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 MEDFORD,M.O. Tennessee Valley Authority
 RECIPIENT AFFILIATION
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SUBJECT: Responds to NRC 900830 ltr re violations noted in Insp Repts
 50-259/90-26,50-260/90-26 & 50-296/90-26.Corrective actions:

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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

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OCT 01 1990

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-259
50-260
50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - NRC INSPECTION REPORT
NOS. 50-259/90-26, 50-260/90-26, AND 50-296/90-26 - REPLY TO NOTICE OF
VIOLATION

This letter provides TVA's response to the notice of violation transmitted by
letter from B. A. Wilson to O. D. Kingsley, Jr. dated August 30, 1990. NRC
cited TVA with a violation containing two examples. TVA denies both examples
of the violation.

The enclosure provides background information and TVA's response to NRC
concerns raised in the subject report.

If you have any questions, please telephone Patrick P. Carrier at (205) 729-3570

Very truly yours,

TENNESSEE VALLEY AUTHORITY



Mark O. Medford, Vice President
Nuclear Assurance, Licensing
and Fuels

Enclosure
cc: See page 2

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PDR ADOCK 05000259
G PNU

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U.S. Nuclear Regulatory Commission

OCT 01 1990

cc (Enclosure):

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ENCLOSURE

Reply to Notice of Violation
50-259, 260, 296/90-26

Restatement of the Violation

10 CFR 50, Appendix B, Criterion IX, Control of Special Processes, requires, in part, that measures shall be established to assure that special processes, including welding . . . are controlled and accomplished using qualified procedures in accordance with applicable codes . . . ASME Boiler and Pressure Vessel Code (B&PV) Section IX, the applicable code for welding procedure qualification contains the following requirements:

- A. QW-200.2 states in part that the procedure qualification record (PQR) form shall list the actual variables used within the limits of a narrow range, rather than full range of the variables allowed.
- B. Where impact testing of materials to be welded is required, supplementary essential variable QW-403.6 is applicable, which specifies that for material thicknesses less than 5/8 inch the minimum thickness qualified is the thickness of the test coupon.

Contrary to the above:

- (1) PQR GT-SM11-0-3-C lists the full range of variables allowed for shielding gas flow, welding current and arc voltage rather than the actual variables used during the qualification welding.
- (2) PQR GT-SM11-0-3-C, an impact tested PQR states that the test plate thickness was 1-7/8 inch and the minimum thickness qualified was 3/16 inch. The minimum thickness limit for impact tested application of 5/8 inch as required by QW-403.6 was not listed.

This is a Severity Level IV violation (Supplement I).

Admission or Denial of the Violation

TVA denies the violation.

Example (1) of the Violation

1. Reason for the Denial of this Example

The ranges recorded on PQR GT-SM11-0-3C are the actual values observed during qualification of the test coupons and include the highest and lowest values observed. TVA deliberately used a range of values in welding the test coupon and recorded those values on the welding PQR.

ASME Section IX permits the recording of actual values of the ranges of parameters. 1980 ASME Section IX, paragraph QW-200.2 states: "A manufacturer may include all additional information he may consider helpful, such as the nonessential variables, but is only required to record the essential variables used."

The later codes clarify the recording of variables. QW-200.2(a), Summer addenda 1983 states as follows:

". . . Recorded variables normally fall within a small range of the actual variables that will be used in production welding.

(b) Contents of the PQR. The completed PQR shall document all essential and supplementary essential (when required) variables of QW-250 through QW-280 for each welding process used during the welding of the test coupon. Nonessential or other variables used during the welding of the test coupon may be recorded at the manufacturer's or contractor's option. All variables, if recorded, shall be the actual variables (including ranges) used during the welding of the test coupon. If variables are not monitored during welding, they shall not be recorded. It is not intended that the full range or the extreme of a given range of variables to be used in production be used during qualification unless required due to a specific essential or supplementary essential (when required) variable."

It is clear from the above that ASME Section IX does not require nor prohibit recording actual values of used nonessential variables for a range of observed values. It is also clear that actual values used in welding the test coupon may be recorded for the range expected to be used in production welding. This position is supported by the following ASME Code interpretations: IX-79-73, IX-81-41, IX-80-23, and IX-79-71.

ASME Interpretation IX-81-41 defines narrow range and broad range and describes how a manufacturer specifies and qualifies an essential variable consisting of a range. It states: ". . . It is not generally practicable to have too narrow a range and meet the capabilities of control and measuring equipment, nor too wide a range and still meet the combinations of the several essential variables required for the application. . . . The PQR should list the actual range of the variable as measured during the welding of the qualification test coupon."

2. The Corrective Steps Which Have Been Taken and the Results Achieved
No corrective steps are needed.
3. The Corrective Steps Which Will be Taken to Avoid Further Violations
No corrective steps are needed.
4. The Date When Full Compliance Will be Achieved

TVA believes it is in compliance for the cited example.



Example (2) of the Violation

1. Reason for the Denial of This Example

PQR GT-SM11-0-3C records a "Thickness Range Qualified" of 3/16 inch through 8 inches. Therefore, the PQR can be used as a reference document for non-impact applications down to 3/16-inch thickness as permitted by QW-451. TVA agrees that the PQR cannot be used as a reference document for impact applications for thicknesses less than 5/8 inch and TVA has not been cited for having done so. Indeed, the material which the inspector observed being welded did not require an impact test. Therefore, TVA believes that the welding activity was performed in accordance with applicable codes and standards.

TVA believes the ASME B&PV Code is clear that the minimum thickness for impact tested applications is 5/8 inch. Furthermore, the minimum thickness of material that requires impact testing is clarified in code interpretation III-81-71. TVA is not aware of any requirement to list this limitation on the PQR and respectfully submits that QW-403.6 does not require this limitation to be listed.

2. The Corrective Steps Which Have Been Taken and the Results Achieved

No corrective steps are needed.

3. The Corrective Steps Which Will be Taken to Avoid Further Violations

No corrective steps are needed.

4. The Date When Full Compliance Will be Achieved

TVA believes it is in compliance for the cited example.

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