

PART 21 IDENTIFICATION

81-361-000

COMPANY NAME

Tennessee Valley Authority

DATE OF LETTER 2/1/81

DOCKET NO. 50-438

DATE DISTRIBUTED 2/1/81 a.m.

ORIGINAL REPORT

SUPPLEMENTARY

DISTRIBUTION:

REACTOR (R)

FUEL CYCLE &

SAFEGUARDS (S)

MATERIALS (M)

IE FILES

"IE FILES"

EES

IE FILES

AD/SG

AD/FF/MSI

AD/ROI

REGIONS I, II, III, IV, V

REGIONS I, II, III, IV, V

REGIONS I, II, III, IV, V

VENDOR BR. R-IV

VENDOR BR. R-IV

VENDOR BR. R-IV

LOEB / MPA MNB 5715

NMSS / FCMS SS-395

NRR/DOL

AEOD MNB 7602

LOEB / MPA MNB 5715

NMSS / SG SS-881

NRR/DOE

AEOD MNB 7602

LOEB / MPA MNB 5715

NRR/DSI

ASLBP E/W 450

AEOD MNB 7602

NRR/DST

SAP/SP MNB-7210A

ASLBP E/W 450

NRR/DOL

CENTRAL FILES 016

CENTRAL FILES 016

CENTRAL FILES (CHRON)

CENTRAL FILES (CHRON)

PDR

CENTRAL FILES SS-395

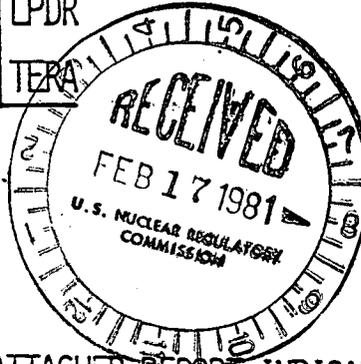
LPDR

PDR

TERA

LPDR

TERA



CENTRAL FILES 016

~~CENTRAL FILES (CHRON)~~

PDR

LPDR

TERA

ACTION:

PRELIMINARY EVALUATION OF THE ATTACHED REPORT INDICATES LEAD RESPONSIBILITY FOR FOLLOWUP AS SHOWN BELOW:

IE

NRR

NMSS

OTHER

EES

8102250 555

REV. 8/1/80

9/17/80

12/2/80

*Lead, Pt. 2*

NRC Part 21 ID # 81-501-000  
TENNESSEE VALLEY AUTHORITY  
CHATTANOOGA, TENNESSEE 37401

50-438

400 Chestnut Street Tower II

February 4, 1981

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:

BELLEFONTE NUCLEAR PLANT UNIT 1 - EXCESSIVE VIBRATIONS OF ERCW PUMP/MOTOR -  
NCR 1249 - FINAL REPORT

The subject nonconformance was initially reported to NRC-OIE Inspector F. S. Cantrell on August 19, 1980, in accordance with 10 CFR 50.55(e). This was followed by our interim reports dated September 17 and December 2, 1980. Enclosed is our final report. We consider 10 CFR Part 21 to be applicable to this nonconformance.

If you have any questions concerning this matter, 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, Jr., Director (Enclosure) ✓  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNIT 1  
EXCESSIVE VIBRATIONS OF ERCW PUMP/MOTOR  
NCR 1249  
10 CFR 50.55(e) ---  
FINAL REPORT

Description of Deficiency

Excessive vibrations have been observed in essential raw cooling water (ERCW) pump/motor assembly while running. TVA and Weir Pumps Limited have agreed that the vibration experienced on the ERCW pumps was because of resonant amplification caused by the operating speed being too close to the natural frequency of the pumps.

Although not conclusively demonstrated, the fundamental cause of the problem appears to be a pump design which resulted in natural frequencies too near the running speed, thereby being overly sensitive to small differences in pump foundations. A contributing factor also appears to be the fact that the floor under the pumps had been reworked.

Safety Implications

Excessive vibrations could lead to failure of the pump and/or motor resulting in failure of the pump to perform its intended function of providing raw cooling water to the plant. This would result in loss of the cooling to safety-related equipment and would have affected adversely the safety of operations of the plant.

Corrective Action

TVA has evaluated the solution proposed by Weir and determined it to be effective. The solution to the vibration problem consists of shifting the natural frequency away from the running speed by adding mass to the motors. The permanent addition of this weight to the motors will require that the system be requalified seismically. The final resolution of this concern is to be completed by August 1981.