
Public Meeting – Draft New Reactor Generic Environmental Impact Statement and Proposed Rule

Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission

November 2024



NRC Accession Number:
ML24284A346

Meeting Purposes

- Describe the NRC's process for the development of the draft NR GEIS: NUREG-2249, *Generic Environmental Impact Statement for Licensing of New Nuclear Reactors*
- Share the proposed amendments to 10 CFR Part 51
- Describe how you can provide comments
- Listen to and gather your comments



Agenda

- Purpose of the Generic Environmental Impact Statement for Licensing of New Nuclear Reactors (NR GEIS)
- Background
- Process and Methodology
- Preliminary Findings of the NR GEIS
- Proposed Amendments to 10 CFR Part 51
- Schedule
- How to Submit Comments
- Public Comment Session

Logistics

- NRC is actively soliciting input to aid the NRC staff's efforts
- Facilitators are here to assist
- Will open floor to questions and comments after the presentation
- Presentation slides can be found in ADAMS at ML24284A346
- Meeting is being transcribed
- No regulatory decisions will be made at today's meeting

U.S. Nuclear Regulatory Commission An Independent Regulatory Agency

NRC Mission

We license and regulate U.S. civilian use of radioactive materials, protecting human health and safety, promoting the nation's common defense and security, and protecting the environment



**Strategic
Plan
Fiscal Year
2022- 2026**

Purpose of the NR GEIS

- Present impact analyses for environmental issues common to many new nuclear reactors that can be addressed generically, to:
 - Eliminate the need to reproduce the same analyses during licensing reviews
 - Allow NRC staff to focus environmental review efforts on issues that can only be resolved once a site is identified
- Improve the efficiency of licensing new nuclear reactors by:
 - Identifying the possible types of environmental impacts of constructing, operating and decommissioning a nuclear reactor
 - Assessing impacts that are expected to be generic (the same or similar) for many nuclear reactors
 - Defining the environmental issues that will need to be addressed in project-specific supplemental environmental impact statements (SEISs)

Background

Nov. 15, 2019	NRC initiates an exploratory process to determine the possible utility of developing a GEIS for licensing advanced nuclear reactors (84 FR 62559)
Feb. 28, 2020	NRC staff informs the Commission that it has concluded that developing a GEIS is viable and would generically resolve many environmental issues, reduce licensing review time and costs, and increase regulatory stability and predictability for applicants (SECY-20-0020)
Apr. 30, 2020	NRC issues a Notice of Intent to prepare the GEIS (85 FR 24040)
Sept. 21, 2020	Commission approves the development of the GEIS, and directs staff to codify the results of the GEIS (SRM-SECY-20-0020)
Nov. 29, 2021	Proposed rule and draft GEIS sent to the Commission (SECY-21-0098)
Apr. 18, 2024	Commission approves proposed rule and draft GEIS for publication subject to edits and comments (SRM-SECY-21-0098)
Oct. 4, 2024	NRC issues Notice of Availability for proposed rule and draft GEIS for public comment (89 FR 80797)

SRM-SECY-21-0098 *(April 18, 2024)*

NRC Commission approved publication of the proposed rule subject to the following:

- Change the limited applicability of the GEIS from solely “advanced nuclear reactors” to any new nuclear reactor application
 - Provided the application meets the values and assumptions of the plant parameter envelope (PPE) and site parameter envelope (SPE) used to develop the GEIS
- Clarify that any applicable site-specific and conditionally site-specific issues identified in the Decommissioning GEIS will need to be addressed in project-specific environmental reviews
- Remove references to fusion reactors
- Include a provision requiring a review of the GEIS every 10 years

Process and Methodology

Technology-neutral, performance-based approach using a plant parameter envelope (PPE) and a site parameter envelope (SPE)

- **PPE** – consists of parameters for specific reactor design features regardless of the site
 - For example: reactor footprint, building height, water use, air emissions, employment levels, noise generation levels
- **SPE** – consists of parameters specific to the location where the reactor may be sited
 - For example: site size, size of water bodies supplying water to the reactor, demographics

Process and Methodology *(continued)*

For each PPE and SPE parameter, the NRC developed a set of bounding values and assumptions based upon:

- Regulatory limits and permitting requirements relevant to the resource as established by Federal, State, or local agencies
- Relevant information obtained from other NRC GEISs
- Empirical knowledge gained from conducting evaluations and analyses for past new reactor EISs and operating reactor SEISs
- Values and assumptions derived from other documents applying a PPE/SPE approach
- Subject matter expertise and/or development of calculations and formulas based upon education and experience with the resource

Process and Methodology *(continued)*

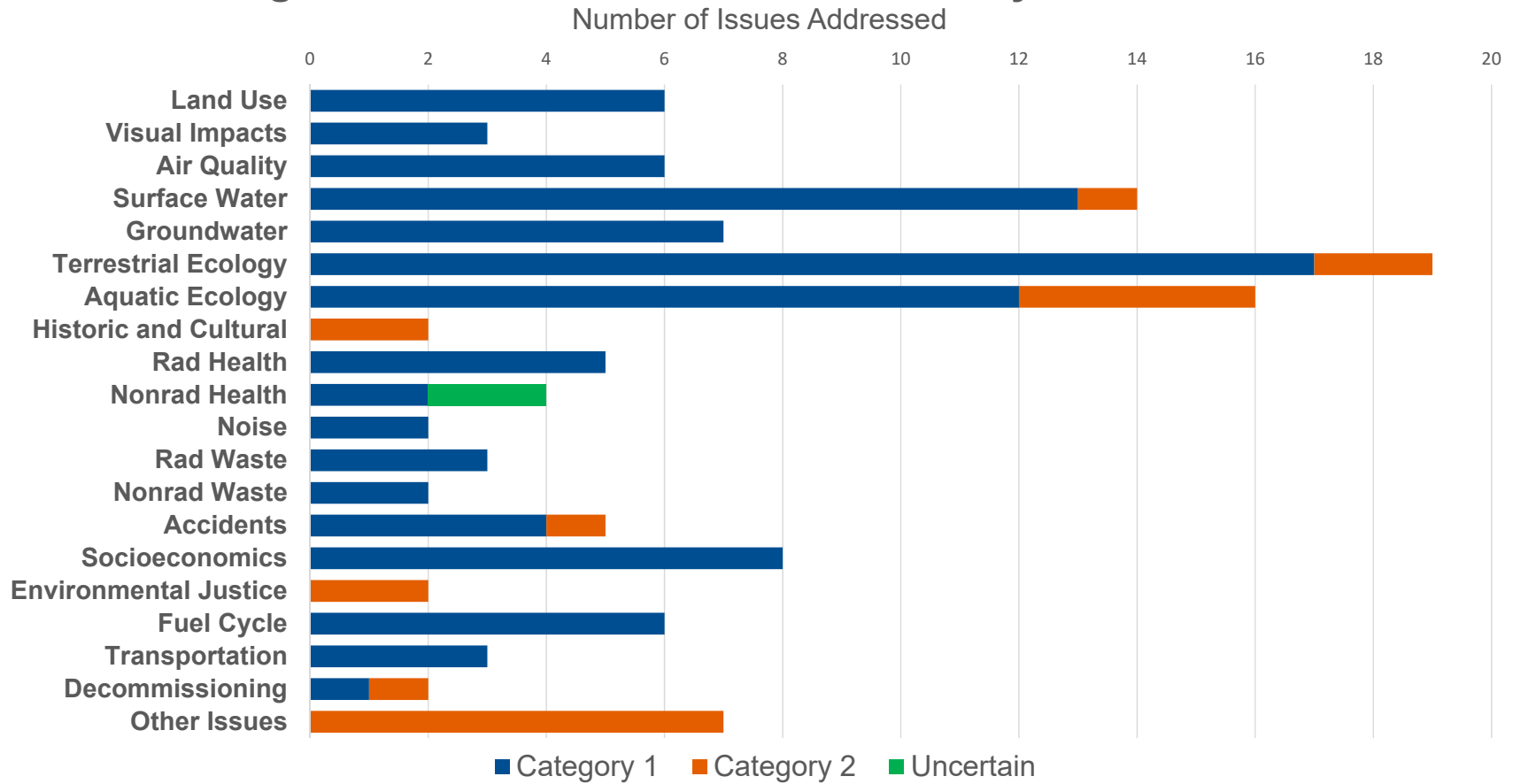
Each issue was assigned a category as follows:

- **Category 1 issues** – environmental issues for which a generic analysis concluding SMALL adverse environmental impacts is possible, provided that relevant values and assumptions in the PPE and SPE are met, or beneficial impacts
- **Category 2 issues** – environmental issues for which a meaningful generic analysis of environmental impacts is not possible because the issue requires consideration of project-specific information
- **N/A (Uncertain) issues** – environmental impacts of these issues are uncertain

Preliminary Findings

- 122 total issues in 16 environmental resource areas:
 - 100 Category 1 issues
 - 20 Category 2 issues
 - 2 N/A (Uncertain) issues
- Table 4-1 of the NR GEIS includes a list of all issues and relevant PPE/SPE values and assumptions, as applicable:
 - The bases for these values and assumptions are included in Appendix G of the NR GEIS
 - NRC proposes to codify these generic findings (Category 1 issues) in 10 CFR Part 51

Categorization of Issues in the NR GEIS by Resource Area



Category 1 Issue Example

ISSUE	FINDING	PPE/SPE VALUES AND ASSUMPTIONS
Onsite Land Use	Small	<ul style="list-style-type: none"> • The proposed project, including any associated land uses, complies with NRC siting regulations in 10 CFR Part 100. • The site size is 100 ac or less. • The permanent footprint of disturbance includes 30 ac or less of vegetated lands, and the temporary footprint of disturbance includes no more than an additional 20 ac or less of vegetated lands. • The proposed project complies with the site’s zoning and is consistent with any relevant land use plans or comprehensive plans. • The site would not be situated closer than 0.5 mi to existing residential areas or 1.0 mi to sensitive land uses such as Federal, State, or local parks; wildlife refuges; conservation lands; Wild and Scenic Rivers; or Natural Heritage Rivers. • The site does not have a history of past industrial use capable of leaving a legacy of contamination requiring cleanup to protect human health and the environment. • The total wetland loss from use of the site, including use of any offsite rights-of-way, would be no more than 0.5 ac. • Best management practices for erosion, sediment control, and stormwater management would be used. • Compliance with any mitigation measures established through zoning ordinances, local building permits, site use permits, or other land use authorizations.

Category 2 Issue Example

ISSUE	FINDING	PPE/SPE VALUES AND ASSUMPTIONS
Surface Water Quality Degradation Due to Chemical and Thermal Discharges	Undetermined	The staff determined that a generic analysis to determine operational impacts on surface water quality due to chemical and thermal discharges was not possible because (1) some States may impose effluent constituent limitations more stringent than those required by the EPA, (2) limitations imposed on effluent constituents may vary among States, and (3) the establishment of a mixing zone may be required. Because all of these issues related to degradation of surface water quality from chemical and thermal discharges require consideration of project-specific information, a project-specific assessment should be performed in the SEIS.

Implementation of the NR GEIS

- Applicants may rely on Category 1 NR GEIS findings in their environmental report without further analysis, provided that:
 - They demonstrate that the relevant values and assumptions of the PPE and SPE used in the resource analysis are met
 - There is no new and significant information that would require project-specific analysis
- NRC Staff would:
 - Verify the PPE/SPE demonstration for Category 1 issues
 - Audit the applicant's new and significant process
 - Produce a SEIS that focuses on Category 2 issues and Category 1 issues that do not meet the PPE/SPE values

Proposed Amendments to 10 CFR Part 51

- Add a new appendix C to subpart A of 10 CFR Part 51 to codify the NR GEIS generic findings
- Require that on a 10-year cycle, the Commission intends to review the material in appendix C and update if necessary
- Revise § 51.50 to provide applicants with the option to use the NR GEIS when preparing environmental reports for new reactors
- Revise § 51.75 to require the NRC staff to use the NR GEIS in preparing its draft EIS if an applicant referenced the NR GEIS in its application
- Add a new section (§ 51.96) to provide the NRC staff with directions on preparing its final EIS referencing the NR GEIS

Supporting Guidance

- **Draft Regulatory Guide (DG-4032)** - Preparation of Environmental Reports for Nuclear Power Stations (Proposed Revision 4 to Regulatory Guide 4.2)
 - Provides guidance to applicants on preparing the environmental report when relying on the NR GEIS
- **Draft Interim Staff Guidance (COL-ISG-030)** - Considerations Associated with New Nuclear Reactor Applications that Reference the Generic Environmental Impact Statement (NUREG-2249)”
 - Provides guidance to the NRC staff on the use of the NR GEIS

Accessing Key Supporting Documents

DOCUMENT NAME	ACCESSION #
Draft Generic Environmental Impact Statement for Licensing of New Nuclear Reactors, NUREG-2249 (NR GEIS)	ML24176A220
Federal Register Notice for the Generic Environmental Impact Statement for Licensing of New Nuclear Reactors (proposed rule)	ML24176A216
Draft Regulatory Analysis for the 10 CFR Part 51, Generic Environmental Impact Statement for Licensing of New Nuclear Reactors	ML24176A218
Draft Regulatory Guide - Preparation of Environmental Reports for Nuclear Power Stations (Draft Regulatory Guide DG-4032/Proposed Revision 4 to Regulatory Guide 4.2)	ML24176A228
Draft Interim Staff Guidance – Environmental Considerations for New Nuclear Reactor Applications that Reference the Generic Environmental Impact Statement for Licensing of New Nuclear Reactors (NUREG-2249)	ML24176A231
Recommendations for an Applicant to Calculate Activity Data for Greenhouse Gases Estimates (GHG White Paper)	ML21225A768
Energy and System Design Mitigation Alternatives White Paper	ML21225A754

Regulatory Analysis

- **Results** –

- Proposed rule affords an estimated net benefit of
 - \$28.9 million (net present value) using a 7-percent discount rate or
 - \$34.7 million using a 3-percent discount rate
 - \$40.1 million undiscounted

- **Assumptions** –

- 20 applications (based on letters of intent received from potential applicants)
- Covers the 10-year period after rule issuance (2026–2036)

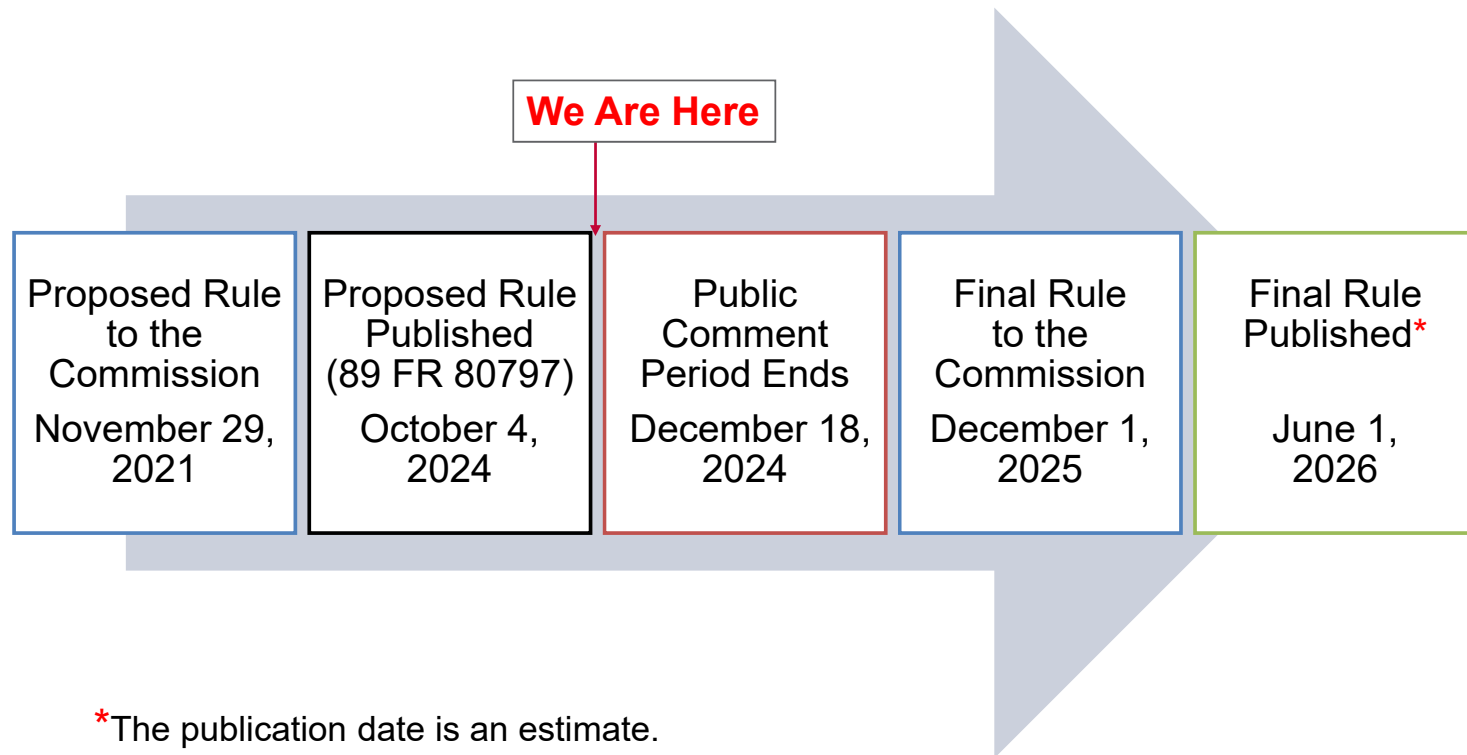
- **Process** –

- Category 1 – analysis of issue-by-issue cost savings attributable to proposed rule
- Category 2 – require a project-specific analysis; thus, costs are not impacted by proposed rule

Paperwork Reduction Act

- Proposed rule contains amended collections of information subject to the Paperwork Reduction Act of 1995
- Estimated to reduce reporting burden by 6,500 hours per application submitted (15,000 hours reduced to 8,500 hours using the NR GEIS)
- Estimated cost savings of \$1.9M

NR GEIS Rulemaking Schedule



Specific Requests for Comment

1. PPE and SPE values and assumptions

- Is NRC using an inappropriate value to result in a SMALL impact?

2. Environmental issues evaluated

- Are there any environmental issues that the NRC did not include in the scope of the NR GEIS and the proposed rule that should be included?

3. Categorization of issues

- Are the environmental issues categorized appropriately (Category 1 versus Category 2)?

Specific Requests for Comment *(continued)*

4. Scope of proposed rule changes and NR GEIS

- Is the applicability of the NR GEIS clear?
- Do the proposed revisions adequately address all licensing scenarios associated with evaluating the environmental impacts of permitting and licensing new nuclear reactor construction and operation?

5. Guidance for applicants – Draft RG 4.2

- Are the methods described in the draft revision to RG 4.2 for demonstrating values and assumptions appropriate?

Specific Requests for Comment *(continued)*

6. Limited Work Authorizations (LWA)

- Should the NR GEIS and the rule be expanded to include NRC approval of LWAs for new nuclear reactor applications?

Specifically –

- Should an LWA applicant that demonstrates that its proposed project meets or is bounded by the PPE and SPE values and assumptions for a given Category 1 issue be able to rely on the generic findings for that issue in preparing the environmental report?
- Should the NRC be able to rely on the generic findings for that Category 1 issue in preparing its supplemental environmental impact statement?

How to Submit Comments

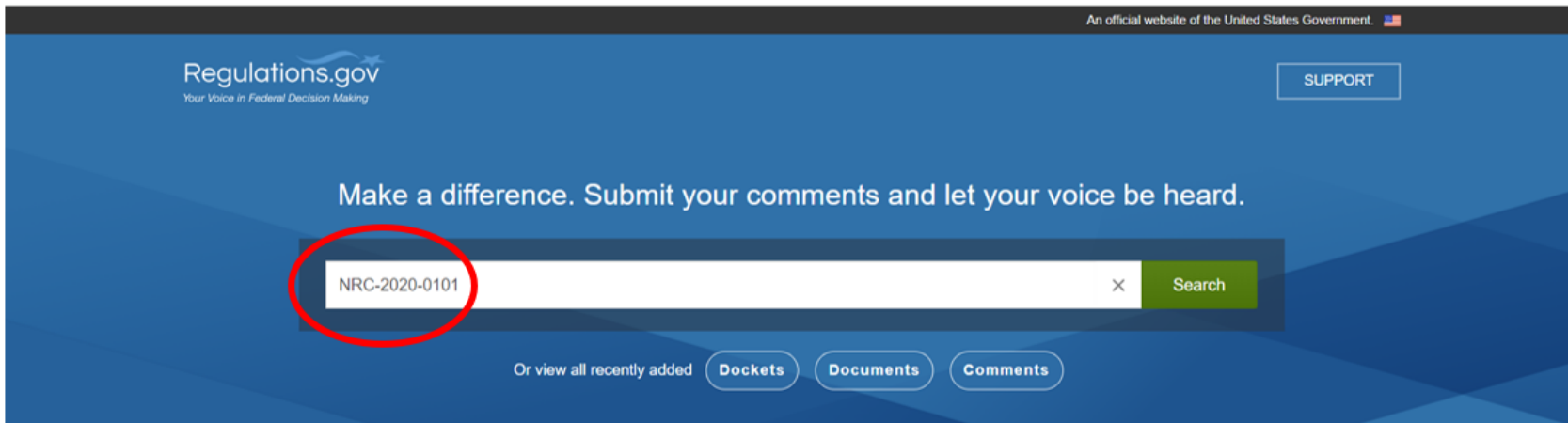
- Verbally at today's meeting
- **Online:** <https://www.regulations.gov> and search for Docket ID# NRC-2020-0101
- **Email:** Rulemaking.Comments@nrc.gov
- **Mail:** Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Rulemakings and Adjudications Staff
- **Fax:** Secretary, U.S. Nuclear Regulatory Commission at 301-415-1101
- **Hand delivered:** 11555 Rockville Pike, Rockville, Maryland 20852

COMMENT PERIOD ENDS: DECEMBER 18, 2024

All comments should reference Docket ID# NRC-2020-0101

Where to Find Project Documents and Information

Regulations.gov: Search for Docket ID# NRC-2020-0101



**NRC Project
Website:**

<https://www.nrc.gov/reactors/new-reactors/advanced/modernizing/rulemaking/advanced-reactor-generic-environmental-impact-statement-geis.html>

OR

Search for “NRC New Nuclear Reactor GEIS”

Points of Contact

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Public Comment Session

- Participants wishing to provide comments will be given an initial 3 minutes (to accommodate as many persons as possible)
- Please identify yourself and your organization, if any
- Please focus your comments on the NR GEIS and related topics
- If time allows, we will loop back around for a second round of commenting



Next Steps for the NRC Staff

- Review and respond to substantive comments received on the NR GEIS
- Update the NR GEIS, the rule, and supporting documents as appropriate
- Send the revised rule to the Commission for review and approval by December 1, 2025

Thank you for attending today's meeting!