TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

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DEC 20 1989

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) - REQUEST FOR RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE SECTION XI - HYDROSTATIC PRESSURE TEST REQUIREMENTS

Reference: TVA letter to NRC dated January 31, 1989, "Sequoyah Nuclear Plant (SQN) Units 1 and 2 - Revision to In-Service Pressure Test (ISPT) Program"

Enclosed is a request for relief from the ASME Code, Section XI, hydrostatic test requirements involving SQN's residual heat removal (RHR) system for Units 1 and 2. This exemption is associated with plant modifications for installing flow instrumentation on the RHR spray piping. These modifications are part of TVA's commitment for upgrading SQN to satisfy the requirements of Regulatory Guide 1.97.

The enclosed request for relief concerns a postmodification testing requirement contained in paragraph IWC-5222 (Item c) of the ASME Boiler and Pressure Vessel Code, Section XI, 1977 Edition, Summer 1978 Addenda. TVA has determined that conformance with this code requirement would result in hardship and unusual difficulties with no compensating increase in the level of quality and safety. TVA proposes to perform alternative testing that is considered to be an adequate demonstration of leak tightness for the modified RHR piping. Consequently, the proposed code exemption is being submitted in accordance with 10 CFR 50.55a(a)(3) and 10 CFR 55a(g)(5)(iii).

Enclosure 1 contains a description of the piping modification and the associated TVA drawings showing the affected areas. Enclosure 2 contains the request for relief.

The RHR spray modifications are currently scheduled for the Cycle 4 refueling outages for both units. Unit 1 is the lead unit with the Cycle 4 refueling outage projected to begin in April 1990. The Unit 2 Cycle 4 refueling outage is projected to begin in October 1990. This request for relief is being submitted at this time to support the Unit 1 outage work activities. TVA requests that NRC's response be provided before February 15, 1990.

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U.S. Nuclear Regulatory Commission

DEC 20 1989

Please direct questions concerning this issue to Don V. Goodin at (615) 843-7734.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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I. Description of the Modification

The 8-inch-diameter piping between the residual heat removal (RHR) heat exchanger and the RHR containment spray header is to be modified to receive an annubar flow element (see Figure 1). These flow elements will be identified as FE-72-40 for Train A and FE-72-41 for Train B. These flow elements will be located in the auxiliary building downstream of the normally closed spray isolation valves FCV-72-40 and FCV-72-41 (see Figure 2). This modification requires that a 1.06-inch-diameter hole be drilled in the piping and a 1.25-inch fitting be welded onto the outside wall of the pipe. FE-72-40 will be installed at Elevation 705.5 and FE-72-41 will be installed at Elevation 715.5.

II. Basis for Relief

The American Society of Mechanical Engineers (ASME) Code, Section XI, requires that a pressure test be performed following repair, replacement, or system alteration (paragraph IWA-5214).

The piping affected by this modification is an open-ended section of piping and therefore cannot be hydrostatically tested in the normal manner. Paragraph IWC-5222, Item c, of the ASME code states: ". . . For open ended portions of discharge lines in nonclosed systems (such as containment spray header), any test that demonstrates unimpaired flow shall be acceptable in lieu of a system pressure test." Based on this provision, TVA would be required to conduct a special performance of Surveillance Instruction (SI) 138, "Containment Spray - Spray Nozzle Test," which is periodically performed every 5 years to satisfy SQN Technical Specification 4.6.2.1.2.b. This test consists of blowing heated air into the piping and up through the RHR spray nozzles. An infrared photograph of the spray header is taken to ensure that all nozzles are open. The unimpaired flow test using hot air is a difficult test to perform since it requires that TVA rent a special air compressor to be brought onsite (requires a five to seven week leadtime) to provide a source of compressed air.

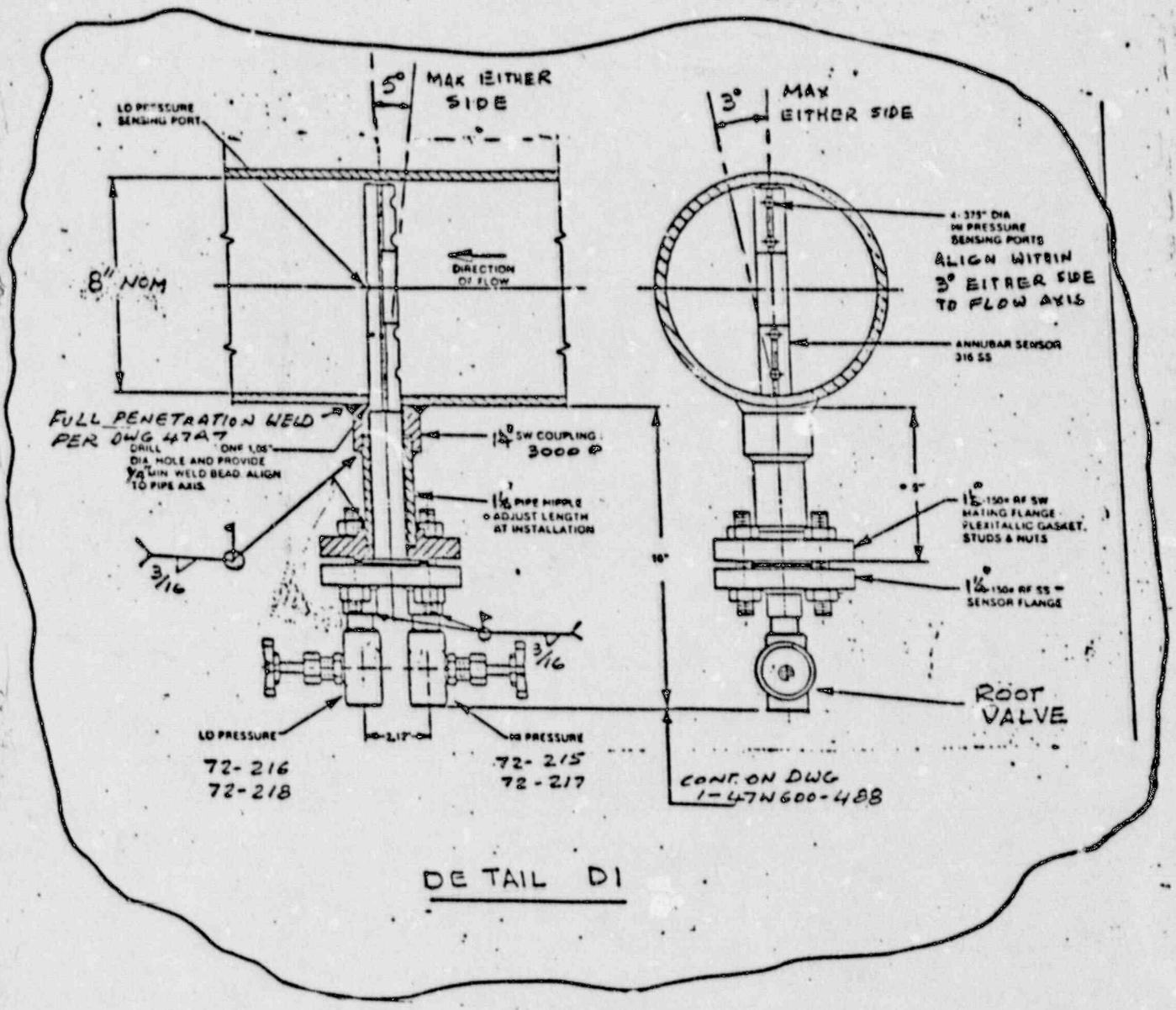
III. Alternative Testing

In lieu of the unimpaired flow test using heated air, TVA proposes the performance of a special hydrostatic pressure test. The proposed test consists of pressurizing the modified piping by filling the piping with water up to the maximum elevation permissible while ensuring that no water is discharged into containment through the spray header (Elevation 820). TVA will then perform a VT-2 visual examination of the welded connections to ensure no leakage.

IV. Conclusion

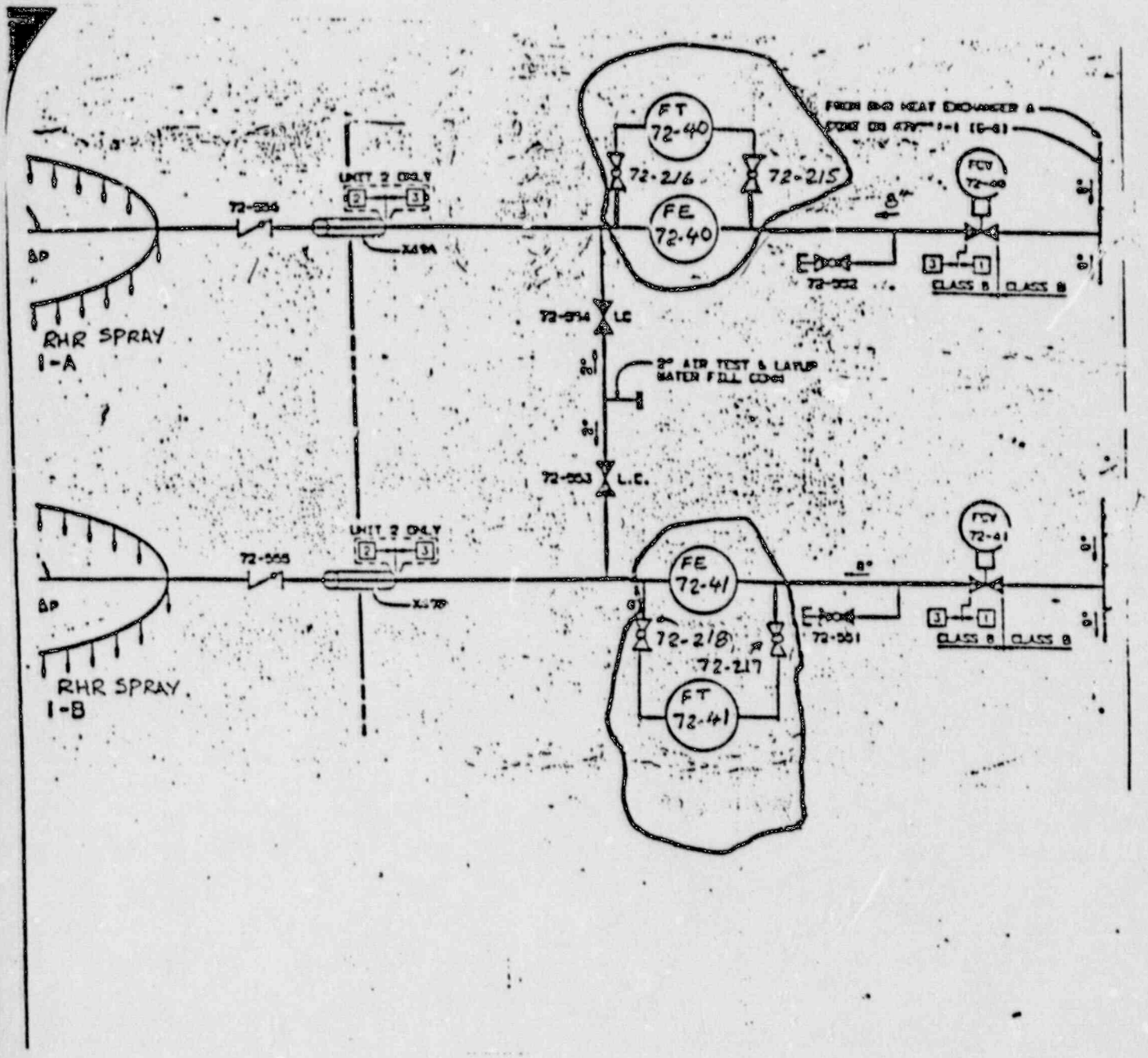
TVA requests relief from the hydrostatic pressure test requirements of the ASME Section XI code for the RHR spray modification for SQN Units 1 and 2. Performance of an unimpaired flow test to conform with the code requirement has been determined by TVA to result in hardship and unusual difficulties with no compensating increase in the level of quality and safety. TVA finds the proposed alternative test method to be an adequate demonstration of leak tightness for the modified RHR piping. This relief request is submitted in accordance with 10 CFR 50.55a(a)(3) and 10 CFR 50.55a(g)(5)(iii).

FIGURE 1



DETAIL D1

FIGURE 2


FT 72-40
72-216
72-215
FE 72-40
FCV 72-40
72-202
CLASS B
CLASS B
72-214 LC
3" AIR TEST & LAYUP WATER FILL CONN
72-203 L.C.
RHR SPRAY 1-A
UNIT 2 ONLY
72-205
FE 72-41
FCV 72-41
72-201
72-218
72-217
FT 72-41
RHR SPRAY 1-B

Enclosure 2

Request for Relief

Unit:	1 and 2
System:	Residual Heat Removal (RHR)
FSAR Drawing:	Figure 6.2.2-2 (47W812-1)
Components:	8-inch piping to the RHR containment spray header
ASME Class:	2
Function:	Provides flow path from the RHR heat exchangers to the RHR containment spray header in the reactor building.
Impractical Test Requirements:	Paragraph IWC-5222, Item c, of the ASME Code. ". . . For open ended portions of discharge lines in nonclosed systems (such as containment spray header), any test that demonstrates unimpaired flow shall be acceptable in lieu of a system pressure test."
Basis for Relief:	The 8-inch piping between the RHR heat exchanger and the RHR containment spray header is to be modified to receive an annubar flow element. This modification requires that a 1.06-inch-diameter hole be drilled in the 8-inch pipe and a 1.25-inch fitting be welded onto the outside wall of the pipe. TVA's ASME Section XI program requires that a hydrostatic pressure test be performed following this modification. The section of piping in which this modification is being made is downstream from the containment spray header isolation valves (FCV-74-40 and -41) and therefore cannot be hydrostatically tested in the normal manner. TVA's periodic Section XI hydrostatic test for this piping consists of blowing hot air into the piping and through the containment spray nozzles and taking an infrared photograph of the spray header to ensure that all the nozzles are open.

The hot air unimpaired flow test is a difficult test to perform since it requires that a special air compressor be brought onsite to provide heated compressed air and that a special infrared camera be used. Performance of this test is required at 10-year intervals by the ASME Code. This test is also performed at 5-year intervals at SQN as required by the plant technical specifications. This periodic test schedule does not coincide with the RHR spray modification schedule.

Alternative Testing:

In addition to the required nondestructive examinations, TVA proposes the performance of a special hydrostatic test of the modified piping. The proposed hydrostatic test will consist of pressurizing the modified piping by filling the piping with water to the maximum elevation permissible, while ensuring that no water is discharged into the reactor containment building (Elevation 820). TVA will then perform a VT-2 visual examination for leakage at the welded connections. TVA considers the proposed alternative test method to be an adequate demonstration of leak tightness for the modified RHR piping.