

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

34 AUG 20 August 21, 1984

BLRD-50-438/83-58
BLRD-50-439/83-51

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

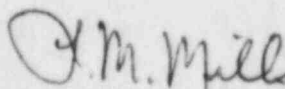
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - CARBON STEEL DOWEL PIN FOUND IN
HIGH-PRESSURE INJECTION PUMP - BLRD-50-438/83-58, BLRD-50-439/83-51 -
FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Ross Butcher on November 9, 1983 in accordance with 10 CFR 50.55(e) as NCR
2515. This was followed by our interim reports dated December 6, 1983 and
March 1, 1984. Enclosed is our final report.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY



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 UNITS 1 AND 2
CARBON STEEL DOWEL PIN FOUND IN HIGH-PRESSURE INJECTION PUMP
BLRD-50-438/83-58, BLRD-50-439/83-51
NCR 2515
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The makeup/high-pressure injection (MU/HPI) pumps are two-stage centrifugal pumps designed and built by Bingham-Willamette of Portland, Oregon. The pumps contain a horizontal rotating element housed in a double casing. The outer casing, which carries the discharge pressure, is a fabricated pressure vessel with removable end covers secured by a series of studs. The inner casing consists of two castings which are machined and lapped at their mating surfaces and are bolted together around the rotating element.

During a recent disassembly of one of the MU/HPI pumps, a carbon steel dowel pin was found in a tapered hole in the inner casing. The dowel pin was used to align the inner casing during assembly and should have been removed following torquing of the inner case bolts. The pin was located such that it came in contact with the pump fluid and had rusted.

The apparent cause of the deficiency was the breakdown in the manufacturer's Quality Assurance program since the pump manufacturer failed to remove the dowel pin during the initial assembly of the pump and/or failed to provide TVA with information regarding inspection/removal of the pin.

Safety Implications

Had this condition remained undetected, it is possible that the carbon-steel dowel pin could become loose inside the pump and possibly cause a significant degradation of the pump internals. Thus, in the event of an accident, the safe operation of the plant could have been adversely affected due to the degraded pump's inability to function as intended.

Corrective Action

TVA has removed the pin and the rust caused by the pin from pump INV-MPMP-002A and has disassembled and inspected the two other unit 1 MU/HPI pumps. No other dowel pins or rust were found.

Based upon the unit 1 inspections performed by TVA and upon subsequent discussions with Bingham-Willamette, B&W has determined that the pin found in the subject pump was an isolated occurrence which does not affect other Bingham-Willamette pumps. As such, the unit 2 pumps will not be disassembled for inspection.

To prevent a recurrence of this problem, Bingham-Willamette is revising the instruction manual for the pumps to include a warning note in the pump assembly/disassembly procedure indicating that the guide pins must be removed following torquing of the inner case. This will be complete by October 5, 1984.