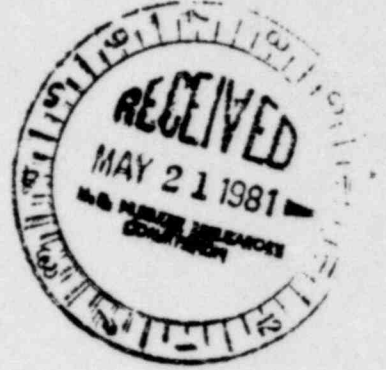


TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

May 15, 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:

PHIPPS BEND NUCLEAR PLANT - REPORTABLE DEFICIENCY - INADEQUATE WELDS ON  
EMBEDDED PIPE SLEEVES TO PLATES (NCR PBNP-160 AND AUDIT PB-G-80-14  
DEFICIENCY NO. 2)

Initial notification of the subject deficiency was made to NRC-OIE,  
Region II, Inspector R. W. Wright on October 24, 1980. The first and  
second interim reports were submitted on November 24, 1980 and  
February 20, 1981, respectively. In compliance with paragraph 50.55(e)  
of 10 CFR Part 50, we are enclosing the third interim report on the  
subject deficiency. TVA anticipates transmitting the final report on or  
before September 18, 1981. If you have any questions regarding this  
subject, please call Jim Domer at FTS 857-2014.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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

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ENCLOSURE  
PHIPPS BEND NUCLEAR PLANT  
INADEQUATE WELDS ON EMBEDDED PIPE SLEEVES TO PLATES  
STRUCTURAL WELDING DEFICIENCIES  
10CFR50.55(e) REPORT NUMBER 3 (INTERIM)  
NCR PBN-160 AND AUDIT PB-G-80-14 DEFICIENCY NUMBER 2

On October 24, 1980, TVA informed NRC-OIE Region II, Inspector R. W. Wright, of a potentially reportable condition regarding welds joining embedded pipe sleeves and end plates (at penetration surface) at the Phipps Bend Nuclear Plant. He was also informed on December 2, 1980, of the addition of concerns about documentation of welds made on structural frames. This is the third interim report on the subject reportable condition under 10CFR50.55(e). An interim report is being filed because of additional work to be performed by the Technical Engineer (GE) on items associated with Concern II below. The final report will be filed on or before September 18, 1981.

Description of Deficiency

Investigations have disclosed deficiencies in the AWS structural welding program at Phipps Bend Nuclear Plant. The structural welding deficiencies are grouped into two main concerns as follows: (I) A major portion of pipe sleeves which had a complete penetration weld specified between the end plate and pipe and which were fabricated before October 24, 1980, for the auxiliary, fuel, and reactor buildings were welded using a partial penetration joint detail. Sleeve types are 2, 3, 5, 12, 13, 14, 15, 16, and 17; and, (II) For embedded structural frames, plates, and sleeves fabricated before October 24, 1980, weld inspection documentation was incomplete. This condition is applicable to a major portion of these items.

This breakdown of the structural welding program is attributed to the following causes:

1. Failure to adhere to the weld requirements as specified in the shop fabrication sketches and process documents.
2. Acceptance by QC-Welding inspectors of welds made under cause 1.
3. In some cases, a complete engineering review was not given to the process documents.
4. In some cases, partial penetration welding procedures were specified in error although the correct weld joint geometry was specified on the shop fabrication sketches.
5. Failure of QC-Welding personnel to complete and review welding documentation for those items under concern (II).

### Corrective Action

For concern (I), the subject sleeves have been or are being reworked to effect compliance with design requirements. Alternate joint geometries resulting in complete penetration welds were submitted to and approved by the technical engineer. To date, 75 percent of the required rework has been accomplished. This work is scheduled to be completed by the time of the final report and will be discussed therein.

For concern (II), acceptable documentation is being generated by (a) verification of previous inspections, and (b) physical reinspection. Items which are not accessible for verification or complete reinspection will be handled on a case-by-case basis with the technical engineer.

The actions taken to prevent recurrence address the causes identified under Description of Deficiency above and are as follows:

1. The major cause was identified as an inadequate number of personnel to accomplish the required inspections. Since November 1980, six additional inspectors have been acquired and five more are to be added in the near future.
2. QC-Welding inspectors, regardless of qualifications, are now required to have a minimum of six months experience before they can be certified for visual inspections. This was effective as of May 1981. Additionally, inspections are now specified by the Automated Process Control (APC) Card.
- 3 & 4. All AWS welding is now being accomplished by use of the APC system. This requires a complete engineering review and greatly reduces the possibility of improper weld procedure assignment.
5. Classes were conducted and documented to delineate the responsibilities to Welding QC personnel for the initiation, completion, and review of quality assurance records. To ensure that completed documentation is reviewed, encoded, and forwarded to the Document Control Unit for storage in a timely manner, a limit of five days has been imposed for the accomplishment of the activities listed above on completion of the document. Lead inspectors are performing random reviews to verify that the required documentation is generated and completed.