Appendix E: Environmental Review: Schedule Analysis and Considerations

Background

Under the environmental protection regulations of the U.S. Nuclear Regulatory Commission (NRC) in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," which implement section 102(2) of the National Environmental Policy Act (NEPA), the renewal of a nuclear power plant operating license requires the preparation of an environmental impact statement (EIS). The NRC revised these environmental protection regulations in 1996 to facilitate the environmental review of license renewal (LR) applications. The 1996 rule codified the findings of the generic evaluation, NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," issued May 1996 (LR GEIS), into the regulations in 10 CFR Part 51, Subpart A, "National Environmental Policy Act—Regulations Implementing Section 102(2)," Appendix B, "Environmental Effect of Renewing the Operating License of a Nuclear Power Plant," Table B-1, "Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants," and required certain issues to be evaluated generically for all plants, rather than separately in each plant's LR application.

The NRC recognized that environmental issues might change over time and that the agency may need to consider additional issues. Based on this recognition, the NRC noted its intent to review the material in Appendix B, including Table B-1 and the underlying LR GEIS, on a 10-year basis, and update it if necessary. Subsequently, the NRC completed its first review of the 1996 LR GEIS and Table B-1 on June 20, 2013. That review of the LR GEIS considered lessons learned and knowledge gained from completed LR environmental reviews since 1996. The updated LR GEIS, Revision 1, issued June 2013, and final rule (78 FR 37282), including Table B-1, refined the number and scope of the NEPA issues that must be addressed in LR environmental reviews.

The NRC began the second 10-year review in August 2020 by publishing a notice of intent to review and potentially update the LR GEIS, which contained the staff's preliminary analysis, including for subsequent license renewal (SLR) applications. On July 22, 2021, the NRC staff submitted a rulemaking plan in SECY-21-0066, "Rulemaking Plan for Renewing Nuclear Power Plant Operating Licenses—Environmental Review," dated July 22, 2021, requesting Commission approval to initiate a rulemaking to amend Table B-1 and update the LR GEIS and associated guidance.

On February 24, 2022, the Commission issued several decisions, including Commission Orders CLI-22-02 and CLI-22-03. In CLI-22-03, the Commission held the following:

> …the 2013 [LR] GEIS did not consider the impacts from operations during the subsequent license renewal period and applicants for subsequent license renewal must evaluate Category 1 [(i.e., generic)] impacts in their environmental reports. Accordingly, these impacts must be addressed on a site-specific basis in the Staff's site-specific environmental impact statements.

In addition, the Commission held that 10 CFR 51.53(c)(3) only applies to an initial LR applicant's preparation of an environmental report. As a result, the Commission determined, among other things, that the NRC's environmental reviews of pending SLR applications were incomplete and directed the staff to prepare an update to the 2013 LR GEIS. In CLI-22-03, the Commission further stated that if an applicant does not wish to wait for the completion of the generic analysis

and associated rulemaking, “the applicant may submit a revised environmental report providing information on environmental impacts during the SLR period.”

In February 2022, the Commission also issued Staff Requirements Memorandum (SRM)-SECY-21-0066, directing the NRC staff to develop a rulemaking plan that aligned with the Commission orders. The SRM also directed the staff to include in the rulemaking plan a proposal to revise the LR GEIS, Table B-1, other regulations, and associated guidance to fully account for one term of SLR.

Since the issuance of these Commission orders, three SLR applicants have submitted revised environmental reports that evaluate, on a site-specific basis, applicable Category 1 issues listed in the 2013 LR GEIS. Three SLR applicants have also submitted initial environmental reports that provide site-specific analyses for applicable Category 1 and Category 2 (i.e., site-specific) issues.

In parallel to its review of initial LR and SLR applications, the staff continues to address the environmental review infrastructure. In addition to its efforts to develop a revised LR GEIS that will fully support SLR, the NRC staff is also evaluating the new NEPA requirements set forth in section 321 of the Fiscal Responsibility Act (FRA) and assessing their broader implications for the NRC’s environmental review processes. An interdisciplinary staff working group has been created to evaluate the FRA NEPA amendments and how they affect the NRC’s environmental review regulations, including 10 CFR Part 51 and related guidance, processes, and policy, with a goal of providing a notation vote paper to the Commission in May 2024 that will include options and recommendations to address the new FRA requirements.

Recent Actions to Increase Efficiency

The NRC staff has taken actions to increase efficiency across many facets of the EIS process, including document development, external engagement, and the publication process. Table E-1 gives examples of these process improvements.

Table E-1 Recent Process Improvements for Environmental Reviews of LRs/SLRs

	Initiative
1	Streamline EIS Development The staff will continue to incorporate by reference relevant LR EISs during development of SLR EISs and eliminate duplicative information across EIS chapters. The staff began implementing these initiatives during the development of the SLR EISs for Turkey Point Nuclear Plant and North Anna Power Station, and the result is a reduction in staff hours required to draft sections of the EIS.
2	Agile Methodology for Workload Planning In December 2022, the staff began applying an agile methodology for workload planning to balance review schedules. Under the agile schedule, the staff identifies periods of overlapping priorities and ensures schedule flexibility around fixed milestones (e.g., 60-day acceptance reviews, 30-day scoping periods, 45-day comment periods). This

	Initiative
	allows early identification of necessary contract support, shifts in work priorities (e.g., hearings, extension of scoping or draft EIS comment periods), and schedule risks. Due to the success of the agile methodology in balancing initial LR and SLR priorities, the staff will expand its use across the Environmental Center of Expertise (ECOE) to manage technical review work and effectively prioritize resources across business lines, which will support more efficient workload management.
3	Realignment of the ECOE A recent organizational realignment in November 2023 was initiated to improve resource loading in the longer term through subject matter expert resource sharing, facilitate staff initial qualification and cross-qualification, allow for more holistic management of workloads across business lines, and provide more appropriate supervisor-to-staff ratios. The expanded availability of resources will allow for better workload management and reduce the risk of review schedule delays due to concurrent workload.
4	Use of Technology Tools to Improve Audits The staff will continue to refine its use of hybrid audits by leveraging virtual meetings and the use of information technology tools to allow for more focused onsite reviews of structures, systems, and components to support the environmental review. The staff began to fully leverage these tools during the Coronavirus Disease 2019 pandemic, and continued use of virtual audits has reduced the number of staff hours and travel costs needed to successfully complete environmental audits for initial LR and SLR reviews.
5	Requests for Confirmatory Information (RCIs) The staff will continue its increased use of RCIs when applicable, rather than requests for additional information, to facilitate reduced applicant turnaround time. The use of RCIs has reduced the number of hours required to develop information requests while also reducing applicant time and resources in responding to requests.
6	Improvements in Comment Processing The staff has worked to streamline and improve scoping and draft EIS comment processing time for comments submitted through regulations.gov by allowing for batch processing of multiple comments. The staff will continue to work with internal counterparts to explore additional opportunities to expedite the administrative processing of public comments. Streamlining the administrative steps for processing public comments has resulted in a time savings of up to 1 week, depending on comment volume, and has reduced the overall staff hours required to perform these tasks.

	Initiative
7	Streamlining Administrative Prepublication Reviews As part of the expanded use of contractor support, the staff has integrated technical editing as part of document preparation, which has allowed for the Office of Administration to streamline its review in support of draft EIS publication by eliminating duplicative technical editing. These changes have resulted in a reduced turnaround time and expedited publication of draft EISs. The staff will continue to work with the Office of Administration to ensure its reviews are appropriately scoped while effectively complying with agency publishing standards. By reducing duplicative editing on documents, the staff has reduced the timeframe for each of these reviews by at least 1 week.
8	Assessment of Nonrequired Public Meetings Recent efficiency gains achieved by reducing the scoping period have been offset slightly by the additional burden of holding two separate public meetings to accommodate both virtual and in-person attendees. Under the current practice, a webinar is held separately from an in-person meeting during the comment period, as hybrid meetings present significant logistical challenges at many offsite meeting locations. As scoping meetings are not required by NRC regulations, the staff will continue to assess whether holding these meetings, or multiple public meetings, is an effective use of staff resources based on recent public meeting data and feedback. If the staff determines that it can effectively engage the public through virtual meetings, it will reduce staff hours, travel, and other costs associated with holding an in-person meeting.
9	Increased Use of Contractor Support for Reviews In 2023, the staff significantly increased the capacity for contractor support of environmental reviews. The staff will continue to leverage contractor support to meet the demands of the high concurrent workload and expects to realize efficiency gains as the contractor gains experience specific to initial LR and SLR environmental reviews. While contractor reviews have required additional NRC effort up front to ensure consistency of reviews and quality of written products, the staff expects the cost to level out in the near term. This additional technical review resource capacity has been and will remain critical to ensuring published schedule milestones are met for current initial LR and SLR reviews.

Environmental Review Schedule Considerations

The NRC's implementation of the NEPA process for EIS development and issuance requires fixed external portions of the review. In accordance with the requirements in 10 CFR Part 51, the staff is required to conduct a scoping process. The staff has reduced this period to 30 days as the minimum time needed to invite external stakeholders and to allow for meaningful engagement and input into the scope of the NRC's environmental review. Following the

issuance of the draft EIS, the NRC also solicits public comment, as required by NEPA. The NRC is obligated to provide a minimum of 45 days for such public comments. Another mandated period is a 1-month cooling-off period following the publication of the final EIS, which must be completed before a final licensing decision can be made.

As part of the NEPA process, the NRC staff also engages in a number of required consultations (e.g., related to section 106 of the National Historic Preservation Act, the Endangered Species Act (ESA), section 401 of the Clean Water Act). Each of these consultations requires coordination with other Federal or State agencies or Tribal officials, and the timeframes for these interactions are often based on schedule priorities for other agencies or minimum timeframes established by regulation (i.e., a 180-day minimum by regulation for formal ESA consultation, if required). While the staff typically submits consultation analyses in parallel or ahead of the draft EIS publication to ensure sufficient time to receive and resolve comments before the issuance of the final EIS, in some instances these consultations are still in process as the EIS moves from draft to final.

While a portion of an 18-month schedule is composed of legislative or regulatory requirements and consultation timelines, the staff will continue to work efficiently within its available time. By refining internal processes through the efforts noted above and working to improve the identification and communication of key interface milestones with counterparts within the NRC, the staff will be able to further optimize some of the review and administrative steps that are required to issue the draft and final EIS documents.

Though ultimately the staff is working to streamline EIS development through incorporation by reference of the newly revised LR GEIS under consideration by the Commission, if approved, these efficiencies are not automatic and will require additional upfront work to complete before the benefits can be realized. Upon completion of the LR GEIS rulemaking, the staff will be able to incorporate generic findings for SLRs that currently require the development of full EISs. In the near term, additional review will be needed for those plants affected by the February 2022 Commission orders, and there is uncertainty in the volume and nature of work that will be necessary to complete these reviews, depending on where the related applications are in the review and publication process. After this work has been completed, the staff will be able to work toward routine 18-month schedules.

Current License Renewal Environmental Workload

Following the February 2022 Commission orders, the NRC currently has 13 environmental reviews in various stages of completion, including four applications under initial LR review, three supplemental site-specific applications, and three site-specific SLR applications. Three other SLR applications are planning to leverage the updated LR GEIS, if approved by the Commission. In addition, the NRC expects to receive an additional site-specific SLR application in April 2024. Appendix A summarizes these current initial LR and SLR reviews and future submittals.

Technical reviewers within the ECOE are shared across multiple NRC business lines (e.g., New Reactors, Operating Reactors, Spent Fuel Storage and Transportation, Fuel Facilities, Decommissioning and Low-Level Waste) to complete agency environmental review work, and each has their own set of priorities. The ECOE follows the business lines' leads to establish priorities and has developed an integrated list of work priorities to facilitate prioritization across business lines and optimize its ability to manage workload changes.

Upon receipt of an application for initial LR or SLR, a schedule is developed based on known resource needs for existing and near-term reviews and the prioritization scheme. For example, the staff set a 22-month schedule for Virgil C. Summer Nuclear Station, which has a renewed license that expires in August 2042, while it set an 18-month schedule for Diablo Canyon Power Plant, Units 1 and 2, which is an initial renewal for licenses that expire in November 2024 and August 2025, respectively.

The schedules for environmental reviews have been built to ensure compliance with the 24-month requirement in the FRA for EISs by holding at or near 22 months with the external and internal schedule dependencies outlined above. Schedules are built to maintain some flexibility without major schedule changes if there are slight delays during the review periods (e.g., outages running longer postponing audits, complicated requests for additional information due to emergent issues, support for contested hearings).

Staffing Considerations

Throughout the development of recent initial LR and SLR EISs, certain resource areas have emerged as critical paths due to high volumes of public comments and technical complexities or emergent issues within those areas. Resource areas such as Surface Water, Groundwater, Geology, Alternatives, Biology, Archaeology, Human Health, Fuel Cycle, Air Quality, Meteorology, and Climate Change remain a critical need for ECOE staffing, with only one or two qualified technical reviewers in each area. Addressing these needs is a top priority given the high concurrent workload, even with 22-month schedules; however, it remains a challenge to find experienced technical staff with a demonstrated ability to perform high-quality environmental reviews and address complex and novel issues. For those with NEPA expertise hired from outside the agency, it also takes time to develop familiarity with NRC regulations, guidance, and licensing processes. In the near term, the ECOE will continue to increase contractor support in these technical review areas and identify opportunities to shift lower priority work away from critical staff to optimize the use of limited resources.

Based on the considerations noted above, if the 2024 LR GEIS is approved and all work required to implement the final rule is completed by the end of FY 2025, the staff expects to be able to establish its environmental review schedule goal to support 18-month reviews for both initial LR and SLR applications beginning in FY 2026. The staff will continue to refine and leverage its extensive experience and identify opportunities for efficiencies, including exploring the appropriateness of the EIS requirement for license renewals and whether environmental assessments could more effectively meet agency objectives.