

May 7, 2013

MEMORANDUM TO: FILE

FROM: Alan B. Wang, Project Manager /RA by Jennie Rankin for/
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: CALLAWAY PLANT, UNIT 1 - SUMMARY OF TELEPHONE
CONFERENCE RE: VERBAL AUTHORIZATION FOR RELIEF
REQUEST I3R-14 (TAC NO. MF1745)

This memorandum summarizes the telephone discussion on May 6, 2013, between the U.S. Nuclear Regulatory Commission (NRC) staff and Union Electric Company (UEC, the licensee). The discussion was in regard to the licensee's request relief I3R-14 for Callaway Plant, Unit 1. Participants in the discussion included Thomas Ellwood, Jerry Doughty, and Kenneth Blair (UEC), and Tim Lupold, Jay Wallace, and Jason Carneal from the NRC's Office of Nuclear Reactor Regulation, Division of Engineering, Component Performance, NDE and Testing Branch (NRR/DE/EPNB), and Michael Markley and Alan Wang from NRR's Division of Operating Reactor Licensing, Plant Licensing Branch IV (NRR/DORL/LPLIV).

By letter dated May 2, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13123A095), as supplemented by letter dated May 6, 2013 (ADAMS Accession No. ML13126A304), the licensee submitted "Proposed Alternative to ASME Section XI Requirements for Leakage Testing of Reactor Pressure Vessel Head Flange Leakoff Lines (Relief Request 13R-14)" for NRC review and approval. The licensee's request for alternative has been submitted pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), hardship without a compensating increase in the level of quality or safety.

The reactor pressure vessel (RPV) head flange leakoff lines direct leakage, if any, from the RPV head O-ring to the reactor coolant drain tank and provide alarms of leakage to alert the control room. The licensee stated that the subject piping is schedule 160 stainless steel (SA-312, Type 304) with a plant design pressure of 2485 psig, and includes four (4) Class 2 valves. The leakoff lines are open to the reactor coolant drain tank and are normally pressurized to 4 pounds per square inch gauge (psig). The licensee stated that there has been no known evidence of stress-corrosion cracking, fatigue, or other degradation of the subject leakoff piping at Callaway Plant, Unit 1.

The licensee identified several methods of externally pressurizing the subject lines to the system pressure required by American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, paragraph IWC-5220, in order to perform the required VT-2 visual examination. These methods include: modification of the RPV flange to install mechanical threads and a threaded plug into each leakoff line; pressurizing the lines prior to

removing the RPV head; and pressurizing the lines after installation of the RPV head at the end of the refueling outage. The NRC staff reviewed each of these options and determined that there is a hardship associated with each. Based on the above, the NRC staff concludes that performing the VT-2 visual examination while the subject lines are at Code-required system pressure would present a hardship.

The licensee proposed to conduct a VT-2 visual examination of the leakoff lines after the refueling cavity has been filled to its normal refueling water level for at least 4 hours. The pressure at the RPV flange due to the refueling water level is approximately 10 psig. The licensee stated that the piping has been purged of air so that leakage, if it exists, would be detectable during the VT-2 visual examination.

The NRC staff notes that the subject piping is pressurized for several days during each refueling outage when the refueling cavity is filled. Any leak in the present or a previous outage would result in boric acid accumulation that would be evident during the present examination. Based on an evaluation of the service conditions, past performance, and the materials of construction, the staff concludes that the proposed VT-2 visual examination of the subject leakoff lines after the refueling cavity is filled for at least 4 hours provides reasonable assurance of structural integrity and leak tightness, and demonstrates that the leakoff lines can perform their intended function. The NRC staff also concludes that requiring compliance with the system leakage test pressure requirements would result in a hardship without a compensating increase in the level of quality and safety.

The NRC staff concludes that the proposed alternative provides reasonable assurance of structural integrity and leak tightness of the reactor pressure vessel head flange leakoff lines and that complying with the specified ASME Code requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii) and authorizes the use of "Proposed Alternative to ASME Section XI Requirements for Leakage Testing of Reactor Pressure Leakoff Lines (Relief Request 13R-14)," at Callaway Plant, Unit 1, for the remainder of the third 10-year inservice inspection interval, which is scheduled to end on December 18, 2014.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in the subject proposed alternative remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Docket No. 50-483

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The licensee proposed to conduct a VT-2 visual examination of the leakoff lines after the refueling cavity has been filled to its normal refueling water level for at least 4 hours. The pressure at the RPV flange due to the refueling water level is approximately 10 psig. The licensee stated that the piping has been purged of air so that leakage, if it exists, would be detectable during the VT-2 visual examination.

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Docket No. 50-483

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