

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

83 DEC 5 A10 December 1, 1983

BLRD-50-438/82-80

U.S. Nuclear Regulatory Commission  
Region II  
Attn: Mr. James P. O'Reilly, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNIT 1 - RAW COOLING WATER CHILLER UNIT FLOW  
CONTROL VALVE DEFICIENCIES - BLRD-50-438/82-80 - FOURTH INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
G. A. Belisle on November 26, 1982 in accordance with 10 CFR 50.55(e) as  
NCRs 2086, 2087, and 2088. This was followed by our interim reports  
dated December 27, 1982 and March 21 and July 27, 1983. Enclosed is our  
fourth interim report. We expect to submit our next report on or about  
March 19, 1984. We consider 10 CFR Part 21 to be applicable to this  
deficiency.

If you have any questions concerning this matter, please get in touch with  
R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*L. M. Mills*  
*by RHL*

L. M. Mills, Manager  
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Records Center (Enclosure)  
Institute of Nuclear Power Operations  
1100 Circle 75 Parkway, Suite 1500  
Atlanta, Georgia 30339

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNIT 1  
RAW COOLING WATER CHILLER UNIT FLOW CONTROL VALVE DEFICIENCIES  
10 CFR 50.55(e)  
BLRD-50-438/82-80  
NCRs 2086, 2087, 2088  
FOURTH INTERIM REPORT

Description of Deficiency

Two six-inch freon-activated raw cooling water (RCW) flow control valves (serial Nos. 24867 and 24865) failed to operate upon activation. This resulted in a high-pressure trip of the HVAC water chillers which are used to remove heat generated by components of the engineered safety features (ESF) system.

Investigation revealed that the failures occurred because of two separate conditions. One valve (serial No. 24867) failed because of a buildup of rust and scale on the valve's pilot seat contact surfaces. This inhibited the movement of the valve stem. On both valves, the valve stem nut was completely detached. This allowed the valve diaphragm to operate independently of the valve stem. These conditions degraded the valves' ability to perform their intended function.

In addition, the internal configuration of the valves supplied do not conform to the vendor's drawings. The drawings depict a two-way valve but the valves supplied are three-way valves with one lower port blocked to make it a two-way valve. In addition, the drawings show a lower diaphragm, diaphragm spacer, and diaphragm plate which are not on the valves supplied.

The valves in question were manufactured by Metrex Valve Corporation, Glendora, California, and supplied as components on the water chillers fabricated by Dunham-Bush, West Hartford, Connecticut.

Interim Progress

As a result of their investigations, Metrex Valve Corporation has increased the torque used to tighten the valve stem nut. Due to manufacturing improvements, they have also changed the type of nut used. Metrex has recommended that we use the new nut along with the new torque value.

We are awaiting a letter from Dunham Bush for their recommendations concerning root cause and action to prevent recurrence.

In addition, TVA is determining a solution to the corrosion problem in coordination with Metrex.