

August 12, 2004

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001



ULNRC-05042

Ladies and Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
RESPONSE TO INFORMATION REQUESTED
60 DAYS AFTER THE NEXT REFUELING OUTAGE BY
NRC BULLETIN 2003-02 AND FIRST REVISED NRC ORDER EA-03-009**

- Ref: 1. ULNRC-04920, dated November 19, 2003.
2. ULNRC-04957, dated March 5, 2004.

In the referenced letters Callaway committed to providing the results of their inspection of the bottom mounted instrumentation (BMI) nozzles and the reactor pressure vessel head within 60 days after plant startup following the next refueling outage. On June 13, 2004, Callaway Plant completed its 13th refueling outage. Attached is the 60-day response to 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 and First Revised NRC Order EA-03-009, "Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors" for reporting results of visual inspections performed pursuant to the order.

A109
A101

ULNRC-05042
August 12, 2004
Page 2

If you have any questions regarding this submittal, please contact me at (573) 676-8659 or Mr. Dave Shafer, Superintendent – Licensing at (314) 554-3104.

This letter does not contain new commitments.

Sincerely,



Keith D. Young
Manager – Regulatory Affairs

BFH/

Attachments: I – Response to information requested 60 days after next refueling outage by NRC Bulletins 2003-02 and NRC order EA-03-009.

ULNRC-05042
August 12, 2004
Page 3

Mr. Bruce S. Mallett
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Jack N. Donohew (2 copies)
Licensing Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 7E1
Washington, DC 20555-2738

Missouri Public Service Commission
Governor Office Building
200 Madison Street
PO Box 360
Jefferson City, MO 65102-0360

Mr. Jerry B. Uhlmann
Director
Missouri State Emergency Management Agency
P.O. Box 116
Jefferson City, MO 65102

**RESPONSE TO INFORMATION REQUESTED
60 DAYS AFTER NEXT REFUELING OUTAGE BY
NRC BULLETINS 2003-02 AND FIRST REVISED NRC ORDER EA-03-009**

Below is the Callaway Plant response to the 60-day following restart questions as asked in Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity" and First Revised NRC Order EA-03-009, "Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors."

1) **Bulletin 2003-02 requested information:**

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.

Callaway response:

Inspection Scope:

Bare metal visual as well as ultrasonic and eddy current exams were performed on all 58 Bottom Mounted Instrumentation (BMI) nozzles during Callaway Plants 13th Refueling Outage (RF13).

Callaway Plants BMI inspection results

The as-found condition of the lower head of the reactor vessel is as follows: Over most of the vessel, and also the insulation around the reactor vessel cavity, are thin white stains along with streaks of white boron from past leakage around the cavity seal ring previously identified in ULNRC-04920, dated November 19, 2003. Along with this there are three large areas of the vessel covered by rust colored stains. One stain has a thin, sheet-like appearance with debris buildup (boron mixed with rust) along the edges of the stain. The other two stains have the appearance of a collection of individual boron/rust trails (brownish-yellow to brown boron trails). The thickness of the debris within the stains increases as the stains approach the bottom of the vessel. Where the three stains meet there is an area of approximately 7 square inches where the debris is about 1/8 inch thick and has a brown, crusty, flakey appearance. 39 of the 58 tubes are in the path or on the edge of the rust colored stains, although, the debris has largely bypassed the area of the annulus on the penetrations with the exception of penetrations 4 and 6.

During the first visual examination at the beginning of the outage, 360 degrees around each of the 58 nozzles was inspected and all were found to be satisfactory except for penetrations 4 and 6. On penetration 4, debris from past cavity seal leakage was blocking the view of the entire annulus. On penetration 6, debris from past cavity seal leakage was blocking the view of approximately half of the annulus. No actions were taken during the initial inspection to remove this debris. Plans made prior to this entry were to leave any residue in the areas of the annulus untouched in the event that any unexpected results are obtained during the ultrasonic and eddy current examinations. This would allow development of contingency plans prior to disturbing any evidence. Since ultrasonic and eddy current testing of the BMI nozzles was scheduled for later in the outage, it was decided to await these results before planning to proceed with the debris removal.

Ultrasonic and eddy current examinations were performed on all 58 BMI nozzles during RF13 in conjunction with the 10 year inservice inspection of the reactor vessel. No relevant indications were identified. The examination data was of very high quality and no cracking or significant lack of fusion was noted in the 58 BMI nozzles and their associated J-groove welds.

Following core reload, after the ultrasonic and eddy current examinations had confirmed the integrity of the BMI penetrations, debris was brushed away from the immediate area of the annulus on all penetrations including the debris blocking the view of the annulus on penetrations 4 and 6. As a precaution, the debris removed from the annulus area of 4 and 6 was collected in the event evidence of penetration leakage should be found under this debris. Once the debris was removed, these penetrations were again inspected. No signs of leakage from the penetrations were present. Note that the debris removed from penetrations 4 and 6, as well as that removed elsewhere from the vessel, was easily brushed off, and, once removed, had the appearance of a fine brown powder.

2) **First Revised NRC Order EA-03-009, Paragraph E requested information:**

For each inspection required in Paragraph D, the Licensee shall submit a report detailing the inspection results within sixty (60) days after returning the plant to operation if a leak of boron deposit was found during the inspection.

Callaway response:

At the beginning of Callaway Plants 13th Refueling Outage (RF13), after insulation had been removed from the outer radius of the reactor vessel upper head, a Reactor Vessel Level Instrumentation System (RVLIS) tubing connection was disassembled in preparation for the head lift. When the RVLIS connection was disassembled borated water remaining in the tubing spilled onto the outer radius of the head. The boron trail left behind was white and consisted of a circular residue about six inches in diameter on the head, a thin line traveling down the side of the head where it collected on the upper flange against four head nuts and washers, and a thin line traveling down the side of the upper flange. This spill did not travel under any insulation. The head, head nuts and washers, and upper flange were cleaned of boron and inspected. No signs of corrosion or degradation were present. This spill was not an at-power leak and occurred only when the RVLIS connection was disassembled.

No other leakage relevant to Order EA-03-009 was noted at Callaway during RF13.