

RS-02-033

February 14, 2002

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington D.C. 20555-0001Dresden Nuclear Power Station, Units 2 and 3  
Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249Subject: Relief Request for Alternative Rules for Corrective Measures if Leakage  
Occurs at Bolted Connections during System Pressure Tests

- References:
- 1) Letter from U. S. NRC to J. G. Dewease (Entergy Operations), "Relief Authorization for Alternative to the Requirements of ASME Section XI, Subarticle IWA-5250, Bolting Examination for Arkansas Nuclear One, Units 1 and 2, Grand Gulf Station Unit 1, River Bend Station and Waterford Steam Electric Station, Unit 3," dated April 7, 1998
  - 2) Letter from U. S. NRC to O. D. Kingsley (Commonwealth Edison Company), "Quad Cities – Relief Requests for Third 10-year Inservice Inspection Interval," dated February 3, 2000

In accordance with 10 CFR 50.55a, "Code and Standards," paragraph (a)(3)(i), Dresden Nuclear Power Station (DNPS) is requesting approval to perform an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," Paragraph IWA-5250(a)(2). IWA-5250(a)(2) requires that, if leakage occurs at a bolted connection during a system pressure test, the bolting shall be removed, VT-3 (i.e., visually) examined for corrosion, and evaluated in accordance with Subarticle IWA-3100. Relief Request PR-22, attached to this letter, proposes an alternative methodology to the corrective measures of IWA-5250(a)(2) that provides an equivalent level of quality and safety when evaluating leakage and bolting material condition at Class 1, 2, and 3 bolted connections. Similar requests have been approved by the NRC in References 1 and 2.

This proposed alternative is for the third period of the third inservice inspection interval for both DNPS Units 2 and 3. For Unit 2, the third inservice inspection interval began on March 1, 1992, and the projected end date is January 19, 2003. For Unit 3, the third inservice inspection interval began on March 1, 1992, and the projected end date is October 31, 2002.

Approval of the attached relief request is requested by September 9, 2002, prior to the start of the DNPS Unit 3 refueling outage that is currently scheduled to begin in October 2002.

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Should you have any questions concerning this matter, please contact Mr. Allan R. Haeger at (630) 657-2807.

Respectfully,

A handwritten signature in black ink that reads "Patrick R. Jury". The signature is written in a cursive style with a large initial "P" and "J".

Keith R. Jury  
Director - Licensing  
Mid-West Regional Operating Group

Attachment : Relief Request PR-22

cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Dresden Nuclear Power Station

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**COMPONENT IDENTIFICATION**

Code Class:	1, 2, and 3
References:	IWA-5250(a)(2)
Examination Category:	Not Applicable
Item Number:	Not Applicable
Description:	Alternative Rules for Corrective Measures if Leakage Occurs at Bolted Connections

**CODE REQUIREMENT FOR WHICH RELIEF IS REQUESTED**

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," IWA-5250(a)(2) states that if leakage occurs at a bolted connection, the bolting shall be removed, VT-3 (i.e., visually) examined for corrosion, and evaluated in accordance with IWA-3100.

**BASIS FOR RELIEF**

In accordance with 10 CFR 50.55a, "Code and Standards," paragraph (a)(3)(i), relief is requested on the basis that the proposed alternative would provide an acceptable level of quality and safety.

Removal of pressure retaining bolting at mechanical connections for VT-3 visual examination and subsequent evaluation in locations where leakage has been identified is not always the most prudent course of action to determine condition of the bolting and/or the root cause of the leak. The requirement to remove, examine, and evaluate bolting in this situation does not allow consideration of other factors which may indicate the condition of mechanical joint bolting. Other factors which should be considered in an evaluation of bolting condition when leakage has been identified at a mechanical joint include, but are not limited to:

- Bolting material
- Corrosiveness of process fluid
- Service age of joint bolting materials
- Leakage location
- Leakage history at connection
- Visual evidence of corrosion at connection (connection assembled)
- Plant / industry studies of similar bolting materials in a similar environment
- Condition and leakage history of adjacent components

An example at Dresden Nuclear Power Station (DNPS) is the complete replacement of bolting materials (e.g., studs, bolts, nuts, washers, etc.) at mechanical joints during plant outages. In some cases, when the associated system process piping is pressurized during plant start-up,

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leakage is identified at these joints. The cause of this leakage is often due to thermal expansion of the piping and bolting materials at the joint and subsequent process fluid seepage at the joint gasket. In most of these cases, proper re-torquing of the joint bolting stops the leakage. Removal of any of the joint bolting to evaluate for corrosion would be unwarranted in this situation. ASME Code Section XI Interpretation XI-1-92-01 has recognized that this situation exists, and has clarified that the requirements of IWA-5250(a)(2) do not apply.

**PROPOSED ALTERNATE PROVISIONS**

DNPS proposes the following alternative methodology to the requirements of IWA-5250(a)(2), which will provide an equivalent level of quality and safety when evaluating leakage and bolting material condition at Class 1, 2, and 3 bolted connections.

As an alternative to the to the requirements of IWA-5250(a)(2), one of the following requirements shall be met for leakage at bolted connections.

- (a) The leakage shall be stopped, and the bolting and component material shall be reviewed for joint integrity.
- (b) If the leakage is not stopped, the joint shall be evaluated in accordance with IWB-3142.4, "Acceptance by Analytical Evaluation," for joint integrity. The evaluation will determine the susceptibility of the bolting to corrosion, the potential for failure, and identify appropriate corrective actions. Factors to be considered in the evaluation include bolting materials, service age of joint bolting materials, leakage history at connection, leakage location, visual evidence of corrosion at connection, corrosiveness of process fluid, plant/industry studies of similar bolting materials in a similar environment and condition and leakage history of adjacent components.

If any of the above parameters indicates a need for further examination, the bolt closest to the source of leakage shall be removed, receive a VT-3 examination, and be evaluated in accordance with IWA-3100(a). If the leakage is identified when the bolted connection is in service, and the information in the evaluation is supportive, the removal of the bolt for VT-3 examination may be deferred to the next refueling outage. When the removed bolt has evidence of degradation, all remaining bolting shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100(a).

**APPLICABLE TIME PERIOD**

Relief is requested for the third ten-year interval of the Inservice Inspection Program for DNPS Units 2 and 3.