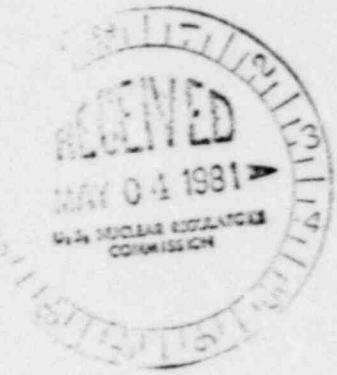
400 Chestnut Street Tower II

April 28, 1981



SQRD-50-328/81-32

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNIT 2 - CONTAINMENT HYDROGEN ANALYZERS - SQRD-50-328/81-32 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on April 24, 1981, in accordance with 10 CFR 50.55(e) as NCR SQN NEB 8123. Enclosed is our final report.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc: Mr. Victor Stello, Director (Enclosure) ✓
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
SEQUOYAH NUCLEAR PLANT UNIT 2
CONTAINMENT HYDROGEN ANALYZERS
SQRD-50-328/81-32
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The containment hydrogen analyzers monitor hydrogen concentration in the containment. They require a constant calibrated amount of reagent gas (air) flow in order to accurately analyze the containment atmosphere. For Sequoyah, this reagent gas is supplied by the control air system. Due to the variable control air system load and since there are no provisions for reagent gas supply pressure regulation, control air pressure varies, resulting in variation of reagent gas flow and inaccuracy of calibration. Currently, the only method of analyzer flow correction requires employees to enter the annulus and adjust the analyzer flow meter. This situation is unacceptable since the analyzers are required by NRC Regulatory Guide 1.7 to operate properly and reliably following a loss of coolant accident (LOCA), at which time the annulus is inaccessible to employees. Therefore, accurate adjustment of the analyzer flow would be impossible.

During weekly system functional tests, in which the analyzer calibration is checked, the readings were found to vary significantly between tests. This prompted a design change request (DCR) requesting installation of a pressure regulator on the reagent supply line. A review of this DCR resulted in the nonconformance report.

Safety Implications

If the deficiency had remained uncorrected, loss of continuous hydrogen analysis capability (post-LOCA) would result. The complete loss of function of the analyzer could have jeopardized the safe shutdown of the plant following a LOCA.

Corrective Action

DCR 959 has been issued to correct the deficiency by having a pressure regulator installed on the reagent gas supply line. This action should permit proper analyzer calibration for the life of the plant. However, until the DCR is implemented, the procedure summarized below will be utilized to estimate the hydrogen concentration in the containment in the event of a LOCA. The following procedure will be incorporated into the emergency operating instruction before May 12, 1981.

> The analyzer calibration must be checked before use and periodically thereafter by comparing the analyzer reading obtained from sample bottles with fixed concentrations of 1%, 4%, and 8% hydrogen, with the analyzer reading obtained from the containment atmosphere. Thereby, an upper limit of the actual containment hydrogen concentration can be determined.