

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Richard A. Muench  
President and Chief Executive Officer

JAN 22 2004

WM 04-0002

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

Subject: Docket No. 50-482: 60-Day Report for NRC Bulletin 2003-02:  
"Leakage from Reactor Pressure Vessel Lower Head Penetrations  
and Reactor Coolant Pressure Boundary Integrity"

Gentlemen:

The attachment contains the Wolf Creek Nuclear Operating Corporation (WCNOC) 60-day report for U.S. Nuclear Regulatory Commission (NRC) Bulletin 2003-02: "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity," dated August 21, 2003. Requested Information Item (2) of the bulletin requests, within 60 days of plant restart following the next inspection of the Reactor Pressure Vessel (RPV) lower head penetrations, a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found. WCNOC completed an inspection of the RPV lower head penetrations during Refuel 13. Wolf Creek Generating Station returned to operation following Refuel 13 on December 2, 2003.

No commitments are identified in this submittal. If you have any questions concerning this matter, please contact me at (620) 364-4000, or Mr. Kevin Moles at (620) 364-4126.

Very truly yours,



Richard A. Muench

RAM/rlg

Attachment

cc: J. N. Donohew (NRC), w/a  
D. N. Graves (NRC), w/a  
B. S. Mallett (NRC), w/a  
Senior Resident Inspector (NRC), w/a

P.O. Box 411 / Burlington, KS 66839 / Phone: (620) 364-8831

An Equal Opportunity Employer M/F/H/C/VET

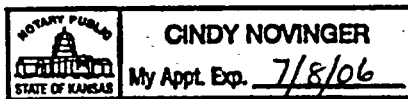
A109

STATE OF KANSAS )  
 ) SS  
COUNTY OF COFFEY )

Richard A. Muench, of lawful age, being first duly sworn upon oath says that he is President and Chief Executive Officer of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By *Richard A. Muench*  
Richard A. Muench  
President and Chief Executive Officer

SUBSCRIBED and sworn to before me this 22<sup>nd</sup> day of Jan., 2004.



*Cindy Novinger*  
Notary Public

Expiration Date July 8, 2006

**60-Day Report for NRC Bulletin 2003-02:  
"Leakage from Reactor Pressure Vessel Lower Head Penetrations and  
Reactor Coolant Pressure Boundary Integrity"**

Below is the Wolf Creek Nuclear Operating Corporation (WCNOC) report for the 60-day request of Requested Information Item (2) of U.S. Nuclear Regulatory Commission (NRC) Bulletin 2003-02: "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity," dated August 21, 2003. The order's "Requested Information" is shown in bold.

**Requested Information**

- (2) **Within 60 days of plant restart following the next inspection of the RPV lower head penetrations, the subject PWR addressees should submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found.**

**Response**

During refueling outage 13, WCNOC performed a visual inspection of the Reactor Pressure Vessel (RPV) lower head. One hundred percent of the RPV lower head surface below the bottom hemispherical weld was examined, including the annulus region between the instrument penetration tubing and the RPV lower head. No material wastage was found and no indication of primary reactor coolant leakage through bottom mounted instrument penetrations was identified.

The inspection was performed using a procedure specifically developed for RPV bottom mounted instrumentation inspections. The procedure includes requirements for personnel certification, examination and acceptance criteria, and recording of inspection results. Examination personnel were certified to a minimum of Level II in the VT-2 method. Examination personnel also received specific training on examination of RPV heads based on industry guidance documentation (Reference 1).

The inspection was performed by certified WCNOC personnel, and the results recorded in accordance with procedure requirements. No evidence of primary coolant leakage was identified. However, two areas of the lower hemisphere were examined in detail by the WCNOC Level III examiner due to the presence of potentially masking residue from cavity seal ring leakage. One area contained a "stain" from previous cavity seal ring leakage. The annulus region between the instrument penetration tubing and the RPV lower head in the "stain" affected area was examined in detail to ensure that all "stain" residue originated from sources external to the penetration. After completion of the examination, cleaning was performed on the lower vessel hemisphere to remove the "stain". The condition of the vessel surface was re-examined after the "stain" removal, and there was no indication of material degradation.

A second area contained three penetrations that had a light "ring" of boric acid residue. The detailed examination verified the boric acid "ring" originated from sources external to the annulus. Past cavity seal ring leakage has resulted in deposition of boric acid residue on the vessel surface. The residue around each of the three penetrations was cleaned to avoid masking relevant indications in the future.

Cavity seal ring leakage is included in WCNOC's boric acid corrosion control program. Enhancements to this program were developed and implemented in accordance with commitments made by WCNOC in response to Bulletin 2002-01 (Reference 2). The boric acid corrosion control program includes administrative controls for evaluating the current and future impact of boric acid leakage, evaluating the acceptability of continued operation with leakage, and developing acceptance criteria for inspection and monitoring activities. A corrective action plan has been initiated to repair the sources of identified cavity seal ring leakage during the next refueling outage.

### References

1. Visual Examination for Leakage of PWR Reactor Head Penetrations: Revision 2 of 1006296, Includes 2002 Inspection Results and MRP Inspection Guidance, EPRI, Palo Alto, CA: 2003. 1007842
2. Letter WM 03-0007 from Richard A. Muench, WCNOC, to USNRC, "Response to Request for Additional Information for NRC Bulletin 2002-01, Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity," dated January 31, 2003.