TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

MAR 16 1988

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - IMPLICATIONS OF IMPROVEMENT LESSONS OF NUREG 1275, "OPERATING EXPERIENCE FEEDBACK REPORT: NEW PLANTS," TO SQN

Reference: TVA letter to NRC dated January 26, 1988, "Sequoyah Nuclear Plant (SQN) - Implications of Improvement Lessons of NUREG-1275, 'Operating Experience Feedback Report: New Plants,' to SQN"

This submittal provides revision one to the enclosure of the referenced letter. This revision clarifies TVA's response to NRC Lesson B.6. To simplify your review, we are providing the entire enclosure again with the revised portions marked with a margin bar.

If you have any questions, please telephone Kathy S. Whitaker at (615) 870-7748.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

A001
1/1

U.S. Nuclear Regulatory Commission

MAR 16 1988

cc (Enclosure):

Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. G. G. Zech, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Sequoyah Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

ENCLOSURE

SEQUOYAH NUCLEAR PLANT (SQN) ACTIONS OR PLANNED ACTIONS WITH RESPECT TO NUREG-1275 IMPROVEMENT LESSONS

The issues addressed in the Improvement Lessons of NUREG-1275 were considered during the development of the Nuclear Performance Plan (NPP). In this enclosure, TVA references the specific sections of the NPP and other programs that address the Improvement Lessons information. Each section of the Improvement Lessons is paraphrased, and TVA has provided a response addressing the intent of each of these sections.

A. Management Lessons

1. NRC Lesson

Establish an operating plant mentality well before initial criticality.

TVA Response

SQN has recently realigned the Operations organization to ensure adequate emphasis is placed on restart requirements. One layer of management has been eliminated to allow more direct involvement in the process.

Additionally, as stated in a previous correspondence with NRC, SQN's restart functional testing program will serve to focus attention on the operating plant requirements at SQN before nuclear restart. During this period, TVA will operate, test, and inspect plant equipment to ensure system integrity and functio[illegible] This testing program will provide operations personnel with [illegible] tunity to redirect emphasis to operating plant concerns.

Section II of volume 2 of the NPP also addresses this lesson. Procedure adherence is specifically addressed in sections II.2.4 and II.4.0, and SQN plant management is stressing management dedication to procedure adherence. Systems training continues to be emphasized, and section II.2.3 of the NPP describes this and other training developed to improve plant awareness. Expedited resolution of problems is addressed in sections II.2.1.4 and II.2.5 of the NPP.

2. NRC Lesson

Conduct a deliberate, evenly paced, thorough, and well-planned preoperational and startup test program.

TVA Response

Section III.11 of volume 2 of the NPP and the response to lesson A.1 above provide information concerning SQN's restart test program.

3. NRC Lesson

Use the finalized technical specifications to generate and validate surveillance testing procedures as early as possible.

TVA Response

TVA developed the Surveillance Instruction Review and Revision Program to ensure that the technical specification requirements necessary for the startup, operation, and shutdown of the plant are addressed in the surveillance instructions. This program has been completed for SQN unit 2 and is ongoing for unit 1.

4. NRC Lesson

Improve administrative control of surveillance.

TVA Response

TVA has undertaken a comprehensive and disciplined program to review and revise surveillance instructions. Section II.5.0 of volume 2 of the NPP addresses SQN's Surveillance Instruction Procedures Program. Surveillance Testing Activities are presented in appendix 2 of volume 2 of the NPP.

5. NRC Lesson

Give high visibility to the sources of unplanned scrams caused by human error and establish performance goals.

TVA Response

Appendix 2 of volume 2 of the NPP describes SQN's program to reduce reactor trips and engineered safety feature (ESF) actuations. The program description notes staff attention to the root causes of reactor trips and actuations as a positive management tool for trip and actuation reductions. A performance goal of less than three unplanned reactor trips per unit per year has been established.

6. NRC Lesson

Ensure that operating experience feedback programs: (a) combine internal events and relevant events from similar plants, (b) communicate them directly to the appropriate first-level supervisors and working-level staff at the plant on a periodic basis including before startup, and (c) address preventative measures.

TVA Response

The Nuclear Experience Review Program is described in section II.1.2.7 of volume 2 of the NPP. TVA has procedures in place that provide for dissemination of both internal and external operating experience information to operations and other appropriate departments.

7. NRC Lesson

A number of improvement lessons are directed at training.

TVA Response

Training is used extensively to communicate rules and expectations to employees at TVA. Specific training programs include Operator Training, Systems Training, Technical Support Group Training, Maintenance Training, Project Manager Training, and Technical Staff Training for Nuclear Site Personnel. The training programs for SQN are described in sections II.2.3 and II.4.4 of volume 2 of the NPP.

B. Equipment Lessons

1. NRC Lesson

Focus on the balance of plant before operation and early in life appears to provide a high return regarding the reduction of unplanned scrams and ESF actuations.

TVA Response

Appendix 2 of volume 2 of the NPP describes SQN's program to reduce reactor trips and ESF actuations. SQN is participating in the Westinghouse Owner's Group - Trip Reduction Assessment Program (WOG-TRAP). TVA sent a licensed reactor operator to a WOG-TRAP expert panel session to investigate feedwater-initiated transients and identify remedial actions.

2. NRC Lesson

Install test jacks and bypass switches at appropriate points in actuation circuitry.

TVA Response

SQN's reactor protection system has test jacks and switches designed into the system configuration. Bypass functions are available for actuations that have one out of two logic. These include source and intermediate range high neutron flux trips and containment spray actuation. The reactor trip protection system and ESF actuation testing are more fully detailed in sections 7.2 and 7.3 of SQN's Final Safety Analysis Report.

3. NRC Lesson

Implement on a priority basis vendor or licensee trip reduction measures.

TVA Response

Information is provided concerning SQN's trip reduction program in TVA's response to lessons B.1 and B.7 in this enclosure.

4. NRC Lesson

Pay attention to the design and installation of equipment located in the vicinity of radiation monitors and associated cabling to ensure that adequate grounding of equipment, cable shielding, etc., are provided to prevent the occurrence of electromagnetic interference (EMI), which can trigger this extremely sensitive instrumentation.

TVA Response

TVA identified spurious auxiliary building isolations as a major source of unnecessary ESF actuations. The problems were caused by actuations during fuel movement as a result of high background radiation from the radwaste storage area and by noise interference. SQN has recently received technical specification setpoint changes to the radiation monitors in the auxiliary building. This change will eliminate the spurious actuations caused by the passage of fuel assemblies near the monitors. The radiation monitors were also modified to include time delays to prevent spurious actuation from noise interference.

A task force has been assembled to study recent ESF actuations involving containment vent isolation at SQN. EMI is the suspected cause of these events. Root cause analysis is being performed and recommendations are being developed. The task force's report will document their efforts and findings. This information will be shared with the resident inspector as it becomes available.

5. NRC Lesson

Thoroughly test new or unique plant features before fuel load to reduce unanticipated failures or unexpected erratic behavior.

TVA Response

This requirement is directed at unlicensed nuclear plants and is not applicable to SQN restart.

6. NRC Lesson

For future designs or major plant modifications, preference for proven designs and standardization of design in plant feedwater and turbine systems appears justified.

TVA Response

TVA is working with the Electric Power Research Institute on the development and testing of a state-of-the-art digital feedwater controller. TVA is planning to install the controller on the Power Operations Training Center simulator and evaluate its performance.

The controllers installed on the feedwater bypass lines of unit 1 are microprocessor-based automatic controllers. Modifications to provide unit 2 with similar controllers are planned. It is expected that this standard control equipment will successfully reduce the number of reactor trips at SQN.

7. NRC Lesson

Incorporate scram prevention measures.

TVA Response

Appendix 2 of volume 2 of the NPP describes SQN's program to reduce reactor trips and ESF actuations. As noted previously, TVA is an active participant in WOG-TRAP and has modified setpoints and equipment to reduce ESF actuations. TVA is thoroughly testing the installation of digital feedwater controllers and their capability to reduce reactor trips. Until this equipment is proven acceptable, TVA has analog bypass feedwater controllers, a proven technology, to automatically control feedwater during reactor startup. TVA insists on a consistent, thorough investigation of root causes and implementation of corrective actions to prevent reactor trip and ESF actuation recurrence.