

From: Wall, Scott
Sent: Thursday, October 15, 2020 11:15 AM
To: Michael K. Scarpello
Cc: Helen L Levendosky; Salgado, Nancy; Mitchell, Matthew; Collins, Jay; Zurawski, Paul; Mancuso, Joseph
Subject: D.C. Cook Nuclear Plant Unit No. 1 - Verbal Authorization of Relief Request ISIR-5-04 Regarding Alternative to N-729-6 for RPV Head Visual Examination (EPID No. L-2020-LLR-0133)

Dear Mr. Scarpello:

By telephone conversation on October 14, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff provided a verbal authorization to Indiana Michigan Power Company (I&M, the licensee) for the proposed alternative ISIR-5-04 to the requirements of Title 10 of the *Code of Federal Regulations* Part 50 (10 CFR 50) 55a(g)(6)(ii)(D), which requires American Society of Mechanical Engineer's Boiler and Pressure Vessel (ASME) Code Case N-729-6 for inspection of the reactor vessel closure head (RVCH) at Donald C. Cook Nuclear Plant, Unit No. 1 (Cook Unit 1). The licensee had submitted Relief Request Number ISIR-5-04 for NRC review and approval, proposing an alternative to perform a visual examination of the bare metal RVCH during the next refueling outage (U1C31), in accordance with the latest revision of Code Case N-729 in 10 CFR 50.55a. The NRC staff's evaluation and verbal authorization is repeated at the end of this e-mail.

The following NRC and licensee personnel participated in the conference call:

NRC

Nancy Salgado- Chief, Plant Licensing Branch 3
Matthew Mitchell - Chief, Piping and Head Penetrations Branch
Jay Collins – Senior Materials Engineer
Scott Wall – Senior Project Manager

I&M

Q. Shane Lies – Site Vice President
Kelly Ferneau – Plant Manager
James Petro – Managing Director Engineering
David Aubrey – Manager, Engineering Programs
Jeffrey Fary – Supervisor, Engineering Programs
Glenn Chatterton – ISI Program Owner
WiJay Heinemann – Supervisor, Nuclear Quality Control
Michael Scarpello – Director, Nuclear Regulatory Compliance and Licensing
Helen Levendosky – Manager, Nuclear Regulatory Compliance and Licensing
David Williams – Regulatory Affairs - Licensing

Please contact me if you have any questions.

Scott P. Wall, LSS BB, BSP
Senior Project Manager
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

VERBAL AUTHORIZATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
FOR RELIEF REQUEST NUMBER ISIR-5-04
ALTERNATE TO SUPPLEMENTARY EXAMINATION REQUIREMENTS
OF REACTOR VESSEL CLOSURE HEAD PENETRATION NOZZLES
INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT, UNIT NO. 1
DOCKET NO. 50-315

Technical Evaluation read by Matthew Mitchell, Chief of the Piping and Head Penetrations Branch, Office of Nuclear Reactor Regulation

By letter dated October 5, 2020, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20279A713), as supplemented by letter dated October 9, 2020 (ADAMS Accession No. ML20287A435), Indiana Michigan Power Company (the licensee, I&M) requested relief from certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Case N-729-6 as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(6)(ii)(D), related to supplemental examinations of reactor vessel closure head (RVCH) penetration numbers 1, 7, 8, 10, 22, 23, 39, 46, 59, 62, 64, 70, 74, 75, 76, 77 and 79 at the Donald C. Cook Nuclear Plant, Unit 1 (Cook Unit 1). The licensee submitted Relief Request Number ISIR-5-04, for the proposed alternative, during the current fall 2020 refueling outage, to support completing examination requirements during the Cook Unit 1's next scheduled refueling outage (U1C31).

The licensee requested authorization for this alternative in accordance with the requirements of 10 CFR 50.55a(z)(2), on the basis that performing the supplemental examinations represents a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

In performance of the current refueling outage (U1C30) bare metal visual examination of the reactor vessel closure head, which has been in service since 2006, the licensee found evidence on the head surface of leakage from above the head and limited surface corrosion products. After light cleaning and evaluation, the licensee found these items to be relevant conditions of possible nozzle leakage in accordance with Paragraph -3142.1 of ASME Code Case N-729-6. Therefore, the licensee was required to perform either a repair/replacement activity or supplemental volumetric examinations in accordance with Paragraph -3200(b) of ASME Code Case N-729-6. Instead of these supplemental volumetric examinations, the licensee stated that it would clean the remaining area of the reactor vessel closure head surface, including each annulus between the head and nozzle surface, and verify the structural integrity of the reactor vessel closure head. During the upcoming cycle of operation, the licensee stated that it would monitor for leakage in a manner which will continue to ensure the structural integrity of the reactor vessel closure head. Finally, during the next scheduled refueling outage, U1C31, the licensee would perform an additional visual examination of the bare metal of the reactor vessel closure head to ensure no leakage is occurring from the reactor vessel closure head nozzles.

The licensee supported their proposed alternative by describing the possible sources of leakage, the location of the deposits, the crack resistance of the nozzle and weld materials of the reactor vessel closure head at Cook Unit 1 and the radiological dose hardship and potential

Coronavirus Disease 2019 (COVID-19) impacts of performing additional supplemental examinations at Cook Unit 1 during the current refueling outage.

The U. S. Nuclear Regulatory Commission (NRC) staff reviewed the licensee's identified hardship and found the licensee's estimation of radiological dose and personnel necessary to perform the supplemental volumetric examinations during this outage was consistent with estimates at other facilities. As such, the NRC staff finds that the radiological dose and COVID-19 concerns, in a period of a national pandemic, are a hardship on the licensee consistent with 10 CFR 50.55a(z)(2).

The NRC staff reviewed the licensee's proposed alternative by evaluating whether the actions identified by the licensee to provide reasonable assurance of structural integrity of the reactor vessel closure head for the next operating cycle provide for an adequate level of quality and safety without requiring the licensee to perform supplemental volumetric examinations during the current refueling outage. The NRC notes the nozzle and weld material (alloy 690/52/152) of the reactor vessel closure head at Cook Unit 1 has demonstrated no cracking in service in pressurized water reactor environments, which supports the conclusion that it is unlikely that cracking is currently present in the Cook Unit 1 reactor vessel closure head penetrations. Further, even if minor leakage of a reactor vessel closure head penetration was currently occurring, the known resistance of alloy 690/52/152 to crack growth provides additional assurance that any cracking currently present would be unlikely to increase to the point of challenging the structural integrity of the reactor vessel closure head over one additional operating cycle. Finally, the licensee's identified leakage monitoring actions enable detection of the onset or increase in leakage through a reactor vessel closure head penetration prior to it presenting a challenge to structural integrity of the reactor vessel closure head. Hence, the NRC finds that the licensee's proposed alternative provides reasonable assurance of the structural integrity of the reactor vessel closure head for the next operating cycle at Cook Unit 1 without requiring the licensee to perform supplemental volumetric examinations during the current refueling outage.

Therefore, the NRC staff finds, given the actions of the licensee's proposed alternative, under Relief Request Number ISIR-5-04, there would be limited value in quality and safety in requiring additional supplemental volumetric examinations to verify no indications of cracking in these materials during the current refueling outage. Given the hardship, the NRC staff finds that (1) there is reasonable assurance that the licensee's proposed alternative has a minimal impact on quality and safety; and (2) the licensee's hardship justification is acceptable.

NRC Staff Conclusion read by Nancy Salgado, Branch Chief, Plant Licensing Branch III, Office of Nuclear Reactor Regulation

As Chief of Plant Licensing Branch III, I concur with the Piping and Head Penetration Branch's determinations.

The NRC staff concludes that the licensee's proposed alternative, under Relief Request Number ISIR-5-04, for Cook Unit 1 will provide reasonable assurance of adequate quality and safety for the reactor vessel closure head and the specified penetration locations until the next scheduled refueling outage, U1C31. The NRC staff finds that complying with the requirements of Paragraph -3200(b) of ASME Code Case N-729-6, as conditioned by 10 CFR 50.55a(g)(6)(ii)(D), 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 October 14, 2020, the NRC authorizes the use of Relief Request Number ISIR-5-04 until the next scheduled refueling outage, U1C31.

All other requirements of ASME Code and 10 CFR 50.55a(g)(6)(ii)(D) for which relief was not specifically requested and authorized by the NRC staff remain applicable, including the third-party review by the Authorized Nuclear Inservice Inspector.

This verbal authorization does not preclude the NRC staff from asking additional questions and clarifications regarding Relief Request Number ISIR-5-04 while preparing the subsequent written safety evaluation.

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