

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

September 4, 1981

P12: 3-

HTRD-50-518/81-09, -519,
-520, -521/81-08
PBRD-50-553/81-11, -554/81-06

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:

HARTSVILLE AND PHIPPS BEND NUCLEAR PLANTS - REPORTABLE DEFICIENCY -
REACTOR PRESSURE VESSEL NUT AND STUD IRREGULARITIES - HTRD-50-518/81-09,
-519, -520, -521/81-08 - PBRD-50-553/81-11, -554/81-06

The subject deficiency was initially reported to NRC-OIE, Region II, Inspector P. A. Taylor on March 10, 1981 as NCR S-15. The final report on the deficiency was submitted on April 9, 1981. In response to NRC's request documented in OIE Inspection Report Nos. 50-553/81-05 and 50-554/81-05 dated June 30, 1981, we are enclosing the revised final report on the subject deficiency. If you have any questions, please call Jim Damer at FTS 857-2014.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills
L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

IE27
5/1

8109110116 810904
PDR ADOCK 05000518
S PDR

ENCLOSURE

HARTSVILLE NUCLEAR PLANTS A AND B AND PHIPPS BEND NUCLEAR PLANT
REACTOR PRESSURE VESSEL (RPV) NUT AND STUD IRREGULARITIES

HTRD-50-518/81-09, -519, -520, -521/81-08

PBRD-50-553/81-11, -554/81-6

10 CFR 50.55(e) - REPORT NO. 2 (REVISED FINAL)

Description of Deficiency

The subject nonconforming condition identifies three individual deficiencies. They are:

1. Threads on seven nuts, out of 252 inspected, which were improperly machined and do not conform to standards specified in Industrial Fasteners Institute, Fasteners Standards, Fifth Edition.
2. Failure to stamp studs with material identification as specified in the procurement document.
3. Overmachining of 11 studs, out of 126 inspected, to an undersized condition.

The nuts and studs are used to hold the reactor pressure vessel to the RPV pedestal. The particular lot of material inspected is for use at Phipps Bend Nuclear Plant (PBN) unit 2. The material was fabricated by Acimet Manufacturing Company (Acimet), Cleveland, Ohio, under subcontract from Lakeside Bridge and Steel Company. Acimet supplied similar material for the RPV bolting assemblies at Hartsville Nuclear Plants (HTN) A and B and PBN unit 1.

The nonconforming condition was identified as a result of a 100-percent visual and gauge inspection conducted by TVA at the Acimet Plant. This was an expanded inspection (TVA normally performs only a random sampling inspection) which was prompted by the identification of deficient nuts at Hartsville Nuclear Plant A.

In addition, as a result of the repeated recurrence of discrepant material manufactured by Acimet to TVA (NCR HNPA-117; described to NRC-OIE as nonreportable on January 27, 1981, and NRC HNPB-032, described to NRC-OIE as nonreportable on January 17, 1981), we must conclude that a significant breakdown of a portion of the Acimet Quality Assurance Program exists.

Safety Implications

Three individual deficiencies are identified by the NCR. Material identification will not affect safety of the plant. The improper threading on the nuts is a recurrence of a similar problem identified at HTN (NCR's HNPA-117 and HNPB-032) and determined not to affect safety of the plant. The undersized thread on the studs, from a safety standpoint, cannot be addressed due to a lack of adequate information. Therefore, during a seismic event, it is assumed that the integrity of the RPV could be compromised and this could affect the safety of the plant.

Corrective Action

The PBN unit 2 material identified by this NCR was reworked or replaced. A 100-percent visual and gauge inspection was performed, the material was found to be acceptable by TVA and was released for shipment to PBN unit 1.

In addition, TVA initiated inspection at HTN Plants A and B and PBN unit 1 on all materials shipped from Acimet. The inspection at HNP was a 100-percent visual and gauge inspection of the nuts and a 90-percent visual gauge inspection of the studs. Of the 1008 nuts inspected, 179 were rejected. No studs were rejected. The inspection at PBN unit 1 was 100-percent visual inspection of the nuts and studs as specified in subsection HF-2580 of the ASME Code. Of the 252 nuts inspected, each were, in addition, randomly cross assembled on the studs for a determination on whether any material was overmachined. This resulted in 12 of the 252 nuts being rejected for loose fit. No studs were rejected. A material verification based on approved heat records was performed on all studs, nuts, and washers that were used in unit 1 to further ensure the material was of acceptable quality. Of the 12 rejected nuts, several were split and used for an alignment tool to set the 120 studs in place. The remaining nuts were destroyed. Documentation on file to substantiate the acceptability of the material actually used consists of:

- A. Unique Inspection Record per QCI M-410 for visual inspection of bolts at PBN.
- B. Material Verification Record per QCI M-505 at HTN and PBN.
- C. Sequence Control Chart for visual inspection of material at HTN and PBN.
- D. Quality Control Investigation Report (QCIR) No. 22263 (NCR PBNP-262) at PBN.

TVA has no other contracts with Acimet at this time. TVA has placed a note in the Acimet file for future orders that 100-percent source inspection is required on all contract work provided by them.