



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 2, 2022

**CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – AUTHORIZATION AND
SAFETY EVALUATION FOR PROPOSED ALTERNATIVE NO. ISI-05-019
(EPID L-2021-LLR-0080)**

LICENSEE INFORMATION

Recipient's Name and Address: Mr. David P. Rhoades
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President and Chief Nuclear Officer
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 60555

Licensee: Constellation Energy Generation, LLC

Plant Name(s) and Unit(s): Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Docket No(s): 50-317, 50-318

APPLICATION INFORMATION

Submittal Date: September 20, 2021

Submittal Agencywide Documents Access and Management System (ADAMS) Accession No.: ML21263A186

Supplement Date(s): N/A

Supplement ADAMS Accession No(s): N/A

Applicable Inservice Inspection (ISI) Program Interval and Interval End Dates: Calvert Cliffs Nuclear Power Plant, Units 1 and 2, are currently in their 5th 10-year ISI interval which is scheduled to end June 30, 2029.

Alternative Provision: The applicant requested an alternative under Title 10 of the *Code of Federal Regulations* (10 CFR), paragraph 50.55a(z)(1).

ISI Requirement: American Society of Mechanical Engineers (ASME) Section XI, Table IWC-2500-1, Examination Category C-H, Item Number C7.10 requires all Inservice Inspection (ISI) Class 2 pressure-retaining components be subject to a system pressure test with a VT-2 visual examination to detect evidence of leakage from pressure retaining components each inspection period in accordance with Paragraph IWC-5220.

Applicable Code Edition and Addenda: ASME Boiler and Pressure Vessel (BPV) Code, Section XI, 2013 Edition.

Brief Description of the Proposed Alternative: Constellation Energy Generation, LLC (the licensee) proposed to use Inservice Testing (IST) Operability Testing and periodic VT-2 visual examinations to detect evidence of leakage from certain portions of Class 2 Auxiliary Feedwater (AFW) Piping inside of the containment building.

For additional details on the licensee's request, please refer to the documents located at the ADAMS Accession No(s) identified above.

STAFF EVALUATION

The U.S. Nuclear Regulatory Commission (NRC) staff has evaluated the proposed alternative ISI-05-019 pursuant to 10 CFR 50.55a(z)(1). Specifically, the NRC has reviewed the likelihood that the proposed alternative would identify leakage in the AFW piping in a manner likely equivalent to the ASME Code-required pressure testing and VT-2 visual examinations and to determine if it will provide an acceptable level of quality and safety.

The AFW lines which are the subject of this alternative are the AFW lines inside containment between the containment penetrations and the steam generators. These lines supply water to the steam generators to perform their required safety function. These lines are ASME Code, Section XI, Class 2 lines. ASME Code, Section XI, Table IWC-2500-1, Examination Category C-H, Item Number C7.10 requires these lines be subject to a system pressure test with a VT-2 visual examination in accordance with Paragraph IWC-5220 once per inspection period (i.e., approximately once every 3 1/3 years). IWC-5220 requires the system pressure test to be conducted at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function or at the system pressure developed during a test conducted to verify system operability.

The licensee's alternative proposed to use surveillance testing done to verify the operability of the AFW pumps in lieu of the pressure testing and VT-2 visual examination required by Table IWC-2500-1. This testing is done prior to each refueling outage (i.e., once every two years). Therefore, this would be performed more frequently than the ASME Code-required pressure test. The surveillance test is performed to verify operability of the AFW system and is performed at the pressure required for the ASME Code pressure test. Rather than relying on the VT-2 visual examination to identify leakage, the alternative would rely on the containment sump safety instrumentation to identify significant leakage impacting the ability to satisfy the safety function in the subject piping. The instrumentation would alert the control room of variations in flow parameters from reference values. If minimum flow values are not achieved, an Issue Report would be created in accordance with the licensee's corrective action program to initiate corrective actions to determine the cause. The NRC staff finds that use of the containment sump instrumentation and the monitoring of flow parameters done during the surveillance testing of the AFW pumps provides sufficient assurance of detecting leakage.

Additionally, the licensee will perform a VT-2 visual examination of the subject piping during every refueling outage in which the secondary side of the steam generators is filled (this occurs during every outage that eddy current examinations are not performed on steam generator tubing). Because the subject piping is uninsulated, this should provide an opportunity to identify any degradation on the outside surface of the piping. These examinations will occur more

frequently than the ASME Code-required pressure test and VT-2 visual examination (i.e., more than once every inspection period).

Based on the above, the NRC staff finds that the licensee's proposed alternative described in Proposed Alternative ISI-05-019 provides an acceptable level of quality and safety.

CONCLUSION

The NRC staff has determined that the proposed alternative in the licensee's request referenced above would provide an acceptable level of quality and safety.

The NRC staff concludes that the licensee has adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

The NRC staff authorizes the use of proposed alternative ISI-05-019 at Calvert Cliffs Nuclear Power Plant, Units 1 and 2, for the remainder of the fifth 10-year Inservice Inspection interval.

All other ASME BPV Code, Section XI requirements for which an alternative was not specifically requested and authorized remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor(s): Keith M. Hoffman, NRR/DNRL/NPHP

Date: May 2, 2022

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CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – AUTHORIZATION AND SAFETY EVALUATION FOR PROPOSED ALTERNATIVE NO. ISI-05-019 (EPID L-2021-LLR-0080) DATED MAY 2, 2022

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