

TENNESSEE VALLEY AUTHORITY

ATLANTA REGION
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

84 OCT 25 P 1:31 October 22, 1984

BLRD-50-438/83-63
BLRD-50-439/83-57

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

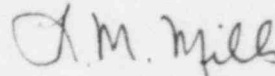
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - ORIENTATION OF ASCO SOLENOID -
OPERATED VALVES - BLRD-50-438/83-63, BLRD-50-439/83-57 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Linda Watson on November 30, 1983 in accordance with 10 CFR 50.55(e) as
NCR 2551. This was followed by our interim report dated December 28,
1983. Enclosed is our final report.

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, 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
ORIENTATION OF ASCO SOLENOID-OPERATED VALVES
NCR 2551
10 CFR 50.55(e) REPORT
BLRD-50-438/83-63, BLRD 50-439/83-57
FINAL REPORT

Description of Deficiency

Pilot solenoid valves are used in the air line to a pneumatic control valve air diaphragm for the purpose of relieving the pressure on the diaphragm to allow a spring to force the control valve to its failure mode.

The solenoids are normally mounted on the control valve by the control valve manufacturer. Certain solenoid models manufactured by the Automatic Switch Company (ASCO) require a specific mounting orientation to assure correct operation. Several valves were found installed at Bellefonte with the solenoids not oriented in the required position. Specifically, the control valve manufacturer (Copes Vulcan, Incorporated) had assumed the control valve would be installed in the piping with its diaphragm actuator vertical and oriented the solenoid for this installation. Unfortunately, due to surrounding hardware interferences, some of the control valves could not be installed with their actuators vertical but instead were installed with the actuators horizontal. As a consequence, the solenoids are not oriented to permit proper operation.

The cause of the deficiency can be attributed to a failure by the designers to recognize that certain pilot solenoid valves have specific orientation limitations and that either the control valves should have been installed in the piping to correctly orient the solenoid valves or solenoid mounting brackets should have been redesigned as required to correctly orient the solenoids.

Safety Implications

Orientation of control valves in a position other than that required by the vendor due to solenoid positioning could result in the inability of the valve to properly function. Further, this failure to operate may not be apparent to the operator so that corrective measures could be taken in a timely manner. Therefore, this deficiency could adversely affect operation of the plant.

Corrective Action

Mounting brackets for the solenoids were either redesigned or remounted to give correct solenoid orientation. The manufacturer's valve drawings were revised as necessary to instruct TVA's Office of Construction (CONST) of the mounting bracket redesign or orientation change by engineering change notice (ECN) 2878. Final drawing issue under ECN 2878 was completed May 8, 1984. CONST work will be completed by August 1, 1985.

The action taken to prevent recurrence involved instructing the designers responsible for determining control valve orientation in piping to denote on all future control valve manufacturer's drawings the position that the valve will assume when installed in the piping. This will allow the manufacturer to correctly orient the accessories (including pilot solenoids) based on the actual valve installation rather than an "assumed" installation.