Public Meeting to Discuss Licensing Requests to Implement Batch Framatome 17x17 GAIA Fuel at Millstone Power Station Unit 3

October 18, 2022

Dominion Energy

Agenda

- Introductions and Overview of Agenda
- Impetus for Fuel Transition to GAIA
- Submittal Strategy
- Proposed Schedule
- Scope and Content for DDL Request for Approval
- Scope and Content for T-M Design LAR
- Scope and Content for LOCA LAR
- Scope and Content for Reload LAR

GAIA Project Team - Dominion

• Chris Clemens	Supervisor, Fuel Procurement Engineering
• Dan Smith	Fuel Procurement Project Manager
• Scott Luchau	Supervisor, Nuclear Safety Analysis
• Brian Mount	Nuclear Safety Analysis
• Ruxandra Bobolea	Nuclear Safety Analysis
• Brian Vitiello	Supervisor, Nuclear Core Design
• Brian Kinney	Nuclear Core Design
• Mike LaPrade	Supervisor, Fuel Performance Assessment
• Dave van Schooneveld	Fuel Performance Assessment
• Shayan Sinha	Regulatory Affairs

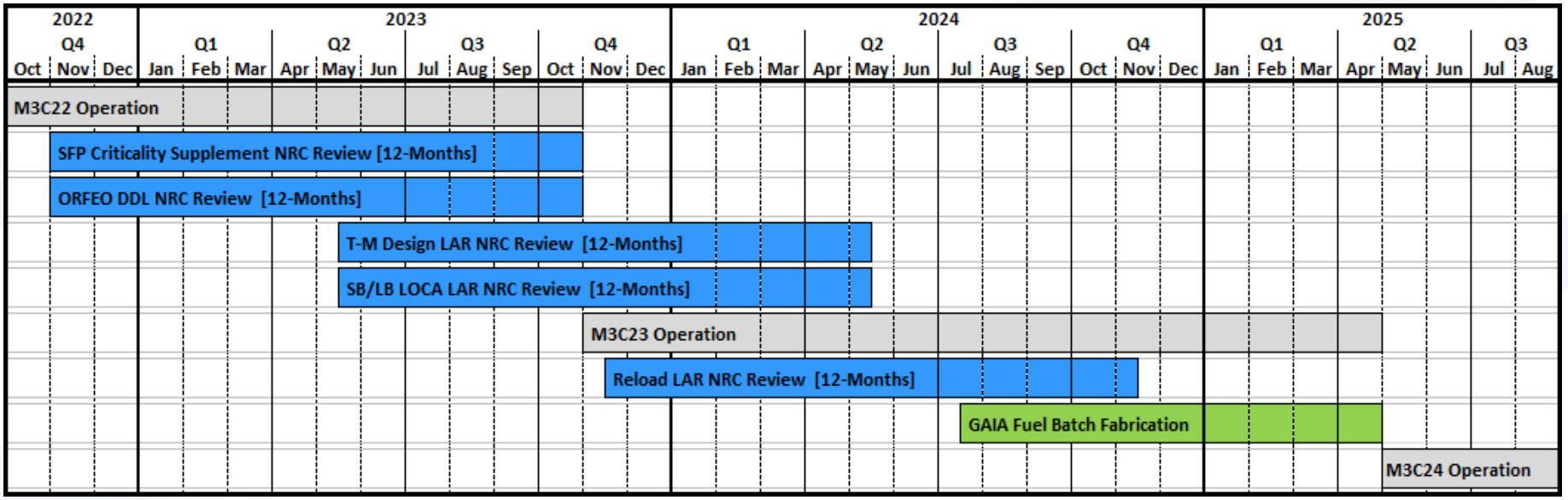
GAIA Project Team - Framatome

• Rick Williamson	Contract Manager
• Bob Clarke	Project Manager
• TJ Smiley	Engineering Supervisor
• Scott D'Orio	Engineering Project Lead
• Brian Painter	Mechanical Analysis
• Caleb Jernigan	Thermal-Hydraulic Analysis
• Brittany Williams	LOCA Safety Analysis
• Mustafa Siddiqi	Thermal-Mechanics Analysis
• Roberto Rubilar	Rod Ejection (AREA) Analysis
• Linda Andrews	Nuclear Core Design
• Paul Clifford	Regulatory Affairs / Licensing Consultant

Impetus for Fuel Transition to GAIA

- Dominion Energy Nuclear Connecticut (DENC) seeks the following benefits with the proposed transition to Framatome (FRM) GAIA Fuel at Millstone Power Station Unit 3 (MPS3)
  - M5™ cladding has lower hydrogen uptake improving performance under accident conditions
  - GAIA fuel product will provide Dominion Energy nuclear fleet greater security of supply and commercial competitiveness
  - GAIA fuel product may provide greater operational flexibility for DENC

Proposed Schedule



DENC desires to spread out NRC review, provide focused topic area submittals, and minimize the potential for overlapping linked submittals (DOM-NAF-2, Appendix F and Reload LAR).

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Submittal Strategy

1) Submit request for approval of incorporation of Gadolinia fuel absorber in the MPS3 Spent Fuel Pool Criticality Safety Analysis (Not Covered Further)
   - Scheduled for Q4 2022
2) Submit request for approval of new Appendix F to Generic Fleet Report DOM-NAF-2-P-A containing qualification of VIPRE-D/ORFEO code/correlation pair and its associated Deterministic Design Limit (DDL)
   - Scheduled for Q4 2022
3) Submit LAR for approval GAIA Thermal-Mechanical Design Methods and site-specific application with GAIA
   - Scheduled for Q2 2023
4) Submit LAR for approval GAIA Small Break and Large Break Methods and site-specific application with GAIA
   - Scheduled for Q2 2023
5) Submit LAR for approval GAIA Reload
   - Scheduled for Q4 2023

GAIA ORFEO DDL

Approval Request is expected to contain the following attachments:

1) DOM-NAF-2-P, Appendix F, “Qualification of the Framatome GAIA ORFEO CHF Correlations in the Dominion Energy VIPRE-D Computer Code”
   a) Description of CHF Correlations and VIPRE-D Database & Test Assemblies
      - ORFEO-GAIA & ORFEO-NMGRID
   b) VIPRE-D Code/Correlation Benchmarking & Qualification Results
2) DOM-NAF-2-NP, Appendix F, “Qualification of the Framatome GAIA ORFEO CHF Correlations in the Dominion Energy VIPRE-D Computer Code”
   a) Description of CHF Correlations and VIPRE-D Database & Test Assemblies
      - ORFEO-GAIA & ORFEO-NMGRID
   b) VIPRE-D Code/Correlation Benchmarking & Qualification Results
3) FRM Affidavit

GAIA T-M Design LAR

LAR is expected to contain the following attachments:

1) 10 CFR 50.46 and Appendix K Exemption for M5 Cladding
2) Technical Basis for deviation from ANP-10337P-A for slight IGM grid crush on core periphery in limited cases
3) Discussion of TS Changes
    a) Fuel melt limit addition for FRM fuel (TS 2.1.1.2)
    b) Add M5 cladding product (TS 5.3.1)
    c) Adding COLR reference (TS 6.9.1.6.b)
        i. ANP-10342P-A – FRM Mechanical Design Methodology
            - Fuel Assembly Design Description
            - Mechanical Design Evaluation

GAIA T-M Design LAR

LAR is expected to contain the following attachments (continued):

4) Proposed TS Pages (Mark-Up)
5) MPS3 Proprietary T-M Design Performance Summary Report
6) MPS3 Non-Proprietary T-M Design Performance Summary Report
7) FRM affidavit for T-M Design Performance Summary Report

GAIA LOCA LAR

LAR is expected to contain the following attachments:

1) Discussion of Technical Specifications (TS) Changes
    a) Adding COLR references (TS 6.9.1.6.b)
        i. EMF-2103P-A FRM Realistic Large Break LOCA Methodology
        ii. EMF-2328P-A FRM Small Break LOCA Methodology
        iii. ANP-10349P-A FRM GALILEO Implementation in LOCA Methods
2) Proposed TS Pages (Mark-Up)
3) MPS3 Proprietary Realistic Large Break LOCA Summary Report
4) MPS3 Non-Proprietary Realistic Large Break LOCA Summary Report
5) MPS3 Proprietary Small Break LOCA Summary Report
6) MPS3 Non-Proprietary Small Break LOCA Summary Report
7) FRM affidavit for Small & Large Break Summary Reports

GAIA Reload LAR

LAR is expected to contain the following attachments:

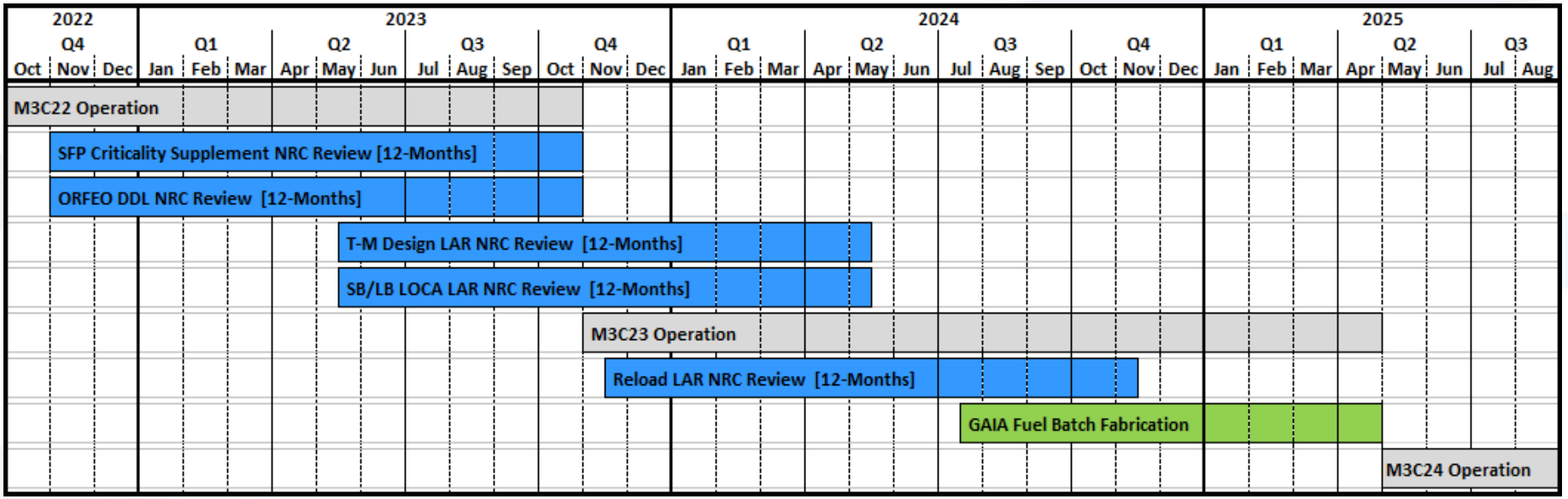
1) Technical Basis for adding DENC Fleet Report DOM-NAF-2, Appendix F to the COLR list of methodologies
   a) Approval of the Statistical Design Limit (SDL) application for MPS3 with GAIA fuel and the ORFEO-GAIA & ORFEO-NMGRID correlations SDL
2) Technical Basis for adding FRM ANP-10338P-A to COLR list of methodologies
   a) Approval of the 3-D Rod Ejection Methodology (3DRE) application for MPS3 with GAIA fuel
3) Additional analysis required by 10 CFR 50.59 for reload implementation, as necessary. Potential examples include:
   a) Dose and Source Term Analysis impacts due to 3DRE results
   b) Mixed Core DNB Penalty Calculation

GAIA Reload LAR

LAR is expected to contain the following attachments (continued):

4) Discussion of TS Changes
    a) Add GAIA ORFEO DDL to DNB ratio Safety Limit (TS 2.1.1.1)
        i. ORFEO-GAIA
    b) Adding COLR references (TS 6.9.1.6.b)
        i. DOM-NAF-2-P-A, Appendix F DENC CHF Correlation/Code
        ii. ANP-10338P-A FRM AREA-ARCADIA Rod Ejection Accident
5) Proposed TS Pages (Mark-Up)

Discussion



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References

- DENC Topical Report, DOM-NAF-2-P-A, Revision 0.4," Reactor Core Thermal-Hydraulics Using the VIPRE-D Computer Code," September 2022 [ML21320A007]
- FRM Topical Report, ANP-10337P-A, Revision 0, "PWR Fuel Assembly Structural Response to Externally Applied Dynamic Excitations'" April 2018 [ML18128A242]
- FRM Topical Report, ANP-10342P-A, Revision 0, "GAIA Fuel Assembly Mechanical Design," September 2019 [ML19309D916]
- FRM Topical Report, EMF-2103(P)(A), Revision 3, "Realistic Large Break LOCA Methodology for Pressurized Water Reactors," June 2016 [ML16286A579]
- FRM Topical Report, EMF-2328(P)(A), Revision 0, Supplement 1(P)(A), "PWR Small Break LOCA Evaluation Model, S-RELAP5 Based," September 2015 [ML15210A257]
- FRM Topical Report, ANP-10349P-A, Revision 0, "GALILEO Implementation in LOCA Methods," November 2021 [ML21354A115]
- FRM Topical Report, ANP-10338P-A, Revision 0, "AREA™ - ARCADIA® Rod Ejection Accident," December 2017 [ML18059A782]

Acronyms

CFR	Code of Federal Regulations
CHF	Critical Heat Flux
COLR	Core Operating Limits Report
DDL	Deterministic Design Limit
DENC	Dominion Energy Nuclear Connecticut
DNB	Departure from Nucleate Boiling
FRM	Framatome
GAIA	Framatome 17x17 GAIA Fuel
IGM	Intermediate GAIA Mixing (Grid)
LAR	License Amendment Request
LOCA	Loss of Coolant Accident
MPS3	Millstone Power Station Unit 3
NRC	Nuclear Regulatory Commission
SDL	Statistical Design Limit
T-M	Thermal-Mechanical
TS	Technical Specifications
3DRE	3-Dimensional Rod Ejection