

VERBAL AUTHORIZATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
FOR RELIEF REQUEST I4R-17
ALTERNATE REPAIR OF INSTRUMENT NOZZLE N-16D ON THE REACTOR VESSEL
LIMERICK GENERATING STATION UNIT 2
EXELON GENERATION COMPANY
DOCKET NO. 50-353
May 17, 2017

Technical Evaluation read by David Alley, Chief of the Component Performance, Non-Destructive Examination, and Testing Branch, Office of Nuclear Reactor Regulation

By letter dated May 15, 2017 (Agencywide Documents Access and Management System Accession No. ML17135A423), with a supplement dated May 16, 2017 (ADAMS Accession No. ML17137A068), Exelon Generation Company, LLC (the licensee) requested relief from certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, at the Limerick Generating Station, Unit 2.

Pursuant to 10 CFR 50.55(a)(z)(2), the licensee submitted Relief Request I4R-17 associated with the alternate repair of a 2-inch instrument line nozzle at penetration N-16D on the reactor pressure vessel on the basis that compliance with the specified ASME requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

During refueling outage Li2R14, the licensee discovered a leak at the instrument penetration nozzle N-16D as part of the routine system leakage test. The licensee proposed to repair the subject nozzle using a half-nozzle repair method based on applicable requirements of the ASME Code, Section XI. The licensee proposed to remove a portion of the existing nozzle penetration, install a new reinforcement pad onto the existing weld pad, weld a new nozzle to the new weld pad, weld a reducing insert to the new nozzle, and weld the existing piping to the reducing insert.

The licensee asked relief from various requirements of ASME Code, Section XI, such as flaw removal or reduction in flaw size, flaw characterization, post-weld heat treatment, and ambient temperature temper bead welding technique.

The NRC staff finds that the repaired nozzle is acceptable for fuel cycle 15 based on the licensee's flaw evaluation, design analysis, and corrosion evaluation. The flaw evaluation showed that a postulated flaw in the existing Alloy 82/182 weld will not affect the reactor vessel base metal significantly during fuel cycle 15. The design analysis showed that the nozzle will not eject from the reactor vessel shell during fuel cycle 15. The corrosion evaluation showed that the reactor vessel base metal will not be significantly affected by general corrosion, crevice corrosion and galvanic corrosion during fuel cycle 15. The NRC staff further finds that the licensee satisfied the extent-of-condition inspection and that loose parts will not be a safety concern.

The NRC staff finds the hardship justification is acceptable because performing the repair in accordance with the ASME Code, Section XI would result in significant increase in radiological exposure.

The NRC staff finds that the licensee's proposed repair of Nozzle N-16D provides reasonable assurance of structural integrity and leak tightness for fuel cycle 15.

Authorization read by Rick Ennis, Acting Chief of the Plant Licensing Branch I, Office of Nuclear Reactor Regulation

As Acting Chief of the Plant Licensing Branch I, Office of Nuclear Reactor Regulation, I concur with the Component Performance, Non-Destructive Examination, and Testing Branch's determinations.

The NRC staff concludes that the proposed alternative provides reasonable assurance of structural integrity and leak tightness of the instrument line nozzle at penetration N-16D on the reactor vessel. The NRC determines that complying with the 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(z)(2). Therefore, as of May 17, 2017, the NRC staff authorizes the use of relief request I4R-17 for fuel cycle 15, which is scheduled to end in the spring of 2019, at Limerick Generating Station Unit 2.

All other requirements of ASME Code, Section XI, for which relief was not specifically requested and authorized by the NRC staff remain applicable, including the third party review by the Authorized Nuclear In-service Inspector.

This verbal authorization does not preclude the NRC staff from asking additional clarification questions regarding Relief Request I4R-17, while preparing the subsequent written safety evaluation.