



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

June 16, 2023

MEMORANDUM TO: Gerond A. George, Chief
Licensing Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Ngola A. Otto, Project Manager /RA/
Licensing Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MAY 3, 2023, PARTIALLY CLOSED MEETING WITH
FRAMATOME INC. AND THE U.S. NUCLEAR REGULATORY
COMMISSION ON SAFETY RELATED DIGITAL ELECTRICAL
PROTECTION RELAYS (EPID L-2023-LRO-0031)

On May 3, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff held a partially closed meeting with representatives from Framatome Inc. (Framatome). The attendees participated via Microsoft Teams and in-person. The purpose of the meeting was for the NRC staff and Framatome representatives to discuss the qualification/dedication of safety related digital electrical protection relays. The meeting notice can be found in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML23110A288.

During the open session of the meeting, Framatome representatives addressed NRC staff's questions. Specifically, the NRC staff asked about whether the implementation of the digital relays would have any impacts on the technical specifications (TSs). Framatome representative stated they were not interested in replacing relays addressed in TSs. The Framatome representative also explained that the Schweitzer Engineering Laboratories (SEL) type relays that are being discussed are currently in use at several nuclear plants as protective devices in non-safety related functions. More specifically, for protection of safety-related motors, transformers, and electrical buses. Framatome representative addressed NRC staff's question regarding software and firmware interference in behavior for causal vector and new modes of misbehavior for the Title 10 Code of Federal Regulations (CFR) 50.59, "Changes, tests and experiments," process.

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NOTICE: Enclosure 2 to this transmittal letter has proprietary information, once this letter is separated from Enclosure 2 it is decontrolled.

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The Framatome representatives also clarified that it is the first time that Framatome is pursuing installation of safety-related digital electrical protection relays in non-TS-related applications in nuclear plants and would also be taking on the commercial grade dedication as the 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," vendor.

Further, the Framatome representatives confirmed that, the relays have not been installed in nuclear safety related applications at U.S. plants.

The NRC staff have the following take aways from the open session:

- Framatome wants to "help assure regulatory certainty for the digital protective relay product line."
- Framatome wants to overcome perceptions of difficult-to-qualify digital-based equipment.
- Framatome would need to examine how to qualify "software"— since the current software standards are applicable to Appendix B software, if they were to try to apply these relays in any future safety-related applications.
- Electric Power Research Institute (EPRI) 106439, "Guideline on Evaluation and Acceptance of Commercial-Grade Digital Equipment for Nuclear Safety Applications," provides some guidance but want to integrate safety qualification better than just EPRI guidance.
- Framatome is excluding TS-related relays for now, until a set of operating history can be gained in other applications, and they can identify what software qualification process should be applied.
- These discussions are with regard to outside the Regulatory Guide (RG) 1.250 CGD/3rd party certification process but are meant to describe a process for qualifying these relays using 10 CFR 50.59 evaluation processes using Regulatory Issue Summary (RIS) 2002-22 Supplement 1, "Use of EPRI/NEI Joint Task Force Report, 'Guideline on Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI 01-01: A Revision of EPRI TR-102348 To Reflect Changes to the 10 CFR 50.59 Rule," and Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Implementation," Appendix D, in conjunction with EPRI 106439.
- Framatome intends for the first set of relays to be implemented to be for protecting safety-related loads and buses that are not TS related. They include undervoltage, underfrequency, overcurrent, over-frequency, reverse power, and others. A single relay can perform multiple protective functions.

There were no questions and/or comments from members of the public. However, Alan Campbell from NEI, provided a few remarks on NEI's support for the ongoing activity associated with installing digital safety-related relays to replace existing relays for protection functions.

During the closed session, the NRC staff and Framatome representatives discussed several

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topics and the Framatome representatives addressed the NRC staff's questions. The specific discussions and the NRC staff takeaways are documented in proprietary Enclosure 2. At the conclusion of the meeting, the NRC staff and Framatome representatives discussed next steps. Framatome plans to submit a white paper on the digital electrical relays for NRC staff's review. Framatome will inform the NRC about whether it would like to have another pre-submittal meeting before submitting the white paper. In the discussion with Framatome regarding types of submittals, the NRC staff explained that a topical report would provide the NRC staff's approval, but the white paper feedback primarily provides staff's observations.

A list of the attendees and proprietary closed session discussion items are enclosed. This meeting summary and other information associated with this meeting can be found at ADAMS Package Accession No. ML23139A271.

Docket No. 99902041

Enclosures:

1. List of Attendees
2. Closed session discussion items (Proprietary)

List of Attendees

Partially Closed Meeting between Framatome Inc.
and the U.S. Nuclear Regulatory Commission
to Discuss Qualification/Dedication of Safety Related Digital
Electrical Protection Relays
May 3, 2023
3:00 pm – 5:00 pm

<u>NAME</u>	<u>ORGANIZATION</u>
Gayle Elliott	Framatome Inc. (Framatome)
Aaron Green	Framatome
Bill Van Wormer	Framatome
Prosper Tjelmeland	Framatome
Drew Weiser	Framatome
Pavan Thallapragada	Framatome
Steve Anthony	Framatome
Neil Archambo	Archambo Engineering and Consulting PLLC (Consultant to Framatome)
Alan Campbell	Nuclear Energy Institute
Gerond George	U. S. Nuclear Regulatory Commission (NRC)
Michael Waters	NRC
Vijay Goel	NRC
David Rahn	NRC
Norbert Carte	NRC
Wendell Morton	NRC
Kerri Kavanagh	NRC
Edmund Kleeh	NRC
Jason Paige	NRC
Tanvir Siddiky	NRC
Deanna Zhang	NRC

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SUBJECT: SUMMARY OF MAY 3, 2023, PARTIALLY CLOSED MEETING WITH
FRAMATOME INC. AND THE U.S. NUCLEAR REGULATORY COMMISSION
ON SAFETY RELATED DIGITAL ELECTRICAL PROTECTION RELAYS
(EPID L-2023-LRO 0031) DATED JUNE 16, 2023

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EXTERNAL DISTRIBUTION:

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ADAMS Accession Nos.:

ML23139A271 (Package)

ML23142A291 (Summary)

ML23143A131 (Affidavit)

ML23139A269 (Presentation – Proprietary)

ML23139A268 (Presentation – Non-Proprietary)

ML23142A288 (Enclosure 2 – Proprietary)

***via email**

OFFICE	DORL/LLPB/PM*	DORL/LLPB/LA*	DORL/LLPB/BC*	DEX/EICB/BC*	DORL/LLPB/PM*
NAME	NOtto	DHarrison	GGeorge	MWaters	NOtto
DATE	5/31/2023	6/5/2023	6/7/2023	6/9/2023	6/16/2023

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