



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

SAFETY EVALUATION REPORT BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERN ELEMENT REPORT 17301

"INSTRUMENT LINE SLOPE"

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

I. SUBJECT

Category: Construction (10,000)
Subcategory: Instrument line installation as related to construction (17,300)
Element: Instrument Line Slope (17,301)
Employee Concern: IN-85-68-N07 IN-86-222-001
IN-85-119-001 IN-85-197-001
IN-85-218-001 IN-85-982-002
IN-85-985-001 PH-85-001-002
XX-85-046-001 SOP-86-001-001

The basis for Element Report 17301, Rev. 4, prepared January 7, 1987 are ten employee concerns related to problems with instrument line slope. Seven of the ten concerns about instrument sensing line slope address specific instances where slope criteria were not met. Three concerns generically address slope criteria non-compliance. The issue raised in all concerns was that instrument sensing lines were not installed in accordance with the minimum slope criteria specific by design document.

II. SUMMARY OF ISSUE

The issue raised by this element report about instrument line slope not conforming to the requirements on design document is factual. The installed configuration of sensing lines do not create an operating or safety concern during normal operating conditions as evidenced by the plant operation. However, for abnormal or accident conditions there may be problems. There appears to be a number of different problems with the instrument sensing line. Some instrument lines have insufficient positive slope while others have a negative slope. Some instrument lines, such as those within the auxiliary feedwater system have been relocated to assure system functionality, while others in effluent gas treatment systems require the addition of condensate collection chambers. Instrument line slope can have an effect on instrument sensor accuracy which could lead to instrument sensor accuracy not detecting processes outside safety limits and could affect the Chapter 15 accident analysis. Instrument sensing lines act as a coupling between the process and sensor and to be effective it must be filled with the known fluid. Proper slope

gives a high degree of confidence that the sense line is properly filled with the known fluid. With insufficient slope, gas may become entrapped with the liquid medium or liquid may condense from gas medium and may cause a degradation in instrument accuracy.

III. EVALUATION

TVA has submitted a six volume report titled, "ECTG Slope Closure" describing the problem with the instrument line slope and resolution of the problem. Staff is reviewing this report under Sequoyah NPP Volume II scope and it's finding will be included in the Volume II SER.

IV. CONCLUSION

Based on our review, we conclude that the employee concerns regarding instrument line slope were valid. TVA's investigation, evaluation and corrective action plans for the concerns are being reviewed under Sequoyah NPP, Volume II SER and will be documented in the Volume II SEP.