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August 20, 2001

10 CFR 50.4

PSLTR #01-0089

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Dresden Nuclear Power Station, Unit 2  
Facility Operating License No. DPR-19  
NRC Docket No. 50-237

Subject: Request for Use of BWR Vessel and Internals Project (BWRVIP)  
Guidelines in Lieu of Generic Letter 88-01 Requirements

- References:
- (1) Electric Power Research Institute Report TR-113932, "BWRVIP Vessel and Internals Project Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules, (BWRVIP-75)," dated October 1999
  - (2) Letter from J. R. Strosnider (U. S. NRC) to C. Terry, (BWRVIP Chairman), "Safety Evaluation of the 'BWRVIP Vessel and Internals Project Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules, (BWRVIP-75),' EPRI Report TR-113932, October 1999," dated September 15, 2000
  - (3) Letter from J. M. Heffley (ComEd) to the U. S. NRC, "Notification of Inspection Deferral of Weld Overlays," dated August 6, 1999
  - (4) Letter from L. W. Rossbach (U.S. NRC) to O. D. Kingsley (ComEd), "Dresden, Unit 2 – Safety Evaluation of Deferral of Weld Overlays," dated October 20, 2000
  - (5) EPRI Report TR-103515-R2, "BWR Water Chemistry Guidelines – 2000 Revision," dated February 2000

In Reference 1, the Boiling Water Reactor Vessel and Internals Project (BWRVIP), submitted a report (BWRVIP-75) for NRC review and approval. BWRVIP-75 provided a technical basis supporting revisions to the weld inspection schedules required by Generic Letter (GL) 88-01, "NRC Position on IGSCC in BWR Austenitic Piping." The proposed revisions are based on consideration of inspection results and service experience gained by the industry since the issuance of GL 88-01 and included the benefits of improved BWR water chemistry. In Reference 2, the NRC issued a Safety

ADD1

Evaluation (SE) approving BWRVIP-75 with nine open items that recommended revisions to the BWRVIP report.

Exelon Generation Company (EGC), LLC, formerly Commonwealth Edison (ComEd) Company supports the use of BWRVIP-75 as a viable alternative to the weld inspection schedules contained in GL 88-01. However, resolution of the remaining nine open items is not likely prior to Dresden Nuclear Power Station's (DNPS) Unit 2 Fall 2001 outage (D2R17), currently scheduled to begin October 20, 2001. In the interim, EGC proposes to adopt the normal water chemistry (NWC) examination schedule contained in BWRVIP-75, as modified by the NRC SE, for D2R17 with one exception. Open Item 3.4, "Proposed Inspection Frequency for Category E Welds (weld overlay repair)", requires three successive satisfactory inspections (once every two refuel outages) where no indication of crack growth or new cracking is found, before implementing the reduced inspection frequency of BWRVIP-75. DNPS Unit 2 currently has thirty-three (33) Category E welds which do not meet the criteria of Open Item 3.4 with regard to the number of required inspections. EGC proposes to defer inspection of the thirty-three (33) Category E welds (i.e., weld overlay repairs) until all open issues are resolved between the NRC and the BWRVIP.

The industry experience in examination of Category E welds shows that no cracks have been found in the overlay material. Thus, the current BWRVIP-75 position of adopting an inspection frequency of 25 percent every 10 years under NWC or 10 percent every 10 years under hydrogen water chemistry (HWC) conditions after an initial inservice inspection within three outages after the initial post-overlay inspection is appropriate.

Based on both BWRVIP and NRC guidance, in Reference 3, DNPS submitted a similar request for deferral of inspection of the Category E welds for the previous DNPS Unit 2 outage, D2R16. The NRC approved that request in Reference 4. The basis for that deferral is still applicable, as detailed in the attachment to this letter.

DNPS has maintained a reactor water chemistry program in accordance with Electric Power Research Institute (EPRI) water chemistry guidelines, contained in Reference 5, Table 4-5b, "Chemistry Guideline- Reactor Water- HWC or WHC+NMCA- Power Operation (>10% Power)." Specifically, reactor water coolant conductivity has averaged 0.077, 0.092, 0.090, and 0.109 uS/cm for 1998, 1999, 2000, and 2001 year to date, respectively which is below the Level 1 action value of 0.3 uS/cm specified in Reference 5. HWC was instituted on Unit 2 in 1983, noble metal chemistry addition (NMCA) in 1999, and zinc injection in 1996. Since 1998, hydrogen availability has steadily improved from 93 to the current 97%. These initiatives were performed to improve IGSCC mitigation in the recirculation piping. Reactor coolant zinc levels have consistently averaged between 5 and 10 mg/l.

The expected personnel exposure for inspecting these weld overlays is 48 rem, which is 70 percent of the total inservice inspection radiation exposure for D2R17 and equivalent to the total 2001 non-outage exposure for this unit.

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Given that these welds continue to meet the criteria contained in Reference (4), the use of HWC and NMCA on DNPS Unit 2 and the radiological costs in performing these inspections, deferral of the Category E welds still maintains an acceptable level of safety while the BWRVIP and the NRC are resolving the BWRVIP-75 open items.

Should you have any questions regarding this letter, please contact Mr. Dale Ambler at (815) 942-2920, extension 2800.

Respectfully,



Preston Swafford  
Site Vice President  
Dresden Nuclear Power Station

Attachment: Dresden Nuclear Power Station Unit 2 Weld Overlay Deferral

cc: Regional Administrator-NRC Region III  
NRC Senior Resident Inspector, Dresden Nuclear Power Station  
Office of Nuclear Facility Safety-Illinois Department of Nuclear Safety

**ATTACHMENT**  
**Dresden Nuclear Power Station Unit 2**  
**Weld Overlay Deferral**

Reference 1 granted a deferral for Dresden Nuclear Power Station (DNPS) Unit 2 weld overlay inspections for refueling outage D2R16 which met three criteria as noted below while the NRC reviews a report being sponsored by the BWR Vessels and Internals Project (BWRVIP), EPRI Report TR-110172, "Technical Justification for the Extension of the Interval Between Inspections of Weld Overlay Repair," dated February 1999. In Reference 3, the NRC issued a Safety Evaluation (SE) approving BWRVIP-75 with nine open items that recommended revisions to the BWRVIP report. Open Item 3.4 of the SE, "Proposed Inspection Frequency for Category E Welds (weld overlay repair)", requires three successive satisfactory inspections (once every two refuel outages) where no indication of crack growth or new cracking is found, before implementing the reduced inspection frequency of BWRVIP-75. DNPS Unit 2 currently has thirty-three (33) Category E welds which do not meet the criteria of Open Item 3.4. EGC proposes to defer inspection of the thirty-three (33) Category E welds while the BWRVIP and the NRC are resolving the BWRVIP-75 open items.

We have determined that the thirty-three welds meet the three criteria listed in Reference 2:

1. The plant is operated in compliance with EPRI water chemistry guidelines, and
2. Each overlay for which deferral is applied meets Generic Letter (GL) 88-01 or ASME Code Case N-504, "Alternative Rules for Repair of Class 1, 2, 3 Austenitic Stainless Piping," (full structural overlay or design) as opposed to a temporary duty (leakage barrier) overlay, and
3. The overlays for which the deferral is applied must have been inspected at least two (2) times without Inter-Granular Stress Corrosion Cracking (IGSCC) indications in the overlay. The two examinations include a baseline examination after overlay application and one examination that was completed after the overlay has been in service for at least one full fuel cycle.

DNPS has maintained a reactor water chemistry program in accordance with Electric Power Research Institute (EPRI) water chemistry guidelines, since 1984 and currently comply with Reference 4, Table 4-5b, "Chemistry Guideline- Reactor Water- HWC or WHC+NMCA- Power Operation (>10% Power)." Specifically, reactor water coolant conductivity has averaged 0.077, 0.092, 0.090, and 0.109 uS/cm for 1998, 1999, 2000, and 2001 year to date, respectively which is below the Level 1 action value of 0.3 uS/cm specified in Reference 4. HWC was instituted on Unit 2 in 1983, noble metal chemistry addition (NMCA) in 1999, and zinc injection in 1996. Since 1998, hydrogen availability has steadily improved from 93 to the current 97%. These initiatives were performed to improve IGSCC mitigation in the recirculation piping. Reactor coolant zinc levels have consistently averaged between 5 and 10 mg/l.

Noble metal injection was successfully implemented in October 1999 during D2R16. The thickness of the noble metal coating, as measured by the GE sampling skid coupons was 0.8 uG/cm<sup>2</sup>, meeting target loading. Preliminary benchmarking has shown that current ECP levels at the current hydrogen addition rate are well below -230mv, the threshold at which IGSCC has been shown to be a concern. Plans are in place for

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**Weld Overlay Deferral**

monitoring noble metal surface loading to determine the need for future reapplication to maintain proper protection from IGSCC.

The subject thirty-three weld overlays on DNPS Unit 2 meet either the structural (i.e., thirty-two welds) or the design (i.e., one weld) criteria in Generic Letter 88-01/NUREG-0313 Revision 2. All thirty-three weld overlays on DNPS Unit 2 also meet ASME Code Case N-504, except that a VT-3 examination was not performed after completion of all repair activities as specified in (k) of the Code Case. During the design of all weld overlays, the effects of shrinkage on the system were considered and no further evaluation was required. DNPS Unit 2 has no temporary duty (i.e., leakage barrier) overlays.

Given industry experience in examination of Category E welds, with no cracks found in the overlay material, the current BWRVIP-75 position of moving to an inspection frequency of 25 percent every 10 years under normal water chemistry or 10 percent every 10 years under hydrogen water chemistry conditions after an initial inservice inspection within three outages after the initial post-overlay inspection is appropriate. Since these welds continue to meet the criteria contained in Reference (3), deferral of the Category E welds for D2R17 still maintains an acceptable level of safety while the BWRVIP and the NRC are resolving the BWRVIP-75 open items. EGC is requesting deferral of inspection of the Category E welds until all open issues are resolved between the NRC and The BWRVIP.

References

- (1) Letter from L.W. Rossbach (U.S. NRC) to O.D. Kingsley (ComEd), "Dresden, Unit 2 Safety Evaluation of Deferral of Weld Overlays," dated October 20, 2000
- (2) Letter from J. R. Strosnider (U.S. NRC) to C. Terry, (BWRVIP Chairman), "Deferment of Inspections for Weld Overlays as required by Generic Letter 88-01," Dated June 17, 1999
- (3) Letter from J. R. Strosnider (U.S. NRC) to C. Terry, (BWRVIP Chairman), "Safety Evaluation of the 'BWRVIP Vessel and Internals Project Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules, (BWRVIP-75),' EPRI Report TR\_113932, October 1999," dated September 15, 2000
- (4) EPRI Report TR-103515-R2, "BWR Water Chemistry Guidelines – 2000 Revision," dated February 2000