98-01, "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety," licensees occasionally determine that, as a result of design-basis reconstitution efforts or NRC inspection efforts, specific values or required actions in TSs may not assure safety. When this occurs, licensees typically conduct an evaluation and, if necessary, institute administrative controls that instruct the operators to maintain a more restrictive value for a particular parameter or to take a more conservative required action. Following the implementation of the administrative controls, most licensees that find problems submit a license amendment request to correct the TS deficiencies.

Title 10 of the Code of Federal Regulations, Section 50.36, "Technical Specifications," requires that each TS limiting condition for operation (LCO) specify, at a minimum, the lowest functional capability or performance level of equipment required for the safe operation of the facility. Generic Letter (GL) 91-18, Revision 1, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," provides guidance to licensees on the type and timeframe of any required corrective action. As stated in the GL, whenever degraded or nonconforming conditions are discovered, 10 CFR Part 50, Appendix B, requires prompt corrective action to correct or resolve the condition. In the case of a deficient TS, this includes the evaluation of compensatory measures, such as administrative controls, and prompt actions to correct the TS.

The licensee stated in the application that:

> TVA is proposing to revise LCOs 3.3.3.1 and 3.7.7 to formalize a temporary and conservative (safe direction) change that SQN implemented, in accordance with NRC Administrative Letter 98-10, to address a situation when one channel of radiation monitoring CREVS actuation equipment is inoperable. The situation is that LCO 3.3.3.1 is inadequate in reference to LCO action and time if only one (1) radiation monitor is inoperable. SQN documented this finding and resulting actions in its corrective action program. In addition, the applicability of both LCO's was conservatively enhanced to include movement of irradiated fuel assemblies, an evolution with the potential to create a radiation condition requiring CREVS actuation. The substitution of, "and during movement of irradiated fuel assemblies" for "or positive reactivity changes" in LCO 3.7.7, Modes 5 and 6, Action b, was made to provide an action that prevents events from occurring in this mode/condition, such as a fuel handling accident, that could potentially cause a condition that results in the need for CREVS and to be consistent with Standard TSs. SQN also took this opportunity to review the interaction between TS 3/4.3.3.1, Table 3.3-6, INSTRUMENT 2.c, Control Room Isolation; TS 3/4.7.7, CREVS, and their Bases. Changes are proposed for the purpose of enhancing their consistency and providing a level of detail more commensurate with the Standard TSs.

3.0 EVALUATION

The NRC staff has reviewed the licensee's proposed changes, which are identical for both units. The evaluation of each change follows.

3.1 TS Table 3.3-6, "Radiation Monitoring Instrumentation"

(a) Change the minimum number of channels operable for control room isolation from 1 to 2

Changing from 1 to 2 the minimum number of channels operable for control room isolation provides additional assurance that the radiation monitoring instrumentation necessary to initiate CREVS remains operable. Therefore, this change is acceptable.

(b) Add "and during movement of irradiated fuel assemblies" to the applicable modes

Adding the condition "and during movement of irradiated fuel assemblies" provides reasonable assurance that radiation monitoring instrumentation necessary to initiate CREVS will be available in the event of a fuel handling accident. Therefore, this addition is acceptable.

3.2 TS Table 3.3-6, "Radiation Monitoring Instrumentation - Action Statements"

(a) Insert Action 29a, which will read

With one channel inoperable, place the associated control room emergency ventilation system (CREVS) train in recirculation mode of operation within 7 Days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

This is an additional operating restriction as the current TSs do not require any action with only one channel inoperable. The 7 day completion time is acceptable due to the low probability of a design basis accident occurring during this time period, and the ability of the remaining train to provide the required capability. This restriction provides added assurance that the radiation monitoring instrumentation will be available if an abnormal plant condition is encountered. Therefore, this addition is acceptable.

(b) Modify Action 29 and renumber it Action 29b to read as follows (underlined text is added):

With ~~the~~ two channels inoperable~~number of operable channels less than required by the Minimum Channels OPERABLE requirement~~, within 1 hour initiate and maintain operation of ~~the~~ one CREVS~~control room emergency ventilation system~~ in the recirculation mode of operation and enter the required Actions for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.

Or

Place both trains in the recirculation mode of operation within one hour.

If the completion time of Action 29b cannot be met in MODES 1, 2, 3, and 4, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the completion time of Action 29b cannot be met during the movement of irradiated fuel assemblies, suspend core alterations and suspend movement of irradiated fuel assemblies.

If the completion time of Action 29b cannot be met in MODES 5 and 6, initiate action to restore one CREVS train.

These deletions and additions add the following restrictions on operations:

(i) With two channels inoperable, not only is there a 1-hour requirement to initiate and maintain operation of one train of CREVS (as currently specified), there is also a requirement to enter the required Actions for one CREVS train made inoperable by inoperable CREVS actuation instrumentation (the new Action 29a). This requires the plant to follow the 7-day shutdown stated in Action 29a. Because this change provides added assurance that CREVS will be available when needed, it is acceptable.

(ii) Action 29b provides the alternative to place both trains in the recirculation mode of operation within one hour. Because this action ensures that both trains of CREVS are operating, there is no need for the actuation instrumentation to be operable or for a shutdown statement. This alternative also provides added assurance that CREVS will be available. Therefore, it is acceptable.

(iii) If the completion time of Action 29b cannot be met, three additional actions are specified. All three of these actions provide additional restrictions on operations which help to ensure that CREVS will be available and/or the plant will be in a condition where CREVS will not be required. Therefore, these additions are acceptable.

3.3 TS 3/4.7.7, "Control Room Emergency Ventilation"

(a) Add "and during movement of irradiated fuel assemblies" to the applicability statement.

This addition provides reasonable assurance that the CREVS will be operable to deal with a release from a fuel handling accident. Therefore, this addition is acceptable.

(b) Add Action c for Modes 1, 2, 3 and 4: "With both CREVS inoperable for other than Action b, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours."

This shutdown action provides added assurance that the plant will not be operated in an unanalyzed condition (no CREVS available). Therefore, this action is acceptable.

(c) Add the applicability statement "and during movement of irradiated fuel assemblies" to the action statements listed for Modes 5 and 6.

This statement provides additional assurance that CREVS will be available, or plant operations will be altered, so that a fuel handling accident is properly accounted for, as discussed in more detail below. Therefore, this addition is acceptable.

(d) Modify Modes 5 and 6 Action a to read (additions are underlined):

With one CREVS inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the operable CREVS ~~control room emergency ventilation system~~ in the recirculation mode

or

suspend core alterations and suspend movement of irradiated fuel assemblies.

These changes clarify which CREVS train is required to operate and provide the alternative to suspend core alterations and irradiated fuel assembly movement. The clarification is acceptable because it is only an administrative change. The alternative places the unit in a condition that minimizes risk from core alterations and irradiated fuel assembly movements. Therefore, the alternative is acceptable.

(e) Modify Modes 5 and 6 Action b to read (additions are underlined):

With both CREVS inoperable, suspend all operations involving CORE ALTERATIONS and suspend movement of irradiated fuel assemblies ~~or positive reactivity changes~~.

Replacing "or positive reactivity changes" with "and suspend movement of irradiated fuel assemblies" provides clarification and reasonable assurance that actions will be taken to suspend activities that could result in a release of radioactivity that might enter the control room. Therefore, this change is acceptable.

3.4 TS Bases Changes

The licensee also proposed changes to the bases for TS Sections 3/4.3.3 and 3/4.7.7. These bases changes are consistent with the proposed TS changes and are therefore acceptable.

4.0 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 (64 FR 27325). 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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