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Protecting People and the Environment

Advanced Reactors Details

Advanced Reactor Activities

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Non-LWR Vision and Strategy, Implementation Action Plans, and Overview of Activities

The staff has developed a vision and strategy to assure that the NRC is ready to review potential applications for non-light water reactor (non-LWR) technologies effectively and efficiently. The staff described the vision and strategy in "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness [/docs/ML1635/ML16356A670.pdf] ," which was published in the Federal Register on July 21, 2016, for stakeholder input. The NRC updated its Vision and Strategy Document to reflect stakeholder feedback in December 2016.

To achieve the goals and objectives stated in the NRC's vision and strategy, the NRC has developed implementation action plans (IAPs). The IAPs identify the specific activities the NRC will conduct in the near-term (within 5 years), mid-term (5-10 years), and long-term (beyond 10 years) timeframes. The NRC released its draft

IAPs to obtain stakeholder feedback during a series of public meetings held between October 2016 and March 2017. The staff also briefed the Advisory Committee on Reactor Safeguards (ACRS) on March 8 and 9, 2017. The staff considered the ACRS comments and stakeholder feedback in the final Near-Term [/docs/ML1716/ML17165A069.pdf] , Mid-Term and Long-Term [/docs/ML1716/ML17164A173.pdf] IAPs which were issued on July 12, 2017.

The staff issued SECY-21-0010 [/docs/ML2034/ML20345A239.html] , "Advanced Reactor Program Status" on February 1, 2021. This paper provides the status of the NRC staff's activities related to advanced reactors, including the progress and path forward on each of the implementation action plan (IAP) strategies. It also provides an overview of the various external factors influencing the staff's activities to prepare for possible licensing and deployment of advanced reactors.

As required by Sections 103(b) and 103(c) of the Nuclear Energy Innovation and Modernization Act (NEIMA), the NRC prepared two reports to Congress regarding (1) expediting and establishing stages in the licensing process for commercial advanced nuclear reactors; and (2) increasing, where appropriate, the use of risk-informed and performance-based evaluation techniques and regulatory guidance in licensing commercial advanced nuclear reactors within the existing regulatory framework. These reports were sent to Congress on July 12, 2019 [/docs/ML1912/ML19128A289.html] .

As required by NEIMA Section 103(e), the NRC provided a report to Congress on (1) completing a rulemaking to establish a technology-inclusive regulatory framework for optional use by applicants in licensing commercial advanced nuclear reactor technologies, and (2) ensuring that the NRC has adequate expertise, modeling, and simulation capabilities, or access to those capabilities, to support the evaluation of commercial advanced reactor license applications, including the qualification of advanced nuclear reactor fuel. This report was sent to Congress on July 15, 2021.

Part 53 – Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

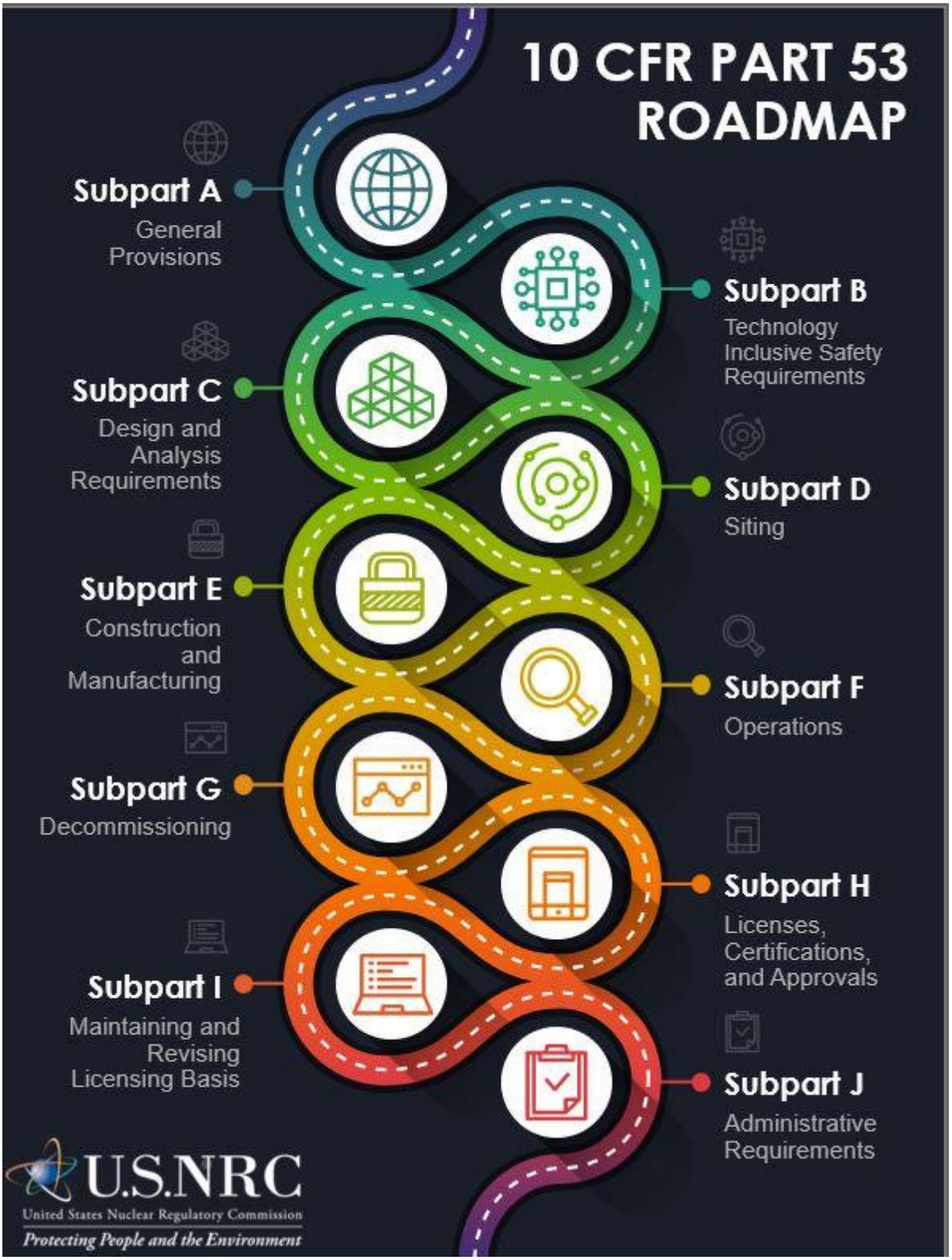
Consistent with Section 103 of NEIMA, staff has begun efforts to establish a "Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors" for optional use by applicants for new commercial advanced nuclear reactor licenses by December 31, 2027. The staff presented its proposed plan for this rulemaking to the Commission for approval in SECY-20-0032 [/docs/ML1934/ML19340A056.pdf] dated April 13, 2020. On October 2, 2020 the Commission approved the staff’s proposed approach in the SRM to SECY-20-0032 [/docs/ML2027/ML20276A293.pdf] and directed the staff to publish the final rule by October 2024. On November 2, 2020, the staff provided a response to SRM-SECY-20-0032 [/docs/ML2028/ML20288A251.pdf] outlining a schedule for preparing a rulemaking package that conforms to the Commission’s direction to achieve publication of the final rule by October 2024 and to inform the Commission of key uncertainties impacting publication of the final rule by that date.

Key documents related to the Part 53 rulemaking, including preliminary proposed rule language and stakeholder comments, can be found at Regulations.gov under Docket ID NRC-2019-0062 [https://beta.regulations.gov/docket/NRC-2019-0062/document?sortBy=postedDate] .

Part 53 Preliminary Proposed Rule Development

To achieve the goals and objectives stated in the rulemaking plan and SRM, the staff plans to develop and intermittently release preliminary proposed rule language followed by public outreach and dialogue, including ACRS interactions, to ensure openness and transparency. The discussion tables provide the preliminary rule language and also contain a discussion of what the rule intends to accomplish for each section.

Part 53 Preliminary Proposed Rule Language [/docs/ML2028/ML20289A534.html]



Recent Public Meetings	Date
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subpart F and 10 CFR Part 73 Emergency Preparedness and Security • Presentation [/docs/ML2114/ML21148A059.pdf]	June 10, 2021 [/pmns/mtg?do=details&Code=20210746]
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subparts A and F • Presentation [/docs/ML2112/ML21125A161.pdf] • Meeting Summary [/docs/ML2115/ML21154A126.pdf]	May 6, 2021 [/pmns/mtg?do=details&Code=20210461]
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subparts B and C, Subpart E • Presentation [/docs/ML2108/ML21088A279.pdf] • Meeting Summary [/docs/ML2115/ML21154A129.pdf]	April 8, 2021 [/pmns/mtg?do=details&Code=20210375]
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subpart D • Presentation [/docs/ML2103/ML21032A045.pdf] • Meeting Summary [/docs/ML2107/ML21076A083.pdf]	February 4, 2021 [/pmns/mtg?do=details&Code=20210077]

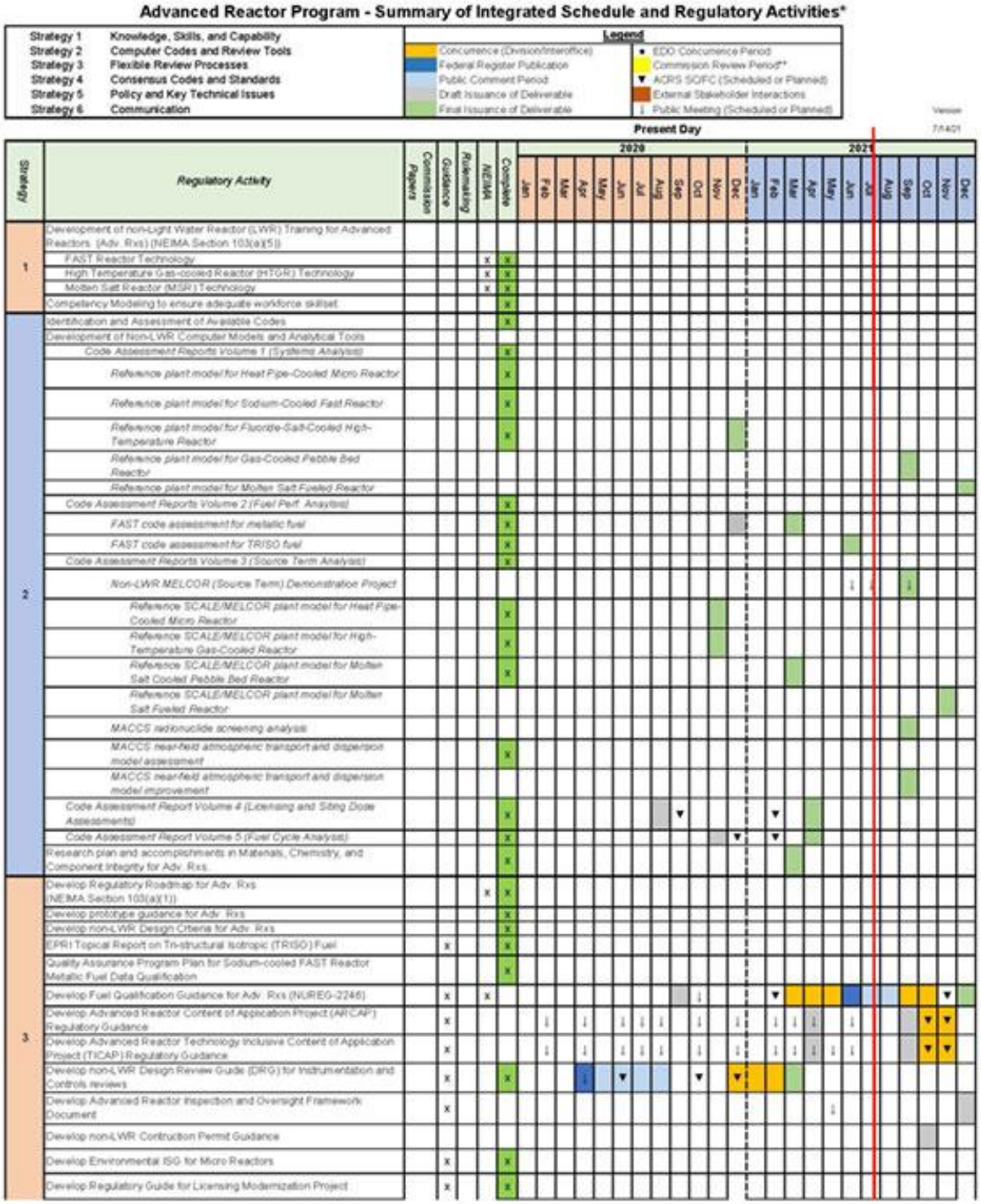
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subparts C and F (Facility Safety Program only) • Presentation [/docs/ML2100/ML21006A000.pdf] • Meeting Summary [/docs/ML2103/ML21039A771.pdf]	January 7, 2021 [/pmns/mtg?do=details&Code=20201405]
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subpart B • Presentation [/docs/ML2031/ML20318A007.pdf] • Meeting Summary [/docs/ML2035/ML20350B359.pdf]	November 18, 2020 [/pmns/mtg?do=details&Code=20201300]
Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – White Paper • Presentation [/docs/ML2025/ML20254A014.pdf] • Meeting Summary [/docs/ML2029/ML20295A441.pdf]	September 22, 2020 [/pmns/mtg?do=details&Code=20201046]
Part 53 White Paper Presentation to ACRS Full Committee • Agenda [/docs/ML2024/ML20244A345.pdf]	September 10, 2020 [/docs/ML2026/ML20261H932.pdf]

Part 53 White Paper Presentation to Future Plant Designs ACRS Subcommittee • Agenda [/docs/ML2019/ML20192A192.pdf] • White paper titled "Questions Supporting ACRS and Public Interactions on Developing a Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors." [/docs/ML2019/ML20195A270.pdf]	July 20, 2020 [/docs/ML2021/ML20218A576.pdf]

Preliminary Rule Development – Key Details
• NRC Rulemaking website [/reading-rm/doc-collections/rulemaking-ruleforum/active/RuleDetails.html?id=1108]
• ACRS Meeting Schedule and Calendar of Activities [/reading-rm/doc-collections/acrs/agenda/2020/]

Advanced Reactor - Summary of Integrated Schedule and Regulatory Activities

Summary of Integrated Schedule and Regulatory Activities (updated 07/14/2021)
[/reactors/new-reactors/advanced/adv-rx-integrated-schedule.pdf]



Flexible Licensing Processes for Advanced Reactors

The NRC's review and licensing processes are flexible and allow interactions related to a wide variation in design development and deployment strategies. Based on interactions with stakeholders, the NRC determined that guidance would be beneficial to assist non-LWR developers in planning regulatory interactions. To address this need, the NRC developed guidance for its flexible regulatory review processes within the bounds of existing regulations, including the use of conceptual design reviews and staged-review processes in the document, "A Regulatory Review Roadmap for Non-Light Water Reactors [/docs/ML1731/ML17312B567.pdf] ." The "roadmap" is also intended to help designers prepare technology- or design-specific regulatory engagement plans. Regulatory engagement plans define desired outcomes from various interactions between the designer and the NRC, considering factors such as the resources available to the designer and the NRC and the coordination of regulatory issues with other aspects of the overall program for developing and deploying non-LWR designs. Regulatory engagement plans also define the timing and scope of regulatory interactions in order to align with stakeholders activities related to plant design, research and development, finance, public policy, and the fuel cycle. The NRC released a draft roadmap document in October of 2016 to support discussions with stakeholders during several public meetings. The staff incorporated stakeholder feedback, and guidance related to standard design approvals and prototype reactors into the final roadmap, which was issued on December 26, 2017.

Industry-Led Licensing Modernization Project

The NRC engaged with the Licensing Modernization Project (LMP) led by Southern Company, coordinated by the NEI, and cost-shared by DOE. The interactions between the NRC staff and LMP resulted in the submittal of NEI–18–04, Revision 1 [/docs/ML1924/ML19241A336.html] , "Risk-Informed Performance-Based Guidance for Non-Light Water Reactor Licensing Basis Development," on August 26, 2019. The guidance focuses on identifying licensing basis events; categorizing and establishing performance criteria for structures, systems, and components; and evaluating defense in depth for advanced reactor designs. The staff issued SECY-19-0117 [/docs/ML1831/ML18311A264.html] , "Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors," on December 2, 2019. In this notation vote paper, the staff discussed potential policy issues associated with the LMP methodology and recommended that the Commission find that the use of the methodology described in NEI 18-04 is a reasonable approach for establishing key parts of the licensing basis for non-LWRs. The Commission's Staff Requirements Memorandum [/docs/ML2014/ML20147A504] dated May 26, 2020, found that using the methodology is a reasonable approach to support the licensing of non-light water reactors. The NRC published Regulatory Guide 1.233 [/docs/ML2009/ML20091L698] , "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light Water Reactors," in the Federal Register on June 9, 2020.

The following table provides reports related to LMP including demonstration and pilot activities.

Date	Design
March 2020 [https://www.osti.gov/biblio/1700667-modernization-technical-requirements-licensing-advanced-non-light-water-reactors-final-project-report]	Final Project Report

March 2020 [https://www.osti.gov/biblio/1700534-modernization-technical-requirements-licensing-advanced-non-light-water-reactors-lmp-lessons-learned-best-practices-frequently-asked-questions]	LMP Lessons Learned, Best Practices, and Frequently Asked Questions
March 2020 [https://www.osti.gov/biblio/1700535-modernization-technical-requirements-licensing-advanced-non-light-water-reactors-safety-classification-performance-criteria-structures-systems-components]	Safety Classification and Performance Criteria for Structures, Systems, and Components
March 2020 [https://www.osti.gov/biblio/1700668-modernization-technical-requirements-licensing-advanced-non-light-water-reactors-selection-evaluation-licensing-basis-events]	Selection and Evaluation of Licensing Basis Events
March 2020 [https://doi.org/10.2172/1700533]	Risk-Informed and Performance-Based Evaluation of Defense-in-Depth Adequacy
March 2020 [https://www.osti.gov/biblio/1700670-modernization-technical-requirements-licensing-advanced-non-light-water-reactors-probabilistic-risk-assessment-approach]	Probabilistic Risk Assessment Approach
September 2019 [/docs/ML1924/ML19247C198.pdf]	Fluoride-Cooled High Temperature Reactor Licensing Modernization Project Demonstration
September 2019 [/docs/ML1924/ML19249B632.pdf]	Molten Salt Reactor Experiment (MSRE) Case Study Using Risk-Informed, Performance-Based Technical Guidance to Inform Future Licensing for Advanced Non-Light Water Reactors
August 2019 [/docs/ML1922/ML19227A322.pdf]	Westinghouse eVinci Micro Reactor Licensing Modernization Project Demonstration
December 2018 [/docs/ML1903/ML19036A584.pdf]	PRISM Sodium Fast Reactor Licensing Modernization Project Demonstration
September 2018 [/docs/ML1903/ML19038A473.pdf]	OKLO's DG-1353 Pilot
August 2018 [/docs/ML1822/ML18228A779.pdf]	High Temperature, Gas-Cooled Pebble Bed Reactor licensing Modernization Project Demonstration

Advanced Reactor Content of Application Project

The purpose of the advanced reactor content of application project (ARCAP) is to develop technology-inclusive, risk-informed and performance-based application guidance. The ARCAP is broader and encompasses the industry-led technology-inclusive content of application project (TI-CAP). These projects build on the outcome of the Licensing Modernization Project.

The ARCAP guidance is intended to be used for an advanced reactor application for a combined license, construction permit, operating license, design certification, standard design approval, or manufacturing license. The industry-led TI-CAP's purpose is to develop the content for specific portions of the safety analysis report (SAR) that would be used to support an advanced reactor application. The TI-CAP portion of the SAR will be informed by the guidance found in in NEI 18-04, Revision 1, "Risk-Informed Performance-Based Technology-Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development."

ARCAP is a longer-term effort that will support the 10 CFR Part 53 rulemaking effort. NRC staff has developed the "Non-Light Water Reactor Review Strategy Staff White Paper," dated September 2019 [/docs/ML1927/ML19275F299.pdf] , to provide internal guidance for the review of non-LWR applications in the near-term.

Table 1 provides a list of the meetings and documents that have occurred to support ARCAP and TICAP related activities. Table 2 below provides a listing of the current version of draft documents that have been publicly released to support ARCAP and TICAP discussions. The documents in Table 2 are provided for information and should not be considered as official NRC regulatory guidance, unless otherwise endorsed or published as such.

Table 1 – ARCAP/TICAP Public Meetings

Date	Description
08/17/21	Technology Inclusive Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20211030] • Meeting Handouts [/docs/ML2122/ML21228A039.pdf]
08/16/21	TerraPower Molten Chloride Reactor Experiment Technology Inclusive Content of Application Project (TICAP) Tabletop Exercise Report [/docs/ML2122/ML21228A222.pdf]
08/05/21	X-energy Xe-100 Technology Inclusive Content of Application Project (TICAP) Tabletop Exercise Report [/docs/ML2121/ML21217A086.pdf]
06/23/21	Technology Inclusive Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20210805] • Meeting Handouts [/docs/ML2117/ML21173A262.pdf] • Meeting Summary [/docs/ML2118/ML21181A335.pdf]

05/26/21	Technology Inclusive Content of Application Project Public Workshop #3 • Meeting Notice [/pmns/mtg?do=details&Code=20210579] • Meeting Handouts [/docs/ML2114/ML21146A089.pdf] • Meeting Summary [/docs/ML2115/ML21158A223.pdf]
05/25/21	Industry Consolidated Response to NRC Feedback on Molten Chloride Reactor Experiment, eVinci Microreactor, Versatile Test Reactor, and Xe-100 TICAP Tabletop Exercises [/docs/ML2117/ML21179A253.pdf]
05/19/21	Technology Inclusive Content of Application Project Public Workshop #2 • Meeting Notice [/pmns/mtg?do=details&Code=20210574] • Meeting Handouts [/docs/ML2113/ML21138A874.pdf] • Meeting Summary [/docs/ML2115/ML21154A290.pdf]
05/11/21	Technology Inclusive Content of Application Project Public Workshop • Meeting Notice [/pmns/mtg?do=details&Code=20210516] • Meeting Handouts [/docs/ML2113/ML21130A649.pdf] • Meeting Summary [/docs/ML2113/ML21132A295.pdf]
05/05/21	NRC Observation Team's Consolidated Feedback on TICAP Tabletop Exercises for: 1) TerraPower's Molten Chloride Reactor Experiment, 2) Westinghouse's eVinci microreactor, 3) Versatile Test Reactor, and 4) X-energy's Xe-100 high temperature gas-cooled reactor [/docs/ML2112/ML21125A139.pdf]
04/29/21	Potential List of Topics to be Discussed During Upcoming Technology Inclusive Content of Application Project Public Workshops [/docs/ML2112/ML21120A057.pdf]
04/12/21	Industry Response to NRC Feedback on X-energy and Versatile Test Reactor TICAP Tabletop Exercises [/docs/ML2110/ML21102A270.pdf]

03/30/21	NRC Observation Team Feedback on March 5, 2021, Versatile Test Reactor TICAP Tabletop Exercise [/docs/ML2108/ML21089A055.pdf]
02/25/21	Power Reactor Construction Permit Guidance, and Advanced Reactor Topics Including: Applicability of Regulations, Technology Inclusive Content of Application Project, and Advanced Reactor Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20210148] • Meeting Handouts [/docs/ML2105/ML21055A541.pdf] • Meeting Summary [/docs/ML2106/ML21068A141.pdf] • NRC Observation Team Feedback on February 3, 2021, X-energy TICAP Tabletop Exercise [/docs/ML2105/ML21050A114.pdf]
12/14/20	Office of Nuclear Materials Safety and Safeguards (NMSS) letters to industry encouraging early engagement from potential advanced reactor applicants to support their plans for the fabrication and transportation of advanced reactor fuels. • Letters – Preparing for Efficient NRC Reviews of Advanced Reactor Licensing/Certification Applications [/docs/ML2025/ML20255A160.html]
12/10/20	Technology Inclusive Contents of Application Project and Advanced Reactor Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20201305] • Meeting Handouts [/docs/ML2034/ML20344A057.pdf] • Meeting Summary [/docs/ML2100/ML21006A414.pdf]
10/22/20	Technology Inclusive Contents of Application Project, and Advanced Reactor Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20201070] • Meeting Handouts [/docs/ML2029/ML20294A438.pdf] • Meeting Summary [/docs/ML2030/ML20307A192.pdf]

08/27/20	Technology Inclusive Content of Application Project, Advanced Reactor Content of Application Project, and Construction Permit Guidance Meeting • Meeting Notice [/pmns/mtg?do=details&Code=20200925] • Meeting Handouts [/docs/ML2023/ML20239A957.pdf] • Meeting Summary [/docs/ML2025/ML20253A307.pdf]
07/31/20 [/docs/ML2002/ML20021A182.pdf]	Advanced Reactor Content of Application Project Meeting • Meeting Notice [/pmns/mtg?do=details&Code=20200819] • Meeting Handouts [/docs/ML2021/ML20212L398.pdf] • Meeting Summary [/docs/ML2023/ML20233A990.pdf]
07/30/20 [/docs/ML2002/ML20021A182.pdf]	Technology Inclusive Content of Application Project Meeting • Meeting Notice [/pmns/mtg?do=details&Code=20200797] • Meeting Handouts [/docs/ML2021/ML20210M083.pdf] • Meeting Summary [/docs/ML2022/ML20223A350.pdf]
06/12/20 [/docs/ML2002/ML20021A182.pdf]	Advanced Reactor Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20200611] • Meeting Handouts [/docs/ML2016/ML20162A197.pdf] • Meeting Summary [/docs/ML2019/ML20195B104.pdf]
06/11/20 [/docs/ML2002/ML20021A182.pdf]	Technology Inclusive Content of Application Project • Meeting Notice [/pmns/mtg?do=details&Code=20200609] • Meeting Handouts [/docs/ML2016/ML20161A350.pdf] • Meeting Summary [/docs/ML2019/ML20190A217.pdf]

04/22/20 [/docs/ML2002/ML20021A182.pdf]	Advanced Reactor Content of Application Project • Meeting Notice [/docs/ML2011/ML20113E783.pdf] • Meeting Slides [/docs/ML2011/ML20112F478.pdf] • Meeting Summary [/docs/ML2011/ML20119A484.pdf]
01/21/20 [/docs/ML2002/ML20021A182.pdf]	NRC Staff Comments on Technology Inclusive Content of Application Project Definition of Fundamental Safety Functions for Advanced Non-Light Water Reactors – Draft Report Revision B
11/25/19 [/docs/ML1934/ML19343B648.pdf]	Technology Inclusive Content of Application Project for Non-Light Water Reactors Definition of Fundamental Safety Functions for Advanced Non-Light Water Reactors - Draft Report Revision B

Table 2 – Draft ARCAP/TICAP Publicly Issued Documents

(Note: The documents in Table 2 are provided for information and should not be considered as official NRC regulatory guidance, unless otherwise endorsed or published as such.)

Date	Description
08/04/21	Draft White Paper on a licensing modernization project based approach for developing application content for risk informed inservice inspection and inservice testing [/docs/ML2121/ML21216A051.pdf]
08/03/21	Southern Company Document – Technology Inclusive Content of Application Project (TICAP) Revision E [/docs/ML2121/ML21215A577.pdf]
07/30/21	Southern Company Document - Technology Inclusive Content of Application Project (TICAP) Proposal for Non-LWR Principal Design Criteria (PDC) White [/docs/ML2121/ML21214A008.pdf]
07/08/21	Draft White Paper ARCAP Roadmap Interim Staff Guidance [/docs/ML2119/ML21190A012.pdf]
07/08/21	Draft White Paper TICAP Regulatory Guide [/docs/ML2119/ML21190A014.pdf]
07/06/21	ARCAP Chapter 2, “Site Information” [/docs/ML2118/ML21189A031.pdf]
07/06/21	ARCAP Chapter 9, “Control of Routine Plant Radioactive Effluents, Plant Contamination and Solid Waste” [/docs/ML2118/ML21189A033.pdf]
07/06/21	ARCAP Chapter 10, “Control of Occupational Dose” [/docs/ML2118/ML21189A035.pdf]
07/02/21	Southern Company Document – Sufficiency of Needed Information for Construction Permit Applications [/docs/ML2118/ML21189A388.pdf]
05/10/21	Draft White Paper on a licensing modernization project based approach for developing technical specifications [/docs/ML2113/ML21133A490.pdf]
04/15/21	Southern Revision B of TICAP Guidance Document [/docs/ML2110/ML21106A013.pdf]

02/18/21	ARCAP Chapter 11, “Organization,” and ARCAP Chapter 12, “Initial Startup Program” [/docs/ML2104/ML21049A277.pdf]
	Previous Versions of Documents
05/14/21	Draft White Papers including ARCAP roadmap interim staff guidance and TICAP regulatory guide [/docs/ML2113/ML21134A164.pdf]
11/05/20	ARCAP Chapter 2, “Site Information” [/docs/ML2031/ML20316A013.pdf]
09/16/20	ARCAP Chapter, “Liquid and Gaseous Radioactive Waste Requirements,” and draft ARCAP Chapter, “Control of Occupational Dose” [/docs/ML2026/ML20260H366.pdf]

Endorsement Review of ASME B&PV Code Section III, Division 5, "High Temperature Reactors"

The NRC staff recognize that the absence of an NRC endorsed code of construction for nuclear reactors operating above 425°C (800°F) is a significant obstacle for new and advanced nuclear reactor designs. Review and approval of an elevated temperature code of construction during a licensing review of a new nuclear power plant would result in substantial costs and delays. In a letter dated June 21, 2018 (ADAMS Accession No. ML18184A065 [/docs/ML1818/ML18184A065.pdf]), ASME, based on letters from both industry consortia and individual companies interested in developing non-LWR designs, requested that the NRC review and endorse the 2017 Edition of ASME B&PV Code Section III, Division 5 (NRC Response Letter: ADAMS Accession No. ML18211A571 [/docs/ML1821/ML18211A571.pdf]). Therefore, the NRC has initiated efforts to endorse the ASME B&PV Code Section III, Division 5.

In August 2021, the NRC staff published draft Regulatory Guide, DG-1380 (RG 1.87 Revision 2), Acceptability of ASME Section III, Division 5, High Temperature Reactors (ADAMS Accession No. ML21091A276 [/docs/ML2109/ML21091A276.pdf]), and the technical basis document supporting the regulatory positions in DG-1380, NUREG-2245, Technical Review of the 2017 Edition of ASME Code, Section III, Division 5, “High Temperature Reactors” (ADAMS Accession No. ML21223A097 [/docs/ML2122/ML21223A097.pdf]), for public comment. The NRC staff evaluated the recommendations in the contractor reports (found below) and used its own independent technical expertise to form the basis for the findings in these reports.

In October 2018, the NRC sent the ASME BPVC Section III, Division 5 standard and the technical background documents to the Pacific Northwest National Laboratory (PNNL), Oak Ridge National Laboratory (ORNL), and NUMARK Associates, Inc. for a peer review on the technical adequacy of Section III, Division 5. The following table lists the contractor reports that have been published and are available to the public.

Author Affiliation	Topic Discussion	Date Issued

Oak Ridge National Laboratory	Oak Ridge National Laboratory Technical Input for the Nuclear Regulatory Commission Review of the 2017 Edition of the ASME Boiler and Pressure Vessel Code, Section III, Division 5, "High Temperature Reactors" [/docs/ML2026/ML20269A125.pdf] ASME Code Sections: • Materials (HBB; HCB; & HGB–2000) • Tables and Figures (Mandatory Appendix HBB–I) • Guidelines for Restricted Material Specifications (Non-Mandatory Appendix HBB–U)	August 2020
Pacific Northwest National Laboratory	Pacific Northwest National Laboratory Technical Input for the Nuclear Regulatory Commission Review of the 2017 Edition of ASME Section III, Division 5, "High Temperature Reactors" [/docs/ML2026/ML20269A145.pdf] ASME Code Sections: • Design, Fabrication, Examination, Testing (HBB; HCB; HGB–3000, –4000, –5000, –6000) • Rules for Strain, Deformation, and Fatigue Limits (Mandatory Appendix HGB–I) • Rules for Construction of Core Support Structures Without Explicit Consideration of Creep and Stress-Rupture (Mandatory Appendix HGB–II) • Rules for Buckling and Instability (Mandatory Appendix HGB–III) • Rules for Time-Temperature Limits (Mandatory Appendix HGB–IV)	September 2020
NUMARK Associates, Inc. Engineering Mechanics Corporation of Columbus	Technical Input for the U.S. Nuclear Regulatory Commission Review of the 2017 Edition of ASME Boiler and Pressure Vessel Code, Section III, Division 5, “High-Temperature Reactors” HBB-T, HBB-II, HCB-I, HCB-II, and HCB-III for Metallic Components [/docs/ML2034/ML20349A003.pdf] ASME Code Sections: • Rules for use of SA–533 Type B (Mandatory Appendix HBB–II) • Rules for Strain, Deformation, and Fatigue Limits (Nonmandatory Appendix HBB–T) • Rules for Stress Range Reduction Factors (Mandatory Appendix HCB–I) • Rules for Allowable Stress Values for Class B Components (Mandatory Appendix HCB–II) • Rules for Time-Temperature Limits (Mandatory Appendix HCB–III)	December 2020

NUMARK Associates, Inc.	Technical Input for the U.S. Nuclear Regulatory Commission Review of the 2017 Edition of ASME Boiler and Pressure Vessel Code, Section III, Division 5, "High Temperature Reactors": Subsection HH, "Class A Nonmetallic Core Support Structures," Subpart A, "Graphite Materials" [/docs/ML2034/ML20344A001.pdf] ASME Code Sections: • Graphite and Composites (Technical Requirements)	December 2020
NUMARK Associates, Inc. Engineering Mechanics Corporation of Columbus	Technical Input for the U.S. Nuclear Regulatory Commission Review of the 2017 Edition of ASME Boiler and Pressure Vessel Code, Section III, Division 5, "High-Temperature Reactors." Review of Code Case N-861 and N-862: Elastic-Perfect Plastic Methods for Satisfaction of Strain Limits and Creep-Fatigue Damage Evaluation in BPV-III-5 Rules [/docs/ML2034/ML20349A002.pdf] ASME Code Sections: • Code Case N–861 • Code Case N–862	December 2020
Argonne National Laboratory	Historical Context and Perspective on Allowable Stresses and Design Parameters in ASME Section III, Division 5, Subsection HB, Subpart B (ANL/AMD-21/1) [/docs/ML2109/ML21090A033.pdf] The Argonne National Laboratory report references the following report developed by MPR Associates, Inc. • MPR Report 0300-0003-RPT-001, Revision 1, Impact of Tertiary Creep on Time Dependent Allowable Stresses for Type 304H and 316H Stainless Steels [/docs/ML2104/ML21048A084.html] ASME Code Sections: Provides the NRC with the technical basis and historical perspective on ASME BPVC Section III, Division 5 and the technical assistance to facilitate the staff's efforts in drafting the RG and technical basis document	March 2021 February 2021

Advanced Nuclear Reactor Generic Environmental Impact Statement (GEIS)

The NRC is developing a GEIS for advanced nuclear reactors in order to streamline the environmental review process for future advanced nuclear reactor (ANR) environmental reviews. The purpose of an ANR GEIS is to determine which environmental impacts could result in essentially the same (generic) impact for different ANR

designs that fit within the parameters set in the GEIS, and which environmental impacts would require a plant-specific analysis. Environmental reviews for advanced nuclear reactor license applications could incorporate the ANR GEIS by reference and provide site-specific information and analyses in a Supplemental Environmental Impact Statement (SEIS), thereby streamlining the environmental review process.

In SECY-20-0020 [/docs/ML2005/ML20052D175.pdf] , the staff informed the Commission that it planned to use a technology-neutral plant parameter envelope (or PPE) approach to bound small-scale ANR projects. For the purposes of the ANR GEIS, the staff stated that it considered a "small-scale" ANR as having the potential to generate up to approximately 30 megawatts thermal per reactor with a correspondingly small environmental footprint. The staff stated that the actual bounding thermal power level of the ANR and the environmental footprint used in the ANR GEIS were topics to be determined during the scoping process for the GEIS.

On April 30, 2020, the NRC issued a Federal Register notice informing the public of its intent to develop an advanced reactor GEIS and to conduct a scoping process to gather the information necessary to prepare the GEIS. Based on the comments received during scoping, the NRC decided to use a technology-neutral, performance-based approach with specified values and assumptions using a plant parameter envelope (PPE) that would largely decouple the analysis for most resources from reactor power level. The PPE will consist of bounding values or parameters, and assumptions, for specific reactor design features regardless of site. In addition, the staff decided to develop a set of site condition values and assumptions termed the site parameter envelope (SPE). The SPE also includes specific assumptions related to the condition of the affected environment, such as the extent and occurrence of wetlands and floodplains, position near aquatic features, and proximity to sensitive noise receptors. The GEIS will present generic analyses that evaluate the possible impacts of a reactor that fits within the bounds of the PPE on a site that fits within the bounds of the SPE.

A future application that references the ANR GEIS will need to demonstrate that its project is bounded by the analysis in the ANR GEIS and that there is no significant new information affecting the evaluation. If the project is bounded by the ANR GEIS and there is no significant new information, the NRC will incorporate by reference the ANR GEIS and no further analysis would be needed. The application will also need to analyze the site-specific resources not resolved generically in the ANR GEIS. If impacts to a resource have not been resolved generically by the ANR GEIS, the site-specific SEIS will evaluate the impacts to the resource.

In SRM-SECY-20-0020 [/reading-rm/doc-collections/commission/srm/2020/index.html] , the Commission directed the staff to initiate rulemaking to codify the ANR GEIS findings in the *Code of Federal Regulations*. The Commission also directed the staff to consider a PPE that is inclusive of as many ANR technologies as possible in establishing the scope of the ANR GEIS.

Below is the schedule for the GEIS and rule.

April 30, 2020 – *Federal Register* notice of intent to prepare GEIS and conduct scoping (85 FR 24040) published

June 30, 2020 – Scoping comment period ended

September 25, 2020 – Scoping Summary Report [/docs/ML2026/ML20260H180.html] issued

May 2022 – Draft GEIS and rule issued for comment

January 2024 – Final GEIS and rule issued

NRC-DOE Joint Initiative - Non-LWR Design Criteria

In July 2013, the US Department of Energy (DOE) and the NRC established a joint initiative to address a key portion of the licensing framework essential to advanced reactor technologies. The initiative addresses the "General Design Criteria for Nuclear Power Plants," Appendix A to 10 Code of Federal Regulations (CFR) 50, which were developed primarily for LWRs, by adapting them to the needs of advanced reactor design and licensing. The initiative is being accomplished in two phases. Phase 1, completed by DOE, consisted of reviews, analyses and evaluations resulting in a report issued by the DOE in December 2014 titled, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors [/docs/ML1435/ML14353A224.html] ." Phase 2 of the initiative, managed by the NRC, involved review of the Phase 1 DOE work products issuance of regulatory guidance resulting from the review.

On April 7, 2016, the NRC issued the, "Draft - Advanced Non-LWR Design Criteria - April 2016 [/docs/ML1609/ML16096A420.pdf] ," for informal public comment. The informal public comment period closed on June 8, 2016. After consideration of stakeholder input, the NRC issued draft regulatory guide DG-1330 [/docs/ML1630/ML16301A307.pdf] , "Guidance for Developing Principal Design Criteria for Non-Light Water Reactors" for formal public comment. DG-1330 was published in the *Federal Register* [https://www.gpo.gov/fdsys/pkg/FR-2017-02-03/pdf/2017-02298.pdf] on February 3, 2017, for a 60 day public comment period. The public comment period closed on April 4, 2017. The NRC considered the public comments and held a public meeting for further discussion on August 24, 2017 [/docs/ML1722/ML17226A042.pdf] . The staff considered the public comments and stakeholder interactions in preparing the final RG 1.232. On April 3, 2018, the NRC issued the, "Final RG 1.232 [/docs/ML1732/ML17325A611.pdf] ," along with the, "Public Comment Resolution Table [/docs/ML1732/ML17325A616.pdf] ." Final RG 1.232 was published in the *Federal Register* [https://www.gpo.gov/fdsys/pkg/FR-2018-04-09/pdf/2018-07214.pdf] on April 9, 2018.

The issuance of this new NRC regulatory guidance is expected to provide the following benefits:

- reduced regulatory uncertainty for advanced reactor developers,
- improved guidance for NRC staff reviewing advanced reactor license applications, and
- improved timeliness and efficiency of licensing activities for both applicants and NRC staff.

The following table lists the meetings that NRC has conducted with external stakeholders in connection with the initiative:

Date	Description
08/24/17	Public Meeting on Non-LWR Design Criteria • Meeting Notice [/docs/ML1722/ML17226A042.pdf] • Meeting Slides [/docs/ML1723/ML17233A213.pdf] • Public Comment Table [/docs/ML1722/ML17227A146.pdf] • Meeting Summary [/docs/ML1726/ML17262A894.pdf]

10/11/16	Public Meeting on Non-LWR Design Criteria • Meeting Notice [/docs/ML1628/ML16285A176.pdf] • Meeting Slides [/docs/ML1628/ML16280A452.html] • Meeting Summary [/docs/ML1631/ML16314B333.pdf]
02/25/15	Non-Public Seminar Modular HTGR Technology and Safety Design Approach • Modular HTGR Technology and Safety Design Approach [/docs/ML1505/ML15051A358.pdf]
02/18/15	Non-Public Seminar Sodium-Cooled Fast Reactor (SFR) Technology and Safety Overview • Sodium-cooled Fast Reactor (SFR) Technology and Safety Overview [/docs/ML1504/ML15043A307.pdf]
01/21/15	Public Meeting to Discuss the DOE Report, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors." • Meeting Notice [/docs/ML1500/ML15006A339.pdf] • INL/EXT-14-31179, Rev. 1, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors". Cover - Page 84 [/docs/ML1435/ML14353A246.pdf] • INL/EXT-14-31179, Rev. 1, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors". Page 85 - Page 144 [/docs/ML1435/ML14353A248.pdf] • Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors [/docs/ML1500/ML15007A043.pdf] • Advanced Reactor Design Criteria (ARDC) Development Process [/docs/ML1501/ML15016A367.pdf] • Meeting Summary [/docs/ML1504/ML15044A081.pdf]

The following table provides access to documents, and correspondence between the NRC and DOE in connection with the initiative:

Date	Description
09/15/15 [/docs/ML1527/ML15272A096.pdf]	Response to NRC Staff Second Set of Questions on the U.S. DOE Report, "Guidance for Developing Principal Design Criteria for Advanced Non-Light Water Reactors"
08/17/15 [/docs/ML1522/ML15223B331.pdf]	Questions on the U.S. Department of Energy Report, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors."

07/15/15 [/docs/ML1520/ML15204A579.pdf]	Response to NRC Staff Questions on the U.S. Department of Energy Report, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors."
06/05/15 [/docs/ML1515/ML15154B575.pdf]	NRC Staff Questions on the U.S. Department of Energy Report, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors."
01/15/15 [/docs/ML1500/ML15005A147.pdf]	NRC Letter to DOE, "Initiative Regarding U.S. Nuclear Regulatory Commission Licensing Strategy for Advanced Reactor Technologies."
12/08/14 [/docs/ML1435/ML14353A245.pdf]	DOE Letter to NRC, "Joint Initiative Regarding U.S. Nuclear Regulatory Commission Licensing Strategy for Advanced (Non-Light Water) Reactor Technologies."
07/09/13 [/docs/ML1314/ML13141A276.pdf]	NRC Letter to DOE, "Initiative Regarding U.S. Nuclear Regulatory Commission Licensing Strategy for Advanced Reactor Technologies."

Updates relative to the Phase 2 portion of the initiative are also available by subscribing to the NRC GovDelivery Subscription [https://service.govdelivery.com/service/multi_subscribe.html?code=USNRC] service.

NRC-CNSC Memorandum of Cooperation

On August 15, 2019, the Canadian Nuclear Safety Commission (CNSC) and the United States Nuclear Regulatory Commission, signed a Memorandum of Cooperation (MOC) to increase collaboration on the technical reviews of advanced reactor and small modular reactor technologies.

The memorandum represents a uniquely important step in both countries' strong commitment to a more effective, efficient, and timely analysis of next-generation technologies, and both agencies' safety and security mission. The NRC and CNSC are building on the joint Memorandum of Understanding signed in August 2017, accelerating efforts to realize innovation in the review of advanced reactor and small modular reactor technology concepts.

The MOC underscores the readiness of the U.S. NRC and CNSC to increase collaboration and facilitate joint technical reviews of advanced reactor and small modular reactor designs to ensure safety and support each agency's regulatory decisions

Under the terms of this MOC, the U.S. NRC may consider insights from CNSC pre-licensing vendor design reviews and licensing review processes. CNSC may also take U.S. NRC review results into account, should an applicant propose to construct and operate a reactor design currently under review or previously reviewed by the U.S. NRC.

Associated Links

- Memorandum of Cooperation on Advanced Reactor and Small Modular Reactor Technologies between the Canadian Nuclear Safety Commission and the United States Nuclear Regulatory Commission [/docs/ML1927/ML19275D578.pdf]

- MOU Between the U.S. NRC and CNSC for the Exchange of Technical Information and Cooperation in Nuclear Safety Matters [/docs/ML1916/ML19168A017.pdf]
- FAQs on the Joint CNSC-U.S. NRC Memorandum of Cooperation [/docs/ML2102/ML21021A257.pdf]
- Terms of Reference for the MOC on advanced reactor and SMR Technologies [/docs/ML2102/ML21021A265.pdf]
- Cooperative Projects Under the MOC [/docs/ML2105/ML21055A500.pdf]

Advanced Reactor Training Materials

The NRC contracted with the Oak Ridge National Laboratory (ORNL) to develop a 12-module training course on molten-salt reactors (MSRs). The course provides background on various MSR concepts presently under development, including a history of earlier MSR projects, descriptions of conceptual designs, and expected technical and regulatory challenges. The NRC also contracted with Argonne National Laboratory and Idaho National Laboratory to develop training courses for fast reactors and high-temperature gas-cooled reactors. The training materials for molten salt reactors [/docs/ML1733/ML17331B100.html] , fast reactors [/docs/ML1914/ML19148A745.html] , and high-temperature gas-cooled reactors [/docs/ML1921/ML19214A096.pdf] are publicly available.

The NRC contracted with Brookhaven National Laboratory (BNL) to prepare a Regulatory History of Non-Light Water Reactors [/docs/ML1928/ML19282B504.pdf] . This report describes the history of licensing non-LWRs with a focus on regulatory policy and licensing beginning with the Atomic Energy Commission and transitioning to the NRC's past and current activities. This background information is a valuable knowledge management tool for NRC staff and member of the public.

Testing Needs and Prototype Plants

On June 16, 2017, the NRC issued a preliminary draft document, "Nuclear Power Reactor Testing Needs and Prototype Plants for Advanced Reactor Designs." This document described the relevant regulations governing the testing requirements for advanced reactors, described the process for determining testing needs to meet the NRC's regulatory requirements, clarified when a prototype plant might be needed and how it might differ from the proposed standard plant design, and described licensing strategies and options that include the use of a prototype plant to meet the NRC's testing requirements. The document was discussed during periodic public meetings on advanced reactor topics. The staff considered stakeholder feedback and issued the final paper as part of the regulatory review roadmap [/docs/ML1731/ML17312B567.pdf] in December 2017.

Advanced Reactor Workshops

In 2015, the NRC and the U.S. Department of Energy (DOE) began co-hosting a series of Advanced Reactor Workshops. The first workshop was held on September 1-2, 2015 [/public-involve/conference-symposia/adv-rx-non-lwr-ws/2015-09.html] , 2015 and included presentations and discussions on roles and responsibilities of the NRC and DOE, previous experience licensing non-LWR designs, critical gaps and needs in research and development that need to be addressed, and suggestions for improvements in the licensing of non-LWR designs. The second workshop was held on June 7-8, 2016 [/public-involve/conference-symposia/adv-rx-non-lwr-

ws/2016-06.html] and focused on exchanging information from NRC, DOE, industry and included presentations and discussions on strategies for advanced reactor development and deployment, recent initiatives; and advanced reactor fuel development, qualification, and challenges. The Third workshop [/public-involve/conference-symposia/adv-rx-non-lwr-ws.html] in this series was held on April 25 and 26, 2017. The NRC has now transitioned from this workshop format to more frequent periodic stakeholder meetings to focus on specific topics of interest as discussed below.

Advanced Reactor Reference Materials

The NRC staff has contracted with the DOE national laboratories and other entities to prepare these contractor reports on a variety of advanced reactor topics to inform the NRC's advanced reactor readiness activities. These documents are provided for information and should not be considered as official NRC regulatory guidance, unless otherwise endorsed or published as such.

Date Issued	Topic	A Afi
06/2021 [/docs/ML2116/ML21168A063.pdf]	Fuel Qualification for Advanced Reactors (NUREG-2246)	NRC draf for c
05/2021 [/docs/ML2111/ML21116A231.pdf]	Corrosion in Sodium Fast Reactors	Oak Nati Lab
05/2021 [/docs/ML2113/ML21139A048.pdf]	An Overview of Non-LWR Vessel Cooling Systems for Passive Decay Heat Removal	Arg Nati Lab
03/2021 [/docs/ML2108/ML21084A041.pdf]	Corrosion in Gas-Cooled Reactors	Oak Nati Lab
03/2021 [/docs/ML2108/ML21084A039.pdf]	Technical Assessment of Materials Compatibility in Molten Salt Reactors	Oak Nati Lab
02/2021 [/docs/ML2101/ML21011A140.pdf]	Design Review Guide (DRG): Instrumentation and Controls for Non-Light-Water Reactor (non-LWR) Reviews • Issued as official staff guidance (86 FR 12989 [https://www.federalregister.gov/documents/2021/03/05/2021-04640/design-review-guide-for-instrumentation-and-controls-for-non-light-water-reactor-reviews])	NRC

01/29/21 [/docs/ML2018/ML20184A151.pdf]	Review of Operating Experience for Transportation of Fresh (Unirradiated) Advanced Reactor Fuel Types	Cen Nuc Was Reg Ana (CN
01/29/21 [/docs/ML2020/ML20209A541.pdf]	Potential Challenges with Transportation of Fresh (Unirradiated) Advanced Reactor Fuel Types	CN\
01/29/21 [/docs/ML2021/ML20211L885.pdf]	Storage Experience with Spent (Irradiated) Advanced Reactor Fuel Types	CN\
01/29/21 [/docs/ML2002/ML20022A217.pdf]	Potential Challenges with Storage of Spent (Irradiated) Advanced Reactor Fuel Types	CN\
01/29/21 [/docs/ML2023/ML20237F393.pdf]	Transportation Experience and Potential Challenges with Transportation of Spent (Irradiated) Advanced Reactor Fuel Types	CN\
01/29/21 [/docs/ML2023/ML20237F397.pdf]	Disposal Options and Potential Challenges to Waste Packages and Waste Forms in Disposal of Spent (Irradiated) Advanced Reactor Fuel Types	CN\
01/29/21 [/docs/ML2102/ML21021A326.pdf]	Information Gaps and Potential Information Needs Associated with Transportation of Fresh (Unirradiated) Advanced Reactor Fuel Types	CN\
09/30/21 [/docs/ML2112/ML21125A256.pdf]	Relevant Advanced Reactor Benchmarks for Nuclear Data Assessment	Oak Nati Lab
09/15/20 [/docs/ML2019/ML20191A259.pdf]	Fuel Qualification for Advanced Reactors (Draft)	NR(draf pap
09/30/20 [/docs/ML2026/ML20267A217.pdf]	Non-Light Water Reactor Fuel Cycle Environmental Data	Pac Nor Nati Lab
09/30/20 [/docs/ML2026/ML20267A157.pdf]	Environmental Impacts from Transportation of Fuel and Wastes to and from Non-Light Water Reactors	Pac Nor Nati Lab

07/31/20 [/docs/ML2021/ML20219A771.pdf]	Proposed Guidance for Preparing and Reviewing a Molten Salt Non-Power Reactor Application • NRC letter dated November 18, 2020, "Endorsement of Appendix A to Oak Ridge National Laboratory Report, 'Proposed Guidance for Preparing and Reviewing a Molten Salt Non-Power Reactor Application,' as Guidance for Preparing Applications for the Licensing of Non-Power Liquid Fueled Molten Salt Reactors," ADAMS Accession No. ML20251A008 [/docs/ML2025/ML20251A008.pdf] .	Oak Nati Lab
07/01/20 [/docs/ML2019/ML20197A257.pdf]	Molten Salt Reactor Fuel Salt Qualification Methodology	Oak Nati Lab
06/30/20 [/docs/ML2027/ML20274A052.pdf]	Key Nuclear Data Impacting Reactivity in Advanced Reactors	Oak Nati Lab
06/30/20 [/docs/ML2019/ML20192A250.pdf]	Technology-Inclusive Determination of Mechanistic Source Terms for Offsite Dose-Related Assessments for Advanced Nuclear Reactor Facilities	Idah Nati Lab
06/30/20 [/docs/ML2017/ML20175A117.pdf]	Human Factors Considerations for Automating Microreactors	San Nati Lab
05/31/20 [/docs/ML2015/ML20157A155.pdf]	Technical Letter Report on The Assessment of Tritium Detection and Control in Molten Salt Reactors: Final Report	Arg Nati Lab
04/01/20 [/docs/ML2015/ML20156A101.pdf]	Technical and Licensing Considerations for Micro-Reactors	San Nati Lab
03/31/20 [/docs/ML2011/ML20112F355.pdf]	Model Materials Controls and Accounting Plan for Pebble Bed Reactors	Oak Nati Lab
02/05/20 [/docs/ML2004/ML20044E249.pdf]	Regulatory Review of Micro-Reactors – Initial Considerations	Bro Nati Lab
01/30/20 [/docs/ML2005/ML20052D133.pdf]	Simplified Approach for Scoping Assessment of Non-LWR Source Terms	San Nati Lab
08/09/19 [/docs/ML1923/ML19234A272.pdf]	Hazards Associated with Molten Salt Reactor Fuel Processing Operations Presentation	Oak Nati Lab

08/07/19 [/docs/ML1923/ML19234A264.pdf]	Metal Fuel Fabrication Safety and Hazards Presentation	Pac Nor Nati Lab
06/30/19 [/docs/ML1920/ML19205A386.pdf]	Review of Hazards for Molten Salt Reactor Fuel Processing Operations	Oak Nati Lab
06/28/19 [/docs/ML1919/ML19193A057.pdf]	Metal Fuel Fabrication Safety and Hazards Final Report	Pac Nor Nati Lab
06/19/19 [/docs/ML1919/ML19192A102.pdf]	Advanced Reactor Siting Policy Considerations	Oak Nati Lab
06/10/19 [/docs/ML1928/ML19282B504.pdf]	NRC Regulatory History of Non-Light Water Reactors (1950-2019)	Bro Nati Lab
03/31/19 [/docs/ML1835/ML18353B121.pdf]	Advanced Non-Light-Water Reactors Materials and Operational Experience	NU Ass
03/31/19 [/docs/ML1907/ML19077A137.pdf]	Technical Gap Assessment for Materials and Component Integrity Issues for Molten Salt Reactors	Oak Nati Lab
11/30/18 [/docs/ML1834/ML18347A303.pdf]	Molten Salt Reactor Fuel Qualification Considerations and Challenges	Oak Nati Lab
08/21/18 [/docs/ML1829/ML18291B305.pdf]	Phenomena Important in Liquid Metal Reactor Simulations	Bro Nati Lab
05/09/18 [/docs/ML1812/ML18124A330.pdf]	Phenomena Important in Modeling and Simulation of Molten Salt Reactors	Bro Nati Lab

Non-LWR Analytical Code Development

In support of IAP Strategy 2, the staff prepared a three-volume report [/docs/ML2003/ML20030A171.html] to describe computer code needs, current capabilities, and gaps relevant to non-LWR confirmatory and future (beyond initial licensing) safety analysis. The reports identify candidate computer codes, the decision criteria and technical rationale applied to the selection process, and specific development activities needed to address known gaps. On May 1, 2019 and September 17, 2019, the staff briefed the Advisory Committee on Reactor Safeguards (ACRS) Future Plant Design Subcommittee on its plans for development of codes for non-LWR

analysis. On October 3, 2019, the staff briefed the ACRS full committee on the role of computer codes in regulatory activities and needs for advanced reactor reviews and codes the staff intends to develop. On November 4, 2019, the ACRS transmitted a letter [/docs/ML1930/ML19302F015.pdf] containing its conclusions, recommendations and constructive feedback on the staff's code development strategies. On January 30, 2020 the NRC published the final version of these reports taking into account ACRS and stakeholder feedback.

On June 29, 2021, the NRC staff hosted a public workshop on the SCALE/MELCOR non-LWR source term demonstration project (see the available video recording [https://youtu.be/8pRplj75NMw]). The workshop covered the application of SCALE and MELCOR to determine source term for a heat pipe reactor. During the workshop, NRC, Sandia National Laboratories, and Oak Ridge National Laboratory staff presented SCALE and MELCOR modeling methods and results for simulating core fission product inventory and decay heat during normal operation and core heat up, and fission product release to the environment during an accident.

Periodic Stakeholder Meetings

The NRC holds periodic stakeholder meetings to discuss non-LWR topics of interest. The following table lists the meetings that NRC has conducted to date in connection with this initiative:

Date	Description	Topics

08/26/21	• Meeting Notice [/docs/ML2123/ML21231A129.pdf]	• Part 71 – Transportation Requirements for Micro-Reactors (NRC) • Material Control and Accounting of Special Nuclear Material of Moderate Strategic Significance (Category II Material): Upcoming Guidance, NUREG-2159, Draft for Public Comment (NRC) • Results of U.S. Nuclear Industry Council's 2021 Advanced Nuclear Survey (USNIC) • Role and Use of Probabilistic Risk Assessment (PRA) in Support of Advanced Reactor Licensing (NRC and NEI) • Status of Non-Light Water Reactor (LWR) PRA Acceptability Regulatory Guide (NRC) • Update on Advanced Reactor Exports Working Group Report (NRC) • Draft White Paper on Inservice Inspection/Inservice Testing Guidance (NRC and Idaho National Lab)

07/15/21	• Meeting Notice [/docs/ML2119/ML21195A378.pdf] • Meeting Slides [/docs/ML2119/ML21195A209.pdf]	• NRC's Advanced Reactor Public Website (NRC) • The Advanced Reactor Generic Environmental Impact Statement and Rulemaking (NRC) • Annual Fees for Non-LWRs (NRC And USNIC) • Technology Inclusive Content of Application Project, and Advanced Reactor Content of Application Project (NRC) • Applicability of Regulations to Non-LWRs (NRC) • Argonne National Laboratory Report for Non-LWR Vessel Cooling Systems (ANL) • Insights on Adapting Licensing Frameworks to New Non-Power Technologies (NRC)
05/27/21	• Meeting Notice [/docs/ML2113/ML21134A182.pdf] • Meeting Slides [/docs/ML2114/ML21146A347.pdf]	• ASME Section III, Division 5 Design Tool Software (NRC) • Revision to NRC Pre-Application Engagement White Paper (NRC) • Inspection and Oversight Framework for Advanced Reactors (NRC) • Export Controls Report on How Advanced Reactors Fit within Part 110 (NRC) • Graded Probabilistic Risk Assessment (PRA) Approach for Advanced Reactors (NRC) • White Paper on Draft Licensing Modernization Project (NRC)

04/15/21	• Meeting Notice [/pmns/mtg?do=details&Code=20210409] • Meeting Slides [/docs/ML2110/ML21103A423.pdf]	• NRC Advanced Reactor Public Website & Integrated Schedule Walkthrough (NRC) • Annual Fees for Advanced Reactors (NRC) • Status of Environmental Topics (SECY-21-0001, ANR GEIS, Categorical Exclusions) (NRC) • Site Reuse Deployment Guidance for Advanced Reactors FOA (SODI, Orano, Southern Co., EPRI) • Risk-Informed Seismic Design and Seismic Isolation (NRC, Southern Co.)

02/25/21	• Meeting Notice [/pmns/mtg?do=details&Code=20210148]
	• Meeting Slides [/docs/ML2105/ML21055A541.pdf]
	• Meeting Summary [/docs/ML2106/ML21068A141.pdf]
		• Construction Permit Guidance
		  • Discussion of NRC Draft Staff White Paper “Safety Review of Power Reactor Construction Permit Applications”
		  • Nuclear Energy Institute (NEI) Construction Permit (CP) topics
		  • U.S. Nuclear Industry Council (USNIC) CP topics
		• Applicability of Regulations
		• Technology Inclusive Content of Application Project (TICAP) and Advanced Reactor Content of Application Project (ARCAP).
		  • TICAP / ARCAP Integration
		  • SAR Level of Detail
		  • Tabletop Exercises – Update and Status
		  • Status of TICAP guidance documents
		  • ARCAP roadmap draft guidance document considerations
		  • Discussion of Draft ARCAP Chapter 11, “Organization,” and Chapter 12, “Initial Startup Program.”

01/21/21	• Meeting Notice [/pmns/mtg?do=details&Code=20201411] • Meeting Slides [/docs/ML2101/ML21019A462.pdf] • Meeting Summary [/docs/ML2107/ML21074A409.pdf]	• Feedback on NEI Regulatory Priorities • Pre-application Engagement White Paper • Pre-application Engagement for Greater Enrichment of Fuels • Incorporation of Atmospheric Transport Dispersion Model in MACCS • Non-LWR Probabilistic Risk Assessment Standard • Update from Department of Energy • ASME Section III, Division 5, High Temperature Reactors
11/05/20	• Meeting Notice [/pmns/mtg?do=details&Code=20201260] • Meeting Slides [/docs/ML2030/ML20309A878.pdf] • Meeting Summary [/docs/ML2034/ML20349A330.pdf]	• Pre-application Engagement • ACRS Lessons-Learned on New Plant Reviews • SECY-20-0093, “Policy and Licensing Considerations Related to Micro-Reactors” • NEIMA Section 103(e) Report to Congress on Part 53 • ASME Section III, Division 5, High Temperature Reactors • Price-Anderson Act Considerations for Non-LWRs
10/01/20	• Meeting Notice [/pmns/mtg?do=details&Code=20201081] • Meeting Slides [/docs/ML2027/ML20274A057.pdf] • Meeting Summary [/docs/ML2035/ML20350B457.pdf]	• Regulatory Analysis of Applicable Regulations for Non-LWRs • Advanced Reactor Generic Environmental Impact Statement (GEIS) • Advanced Reactor Fuel Qualification White Paper • MACCS Code Applicability for Nearfield Consequence Analysis • ORNL Report on Preparing and Reviewing a Molten Salt Non-Power Reactor Application

08/25/20	• Meeting Notice [/pmns/mtg?do=details&Code=20200939] • Meeting Slides [/docs/ML2023/ML20237F430.pdf] • Meeting Summary [/docs/ML2026/ML20260H378.pdf]	• Advanced Reactor Generic Environmental Impact Statement (GEIS)
08/20/20	• Meeting Notice [/pmns/mtg?do=details&Code=20200929] • Meeting Slides [/docs/ML2023/ML20232D114.pdf] • Meeting Summary [/docs/ML2031/ML20317A303.pdf]	• ANL Report, “The Assessment of Tritium Detection and Control in Molten Salt Reactors” • INL Report, “Technology-Inclusive Determination of Mechanistic Source Terms for Offsite Dose-Related Assessments for Advanced Nuclear Reactor Facilities” • Advanced-Reactor Source Term – Pilot Studies • Annual Fee Regulations for Microreactors • Part 53 Rulemaking Plan and White Paper • Industry Perspectives on Part 53 • Spent Fuel Reprocessing Rulemaking • ORNL Report on Preparing and Reviewing a Molten Salt Non-Power Reactor Application
06/18/20	• Meeting Notice [/pmns/mtg?do=details&Code=20200636] • Meeting Slides [/docs/ML2016/ML20169A590.pdf] • Meeting Summary [/docs/ML2020/ML20203M173.pdf]	• Advanced Non-LWR PRA standard • NEI 20-09, “Performance of PRA Peer Reviews Using the ASME/ANS Advanced Non-LWR Standard” • Promoting Preapplication Participation • Annual Fee Regulations for Non-LWRs

05/07/20	• Meeting Notice [/docs/ML2012/ML20127J017.pdf] • Meeting Slides [/docs/ML2012/ML20127H907.pdf] • Meeting Summary [/docs/ML2016/ML20162A163.pdf]	• Promoting Preapplication Participation • Annual Fee Regulations for Non-LWRs • Interim Staff Guidance (ISG) for Micro Reactors and Advanced Nuclear Reactor Generic Environmental Impact Statement (GEIS) • NEI Feedback on PNNL Reports on Approach to Determine the Environmental Data for Non-LWRs • Advanced Reactor Fuel Qualification Guidance • Spent Fuel Reprocessing Rulemaking • Category II Fuel Cycle Facility Security • ASME Section XI Division 2 (Reliability Integrity Management or RIM) • Advanced Reactor Inspection and Oversight Contract

04/22/20	• Rulemaking for Alternative Physical Security Requirement for Advanced Reactors
	  • Meeting Notice [/docs/ML2011/ML20112F411.pdf]
	  • NRC Meeting Slides [/docs/ML2011/ML20111A007.pdf]
		• Rulemaking for Alternative Physical Security Requirement for Advanced Reactors
		  • NRC's preliminary proposed rule language
		  • NRC's disposition of the December 12, 2019 public meeting comments

04/02/20	• Meeting Notice [/docs/ML2009/ML20092N362.pdf]
	• Meeting slides [/docs/ML2009/ML20092L465.pdf]
	• Additional Information Related to Environmental Discussion
	  • Draft Interim Staff Guidance for Micro Reactor Environmental Review Meeting Slides [/docs/ML2009/ML20094G271.pdf]
	  • Federal Register Notice for Providing Comments on Draft Interim Staff Guidance for Micro Reactor Environmental Review [https://www.govinfo.gov/app/details/FR-2020-02-26/2020-03856]
	  • Pacific Northwest National Laboratory (PNNL) "Draft Environmental Impacts from Transportation of Fuel and Wastes to and from Non-LWRs," March 2020 [/docs/ML2008/ML20084L390.pdf]
	  • PNNL "Draft Non-LWR Fuel Cycle Environmental Data," March 2020 [/docs/ML2007/ML20076G075.pdf]
	• Meeting Summary [/docs/ML2013/ML20132A302.pdf]
		• Interim Staff Guidance (ISG) for Environmental Reviews and Generic Environmental Impact Statement (GEIS) Commission Paper
		• PNNL Reports on Approach to Determine the Environmental Data for Non-LWRs
		• Feedback on NEI White Paper, Recommendations for Streamlining NRC Environmental Reviews
		• NEI's Comments on Council of Environmental Quality (CEQ) Proposed NEPA Rulemaking
		• Potential Advanced Reactor Fuel Cycle Activities
		• Draft Design Review Guide (DRG) for Instrumentation and Controls (I&C) Reviews for Non-LWRs
		• Engagement with Advanced Reactor Vendors regarding Codes and Standards
		• Financial Qualification, On-site Insurance, Price-Anderson Act Considerations for Non-LWRs

02/20/20	• Meeting notice [/pmns/mtg?do=details&Code=20200135] • Meeting slides [/docs/ML2005/ML20050E155.pdf] • Meeting Summary [/docs/ML2011/ML20113F056.pdf]	• NRC readiness for non-LWRs and planned update of public website • Nuclear Materials Management and Safeguards System (NMMSS) • Generic Environmental Impact Statement (GEIS) • NEI Environmental Review Report • Technology Inclusive Content of Applications Project (TICAP) • Severe Accident Phenomenology and Source Terms Calculations for Representative Designs • Priorities for Codes and Standards • Non-LWR Probabilistic Risk Assessment Standard • Update from Department of Energy • Non-LWR Policy Issues • Physical Security Rulemaking Update • Emergency Planning Rulemaking Path Forward
12/12/19	• Meeting Notice [/docs/ML1934/ML19344D035.pdf] • Draft Outline for Licensing Modernization Project [/docs/ML1932/ML19325C089.pdf] • Meetings Slides [/docs/ML1935/ML19351E380.pdf]	• Advanced Reactors Materials Workshop • Overview of NEI Micro-Reactor Paper • Non-LWR Review Strategy • Advanced Reactor Preparations for Environmental Reviews • Physical Security Proposed Rule for Advanced Reactors • Technology Inclusive Content of Applications Project (TICAP) • Canadian Nuclear Safety Commission (CNSC) Licensing Approach • Advanced Reactor Export Working Group

10/10/19	• Meeting Notice [/docs/ML1928/ML19280F978.pdf]
	• Meeting Slides [/docs/ML1928/ML19288A183.pdf]
	  • Volcanic Hazards Public Meeting Notice [/docs/ML1926/ML19269D798.pdf]
	  • NRC Regulatory Guide on Volcanic Hazards Assessment Working Outline [/docs/ML1927/ML19276F242.pdf]
	  • Timeline for Issuance of Regulatory Guide for Volcanic Hazards and Anticipated Stakeholder Involvement [/docs/ML1927/ML19276F244.pdf]
	  • DRAFT Non-Light Water Reactor Review Strategy [/docs/ML1927/ML19275F299.pdf]
		• 10 CFR Part 53: Risk-informed, Technology Inclusive Regulatory Framework for Advanced Reactors Rulemaking
		• Export-Controlled Information Technology
		• Volcanic Hazards Regulatory Guide and Upcoming Public Meeting
		• Environmental Topics
		• Draft Documents and Electronic Reading Rooms
		• Manufacturing Licenses
		• Nuclear Energy Innovation and Modernization Act (NEIMA) – Research and Test Reactor Licensing

08/15/19	• Meeting Notice [/docs/ML1922/ML19220A116.pdf] • Meeting Slides [/docs/ML1922/ML19228A263.pdf] • Meeting Summary [/docs/ML1932/ML19322B637.pdf]	• Technology Inclusive Content Applications Project (TICAP) • Action Plan for Reviewing and Endorsing the non-LWR Probabilistic Risk Assessment Standard • Micro-Reactors Regulatory Topics • Concrete and Elevated Temperature • Environmental Interim Staff Guidance and Generic EIS Developments • 10 CFR Part 53: Risk-informed, Technology Inclusive Regulatory Framework for Advanced Reactors Rulemaking • Nuclear Energy Innovation and Modernization Act (NEIMA) • Non-LWR Vision and Strategy Computer Code Reports: Modeling and Simulation of non-LWRs • NRC Non-LWR Computer Code Development Plans • Protecting Sensitive Information

06/27/19	• Meeting Notice [/docs/ML1917/ML19175A218.pdf]
	  • NRC Staff White Paper - Population-Related Siting Considerations [/docs/ML1916/ML19163A168.pdf]
	• Meeting Slides [/docs/ML1917/ML19179A181.pdf]
	• Meeting Summary [/docs/ML1923/ML19239A188.pdf]
		• Technology Inclusive Content Applications Project (TICAP)
		• Siting Guidance
		• Using GEIS In Support of the Construction and Operation of Advanced Nuclear Reactors
		• Consensus Codes and Standards Survey
		• Environmental topics
		  • Interim Staff Guidance for Micro-Reactors Environmental Reviews
		  • NEI white paper Streamlining Environmental Reviews
		• Micro-Reactors
		  • Overview
		  • Task Force High Priorities
		• Endorsement and Gap Analysis of ASME/ANS RA-S-1.4
		• Pre-application Interactions with the NRC
		• Division 5 Endorsement Kick-off
		  • ASME QME-1 for High Temperature Material Qualification for Functional Capability

03/28/19	• Meeting Notice [/docs/ML1906/ML19067A033.pdf] • Meeting Slides [/docs/ML1909/ML19093B830.html] • Meeting Summary [/docs/ML1910/ML19108A104.pdf]	• Nuclear Energy Innovation and Modernization Act • DOE/Office of Nuclear Energy Update • Siting Criteria Related to Population Density (Oak Ridge National Laboratory, NRC, Nuclear Energy Institute, General Discussion) • Mechanistic Source Term (Sandia National Laboratory, NRC, Technology Working Groups, General Discussion)

02/07/19	• Meeting Notice [/docs/ML1902/ML19023A538.pdf]
	• Meeting Slides [/docs/ML1904/ML19045A620.pdf]
	• Meeting Summary [/docs/ML1907/ML19071A285.pdf]
		• Streamlining Environmental Reviews (NRC, NEI)
		• Civil / Structural Issues
		  • Regulatory Interfaces (Southern Co.)
		  • NRC Research Updates (NRC)
		  • Civil/Structural Materials (NEI)
		  • Seismic Isolation (INL)
		  • Generic Seismic Hazard Curves (NRC)
		  • NRC Lessons Learned, Open Discussion

12/13/18	• Meeting Notice [/docs/ML1831/ML18318A069.pdf]
	• Meeting Slides [/docs/ML1834/ML18348B091.pdf]
	• Meeting Summary [/docs/ML1835/ML18354A958.pdf]
		• Modeling & Simulation (NRC)
		• Interface Requirements for Staged Licensing (NIA)
		• Developer Priorities & HALEU (NIC)
		• Policy Issues, Industry Needs Assessment
		  • TRISO topical report
		  • Future Meetings
		• Regulatory Basis Development for Possible Changes to Physical Security Requirements

09/13/18	• Meeting Notice [/docs/ML1824/ML18249A337.pdf] • Meeting Slides [/docs/ML1826/ML18264A122.pdf] • Meeting Summary [/docs/ML1827/ML18275A367.pdf]	• Report on Future of Nuclear Energy in a Carbon-Constrained World and Potential Insights to Prioritize Activities (UWisc) • Consensus Codes and Standards • ASME Section III, Division 5 • Fast Reactor Technology Working Group (Oklo) • Licensing Modernization Project Guidance, Draft Regulatory Guide & Related Draft Commission Paper

07/26/18	• Meeting Notice [/docs/ML1819/ML18199A176.pdf] • Meeting Slides [/docs/ML1821/ML18213A151.pdf] • Meeting Summary [/docs/ML1822/ML18221A411.pdf]	• Licensing Modernization Project • Technology Working Groups - MSR • Prioritization Considering O&M • Natural Convection Shutdown Heat Removal
06/14/18	• Meeting Notice [/docs/ML1815/ML18159A159.pdf] • Meeting Slides [/docs/ML1816/ML18169A379.pdf] • Meeting Summary [/docs/ML1819/ML18193b041.pdf]	• Rightsizing Environmental Reviews • Emergency Planning Rulemaking • Fuel Qualification –Metal Fuel & Legacy Data • Fuel Qualification –TRISO fuel • Fuel Qualification –Molten Salt Reactors • Fuel Cycle & Transportation • Licensing Modernization Project Guidance
05/03/18	• Meeting Notice [/docs/ML1811/ML18116A248.pdf] • Meeting Slides [/docs/ML1813/ML18130A688.pdf] • Meeting Summary [/docs/ML1813/ML18131A176.pdf] • Updated non-LWR Policy Table (May 2018) [/docs/ML1813/ML18130A949.pdf]	• Insights from NuScale Power • Standards Workshop • DOE Update • Guidance for MSR Research/Test Reactors • Safety Focused Review of I&C • Licensing Modernization Project Guidance • Regulatory Engagement Plans • Siting Issues

02/01/18	• Meeting Notice [/docs/ML1801/ML18010A109.pdf]
	• Meeting Slides [/docs/ML1803/ML18036A897.pdf]
	• Meeting Summary [/docs/ML1804/ML18044A038.pdf]
		• Advanced Reactor Program Status (SECY Paper)
		• Environmental Reviews
		• Defense in Depth
		  • NRC Staff Comments
		  • Licensing Modernization Project
		• Streamlined/Predictable Licensing Pathway
		• Functional Containment Performance Criteria
		• Path Forward on Licensing Guidance
		• non-LWR Policy Table

12/14/17	• Meeting Notice [/docs/ML1733/ML17334A251.pdf] • Meeting Slides [/docs/ML1735/ML17354B219.pdf] • Meeting Summary [/docs/ML1801/ML18010A447.pdf] • Updated non-LWR Policy Table (Dec 2017) [/docs/ML1801/ML18010A484.pdf] • Draft Paper on Functional Containment Performance Criteria [/docs/ML1801/ML18010A516.pdf]	• Licensing Modernization White Paper / Defense in Depth (LMP) • Higher Assay LEU & Fuel Cycle (NEI; NRC Staff) • Regulatory Engagement Plans (NEI) • ASME Code Section III, Division 5 (NRC; DOE; ASME) • Nuclear Plant Siting Considerations (NRC Staff; ORNL) • Functional Containment Performance Criteria (NRC Staff) • HTGR TWG Update on TRISO topical report
11/02/17	• Meeting Notice [/docs/ML1729/ML17296B241.pdf] • Meeting Slides [/docs/ML1731/ML17310B495.pdf] • Meeting Summary [/docs/ML1731/ML17319A210.pdf]	• Regulatory Roadmap • Higher Assay LEU • Regulatory Engagement Plans • Financial Protection (Insurance) • Advanced Reactor Design Criteria • Licensing Modernization Project • Functional Containment

09/28/17	• Meeting Notice [/docs/ML1726/ML17263A067.pdf]
	• Meeting Slides [/docs/ML1727/ML17272A141.pdf]
	• Meeting Summary [/docs/ML1731/ML17319B210.pdf]
		• Summary of NRC Standards Forum
		• Licensing Modernization Project
		  • Follow up on PRA Approach Whitepaper
		  • Safety Classification White Paper
		• Advanced Reactor Design Criteria
		• Policy Issues
		  • Insurance
		  • Functional Containment

08/03/17	• Meeting Notice [/docs/ML1720/ML17201A070.pdf]
	• Meeting Slides [/docs/ML1722/ML17220A315.pdf]
	• Meeting Summary [/docs/ML1722/ML17229B317.pdf]
	• Updated Non-LWR Policy Table [/docs/ML1722/ML17229B311.pdf]
		• Implementation Action Plans
		• Prototype Testing [/docs/ML1702/ML17025A353.pdf]
		• Regulatory Engagement Plans (NEI)
		• Fuel Qualification
		  • TRISO Fuel (INL and Industry)
		  • Metal Fuel (ANL)
		  • Molten Salt (ONRL)

06/22/17	• Meeting Notice [/docs/ML1716/ML17163A139.pdf] • Meeting Slides [/docs/ML1717/ML17177A244.pdf] • Meeting Summary [/docs/ML1718/ML17181A516.pdf]	• Policy Issues • Feedback on SDA/Major Portions • Feedback on Licensing Basis Events • Probabilistic Risk Assessment Approach • Nuclear Infrastructure Council
05/3-4/17	• Meeting Notice [/docs/ML1710/ML17108A693.pdf] • Meeting Slides [/docs/ML1713/ML17130A782.pdf] • Meeting Summary [/docs/ML1714/ML17144A403.pdf]	• NEI Physical Security White Paper • UCS Views on the NEI Security White Paper • LMP Licensing Basis Event White Paper • Planned LMP PRA White Papers • Functional Containment Performance Criteria • NIA White Paper – SDA / Major Portions • Policy Issues Update –non-LWRs

03/22/17	• Meeting Notice [/docs/ML1706/ML17069A365.pdf]
	• Meeting Slides [/docs/ML1708/ML17086A419.pdf]
	• Meeting Summary [/docs/ML1709/ML17090A574.pdf]
		• Joint Discussions
		  • Mid- and Long-Term Implementation Action Plans
		  • Security Design Considerations
		  • Licensing Project Plans
		• Policy Issues Discussion (NIC)
		• Major Portions Discussion (NIA)
		• Licensing Technical Requirements Modernization Project (NEI/Southern)

02/02/17	• Meeting Notice [/docs/ML1701/ML17019A052.pdf]
	• Meeting Slides [/docs/ML1703/ML17037D371.pdf]
	• Meeting Summary [/docs/ML1705/ML17052A809.pdf]
		• NRC Discussions of:
		  • Vision & Strategies
		  • Implementation Action Plans
		  • Policy Issues
		• DOE Update - Regulatory Process Improvements for Advanced Reactor Designs
		• Nuclear Infrastructure Council – Regulatory Improvements in Advanced Reactor Designs
		• Nuclear Innovation Alliance – Update on “Major Portions” of a Standard Design Approval
		• Nuclear Energy Institute – Licensing Technical Requirements Modernization Project (Licensing Basis Event Selection)

12/15/16	• Meeting Notice [/docs/ML1633/ML16335A457.pdf]
	• Meeting Slides [/docs/ML1635/ML16355A250.pdf]
	• Meeting Summary [/docs/ML1635/ML16355A251.pdf]
		• NRC Staff – Non-LWR Vision and Strategies
		  • Implementation Action Plans, Volume 2
		  • Draft Regulatory Review Roadmap
		  • DOE Update
		  • Table of Small Modular Reactor and Advanced Reactor Technical and Policy Issues
		• Nuclear Innovation Alliance Presentation on “Major Portions” of a Standard Design Approval
		• Nuclear Infrastructure Council Presentation
		• Nuclear Energy Institute/Southern Company Services Presentation – Licensing Technical Requirements Modernization Project

10/25/16	• Meeting Notice [/docs/ML1629/ML16294A407.pdf]
	• Meeting Slides [/docs/ML1630/ML16306A421.pdf]
	• Meeting Summary [/docs/ML1630/ML16306A416.pdf]
		• Vision and Strategies
		  • Implementation Action Plans
		• Draft Regulatory Review Roadmap
		• DOE Vision and Strategy for the Development and Deployment of Advanced Reactors
		• Secretary of Energy Advisory Board Task Force on the Future of Nuclear Power Draft Report
		• Nuclear Infrastructure Council
		• Nuclear Innovation Alliance
		• Nuclear Energy Institute
		  • NEI Advanced Reactor Regulatory Task Force Activities
		  • Modernization of Technical Requirements for Licensing of Non-Light Water Reactors

07/27/16	• Meeting Notice [/docs/ML1618/ML16181A321.pdf]
	• Meeting Slides [/docs/ML1622/ML16222A395.pdf]
	• Meeting Summary [/docs/ML1623/ML16236A110.pdf]
		• NRC Background and Status
		  • Draft "NRC Vision and Strategy for Non-Light Water Reactor Mission Readiness"
		  • Flexible review options
		• NEI Staged Application Survey Results – Advanced Reactor Regulatory Task Force

Related Documents

Over the years, a number of Commission papers and Commission Policy statements have been written on various topics related to licensing of advanced reactors. The staff has assembled a collection [/reactors/new-reactors/advanced/policy-issues.html] of these documents spanning from 2001 to the present. The staff has also assembled a list of stakeholder position papers [/reactors/new-reactors/advanced/stakeholder-papers.html] identifying stakeholder documents that communicate opinions to the staff on technical or policy issues.

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