



TU ELECTRIC

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October 28, 1991

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Group Vice President

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES) - UNIT 2  
DOCKET NO. 50-446  
REQUEST FOR ADDITIONAL INFORMATION  
FRACTURE TOUGHNESS OF THE FEEDWATER SYSTEM MATERIALS

- REF: 1) TU Electric letter from W. J. Cahill, Jr. to the U. S. NRC  
dated November 27, 1989 (TXX-89748)
- 2) TU Electric letter from W. J. Cahill, Jr. to the U. S. NRC  
dated January 26, 1990 (TXX-90034)
- 3) TU Electric letter from W. J. Cahill, Jr. to the U. S. NRC  
dated February 7, 1990 (TXX-90068)
- 4) TU Electric letter from W. J. Cahill, Jr. to the U. S. NRC  
dated March 27, 1991 (TXX-91125)

Gentlemen:

Reference (1) described tests to be conducted on samples of the ferritic pressure-retaining components for Feedwater Isolation Valves (FWIVs) 1FW-0077 and 2FW-0083. This testing was conducted to characterize the chemical composition, hardness, and microstructure of the subject materials. The goal was to determine if similarity existed between the materials in three Charpy impact-tested specimens from 2FW-0083 and the materials in the rest of the FWIVs to obviate the need for Charpy testing materials in the other FWIVs.

Reference (2) summarized the pertinent data available for the FWIVs and the results of the materials tests and examinations documented in Engineering Report ER-DBE-ME-045. The report provided the basis for accepting the Unit 1 FWIVs in lieu of the impact testing requirements discussed in the CPSES FSAR.

Reference (3) reported a deficiency involving unverified assumptions in the fracture mechanics analysis performed to demonstrate the acceptability of ferritic pressure-retaining components of the FWIVs. This deficiency was discussed previously in Reference (2).

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Reference (4) provided a final response to the deficiency reported in Reference (3) and stated that a design modification and administrative actions similar to those implemented on Unit 1 would be implemented on Unit 2 assuming that testing of the remaining Unit 2 materials demonstrated applicability of ER-DBE-ME-045 to those materials.

This letter reports the results of testing performed on the remainder of the Unit 2 FWIV ferritic pressure-retaining materials. Samples were removed from 2FW-0071 and 2FW-0077, which completed the population of heat numbers described in Reference (1). These samples were subjected to the same tests as described in Reference (1). The sample site for 2FW-0077 will be groundout to provide a smooth transition with the adjoining surfaces. 2FW-0071 is acceptable without further physical rework. The test results are summarized as follows:

- a. The chemical composition of the samples conformed to the requirements of ASME SA-105 carbon steel forgings.
- b. The microstructure of the samples were typical of forged and normalized medium carbon steels. There was no evidence of any abnormalities.
- c. The hardness values were uniform for each of the samples and were consistent with the specified mechanical properties for ASME SA-105 carbon steel forgings.
- d. All of the metallurgical characteristics were comparable to those of the Unit 2 FWIV (2FW-0083) component samples previously evaluated and reported in references (2) and (3).

ER-DBE-ME-045 has been revised to include these results which demonstrate the applicability of the report to the remaining Unit 2 FWIV materials. The design modification to maintain the temperature of the FWIVs as described in the Unit 1 Technical Requirements Manual has been incorporated into the Unit 2 design. The operating procedures for Unit 2 will reflect existing Unit 1 procedures to assure that the temperature of the FWIVs is maintained as committed.

The 2FW-0083 body and neck sample removal sites will be weld repaired and all sharp transitions will be removed by grinding and/or weld buildup. Upon completion of these repairs, 2FW-0083 will conform to the applicable requirements of the ASME Section III, NC-3500 regarding minimum wall thickness. The bonnet on 2FW-0083 will be replaced with a new bonnet with material which meets ASME Section III, NC-2300 requirements for impact testing. These actions will be completed prior to steam generator secondary side hydrostatic testing.

Supporting documents for the materials testing and evaluations are available for NRC review at the CPSES site. Documentation regarding the field repairs to the FWIVs will be available at CPSES site following completion of the repairs.

Sincerely,

*William J. Cahill, Jr.*  
William J. Cahill, Jr.

By: *Roger D. Walker*  
Roger D. Walker  
Manager of Nuclear Licensing

MCP/gj

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