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January 15, 2004  
BW0400003

10 CFR 50.54 (f)

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
11555 Rockville Pike  
Rockville, Maryland 20852

Braidwood Station, Unit 2  
Facility Operating License No. NPF-77  
NRC Docket No. STN 50-457

Subject: Braidwood Station Unit 2 Sixty-Day Response to NRC Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity"

On August 21, 2003, the NRC issued NRC Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity." This bulletin requires the following information be submitted to the NRC within 60 days after plant restart following the next inspection of the reactor pressure vessel 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."

Pursuant to 10 CFR 50.54, "Conditions of licenses," paragraph (f), Attachment 1 to this letter provides the Braidwood Station, Unit 2 60-day response. This response is due to the NRC by January 18, 2004.

Please direct any questions you may have regarding this submittal to Ms. Kelly Root, Regulatory Assurance Manager, at (815) 417-2800.

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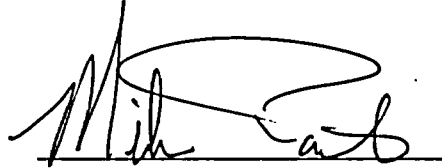
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I declare under penalty of perjury that the foregoing is true and correct.

Respectfully,

Executed on

1/14/04

A handwritten signature in dark ink, appearing to read "Michael J. Pacilio", written over a horizontal line.

Michael J. Pacilio  
Site Vice President  
Braidwood Nuclear Generating Station

Enclosures: Attachment, Braidwood Station Unit 2 Sixty-Day Response to NRC Bulletin 2003-02

cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Braidwood Station

**ATTACHMENT 1**

**Braidwood Station Unit 2**

**Sixty-Day Response to NRC Bulletin 2003-02**

**"Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor  
Coolant Pressure Boundary Integrity"**

**Attachment  
Braidwood Station Unit 2  
Sixty-Day Response to NRC Bulletin 2003-02**

On August 21, 2003, the NRC issued NRC Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity." This bulletin requires the following information be submitted to the NRC within 60 days of plant restart following the next inspection of the reactor pressure vessel (RPV) lower head penetrations:

*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**

**Summary of the Inspections Performed, Extent of the Inspections, and Methods Used**

During Braidwood Station, Unit 2, Refueling 10, (i.e., A2R10), a visual examination was performed on the lower vessel head surface and bottom mounted instrumentation (BMI) penetrations. The examination was conducted in accordance with Exelon corporate procedure ER-AP-335-1012, "Visual Examination of PWR Reactor Vessel Head Penetrations" and supplemented by site-specific instructions.

The examination was performed using a remotely operated zoom lens camera capable of covering the entire under-vessel area by riding on the horizontal insulation deck along and between the 58 penetration nozzles. The examination system was able to resolve the 0.044-inch high characters on an ASME Section XI, Table IWA-2210-1 chart. The actual distances viewed were less than two feet which gave extremely close views of the BMI nozzle to RPV lower head interface region, thereby ensuring any boric acid leakage would be easily identified.

All 58 penetrations were examined 360 degrees around. The examination was performed real time by certified VT examiners. In addition, a certified VT examiner performed an independent review of the videotaped results.

**Description of the As-Found Condition, Findings of Relevant Indications, and Summary of the Disposition of any Findings**

The RPV lower head visual inspection identified no evidence of any boric acid deposits in the BMI nozzle to RPV lower head interface region; however, during an independent review of the examination video tape, the interface region of one penetration (#45) was considered partially masked by boric acid accumulation. Condition Report 185413 was initiated and a follow-up

**Attachment  
Braidwood Station Unit 2  
Sixty-Day Response to NRC Bulletin 2003-02**

examination was performed. A direct visual of BMI #45 indicated that there was only a slight boric acid stain along with adhesive tape remnants.<sup>1</sup> A radiological smear sample was taken of the boric acid from BMI #45. The radionuclide analysis determined that there was no sign of reactor coolant system activity and only naturally occurring nuclides were present. Additional direct visuals were performed on all accessible portions of the vessel surface and BMI penetrations. This portion of the examination was recorded with digital photographs. The follow-up examinations and boric acid sampling were all performed prior to the power washing of the RPV lower head described below in "Corrective Actions Taken".

The lower vessel area showed the effects of the cavity boot seal leakage that occurred in the Spring of 1996 (refuel outage A2R05). There was rust accumulation over much of the vessel surface and around several BMI penetration annuli. The buildup of rust was not significant enough to mask the penetration-to-vessel interface or to cause any significant erosion.

The conclusion of the visual inspection is that, while there is surface rust as a result of the cavity boot seal leakage that occurred in 1996, there is no impact on the structural integrity of the reactor vessel lower head or the 58 BMI penetrations. There was no interference significant enough to mask the penetration-to-vessel interface and all 58 penetrations are acceptable with no evidence of the type of leakage experienced at South Texas Project, Unit 1.

Through corrective actions, discussed below, the penetration was determined to be acceptable.

#### **Corrective Actions Taken**

To facilitate future examinations, the vessel surface and penetration annuli were power washed to establish a baseline condition. The as-left condition was recorded on a digital photograph.

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<sup>1</sup> The adhesive residue is left over from Unit 2 construction when the BMI nozzles were wrapped with protective tape. After the tape was removed the adhesive backing remained on many of the nozzles. This tape residue has been noted on both Braidwood Unit 1 and Unit 2 BMIs.