



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

April 21, 2020

Mr. Victor Montalbano, Vice President
Quality and Performance
Framatome Inc.
3315 Old Forest Road
Lynchburg, VA 24501

**SUBJECT: NUCLEAR REGULATORY COMMISSION FOLLOW-UP VENDOR INSPECTION
REPORT OF FRAMATOME INC., NO. 99901300/2020-201**

Dear Mr. Montalbano:

On March 10, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at Framatome Inc. (hereafter referred to as Framatome) facility in Lynchburg, VA. The purpose of this inspection was to follow-up on the unresolved item identified during the NRC inspection of Framatome in 2019. The NRC inspection team evaluated the corrective actions initiated during the 2019 NRC inspection related to Framatome's changes to the nondestructive examination procedure 54-ISI-604-013, "Automated Ultrasonic Examination of Open Tube RPV [Reactor pressure Vessel] Closure Head Penetrations," were adequately implemented and met the applicable requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants" and other codes and standards, as applicable.

This technically-focused inspection specifically evaluated Framatome's implementation of the quality activities associated with the evaluations, investigations, and corrective actions associated to the ultrasonic testing inspection performed at Palisades, for the upper head control rod drive penetrations. The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of Framatome's overall quality assurance (QA) program.

Based on the results of this inspection, the NRC inspection team found the implementation of your QA program with regards to the corrective actions associated with procedure used to conduct the ultrasonic testing inspection performed at Palisades met the applicable requirements. No findings of significance were identified.

In accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Rules of Practice," a copy of this letter, and its enclosure(s), will be made available electronically for public inspection in the NRC Public Document Room and from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

Kerri A. Kavanagh, Chief **/RA/**
Quality Assurance and Vendor Inspection Branch
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

Docket No.: 99901300

EPID No.: I-2020-201-0027

Enclosure:

1. Inspection Report No. 99901300/2020-201
and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION FOLLOW-UP VENDOR INSPECTION
REPORT OF FRAMATOME INC., NO. 99901300/2020-201, Dated: April 21,
2020

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DATE	04/9/2020	04/9/2020	04/21/2020

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**U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF REACTOR OVERSIGHT
QUALITY ASSURANCE AND VENDOR INSPECTION REPORT**

Docket No.: 99901300

Report No.: 99901300/2020-201

Vendor: Framatome Inc.
3315 Old Forest Road
Lynchburg, VA 24501

Vendor Contact: Mr. Victor Montalbano, Vice President
Quality and Performance
Email: victor.montalbano@framatome.com
Phone: 434- 832-3368

Nuclear Industry Activity: Framatome's scope of supply includes fuel design and fabrication, engineering services, and replacement of safety-related components for U.S. operating nuclear power plants.

Inspection Date: March 10, 2020

Inspection Team Leader Jonathan Ortega-Luciano NRR/DRO/IQVB

Technical Specialist: Stephen Cumblidge NRR/DNRL/NPHP

Approved by: Kerri A. Kavanagh, Chief
Quality Assurance and Vendor Inspection Branch
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

Enclosure

EXECUTIVE SUMMARY

FRAMATOME INC.
99901300/2020-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a vendor inspection at the Framatome Inc. (hereafter referred to as Framatome) facility in Lynchburg, VA, to verify that it had implemented an adequate quality assurance (QA) program that complies with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" and 10 CFR 50.55a, "Codes and standards," in addressing concerns associated with the nondestructive examination activities associated with the requirements of Section XI, Code Case N-729-4, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds Section XI, Division 1," of the American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel (B&PV) Code. The last inspection to this facility occurred in June 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19261A188).

This technically-focused inspection specifically evaluated Framatome's implementation of the quality activities associated with the evaluations, investigations, and corrective actions associated in the ultrasonic testing inspection performed at Palisades, for the upper head control rod drive penetrations.

These regulations served as the bases for the NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR 50.55a

During the course of this inspection, the NRC inspection team implemented inspection procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017.

The results of the inspection are summarized below.

Control of Special Processes

During the 2019 inspection, the NRC inspection team identified unresolved item (URI) 99901300/2019-201-01. This URI was issued because the NRC inspection team identified an issue with the changes made to Nondestructive Examination (NDE) Procedure 54-ISI-604-013, "Automated Ultrasonic Examination of Open Tube RPV [Reactor Pressure Vessel] Closure Head Penetrations," and at the end of the inspection sufficient information was not available to make a determination if there was a performance deficiency associated with those changes that Framatome made to the procedure, which was used to perform the ultrasonic testing inspection at Palisades, for the upper head control rod drive penetrations in 2018.

The NRC inspection team evaluated the actions taken by Framatome associated with their investigation regarding the changes made to NDE Procedure 54-ISI-604-013 and concluded that changes to the procedure were not a significant factor in the flaws at Palisades not being found in 2018. Based on the corrective actions and the performance demonstration qualification statement for the revised procedure, this URI can be closed.

REPORT DETAILS

1. Control of Special Processes

a. Inspection Scope

The Nuclear Regulatory Commission (NRC) inspection team reviewed Framatome's policies and implementing procedures that govern the control of special processes to verify compliance with the regulatory requirements of Criterion IX, "Control of Special Processes," in Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," 10 CFR 50.55a, "Codes and standards," Code Case N-729-4, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads with Nozzles Having Pressure-Retaining Partial-Penetration Welds Section XI, Division 1," and Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel (B&PV) Code.

The NRC inspection team reviewed Framatome's actions associated with their investigation regarding the changes made to Nondestructive Examination (NDE) Procedure 54-ISI-604-013, "Automated Ultrasonic Examination of Open Tube RPV [Reactor Pressure Vessel] Closure Head Penetrations," that were initiated during the course of the 2019 NRC inspection.

The NRC inspection team also discussed the special process program with Framatome's management. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

Inspection Report No. 99901300/2019-201 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19261A188), documents unresolved item (URI) 99901300/2019-201-01. This URI was issued because at the time of the inspection the NRC inspection team determined that the procedure did have changes that required a requalification and the 2018 inspection at Palisades was not in compliance with 10 CFR 50.55a(g)(6)(ii)(D). But there was not enough information to make a determination if the changes to NDE Procedure 54-ISI-604-013 were a contributing factor for the missed flaws during ultrasonic testing inspection at Palisades, for the upper head control rod drive penetrations.

Ultrasonic examinations of RPV closure head penetrations are required by 10 CFR 50.55(a) to meet the qualification requirements set forth in ASME B&PV Code Section XI. Section XI requires performance demonstration for procedures, personnel and equipment meeting the requirements of Appendix VIII and associated Code Cases. Upon successful performance demonstration, a Performance Demonstration Qualification Statement (PDQS) is issued for the qualified procedure. Section XI requires requalification and issuance of a revised PDQS if essential variables are changed as a result of procedure revisions. Revision 13 of NDE Procedure 54-ISI-604-013 did not have a PDQS, which was used for the 2018 Palisades inspection, and it

was not clear at the end of the 2019 NRC inspection if the changes contained in Revision 13 possibly changed essential variables requiring requalification of the procedure by the Electric Power Research Institute (EPRI). At the end of the 2019 NRC inspection, the NRC inspection team had a concern that some examinations performed by Framatome may not have met the qualification requirements of Section XI and thus, may not have been in compliance with the requirements of 10 CFR 50.55a(g)(6)(ii)(D).

Framatome contracted the services of EPRI to determine if the changes made to NDE Procedure 54-ISI-604-013 constituted a change to essential variable and if the procedure required a PDQS. EPRI and Performance Demonstration Initiative (PDI) program staff audited the procedure against the essential variable definitions in ASME Code Appendix VIII and determined that there were changes to essential variables related to data analysis and calibration that required the procedure to be qualified via performance demonstration. It has also been determined that the procedure being out of compliance was not a significant factor in the flaws at Palisades not being found in 2018, as qualified procedures had also missed the flaws in previous inspections. While the changes to the data analysis and calibration required requalification of the procedures, they were relatively minor and would not be expected to significantly impact an examination. After review of the corrective actions described in Condition Report 2018-9955, Examination Procedure 54-ISI-604-016 and Performance Demonstration Qualification Statement 940 "Procedure 54-ISI-604; Revision 16; Addenda 0" the NRC inspection verified that the minor deficiencies in the inspection procedure have been addressed and a PDQS for Examination Procedure 54-ISI-604-016 has been issued.

Based on the corrective actions taken by Framatome associated with their investigation regarding the changes made to NDE procedure 54-ISI-604-013, the NRC inspection team concluded that changes to the procedure were not a significant factor in the flaws at Palisades not being found in 2018. URI 99901300/2019-201-01 is considered closed.

c. Conclusion

The NRC inspection team concluded that Framatome conducted the ultrasonic inspections of Palisades' reactor pressure vessel closure head penetrations in accordance with the regulatory requirements of Criterion IX, in Appendix B to 10 CFR Part 50.

2. Entrance and Exit Meetings

On March 10, 2020, the NRC inspection team discussed the scope of the inspection with Victor Montalbano, Vice President, Quality & Performance and other members of Framatome's management. On March 10, 2020, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. Montalbano and other members of Framatome's management. The attachment to this report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

ATTACHMENT

1. Entrance/Exit Meeting Attendees and Persons Interviewed

Name	Title	Affiliation	Entrance	Exit	Interviewed
Jonathan Ortega-Luciano	Inspection Team Leader	NRC	X	X	
Stephen Cumblidge	Technical Specialist	NRC	X	X	
Jonathan Scruggs	NDE Services Manager	Framatome	X	X	X
Philip Opsal	Regulatory Program Director	Framatome	X		
Victor Montalbano	VP Quality & Performance	Framatome	X	X	X

2. INSPECTION PROCEDURES USED

- IP 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description
99901300/2019-201-01	Closed	URI	Criterion IX

4. DOCUMENTS REVIEWED

- Nondestructive Examination 20191023-001 letter from EPRI to Jonathan Scruggs, "Summary of EPRI Performance Demonstration Review of Framatome Upper head penetration Procedure 54-ISI-603 & 54-ISI-604," dated October 23, 2019
- Framatome 19-02114 letter from Framatome to the industry, "Palisades Missed UT Indications in CRDM Nozzles #25, #33, and #36 Root Cause Analysis (RCA) and EPRI Procedure Evaluation preceding Nuclear Regulatory Commission (NRC) Audit," dated December 2, 2019
- 54-ISI-603-011, "NONDESTRUCTIVE EXAMINATION PROCEDURE Automated Ultrasonic Examination of RPV Closure Head Penetrations Containing Thermal Sleeves," Revision 11, dated February 24, 2020
- 54-ISI-604-016, "NONDESTRUCTIVE EXAMINATION PROCEDURE Automated Ultrasonic Examination of Open Tube RPV Closure Head Penetrations," Revision 16, dated February 24, 2020
- Performance Demonstration Qualification Statement 939, Performance Demonstration Program, Procedure 54-ISI-603; Revision 11; Addenda 0, dated February 26, 2020

- Performance Demonstration Qualification Statement 940, Performance Demonstration Program, Procedure 54-ISI-604; Revision 16; Addenda 0, dated February 26, 2020
- 51-9209808-004, "CRDM UT Data Analysis Pre-Job Brief & "Just in Time" Training," Revision 4, Dated March 2, 2020

Corrective Action Reports/Condition Reports (CRs)

CR 2018-9955

CR 2019-2803