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December 26, 1985

Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Re: Catawba Nuclear Station, Unit 2
Docket No. 50-414
Significant Deficiency No. 414/85-12

Dear Dr. Grace:

Pursuant to 10 CFR 50.55(e), please find attached Significant Deficiency Report No. 414/85-12.

Very truly yours,

H.B. Tucker /BC

Hal B. Tucker

LTP:slb

Attachment

cc: Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Resident Inspector
Catawba Nuclear Station

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Catawba Nuclear Station
Unit 2

REPORT NUMBER: SD 414/85-12

REPORT DATE: December 26, 1985

FACILITY: Catawba Nuclear Station, Unit 2

IDENTIFICATION OF DEFICIENCY: During disassembly for environmental qualification upgrade of the PPORVs and the SGPORVs, the larger of the two springs in the air actuator of Pressurizer Power Operated Relief Valve 2NC36B was found to be missing. Construction Department reported this deficiency on NCI No. 20000 on November 18, 1985.

INITIAL REPORT: The initial telecon report was made to Hugh Dance, NRC/Region II, on December 6, 1985 by D. M. Collings, M. G. Osteen, L. M. Coggins, and M. L. Sanger of Duke Power Company, 422 S. Church Street, Charlotte, N. C. 28242.

COMPONENT AND/OR SUPPLIER: The larger spring (Part Number 330701032) in the air actuator of Pressurizer Power Operated Relief Valve 1NC36B (Valve Serial Number 18789-9-1) was omitted by Control Components, Incorporated (CCI), 2567 S. E. Main Street, Irvine, California 927`4 during the manufacturing process.

DESCRIPTION OF DEFICIENCY: The Pressurizer Power Operated Relief Valve (PPORV) is an active, ASME Section III, Class 1 valve whose safety function is to fail closed upon loss of instrument (VI) air to the actuator. Without both springs in the actuator, the PPORV will not fail close from the open position upon loss of air to the actuator under normal pipeline operating conditions. Duke Power has a total to twelve PPORVs manufactured by CCI; three at each unit of McGuire and Catawba. Duke Power also has a total of sixteen ASME Section III Class 2 Steam Generator Power Operated Relief Valves (SGPORVs) manufactured by CCI; four at each unit of McGuire and Catawba. These SGPORVs are similar in design to the PPORVs. Duke Power does not have any other ASME Section III valves manufactured by CCI installed at any of its nuclear units.

ANALYSIS OF SAFETY IMPLICATIONS:

Pressurizer Power Operated Relief Valves: If the PPORV should fail to close within a short time (approximately ten to twenty minutes), the Pressurizer Relief Tank rupture disc(s) would rupture and lead to a loss of reactor coolant pressure boundary integrity. The probability of this happening (had the missing spring gone uncorrected) is low for the following reasons:

(1) The PPORV normally only opens occasionally and for short periods of time. Instrument air must be available for the PPORV to open. For the PPORV to not close, loss of VI air must occur while the PPORV is open. Loss of VI air is infrequent. The one remaining spring in the actuator of 2NC36B would hold the PPORV closed if the valve is closed when loss of VI air occurs.

(2) There is an active block valve upstream of each PPORV. Timely operator action would likely occur to close the block valve to isolate this pipeline. The operators have been trained to take this action should the PPORV not close.

(3) There are many signals to the operators should the PPORV not close. Some of these indications are:

(a) Discharge line temperature indication and high temperature alarm
(b) Pressurizer Relief Tank water temperature indication and high temperature alarm
(c) High Pressurizer Relief Tank liquid level indication and high level alarm
(d) Pressurizer Relief Tank pressure indication and high pressure alarm
(e) Low liquid level in Pressurizer
(f) Pressurizer Power Operated Relief Valve limit switch open light.

Steam Generator Power Operated Relief Valves: The Steam Generator Power Operated Relief Valve (SGPORV) is an active valve whose safety function is to fail closed upon loss of VI air to the actuator. If the SGPORV should fail to close due to a missing actuator spring, main steam would be dumped to atmosphere and the Steam Generator would depressurize. However, the probability of this happening is low for the following reasons:

(1) The SGPORV has a manual override which allows the valve to be closed with a handwheel.

(2) The SGPORV normally only opens occasionally and for short periods to time. VI air must be available for the SGPORV to open automatically. For the SGPORV to not close, loss of VI air must occur while the SGPORV is open. Loss of VI air is infrequent. One spring in the actuator of the SGPORV will hold the SGPORV closed if it is closed when loss of VI air occurs.

(3) The SGPORVs have a balanced plug design which requires less spring force to close. Therefore, the likelihood of the valve closing with only one spring is greater than for the PPORVs.

(4) There is an active block valve upstream of each SGPORV. Timely operator action would likely occur to close the block valve to isolate the pipeline.

(5) The operator will be alerted to an open SGPORV with several instrument indications and alarms.

CORRECTIVE ACTION: Only one PPORV, valve tag number 2NC36B, was found with a missing spring. It was subsequently replaced. No springs were found missing on the four SGPORV's. Our investigation of this item with regard to our other units is continuing.