Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

R.J. Adney
Site Vice President
Sequoyah Nuclear Plant

November 12, 1996

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) - NRC INSPECTION REPORT NOS. 50-327, 328/96-09 - REPLY TO NOTICE OF VIOLATION (NOV) 50-327, 328/96-09-06

Enclosed is TVA' s reply to Mark S. Lesser's letter to O. D. Kingsley, Jr., dated October 10, 1996. The violation notice was associated with the failure to adequately pursue and properly diagnose the cause for a condition involving the diesel generator starting air system pressure switches.

This violation is the result of a repetitive equipment failure which we attribute to ineffective root cause analysis and corrective actions. As we have discussed with you previously, the principal focus of the SQN site management team has been and continues to be to improve the material condition of the site. Specific actions have and are being taken in the maintenance area to help improve equipment reliability. These actions include: 1) scenario training to improve maintenance-worker performance in procedure adherence and planner and craftsman teamwork; 2) briefings to Maintenance General Foremen have been held to emphasize a need to increase their awareness and sensitivity to equipment performance problems; 3) Maintenance Field Specialists are now being used to increase the technical expertise available to Maintenance; 4) a repeat maintenance trending process has been implemented utilizing the maintenance planners; and 5) a thermography and an acoustic monitoring program have been implemented as a part of the predictive maintenance program.

In addition, improvements are needed in the effectiveness of operator rounds to identify equipment performance problems. Individual accountability is being emphasized to increase the effectiveness of operator rounds. Specific actions being taken or planned include:

IE01

reinforcement of watchstanding principles expectations; scenario training in Assistant Unit Operator's (AUOs) requalification training; and streamlining of the AUO watch standing process.

Increased emphasis has been placed on the equipment failure trending program and engineering involvement in trending analysis. Expectations on equipment performance trend analysis, data sources and evaluation methodologies will be reinforced, and increased management monitoring will be provided to ensure repetitive failures are analyzed and included in the system health reports.

In general, management intends to further focus attention on equipment failures by benchmarking to the industry's best performances. This will be accomplished by selected visits to the top performing plants. Also, strong management focus will be placed on the corrective action program implementation. Specifically, actions have been taken to improve trending of equipment problems and increase management awareness of equipment problems. A separate initiative is ongoing to develop and execute an action plan to review historical equipment problems to identify other vulnerabilities where previous recurrence controls may have been inadequate. These improvements and other initiatives should aid in identifying the equipment problems and provide timely resolution. Additional actions being taken are as described in the violation response.

If you have questions regarding this response, please telephone R. H. Shell at (423) 843-7170.

Sincerely,

R. J. Adney
Enclosure
cc: See page 3

cc (Enclosure):

Mr. R. W. Hernan, Project Manager
Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NRC Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy-Daisy, Tennessee 37379-3624

Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323-2711

ENCLOSURE
RESPONSE TO NRC NOTICE OF VIOLATION 50-327, 328/96-09-06
INSPECTION REPORT NOS. 50-327, 328/95-09
MARK S. LESSER'S LETTER TO OLIVER D. KINGSLEY, JR.
DATED OCTOBER 10, 1996

VIOLATION 50-327, 328/96-09-06

"10 CFR 50, Appendix B, Criterion XVI requires, in part, that measures shall be established to ensure that conditions adverse to quality such as failures, malfunctions, and deficiencies are promptly identified and corrected.

"Contrary to the above, prompt corrective action was not implemented for a condition adverse to quality. Specifically, the emergency diesel generator starting air compressors pressure control switches experienced multiple setpoint drift problems and multiple failures during 1995 and 1996, which caused multiple EDG starting air system relief valve actuations. The licensee failed to adequately pursue, properly diagnose the cause, and thus correct the condition.

"This is a severity level IV violation (Supplement 1)."

REASON FOR THE VIOLATION

The problem with the pressure switches was determined to be excessive tolerance in the reset adjustment mechanism. It allowed for movement when subjected to vibration coincident with low tension present when the process pressure was below setpoint. The components in the reset mechanism are made of materials that are temperature sensitive. This sensitivity was a contributor to the seasonal performance problems.

A 1995 problem evaluation report (PER) associated with the diesel generator pressure switches was revised to reflect the adverse equipment performance trend. The PER form for this revision was not properly marked to indicate the need for extent of condition evaluation, root cause analysis, and recurrence control. The actions identified in the revised PER did, however, instruct the system engineer to perform these actions. The PER corrective actions required the system engineer to review the entire equipment performance history (extent of condition), be involved in the troubleshooting of future failures to identify the root cause (root cause analysis), and to develop further corrective actions based on the results of the troubleshooting involvement (recurrence control).

The cause of the violation was determined to be inadequate performance and ownership by the system engineer. The problems identified with the pressure switches were not effectively analyzed by the system engineer. The adverse performance trend of the pressure switches was not effectively evaluated by the system engineer. The system engineer did not properly determine the root cause and extent of the condition during the work on the earlier pressure switch problems even though there is clear evidence of repeat problems in the work history records, NPRDS database, and the PER database.

In general, the impact and resolution of recurring equipment problems were not sufficiently monitored by Technical Support management. For example, the performance indicator used to monitor the diesel generator system performance (diesel generator unavailability) did not identify these recurring equipment problems. In fact, diesel generator system performance, as measured by this indicator, generally improved during this period. The cause of this omission was determined to be inadequate expectations by Technical Support management on the reporting of recurrent equipment problems (i.e., only overall system performance reporting was expected by management).

CORRECTIVE ACTIONS THAT HAVE BEEN TAKEN AND RESULTS ACHIEVED

The pressure switches were replaced with like switches. Performance of the current switches will be closely monitored, accounting for seasonal effects to ensure that prompt corrective action is taken when an adverse condition is identified.

The system engineer who had responsibility for the diesel generator system is no longer employed by TVA.

Problems with the quality of equipment root cause analyses were identified last year. Extensive root cause training was given to a number of the system engineers during the last year to improve the skills and knowledge of the system engineers.

As a separate enhancement, the corrective action program has been strengthened regarding root cause analyses. A standard format for reporting equipment root cause analyses has been developed and included in the corrective action program procedure. Additional management review has been added in the process to reinforce management expectations until desired results are achieved.

CORRECTIVE ACTIONS THAT WILL BE TAKEN TO AVOID FUTURE VIOLATIONS

A more reliable replacement pressure switch has been identified and will be installed as soon as possible but no later than the return to service after the Unit 1 Cycle 8 refueling outage.

The current system engineer for the diesel generator system will review the equipment history records for other adverse trends not recognized or corrected by the previous system engineer.

Lessons learned from this issue will be used to communicate expectations for equipment performance trending, equipment root cause analysis, and reporting of repeat equipment problems to the Technical Support organization. Clear expectations on the equipment performance trend analysis, data sources and evaluation methodologies will be reinforced.

Equipment root cause training will be provided to the system engineers in the Technical Support organization that had not previously received this training during the next six months.

Increased emphasis will be provided to appropriate Operations, Maintenance, and RADCON personnel to illustrate their role in supporting the root cause analysis and corrective action program.

Increased management monitoring will be provided to ensure that performance trending, system health reporting (including reporting or repetitive equipment failures within the system health report), and equipment root cause evaluations meet expectations.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

With respect to the cited violation, TVA is in full compliance.

COMMITMENTS

1) A replacement pressure switch has been identified and will be installed as soon as possible but no later than the return to service after the Unit 1 Cycle 8 refueling outage.

2) The current systems engineer for the diesel generator system will review the equipment history records for other adverse trends not recognized or corrected by the previous system engineer. This action will be completed by December 20, 1996.

3) Lessons learned from this issue, will be used to communicate expectations for equipment performance trending, equipment root cause analysis, and reporting of repeat equipment problems to the Technical Support organization by November 22, 1996. Clear expectations on the equipment performance trend analysis, data sources and evaluation methodologies will be reinforced.

4) Equipment root cause training will be provided to the systems engineers in the Technical Support Organization that had not previously received this training. This action will be completed by March 7, 1997.

5) Increased emphasis will be provided to appropriate Operations, Maintenance, and RADCON personnel to illustrate their role in supporting the root cause analysis and corrective action program by March 7, 1997.