TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

84 OCT 25 A9:08

October 19, 1984

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE REGION II INSPECTION REPORT 50-328/84-18 - RESPONSE TO VIOLATIONS

The subject OIE inspection report dated September 11, 1984 from R. C. Lewis to H. G. Parris cited TVA with two Severity Level IV Violations. Enclosed is the response to the items of violation in the subject inspection report.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc (Enclosure):
Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

ENCLOSURE
RESPONSE - NRC INSPECTION REPORT NOS.
50-328/84-18
R. C. LEWIS' LETTER TO H. G. PARRIS
DATED SEPTEMBER 11, 1984

Item 328/84-18-01

Technical Specification 6.8.1 states that "written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978."

Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, recommended that the Auxiliary Feedwater System and Onsite Emergency Power Source (Diesel Generators) shall be covered by written procedures.

Sequoyah Unit 2 Operating License DPR-79, Part 8, Item C states that "procedures shall be available to verify the adequacy of operating activities." This license condition is in response to NUREG-0737 Item 1.C.6 "Procedures for Verifying Correct Performance of Operating Activities."

Contrary to the above, the licensee failed to establish and implement procedures and failed to provide procedures to verify the adequacy of operating activities. Specifically:

A. Operators failed to follow written and approved administrative instructions (AIs) for the situations described below:

   (1) On June 30, 1984, while operating valves for the Auxiliary Feedwater (AFW) System, the following AIs were not followed:

      (a) AI-30 was not followed in that:

         (i) AFW valves were operated without use of a written procedure;

         (ii) AFW valves were operated without the permission of the shift engineer; and

         (iii) This system alignment status change was not maintained in the system configuration log.

      (b) AI-6 was not followed in that this operation represented an entry into and exit from a Technical Specification Limiting Condition of Operation, yet was not logged as such in either the Shift Engineer or Unit Operator daily journal records.

   (2) On July 5, 1984, during the Diesel Generator Emergency Safety Features (ESF) surveillance, AI-4 and Surveillance Instruction (SI)-7 were not followed in that the specified sequence of SI-7 was not complied with during performance of the surveillance.

B. The licensee failed to provide written procedures to ensure that safety subsystems, such as portions of the AFW system, are properly removed and restored to service with independent verification (verification of operating activities) during performance of abnormal valve alignments.

This is a Severity Level IV violation (Supplement I).

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

Item A.1

On June 30, 1984, Unit 2 of Sequoyah Nuclear Plant was in mode 2 with the 2B main feedwater pump out of service for maintenance in the tripped condition. The 2A main feedwater pump was in the reset condition. The plant was being maintained in mode 2 by using the motor-driven auxiliary feedwater pumps. When electrical maintenance requested the 2A main feedwater pump to be tripped to allow them to troubleshoot and repair a limit switch on the governor valve, the balance-of-plant operator, who was in training status, isolated the turbine driven auxiliary feedwater pump steam supply. He closed 2-FCV-1-17 and -18 to prevent the pump from starting when he tripped the 2A main feedwater pump turbine. The operator recognized the start logic of the turbine driven auxiliary feedwater pump (two main feedwater pumps tripped) but failed to realize he had entered the action statement of Technical Specification 3.7.1.2.

Item A.2

On July 2, 1984, during the performance of the monthly surveillance instruction SI-7 on diesel generator 1A-A, the other three diesel generators were started by accident. SI-7 starts the diesel generator by simulating a safety injection signal in the safeguard racks with a test button in the instrument room. After the diesel started, the operator acknowledged the start and passed the information to the operator in the instrument room. The control room operator then lost communication with the operator in the instrument room. Following the loss of communications, the control room operator assumed the operator had placed the test switch back in the normal position and he called the operator at the logic panel to place the 43T(L) switch back to normal. When the 43T(L) switch was placed in the normal position, it started the other three diesel generators.

3. Corrective Steps Which Have Been Taken and the Results Achieved

A. A Night Order Letter was generated describing the auxiliary feedwater event. All operators are required to read and initial this letter upon assuming their next shift assignment.

B. A Training Letter describing the problems associated with the turbine driven auxiliary feedwater pumps was written and sent to the shift engineers, assistant shift engineers, unit operators, assistant unit operators, and shift technical advisors on July 10, 1984.

C. The operators involved with the violation were verbally disciplined as to their failure to communicate and follow written procedures.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

Operation procedures will be revised to add adequate instructions for the removal and restoration of safety systems and subsystems.

5. Date When Full Compliance Will Be Achieved

All corrective actions will be completed by February 1, 1985.

Item 328/84-18-02

10 CFR 50, Appendix B, Criterion III, requires that measures shall be established to assure that applicable regulatory requirements and the design basis as specified in the license application are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, the licensee failed to establish adequate measures to assure that the design basis requirements, which are specified in the Sequoyah Nuclear Station Final Safety Analysis Report (FSAR) Update paragraph 10.4.7.2.3 for the AFW, were correctly translated into specifications, drawings, procedures, and instructions.

Specific instances are:

A. Single failure of a valve during a steam supply transfer rendered the turbine driven auxiliary feedwater pump inoperative due to steam supply transfer circuitry design.

B. Automatic start of all three auxiliary feedwater pumps is inhibited on a loss of main feed pump trip when operating below 80-percent power as a result of deenergization of one main feed pump control circuit or single failure of the main feed pump turbine governor valve oil pressure switch.

C. The Auxiliary Feedwater initiating circuits associated with the loss of main feed pump trip are not powered by emergency buses.

This is a Severity Level IV violation (Supplement I).

1. Admission or Denial of the Alleged Violation

TVA denies the violation occurred.

2. Reason for the Denial

Item A

Although analysis of the circuits by the NRC is correct, we do not believe the determination of violation is correct. A single failure can isolate the turbine driven auxiliary feed pump from its steam supply and prevent operation of this pump from any of the automatic initiating signals or a normal attempted manual start.

From FSAR analysis, section 15.2.8.2, only one motor-driven auxiliary feedwater pump is necessary to protect the plant against a loss of normal feedwater. The controls for the two motor-driven auxiliary feedwater pumps are independent from each other and from the turbine pump controls. If a failure occurs in the turbine pump controls, an additional failure would only affect a single MDAFP, leaving the required one MDAFP operational.

Following a LOCA, the AFW System may be used for supplying water to the steam generators to develop a waterhead within the vessels and thereby prevent potential tube sheet leakage from the primary to the secondary side of the steam generators. The two electric motor-driven pumps will be used to supply the feedwater from the condensate water supply or, as a backup, from the seismically qualified ERCW System. In the event of a failure of one of the electric motor-driven pumps or of one of the emergency electrical power trains, the water supply to two of the steam generators would be temporarily unavailable. However, these two steam generators can be filled from either train of the ERCW System by opening the isolation valves between the ERCW System and the AFW System upstream of the turbine-driven pump. A steam supply to the turbine-driven pumps is not required for this operation. All necessary transfers and controls for this use of the AFW System can be accomplished from the Main Control Room.

Following a main steam line break, a safety injection signal will cause main feedwater isolation to occur. The only source of water available to the faulted steam generator is then the auxiliary feedwater system . Following steamline isolation, steam pressure in the steamline with the faulted steam generator will continue to fall rapidly, while the pressure stabilizes in the remaining three steam lines. The indication of the different steam pressures will be available to the operator within a few seconds of steamline isolation. This will provide the information necessary to identify the faulted steam generator so that auxiliary feedwater to it can be isolated. Manual controls are provided in the control room for start and stop of the auxiliary feedwater pumps and for the control valves associated with the auxiliary feedwater system. The means for detecting the faulted steam generator and isolating auxiliary feedwater to it requires only the use of safety grade equipment available following the break. The removal of decay heat in the long-term (following the initial cooldown) while using the remaining steam generators requires only the auxiliary feedwater system as a water source and the secondary system safety valves and/or the power operated relief valve to relieve steam.

Power to the motor-driven auxiliary feedwater pumps is supplied by the onsite diesel generator units. The turbine-driven AFW pump has redundant steam supplies. Flow from one motor-driven auxiliary feedwater pump to one steam generator for long-term cooling.

Following a main feedline break, the AFW system provides an assured source of feedwater to the steam generators for decay heat removal. Also, the AFW system assures that no overpressurization of the RCS occurs and the liquid inthe RCS is sufficient to cover the reactor core at all times. Per FSAR analysis, the auxiliary feedwater is assumed to be initiated 10 minutes after a main feedline break with a feed rate of 440 gpm (one motor-driven pump). The results indicate that the AFW system, using only one motor-driven pump, has adequate capacity to protect the plant from a main feedline break.

Conclusion

A single failure will not cause the auxiliary feedwater system to not perform its design function or violate any safety analysis assumptions. Therefore, we do not agree with NRC's determination and do not believe that a violation occurred.

Item B

Although the NRC analysis of the auxiliary feedwater automatic start portion of the main feed pump control circuitry is correct (they are not single failure proof, safety grade, or fail-safe), their determination of violation is incorrect.

As stated in the FSAR (Table 10.4.7-11), there are three safety grade automatic start modes for the auxiliary feedwater system. They are (1) loss of offsite power, (2) safety injection actuation, and (3) low-low steam generator level. The start mode initiated by the loss of main feed pumps are anticipatory starts with no safety credit taken. These anticipatory starts do not degrade the safety grade start modes.

Conclusion

Therefore, we do not agree with NRC's determination and do not believe that a violation occurred.

Item C

The NRC is correct in stating that the auxiliary feed pump start portion of the main feed pump control circuitry is fed from a nonemergency bus. However, as stated in the FSAR (Table 10.4.7-11), there are three safety grade automatic start modes for the auxiliary feedwater system. They are (1) loss of offsite power, (2) safety injection actuation, and (3) low-low steam generator level. The loss of main feed pump is not a safety grade start, but is an anticipatory start and does not require power from an emergency bus. These anticipatory starts do not degrade the safety grade start modes.

Conclusion

Therefore, we do not agree with NRC's determination and do not believe that a violation occurred.

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

October 19, 1984

84 OCT 26 AM 7:01

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
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Atlanta, Georgia 30323

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If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

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R. C. LEWIS' LETTER TO H. G. PARRIS
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Item 328/84-18-01

Technical Specification 6.8.1 states that "written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978."

Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, recommended that the Auxiliary Feedwater System and Onsite Emergency Power Source (Diesel Generators) shall be covered by written procedures.

Sequoyah Unit 2 Operating License DPR-79, Part 8, Item C states that "procedures shall be available to verify the adequacy of operating activities." This license condition is in response to NUREG-0737 Item 1.C.6 "Procedures for Verifying Correct Performance of Operating Activities."

Contrary to the above, the licensee failed to establish and implement procedures and failed to provide procedures to verify the adequacy of operating activities. Specifically:

A. Operators failed to follow written and approved administrative instructions (AIs) for the situations described below:

(1) On June 30, 1984, while operating valves for the Auxiliary Feedwater (AFW) System, the following AIs were not followed:

(a) AI-30 was not followed in that:

(i) AFW valves were operated without use of a written procedure;

(ii) AFW valves were operated without the permission of the shift engineer; and

(iii) This system alignment status change was not maintained in the system configuration log.

(b) AI-6 was not followed in that this operation represented an entry into and exit from a Technical Specification Limiting Condition of Operation, yet was not logged as such in either the Shift Engineer or Unit Operator daily journal records.

(2) On July 5, 1984, during the Diesel Generator Emergency Safety Features (ESF) surveillance, AI-4 and Surveillance Instruction (SI)-7 were not followed in that the specified sequence of SI-7 was not complied with during performance of the surveillance.

B. The licensee failed to provide written procedures to ensure that safety subsystems, such as portions of the AFW system, are properly removed and restored to service with independent verification (verification of operating activities) during performance of abnormal valve alignments.

This is a Severity Level IV violation (Supplement I).

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

Item A.1

On June 30, 1984, Unit 2 of Sequoyah Nuclear Plant was in mode 2 with the 2B main feedwater pump out of service for maintenance in the tripped condition. The 2A main feedwater pump was in the reset condition. The plant was being maintained in mode 2 by using the motor-driven auxiliary feedwater pumps. When electrical maintenance requested the 2A main feedwater pump to be tripped to allow them to troubleshoot and repair a limit switch on the governor valve, the balance-of-plant operator, who was in training status, isolated the turbine driven auxiliary feedwater pump steam supply. He closed 2-FCV-1-17 and -18 to prevent the pump from starting when he tripped the 2A main feedwater pump turbine. The operator recognized the start logic of the turbine driven auxiliary feedwater pump (two main feedwater pumps tripped) but failed to realize he had entered the action statement of Technical Specification 3.7.1.2.

Item A.2

On July 2, 1984, during the performance of the monthly surveillance instruction SI-7 on diesel generator 1A-A, the other three diesel generators were started by accident. SI-7 starts the diesel generator by simulating a safety injection signal in the safeguard racks with a test button in the instrument room. After the diesel started, the operator acknowledged the start and passed the information to the operator in the instrument room. The control room operator then lost communication with the operator in the instrument room. Following the loss of communications, the control room operator assumed the operator had placed the test switch back in the normal position and he called the operator at the logic panel to place the 43T(L) switch back to normal. When the 43T(L) switch was placed in the normal position, it started the other three diesel generators.

3. Corrective Steps Which Have Been Taken and the Results Achieved

A. A Night Order Letter was generated describing the auxiliary feedwater event. All operators are required to read and initial this letter upon assuming their next shift assignment.

2. Reason for the Denial

Item A

Although analysis of the circuits by the NRC is correct, we do not believe the determination of violation is correct. A single failure can isolate the turbine driven auxiliary feed pump from its steam supply and prevent operation of this pump from any of the automatic initiating signals or a normal attempted manual start.

From FSAR analysis, section 15.2.8.2, only one motor-driven auxiliary feedwater pump is necessary to protect the plant against a loss of normal feedwater. The controls for the two motor-driven auxiliary feedwater pumps are independent from each other and from the turbine pump controls. If a failure occurs in the turbine pump controls, an additional failure would only affect a single MDAFP, leaving the required one MDAFP operational.

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Conclusion

A single failure will not cause the auxiliary feedwater system to not perform its design function or violate any safety analysis assumptions. Therefore, we do not agree with NRC's determination and do not believe that a violation occurred.

Item B

Although the NRC analysis of the auxiliary feedwater automatic start portion of the main feed pump control circuitry is correct (they are not single failure proof, safety grade, or fail-safe), their determination of violation is incorrect.

As stated in the FSAR (Table 10.4.7-11), there are three safety grade automatic start modes for the auxiliary feedwater system. They are (1) loss of offsite power, (2) safety injection actuation, and (3) low-low steam generator level. The start mode initiated by the loss of main feed pumps are anticipatory starts with no safety credit taken. These anticipatory starts do not degrade the safety grade start modes.

Conclusion

Therefore, we do not agree with NRC's determination and do not believe that a violation occurred.

Item C

The NRC is correct in stating that the auxiliary feed pump start portion of the main feed pump control circuitry is fed from a nonemergency bus. However, as stated in the FSAR (Table 10.4.7-11), there are three safety grade automatic start modes for the auxiliary feedwater system. They are (1) loss of offsite power, (2) safety injection actuation, and (3) low-low steam generator level. The loss of main feed pump is not a safety grade start, but is an anticipatory start and does not require power from an emergency bus. These anticipatory starts do not degrade the safety grade start modes.

Conclusion

Therefore, we do not agree with NRC's determination and do not believe that a violation occurred.

B. A Training Letter describing the problems associated with the turbine driven auxiliary feedwater pumps was written and sent to the shift engineers, assistant shift engineers, unit operators, assistant unit operators, and shift technical advisors on July 10, 1984.

C. The operators involved with the violation were verbally disciplined as to their failure to communicate and follow written procedures.

4. Corrective Steps Which Will Be Taken To Avoid Further Violations

Operation procedures will be revised to add adequate instructions for the removal and restoration of safety systems and subsystems.

5. Date When Full Compliance Will Be Achieved

All corrective actions will be completed by February 1, 1985.

Item 328/84-18-02

10 CFR 50, Appendix B, Criterion III, requires that measures shall be established to assure that applicable regulatory requirements and the design basis as specified in the license application are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, the licensee failed to establish adequate measures to assure that the design basis requirements, which are specified in the Sequoyah Nuclear Station Final Safety Analysis Report (FSAR) Update paragraph 10.4.7.2.3 for the AFW, were correctly translated into specifications, drawings, procedures, and instructions.

Specific instances are:

A. Single failure of a valve during a steam supply transfer rendered the turbine driven auxiliary feedwater pump inoperative due to steam supply transfer circuitry design.

B. Automatic start of all three auxiliary feedwater pumps is inhibited on a loss of main feed pump trip when operating below 80-percent power as a result of deenergization of one main feed pump control circuit or single failure of the main feed pump turbine governor valve oil pressure switch.

C. The Auxiliary Feedwater initiating circuits associated with the loss of main feed pump trip are not powered by emergency buses.

This is a Severity Level IV violation (Supplement I).

1. Admission or Denial of the Alleged Violation

TVA denies the violation occurred.