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September 3, 1998

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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10 CFR 2.201

Gentlemen:

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

**SEQUOYAH NUCLEAR PLANT (SQN) - NRC INSPECTION REPORT
50-327, 50-328/98-07 - REPLY TO NOTICE OF VIOLATION (NOV)**

This letter provides our reply to the NOV. The NOV contains two violations as documented in the subject inspection report, which was dated August 3, 1998. The first violation contains three examples of the failure to take prompt corrective actions for an adverse condition. The second violation contains two examples of invalid calibrations performed on a Unit 2 pressurizer level instrument.

Regarding implementation of the Corrective Action Program for prompt identification of adverse conditions, we have and will continue to stress the need for personnel to initiate problem evaluation reports (PERs) to ensure appropriate action is taken for an identified condition and to inform senior site management of adverse conditions. Prompt initiation of PERs ensures management attention to the problem through the management review committee process. Recent actions taken to raise sensitivity to problems have resulted in an increase of line initiated PERs.

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Enclosure 1 contains TVA's response to the NOV. This submittal does not contain additional commitments.

If you have any questions regarding this response, please contact me at extension (423) 843-7001 or Pedro Salas at extension (423) 843-7170.

Sincerely,


M. Bajestani

Enclosure
cc (Enclosure)

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

INSPECTION REPORT NUMBER 50-327, 50-328/98-07
REPLY TO NOTICE OF VIOLATION (NOV)

I. RESTATEMENT OF VIOLATION A (50-328/98-07-01)

"10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requires that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

Site Standard Practice SSP 3.4 Revision 22, Corrective Action, implements the Quality Assurance requirements for promptly identifying and correcting conditions adverse to quality.

SSP 3.4, Section 3.0.A, requires personnel to 'promptly report adverse conditions on a work request/work order and/or a problem evaluation report (PER).'

SSP 3.4, Appendix M, Engineering Evaluations for Operability Determination, Section 3.4, Technical Evaluation of TOEs (Technical Operability Evaluations), Subsections B.2 and B.4, requires the evaluator to 'evaluate the specified function of the affected system, subsystem, or component...by describing the effects of the potential nonconformance/degraded condition in relation to the components/system's capability of performing its specified function.'

SSP 3.4, Subsection B.4.b, requires the evaluator to 'evaluate and discuss the effects of the potential nonconformance at the lowest applicable level and continue the discussion up through high levels until a conclusion can be reached concerning the effects of the potential nonconformance on system functionality.'

Contrary to the above, on or before November 3, 1997, conditions adverse to quality were not promptly identified and corrected, in that;

1. The licensee failed to correct and or initiate a problem evaluation report on the deficient conditions exhibited by the pressurizer level instrument (2-LT-68-320). The deficient conditions included instrument hysteresis and pressure sensitivity in excess of design documents and vendor specifications; abnormal popping noises from the instrument when pressurized; and failure to meet the acceptance criteria in the TS required calibration procedure.
2. The license failed to promptly correct the scaling errors in the calibration procedures (1.1% for 2-LT-68-335, 1.8% for 2-LT-68-339 and approximately 6.2% for 2-LT-68-320). As a result the instruments were not calibrated to the correct values for accurately measuring pressurizer level. This resulted in nonconservative pressurizer high level reactor trip setpoints for all three Unit 2 pressurizer level channels. (Actual level would be greater than the allowable TS limit of 92.7% before a trip could occur).
3. The licensee failed to adequately evaluate and discuss the effects of the potential nonconformances of pressurizer level instrument 2-LT-68-320 on the reactor protection system pressurizer high level reactor trip setpoint. In addition, the supporting engineering documentation/evaluation for the October 26 TOE, 'Pressurizer Level Transmitter Loop Evaluation for 2-LT-68-320' completed on February 5, 1998, incorrectly stated 'Since the error is a negative error, it affects only the decreasing setpoints and would not be applicable for the high level trip function.'

This is a Severity Level IV Violation (Supplement I)."

TVA's REPLY TO THE VIOLATION

1. Reason For Violation A (50-328/98-07-01)

A. Example 1

The reason for the violation was personnel error. Engineering personnel involved with pressurizer level instrument 2-LT-68-320 issues (instrument hysteresis, pressure sensitivity, and abnormal

popping noises) incorrectly believed that an existing problem evaluation report (PER), along with the associated technical operability evaluation (TOE) addressing the new conditions, was sufficient to resolve the other issues. As a result, we failed to revise an existing PER.

B. Example 2

The errors identified by the field verifications were incorporated into the PER's TOE. The Westinghouse Setpoint Methodology was reviewed and it was determined that it did not contain a safety limit. Subsequent discussion with Westinghouse determined the safety limit to be 100 percent. As such, the evaluator concluded that the error did not exceed the safety limit when applied to the setpoint.

C. Example 3

The causes of the violation were: (1) a differing technical opinion between TVA and NRC relative to setpoint versus safety limit; and (2) personnel error due to a lack of attention to detail by the individuals performing the evaluation.

The preparer of the TOE addressed the 92 percent high level trip by stating that a safety limit did not exist. This was based on review of the Westinghouse Setpoint Methodology. Westinghouse Setpoint Methodology is the engineering basis for the trip setpoint in technical specifications.

The evaluation preparer and checker made a mathematical sign error in using the input data. This resulted in the individuals incorrectly believing that the condition only affected the decreasing setpoints of the level transmitter and lead to the conclusion that the condition was not applicable to the high level trip function. The evaluation reviewer and approver contributed to the condition by not recognizing the error. The error was identified by NRC and the evaluation was corrected resulting in no change to the TOE conclusion.

2. Corrective Steps Taken And Results Achieved

A. Example 1

PER SQ971279PER, which originally addressed a documentation problem, was revised to address the hardware issues of hysteresis, pressure shift, and abnormal popping noise.

Lessons learned relative to the need to initiate or revise an existing PER upon identification of a problem or additional conditions have been provided to site Engineering personnel.

B. Example 2

Following discussions with the the NRC staff, a design change was issued and implemented to reduce the pressurizer high-level trip setpoints. This action ensures that scaling errors will not adversely affect the reactor trip bistable for pressurizer level.

C. Example 3

The TOE evaluation was revised. The revision clarified that the error did not exceed the safety limit when applied to the setpoint.

Lessons learned from the condition have been provided to the involved Engineering personnel.

3. Corrective Steps That [Have Been Or] Will Be Taken To Prevent Recurrence

For Examples 1, 2, or 3, no additional actions are necessary to prevent recurrence.

4. Date When Full Compliance Will Be Achieved

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

II. RESTATEMENT OF VIOLATION B (50-328/98-07-02)

"TS 4.3.1.1 required that 'Each reactor trip system instrumentation channel and interlock shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL

CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.'

Table 4.3-1, Reactor Trip System Instrumentation Surveillance Requirements, Functional Unit 11, Pressurizer Water Level High, requires a channel calibration during each refueling (at least once per 18 months).

CHANNEL CALIBRATION is defined by TS 1.4 as 'the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors.'

Contrary to the above, a CHANNEL CALIBRATION was not performed as required, in that;

1. On October 24, 1997, the channel output of pressurizer level channel 2-LT-68-320 was not adjusted to the necessary range and accuracy to known values of the parameter which the channel monitors. During the performance of the calibration, per 2-SI-ICC-068-320.3, Channel Calibration of Pressurizer Level II Rack 9 Loop L-68-320, 2-LT-68-320 failed to meet the as-left acceptance criteria of the procedure.
2. From 1988 to the present, the channel output of pressurizer level channel 2-LT-68-320 has not been adjusted to the necessary range and accuracy to known values of the parameter which the channel monitors. In 1988, the input pressure source calibration data contained in calibration procedure, 2-SI-ICC-068-320.3, Channel Calibration of Pressurizer Level II Rack 9 Loop L-68-320, 2-LT-68-320, was revised approximately 5.7% based on the difference in indication and not based on engineering scaling documents. Subsequently (1997), the licensee identified an instrument pressure shift but failed to verify the extent of the shift. This condition resulted in not having an adequate analysis (unverified assumptions) of the setpoint margin for the pressurizer high level reactor trip. Therefore, it was concluded that the calibration was no longer based on the necessary range and accuracy to known pressurizer levels.

This is a Severity Level IV Violation (Supplement I)."

TVA's REPLY TO THE VIOLATION

1. Reason For Violation B (50-328/98-07-02)

A. Example 1

A surveillance test, including instrument channel calibration, was performed during the Unit 2 Cycle 8 refueling outage for this level instrument. The calibration identified a pressure shift and hysteresis above vendor specification. Engineering personnel determined that the instrument was acceptable based on compliance with engineering requirements and evaluation of the as-found condition in engineering calculations. This resulted in a position that the instrument was considered operable. The existing level instrument was replaced with a new instrument. Before replacement, an as-found calibration was performed on the existing level instrument. The as-found hysteresis profile showed that no further degradation occurred since the 1997 calibration. The new instrument was rescaled and calibrated to meet specifications. Level transmitter 2-LT-68-320 was returned to service and is performing normally. Review of process computer data shows 2-LT-68-320 to be within less than one percent of the other two channels.

B. Example 2

The cause of the violation was a differing technical opinion between TVA and NRC staff relative to use of other independent instruments for cross calibration of pressurizer level instrument 2-LT-68-320. Upon initial discovery of the pressurizer level instrument's pressure sensitivity (static pressure shift) in 1988, it was thought that the condition was attributed to a bent pressurizer tap. (Actually, the pressurizer tap had been properly repaired before the identification of the pressure sensitive condition.) Part of the calibration methodology was to use other pressurizer instruments to verify range and accuracy of 2-LT-68-320. Once a static pressure shift was applied to 2-LT-68-320, the instrument provided a consistent response over a ten year period.

Contributing to the condition was the lack of questioning attitude. In 1990, an engineering design change notice was issued containing setpoint and scaling documents that incorporated the previously identified static pressure shift. This document mimicked the past calibration practice without appropriate supporting documentation for the basis of the calibration methodology. Since the instrument was providing reproducible and predictable results and the instrument was within an acceptable error range of other pressurizer level channels, the instrument was acceptable.

2. Corrective Steps Taken And Results Achieved

We have reviewed the condition and acknowledge NRC's position that cross calibration of the pressurizer level instruments without a technical basis is not an acceptable calibration methodology for pressurizer level instruments.

Lessons learned from the condition have been provided to Engineering personnel for the need to correct degraded equipment, maintain a questioning attitude, and not proceeding without appropriate technical basis.

Pressurizer level transmitter 2-LT-68-320 and associated sensor bellows were replaced. The new instrument was independently calibrated and found to be acceptable.

3. Corrective Steps That [Have Been Or] Will Be Taken To Prevent Recurrence

No additional actions are needed to prevent recurrence.

4. Date When Full Compliance Will Be Achieved

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