NUCLEAR ENERGY INSTITUTE
1201 F Street NW • Suite 1100
Washington, DC 20004
nei.org

Spencer Klein
Sr. Project Manager, New Nuclear

Phone: 865.466.9248
Email: spk@nei.org

June 9, 2025

Ms. Michele Sampson
Director, Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI Guidance for Implementing the Requirements of 10 CFR Part 52 for Early Site Permit Renewal

Project Number: 689

Dear Ms. Sampson:

The Nuclear Energy Institute (NEI)[1], on behalf of its members, is submitting NEI 25-06, "Guidance for Implementing the Requirements of 10 CFR Part 52 for Early Site Permit Renewals," for NRC review and endorsement. Several Early Site Permits (ESPs) are nearing expiration and are within the window of timely renewal. However, no detailed regulatory guidance is available to provide a predictable and efficient renewal process for ESPs. The NEI developed report entitled, "Guideline for Early Site Permit Renewal," will enhance efficiency by allowing applicants to reference previously submitted information and update only the content that has materially changed, avoiding unnecessary duplication.

NEI believes that the process for renewal of ESPs should align with recent NRC efforts to implement efficient, timely and predictable licensing, and should be analogous to other NRC processes, like extension requests for construction permits. To this end, NEI has proposed an alternate renewal pathway in Appendix A of the submittal that mirrors the NRC's construction permit extension process under 10 CFR 50.55(b), that would significantly reduce time, effort and cost for the NRC and the applicant. While this approach would require an exemption from current Part 52 regulations, it would allow applicants to merely submit a letter requesting an extension on the basis that no significant changes to the authorization made in the original ESP have occurred that impact public health, safety, or environmental conditions. This would prevent unnecessary duplicative work needed for a licensee to bring up to date the information and data contained in its application for ESP renewal, and again later once applying for a Construction Permit or Combined License, saving resources for both licensees and the NRC staff. We believe this would be acceptable since the previously issued permit underwent comprehensive environmental and safety reviews, public comment, and mandatory hearings. Further, it does not authorize construction or operation of a nuclear power plant and instead provides a level of confidence to licensees on the suitability of the site for potential construction and operation of a nuclear power plant.

[1] The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entitites licensed to operate commercial nuclear power plants in the United States, nuclear polant designers, major architect and engineering firms, fuel cycle facilties, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

The approaches and methods proposed by NEI aim to reduce unnecessary regulatory burden, support smarter project planning, and streamline the NRC review, ensuring that ESPs remain a practical and effective tool for future nuclear development. We believe that there are considerable synergies between actions that the NRC staff is taking or has proposed to take and NEI's position on an alternate approach to ESP renewal.

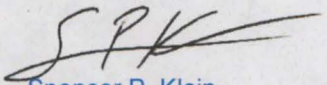
NEI is requesting that the NRC review the methods and approaches presented in the submittal that were developed to provide an acceptable approach for implementing the requirements of 10 CFR Part 52 for the renewal of ESPs, as well as NEI's proposed alternate renewal pathway, for future endorsement. NEI is aware that at least one ESP holder is considering volunteering to be a pilot for the use of the guidance in their ESP renewal application, therefore timely NRC feedback to support any necessary updates would support timely renewal. We would appreciate a meeting within 30 days of this submittal to discuss this guidance, an industry pilot of the approach in Appendix A, and any initial NRC feedback.

NEI also requests that all associated review activities, including meetings and supplemental submittals, be granted a fee waiver pursuant to 10 CFR 170.11(a)(1)(ii). This guidance supports generic regulatory improvements by enabling consistent, efficient, and predictable ESP renewal reviews. The report also supports the goals of recent Executive Orders, the ADVANCE Act and the 2023 amendments to the National Environmental Policy Act (NEPA), which call for timely and efficient regulatory review and deployment of nuclear technologies. Endorsement would:

- Provide clarity and consistency in implementing the requirements of 10 CFR Part 52 for renewing ESPs,
- Facilitate alignment with NRC's Principles of Good Regulation, and
- Support industry-wide adoption of guidance for renewal of ESPs.

Please direct any questions or requests for further information to Spencer Klein, Senior Project Manager, at spk@nei.org or 865-466-9248.

Sincerely,



Spencer P. Klein
Sr. Project Manager, New Nuclear

Attachment: NEI Guidance: Industry Guideline for Implementing the Requirements of 10 CFR Part 52 for Early Site Permit Renewal

c: Gregory Bowman – Deputy Director for New Reactor's, NRR
Samuel Lee – Deputy Director for Division of New and Renewed Licenses, NRR

NEI Technical Report

NEI 25-06, Rev 0

Industry Guideline for Implementing the Requirements of 10 CFR Part 52 for Early Site Permit Renewal

Prepared by the Nuclear Energy Institute
June 2025

Acknowledgements

The Nuclear Energy Institute (NEI) developed this document. NEI acknowledges and appreciates the contributions of our members and other organizations in providing input, including through the NEI New Nuclear Licensing Working Group.

NEI Project Leads: Spencer Klein

Lead Authors: Martin O'Neill and Michael Mayfield

Notice

Neither NEI, nor any of its employees, members, supporting organizations, contractors, or consultants make any warranty, expressed or implied, or assume any legal responsibility for the accuracy or completeness of, or assume any liability for damages resulting from any use of, any information apparatus, methods, or process disclosed in this report or that such may not infringe privately owned rights.

Executive Summary

The NEI's *Industry Guideline for Implementing the Requirements of 10 CFR Part 52 for Early Site Permit Renewal* provides a clear and practical framework for applicants renewing Early Site Permits (ESPs), which are used to "pre-approve" sites for potential future nuclear power plants. With several ESPs nearing expiration and no detailed regulatory guidance from the NRC on the renewal process, this document fills an important gap. It emphasizes efficiency and cost-effectiveness by allowing applicants to reference previously submitted information and update only the content that has materially changed, avoiding unnecessary duplication.

A major focus of the document is simplifying the technical and environmental aspects of the ESP renewal process. It encourages applicants to use reliable, publicly available data, such as that available from National Oceanic and Atmospheric Administration (NOAA) or U.S. Geological Survey (USGS), for site characterization updates, rather than conducting new, costly fieldwork. For environmental updates, NEI recommends conducting a "New and Significant Information" (N&SI) review instead of redoing the full environmental report. The guidance covers each key section of the renewal application, including administrative details, emergency planning, quality assurance, and potential exemptions, providing recommendations for how each can be addressed efficiently based on whether updates are required.

Additionally, NEI proposes an alternative renewal pathway in Appendix A of this document that mirrors the NRC's construction permit extension process under 10 CFR 50.55(b), pursuant to which a construction permit holder may seek an extension based on "Good Cause." While this approach would require an exemption from current Part 52 regulations, it would allow applicants to submit a summary letter requesting an extension on the basis that no significant changes to the authorization made in the original ESP have occurred that will impact public health, safety, or environmental conditions.

Many advanced reactors under development, including micro-reactors, will have very small environmental footprints and will be conducive to siting in a variety of locations due to their robust designs and enhanced safety profiles. This further reduces the likelihood that NRC ESP reviews – initial and renewal – will identify any significant safety issues or environmental impacts. In view of these considerations, this guidance aims to reduce unnecessary regulatory burden, support smarter project planning, and streamline NRC review, ensuring that ESPs remain a practical and effective tool for future nuclear plant development.

Table of Contents

1 INTRODUCTION

The Early Site Permit (ESP) process in Title 10 of the Code of Federal Regulations (CFR) Part 52, Subpart A, was promulgated by the NRC in 1989 to resolve site-specific environmental, safety, and emergency planning issues well in advance of a decision to build a nuclear power facility and before substantial capital is invested in the construction of a new nuclear facility.

An applicant may apply for an ESP without filing a construction permit (CP) under 10 CFR 50 or a combined license (COL) under 10 CFR 52 for the site. An ESP is valid for 10–20 years and may be renewed for another 10–20 years.

The NRC issues Early Site Permits (ESP) to approve a site or sites for future placement of one or more nuclear power facilities, separate from the filing of an application for a construction permit or combined license for the facility. An ESP is not an authorization to construct and/or operate a nuclear power plant, rather, it is a "partial construction permit."[1] In this sense, the ESP scope partially fulfills the construction permit (CP or COL) scope in addressing and providing finality on a scope of site safety and environmental issues but does not address the full scope needed to grant a construction permit. If the ESP is referenced in the CP or COL, then the analyses and conclusions for resolved site safety and environmental issues are "tiered into," "incorporated by reference from," or "adopted by" the CP or COL, and would complete the scope necessary to result in a full construction permit (CP or COL) that would also authorize construction.

A common practice has been to obtain an ESP but not move forward immediately with seeking a license to construct and operate a facility. This provides the permit holder time to consider the economic viability of a facility as well as specific technologies whose characteristics may fit within the Plant Parameter Envelope (PPE) and analyses in the ESP Environmental Report. NEI 10-01, *Industry Guideline for Developing a Plant Parameter Envelope in support of an Early Site Permit*, provides generic guidance for developing a plant PPE in support of an ESP. Indeed, when the NRC revised Part 52 in 2007, it noted that the current ESP process allows applicants to "request preapproval of a site (so-called site banking), separate from other licensing actions," and that "[t]his process was created for proposed sites that the applicant may not plan to use in the near term."[2] The ability to renew the ESP under § 52.29 provides an ESP holder with additional time to consider the viability of a constructing and operating a facility. This guidance document is intended to address the key considerations underpinning an ESP renewal application.

2 CURRENT REGULATORY FRAMEWORK

Key to the ESP renewal regulatory framework, 10 CFR § 52.29(a) states that "[a]n application for renewal must contain all information necessary to bring up to date the information and data contained in the previous application." The approach taken in this guidance proposes to address only that information that has *materially* changed from the original application and, in some cases, proposes a different approach that further simplifies the ESP renewal application.

While there is significant guidance on developing ESP applications, the NRC has yet to develop guidance on the required content of, and process for reviewing, an ESP renewal application. Regulatory Guide 1.206, Rev. 1, provides guidance on the content required for an ESP application. Table 1, "Application Format and Content," identifies the mandatory information in an ESP application. Specifically, Table 1 identifies a transmittal letter, General Information (financial information is not required for an ESP application), a Site

1 10 CFR § 52.1' 10 CFR §§ 51.50(b)(1), 51.75(b).
2 Licenses, Certifications, and Approvals for Nuclear Power Plants; Final Rule, 72 Fed. Reg. 49,352, 49,439 (Aug. 28, 2007).

Safety Analysis Report, an Environmental Report, Emergency Plans (with a variable scope), identification of any withheld information, and a description of the quality assurance program. Some ESP holders have desired to perform activities at the site allowed by 10 CFR 50.10(e), "Construction activities," and chose to include information regarding a Limited Work Authorization (LWA) and proposed a plan for redress of the site, and one applicant specifically addressed departures and exemptions.

By way of reference, the following regulations, guidance, and proposed rulemakings are relevant to ESP renewal applications:

- 2.109, "Effect of timely renewal application"
- 52.13, "Relationship to other subparts"
- 52.15, "Filing of applications"
- 52.16, "Contents of applications; general information"
- 52.17, "Contents of applications; technical information"
- 52.29, "Application for renewal"
- 52.31, "Criteria for renewal"
- 52.33, "Duration of renewal"
- 50.160, "Emergency preparedness for small modulator reactors, non-light water reactors, and non-power production or utilization facilities"
- 51.50, "Environmental report – construction permit, early site permit, or combined license stage"
- Regulatory Guide 1.206, Revision 1, "Applications for Nuclear Power Plants" – Revision 1 (Oct. 2018) includes format and content information for an ESP. Table 1 ("Application Format and Content") identifies the mandatory information for an ESP application, while Appendix C provides an example Table of Contents for an Early Site Permit Application Site Safety Analysis Report.
- Meteorological Data Alternatives to RG 1.23
- Parts 50/52 proposed rulemaking, "Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing" – the proposed rule includes changes related to ESP requirements but does *not* address changes specific to ESP renewals. See SECY-22-0052 (June 2022) and SRM-SECY-22-0052 (Nov. 2024).
- Part 53, Subpart H, specifically 53.1140 through 53.1188. Proposed § 53.1173 would address applications for ESP renewals and is equivalent to § 52.29. Proposed § 53.1176 would address criteria for renewal of an ESP and is equivalent to § 52.31. Proposed § 53.1179 would address the duration of an ESP renewal and is equivalent to § 52.33. As stated in the Part 53 FRN, the proposed Part 53 requirements for an ESP and ESP renewals are equivalent to the Part 52 ESP and ESP renewal requirements. See Proposed Rule, "Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," 89 Fed. Reg. 86,918 (Oct. 31, 2024).

The following sections of this guidance address the content and process-related aspects of an ESP Renewal application.

3 TIMELY RENEWAL OF EARLY SITE PERMITS

If a permit holder submits a renewal application on time (i.e., in accordance with NRC rules before the permit expires), the current permit remains valid until the NRC makes a final decision on the renewal. This means the permit holder can continue operating under the existing permit terms, even if the permit's original expiration date passes, as long as the renewal application was sufficient and timely filed with the NRC. This is referred to as timely renewal protection.[3]

Under § 52.29 and § 2.109(c), an ESP holder seeking to renew the ESP must file for renewal not less than 12 months (and no more than 36 months per § 52.29(a)) before the expiration date stated in the ESP. Filing a sufficient application at least 12 months before the expiration of the existing ESP will provide timely renewal protection, under which the existing permit will not be deemed to have expired until the Commission has determined whether to renew the permit. If the permit is not renewed, then it continues to be valid only in certain proceedings in accordance with the provisions of § 52.26(b).[4]

In some cases, the 12-month filing requirement may present challenges to the ESP holder in terms of reaching a decision on whether to renew the ESP. Economic and other project or business planning considerations related to renewing the ESP, as well as potentially moving forward with installing a facility on the site, may render the 12-month period not viable. In such cases, it is possible to seek an exemption from the 12-month period for establishing timely renewal protections under § 52.7 and § 50.12. The NRC has granted exemptions to its timely renewal requirements for ESP renewals[5] and in numerous other types of licensing proceedings, including power reactor license renewals.

The protections afforded by timely renewal are important if an ESP holder plans to seek renewal of the ESP. An ESP holder should take the necessary steps to either meet the 12-month minimum period for filing the renewal application or seek exemptions from §§ 52.29 and 2.109(c) sufficiently far in advance of the 12-month requirement to allow timely NRC action on the exemption request. This would permit an informed decision about moving forward with the ESP renewal application given economic and other relevant project or business planning considerations.

4 CONTENT OF EARLY SITE PERMIT RENEWAL APPLICATIONS

The ESP application is required to provide design information pertaining to structures, systems, and components along with site-specific parameters (such as meteorology, demographics, and hydrology) and address site safety, environmental protection, and emergency planning. While an ESP applicant has the option to specify a particular nuclear plant design (as in construction permit applications), it is not required to do so. It does, however, need to provide sufficient surrogate-design information (developed to bound nuclear plant designs that are being or may be considered by the applicant) so that the NRC can make a determination on the acceptability of the site and the environmental impacts and determine whether

3 Section 9(b) of the Administrative Procedure Act (APA), 5 USC § 558(c) states: "When the licensee has made timely and sufficient application for a renewal or a new license in accordance with agency rules, a license with reference to an activity of a continuing nature does not expire until the application has been finally determined by the agency." The NRC has implemented this APA provision through 10 CFR 2.109 and other regulations discussed herein.

4 See Final Rule, "Licenses, Certifications, and Approvals for Nuclear Power Plants," 72 Fed. Reg. 49352, 49,376-77 (Aug. 28, 2007) (discussing 10 CFR 52.29 and noting that timely renewal protection is "provided to those applications which are of sufficient quality to be docketed").

5 See Clinton ESP-001 – Exemption from the Requirements Related to Submission of Early Site permit Renewal Application (EPID L-2024-LLE-0033); Constellation Energy Generation, LLC; Clinton Early Site Permit; Exemption, issuance, 90 Fed. Reg. 17,628 (Apr. 28, 2025).

designs bounded by the surrogate design information provided by the applicant can be qualified for the proposed site.

In addition to administrative information on the applicant, including general information required by 10 CFR 50.33(a) through (d) and (j), the ESP application must include the following major elements:

- Site Safety Analysis Report
- Environmental Report
- LWA/Site Redress (if applicable)
- Emergency Planning.

As stated in § 52.29(a), "An application for renewal must contain all information necessary to bring up to date the information and data contained in the previous application." Further, § 52.16 states that the original ESP application must contain all the general information required by 10 CFR 50.33(a) through (d) and (j). The technical information required in the original ESP application is specified in 10 CFR 52.17.

10 CFR § 52.31, "Criteria for renewal," provides that the Commission shall grant the renewal of an ESP only if it determines that (1) the site complies with the AEA, NRC regulations, and orders applicable and in effect at the time the site permit was originally issued; and (2) any new requirements the Commission may wish to impose that are:

> (i) Necessary for adequate protection to public health and safety or common defense and security;
>
> (ii) Necessary for compliance with the Commission's regulations, and orders applicable and in effect at the time the site permit was originally issued; or
>
> (iii) A substantial increase in overall protection of the public health and safety or the common defense and security to be derived from the new requirements, and the direct and indirect costs of implementation of those requirements are justified in view of this increased protection.

Thus, while § 52.29(a) states than an ESP renewal application must bring the original application content "up to date," there is a potential for additional information to be required by § 52.31(a)(2). The ESP holder should address this possibility with the NRC staff prior to submitting the ESP renewal application (e.g., as part of pre-application engagement with the staff).

Notwithstanding the potential need to address additional information under § 52.31(a)(2), the following sections address the content to be provided in the renewal application.

4.1 Administrative Information

The renewal application should update the information required in § 50.33(a)-(d) and (j). However, § 50.33(j) addresses how Restricted Data or classified National Security Information is to be managed in the application. It is not expected that there would be changes in how such information would be treated in the application, so it is unlikely that the renewal application would need to address §50.33(j), at least in any significant detail.

The administrative information is straightforward. It includes factual information, such as applicant name and address, a description of the business, and details regarding the applicant required under § 50.33(d).

If there have not been any changes to the administrative information content, then simply incorporating that information by reference should be adequate. If there have been changes to the administrative information, one approach would be to duplicate the original content and insert the changed information, using appropriate change identification methods (e.g., redlines, strikeouts, underlines, and comment bubbles) to identify the revised content. This is an approach used by licensees in periodic updates to their Final Safety Analysis Reports and should be well known to ESP holders and the NRC staff.

4.2 Site Safety Analysis Report

The Site Safety Analysis Report (SSAR) content includes detailed site-specific characteristics and the potential reactor facility information that applies to the issuance of an ESP. The required content of an ESP SSAR is provided in Table 2 of Regulatory Guide 1.206, Rev. 1. The content identified in Table 2 includes:

- Introduction and Interfaces;
- Site Characterization and Site Parameters;
- Design of Structures, Components, Equipment, and Systems (limited scope);
- Radioactive Waste Management (limited scope);
- Radiation Protection (limited scope);
- Conduct of operations (variable scope);
- Transient and accident analysis (limited scope); and
- Quality Assurance.

Changes to many of these areas are likely to be procedural and would not require extensive analysis or discussion for the renewal application. Other areas may have been updated and approved by NRC during the initial ESP term. For example, the quality assurance (QA) program implemented at the time of the original ESP application has likely been revised or may differ from the version submitted to the NRC for approval in the case of permit holders who delegated QA oversight to the principal subcontractor for those activities. The ESP renewal application should reference the approved version of the QA program used in its development.

Two other aspects of the original ESP application may have changed during the initial ESP duration and may require detailed updates. Specifically, the permit holder should consider whether external hazards or transient accident analysis methods or input data have been updated and should be submitted to the NRC for approval. The ESP renewal application needs only reference the submittal and approval of the revised analysis methods, if applicable. Updates to the results of analyses, using the revised and approved methods, will require explanation in the renewal application, at a level of detail consistent with that provided in the original application.

The other area that may require a substantive update is the site characterization information used to support the safety review, such as revised population projections and demographic updates associated with

updated U.S. Census Bureau data. Even if there have been no significant changes in the site characteristics, justification should be provided to support that conclusion. One approach would be to repeat some of the original site characterization. However, this likely would be impractical due to the time and costs involved and run counter to the fundamental purposes of an ESP, which are to provide some degree of regulatory finality and resolve certain siting and environmental issues in advance of a seeking a CP or a COL.

An alternative approach or method would be to use reliable pre-existing data from Federal, State, and local sources, contrasting this information to the site characterization data used in the original ESP application. This approach was proposed in the NEI Proposal Paper "Regulations of Rapid High-Volume Deployable Reactors in Remote Applications (RHDRA) and Other Advanced Reactors," July 31, 2024 (ML24213A337). As described in the NEI RHDRA paper, that proposed approach for meteorological data is the use of existing data from the National Oceanic and Atmospheric Administration (NOAA), National Weather Service or other nearby sources to support analyses and design bases for all new reactor site license applications (e.g., CP, ESP, OL, COL). It also would support comparison of site characterization data from the original ESP application to current characterization for use in the ESP renewal application. If existing data were found to be incomplete, then the proposed approach would permit the collection of locally measured data from commercially available meteorological equipment to the extent needed to supplement existing data. NEI has prepared and submitted to the NRC a detailed technical analysis titled "Meteorological Data Alternatives to RG 1.23" (Mar. 31, 2025), which outlines a well-structured methodology for selecting, validating, and applying offsite meteorological data while ensuring safety and compliance with NRC requirements.

A similar approach for the site seismic characterization would allow use of reliable seismic hazard data previously collected and catalogued for locations across the United States. Federal and state geologic databases and tools, such as the United States Geological Survey's (USGS) National Seismic Hazard Model (NSHM), provide readily available seismic hazard data that can be used to characterize site-specific seismic vibratory hazards without performing a unique, site-specific evaluation.

Another approach would be to justify reducing the site characterization requirements or scope of site characterization activities subject to the existence of one or more of the following conditions:

a) The ESP is for a site within the owner-controlled area of an existing operating nuclear plant.

b) The environmental monitoring used for the previously submitted ESP application has been maintained AND can demonstrate that the environmental parameters considered remain bounded.

c) The ESP site, some specific portion thereof, or an area adjacent to the ESP site within the broader owner-controlled area has been subject to more recent site characterization activities as part of another NRC license application..

d) For certain plants that are in geographic proximity to another plant (e.g., Salem and Hope Creek), the information from either or both sites could be used for this condition.

e) If the site has been recently characterized by an environmental report for a non-nuclear activity (e.g., associated with some other industrial project), the environmental report may be used to meet this provision provided that:

    i. The NRC, at its discretion, accepts the EIS or EA/FONSI from the other agency, AND either:

a. It includes all information that would be required for an EIS or EA/FONSI from the NRC, OR

b. Any information not included is supplemented as part of ESP application or during the NRC's review thereof.

The currently accepted approach to characterizing and analyzing external hazards other than meteorological- or seismic-related hazards seems feasible for ESP renewal applications. This approach uses existing data and simple supplemental surveys to collect the data needed to characterize the other external hazards.

The alternative methods described provide an efficient means to demonstrate there has not been an appreciable change to the site characteristics described and evaluated in the original ESP application or to provide updates to the original characterization data.

4.2.1 Plant Parameter Envelope

The ESP application may specify a reactor design; however, it is not required to do so by NRC regulations. If a reactor design is not specified in the ESP application, then the application may provide a set of postulated plant parameters that are expected to envelop the design of a reactor or reactors that might be later deployed at the site. The set of enveloping plant parameters is defined as the PPE. In those instances where the ESP applicant did not select a particular technology and instead chose to use the PPE approach as a surrogate for actual facility information to support required safety and environmental reviews, the applicant should consider whether any of the parameters of the PPE have changed or require modification.

If the permit holder has more line of sight on its preferred reactor technology or knows that some parameter(s) may need added conservatism, then this may present an opportunity to augment the scope of designs under consideration to achieve a higher degree of finality in these areas with the NRC staff.

4.3 Environmental Report

The Environmental Report (ER) is a report required by 10 CFR 51.50(b) to be included in each application for an ESP. The ER contains a description of the proposed action and a statement of its purposes, characterization of the affected environment, and analyses of the potential environmental impacts associated with the proposed action. The applicant's ER is a source of information used by the NRC in preparing an environmental impact statement (EIS). The EIS is a detailed written statement prepared by the NRC to meet the requirements of Section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969, as amended.[6]

As required by § 52.17 for the technical information content of the ESP application, specifically § 52.17(a)(2), a complete ER must be prepared in accordance with 10 CFR 51.50(b).[7] Further, the guidance in Table 1 of Regulatory Guide 1.206, Rev. 1, identifies an "Environmental Report" as mandatory content. As noted previously, § 52.29(a) requires an ESP renewal application to contain all information necessary to bring up to date the information and data contained in the original ESP application. Updating the entirety of the original ER would be a time-consuming and costly undertaking that should not be necessary in these

6 Section 321 ("Builder Act") of the Fiscal Responsibility Act of 2023 includes important amendments to NEPA that are intended to expedite the permitting process for infrastructure projects. Among other things, the FRA amendments established time and page limits for environmental impact statements (EIS) and environmental assessments (EA) with which all federal agencies must comply.

7 As noted in § 51.50(b), at the ESP stage, a key element of the environmental review is "an evaluation of alternative sites to determine whether there is any obviously superior alternative to the site proposed."

circumstances.

The ER should follow the same table of contents as the ESP ER, and where a topic was previously addressed and resolved in the ESP proceeding, and no new and significant information has been identified, the ER should simply state that fact. However, where new and significant information has been identified, the report should provide supplemental information and identify any adverse impacts and associated mitigation measures. As specified in § 51.50(b), the ER for an ESP application must contain the information specified in §§ 51.45, 51.51, and 51.52, addressing the ESP-specific modifications listed in § 51.50(b)(1)-(4). The ER should describe the applicant's process for identifying and evaluating the significance of new information.

4.3.1 New and Significant Information Review

New information related to conclusions in the revised ESP ER will be identified and evaluated to determine if the new information could materially alter the assumptions, analyses, or conclusions in the ESP EIS. The NRC staff defines "new" as information that was:

1. Not generally known or publicly available during the preparation of the EIS and thus was not considered in preparing the ESP ER or EIS; and

2. It has become known and available since the issuance of the ESP.[8]

New information may include, but is not limited to:

- Specific design information that was not available during the review of the ESP application (especially where the design interacts with the environment).

- Information that was in the ESP application but has changed by the time of the ESP renewal application submittal (e.g., change in the regional socioeconomic profile resulting from a natural disaster).

- Information in previously unknown or unavailable reports, studies, and treatises.[9]

New information may or may not be "significant." As the Commission has specifically noted, "[f]or new information to be 'significant,' it must be material to the issue being considered, that is, it must have the potential to *affect the finding or conclusions of the NRC staff's evaluation of the issue*."[10] The Commission also has held that for new information to be sufficiently "significant" to require supplemental analysis under NEPA, the information "must paint a *seriously* different picture of the environmental landscape."[11] Further, in a related vein, NEPA case law requires EIS supplementation only where new information

8 2007 Part 52 Rule, 72 Fed. Reg. at 49,431, 49,341; RG 1.206, Rev. 1 at 99.
9 2007 Part 52 Rule, 72 Fed. Reg. at 49,431, 49,341; RG 1.206, Rev. 1 at 99.
10 2007 Part 52 Rule, 72 Fed. Reg. at 49,431, 49,341 (emphasis added); RG 1.206, Rev. 1 at 99.
11 *Southern Nuclear Operating Co.* (Vogtle Elec. Generating Plant, Units 3 and 4), CLI-12-11, 75 NRC 523, 533 n.53 (2012) (quoting *Private Fuel Storage, L.L.C.* (Indep. Spent Fuel Storage Installation), CLI-06-3, 63 NRC 19, 28 (2006) (emphasis in original; citation and internal quotation marks omitted)). *See also* Union Electric Co. (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 167-68 (2011) (citing *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999); *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 373 (1989)); *Blue Ridge Environmental Def. League v. NRC*, 716 F.3d 183, 196-97 (D.C. Cir. 2013); *Sierra Club v. Froehlke*, 816 F.2d 205, 210 (5th Cir. 1987) (citing *Wisconsin v. Weinberger*, 745 F.2d 412, 418 (7th Cir.1984)).

identifies a "previously unknown" environmental concern, but not where the new information "amounts to mere additional evidence supporting one side or the other of a disputed environmental effect."[12]

Applicants may elect to use other suitable methods or approaches for performing a new and significant information review. However, the NRC has provided guidance regarding conducting reviews of new and significant information in Regulatory Guide 4.2, Supplement 1, Revision 2, "Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications" (Aug. 2024) (ML23201A144) (Reg Guide 4.2, Supp. 1, Rev.2).[13] The review process was developed to streamline ER development for license renewals of operating plants based on NUREG 1437, Revision 2, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (Aug. 2024) (ML24087A133) (LR GEIS).

According to Reg Guide 4.2, Supp. 1, Rev. 2, new and significant information is:

1. Information that identifies a significant environmental impact issue that was not considered or addressed in the GEIS and, consequently, not codified in Table B-1, "Summary of Findings on NEPA Issues for License Renewal of Nuclear Plants," in Appendix B, "Environmental Effect of Renewing the Operating License of a Nuclear Power Plant," to Subpart A, "National Environmental Policy Act—Regulations Implementing Section 102(2)," of 10 CFR Part 51, or

2. Information not considered in the assessment of impacts evaluated in the GEIS leading to a seriously different picture of the environmental consequences of the action than previously considered, such as an environmental impact finding *different* from that codified in Table B-1.

Table B-1 in Part 51 summarizes the NRC's findings on the scope and magnitude of environmental impacts of renewing the operating license for a nuclear power plant. It distinguishes between Category 1 issues (i.e., generic issues that are applicable to all or a specific subset of nuclear plants) or Category 2 issues (i.e., those issues requiring a plant-specific analysis). As reflected in a footnote to Table B-1, the NRC has established three significance levels for potential impacts:

- SMALL: Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. For the purpose of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed permissible levels in the Commission's regulations are considered SMALL.

- MODERATE: Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

- LARGE: Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

Thus, a *change in the significance level of a particular environmental impact* would be an indication that new information also may be considered "significant" for purposes of the new and significant analysis.

---

12 *Id. See also Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 374 (1989) (looking to "the value of the new information to the still pending decision making process" and requiring a supplemental EIS only if the new information is sufficient to show environmental effects "in a significant manner or to a significant extent not already considered").

13 For a discussion of the process used by the NRC staff in determining new and significant information during the development of a draft or final EIS for a COL application referencing an ESP, see the "Introduction" section (pages 12-16) of NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan," issued in July 2007 and referred to as the "ERSP".

While directed at the NRC staff's review of an application, NUREG-1555 (the ERSP) provides the following useful guidance on this aspect of the new and significant information review:

> When significant new information is identified for a previously evaluated issue, *reconsideration of conclusions regarding the impacts for that issue is limited in scope to assessment of the relevant new information*. The scope of the assessment does not include review of other facets of the issue that are not affected by the new information. Rather, new information should be used to develop the scope of precisely defined environmental issues. *After the issues have been defined, the significance level of each issue should be determined using the significance level definitions in 10 CFR Part 51, Subpart B, Table B-1*. Mitigation measures should be identified and considered for each issue for which there is an environmental impact. *The consideration of mitigation measures should be proportionate to potential impacts.*
>
> If the significance level of the environmental issue affected by significant new information is MODERATE or LARGE, the reviewer should prepare a statement for inclusion in the appropriate section of the SEIS that includes a concise description of the new information (including the source(s) of the information) and how the information applies to the applicant's proposed plant. *The statement should give the significance level of the potential impacts, and it should list those mitigation measures that are considered appropriate*. The reviewer should also provide the environmental project manager with a summary statement and a list of references cited in the review.[14]

In preparing the analysis, the ESP permit holder should also consider referring to the information provided in Table 4-1 of NUREG-2249, "Generic Environmental Impact Statement for Licensing of New Nuclear Reactors" (New Reactor GEIS), the generic findings of which will be codified in 10 CFR Part 51 (in proposed new Table C-1) and be applicable to ESP, CP, and COL applications.[15] Similar to Table B-1, proposed Table C-1 (and Table 4-1 of the New Reactor GEIS) summarizes the NRC's generic findings on the scope and magnitude of environmental impacts. However, Table C-1 presents the results of the generic analysis of those environmental impacts associated with building, operating, and decommissioning a nuclear reactor (versus renewing a reactor operating license) that the staff has designated as Category 1, as well as listing the issues that could not be resolved generically, designated as Category 2. The NRC's Category 1 findings are based on specific PPE/site parameter envelope (SPE) values and assumptions that are included in Table C-1 and discussed further in the New Reactor GEIS.[16] If an applicant can demonstrate that the proposed nuclear reactor or the proposed site meets or is bounded by these PPE/SPE values and assumptions, then the applicant can adopt the conclusions of that Category 1 finding without having to conduct a project-specific analysis in its environmental report. Conversely, if an applicant cannot demonstrate that the proposed nuclear reactor or the proposed site meets or is bounded by these values and assumptions, or if it determines that there is new and significant information regarding that Category 1 issue, then the applicant

---

14 NUREG-1555, Rev. 1 (July 2007), Introduction at 12 (emphasis added).

15 At the time of this document's preparation, the New Reactor GEIS was still in draft form. The NRC staff issued a Notice of Availability in the *Federal Register* (89 Fed. Reg. 80,797; Oct. 4, 2024) for the draft New Reactor GEIS and associated proposed rulemaking package, with a 75-day comment period. In November 2024, the NRC staff held three public meetings to discuss changes to the rule and facilitate comments in prior to closure period on December 18, 2025. The NRC staff expects to deliver the final New Reactor GEIS and rule to the Commission by December 1, 2025, and anticipates the final NR GEIS and rule, if approved, will be published by June 1, 2026.

16 The PPE consists of those values and assumptions relating to the design and operation of the nuclear reactor, such as building height, water use, air emissions, employment levels, and noise generation levels. The SPE consists of those values and assumptions relating to the siting of the plant, such as the site size, size of water bodies supplying water to the reactor, and demographics of the region surrounding the site. The New Reactor GEIS provides the analysis evaluating the environmental impacts of a proposed nuclear reactor that fits within the bounds of the PPE on a site that fits within the bounds of the SPE. Table 4-1 summarizes the findings of this GEIS, for which 121 environmental issues were 2 analyzed.

cannot adopt the conclusions of that Category 1 finding. In such cases, the applicant would need to prepare a project-specific analysis for that issue in its environmental report.

The NRC staff developed the New Reactor GEIS, including the bounding plant and site parameters mentioned above, using technical information and analyses from many sources. Importantly, those sources include, among others, 15 new reactor (ESP and COL) EISs prepared between 2005 and 2019 (including the EISs for all six ESPs issued by the NRC to date), the NRC's LR GEIS, other NRC EISs, common elements of state and local land use regulations, and the 2021 *Advanced Nuclear Reactor Plant Parameter Envelope and Guidance* (NRIC-21-ENG-0001; PNNL-30992) jointly prepared by the National Reactor Innovation Center (NRIC) and Pacific Northwest National Laboratory (PNNL). Thus, the New Reactor GEIS, which includes initial ESP applications within its scope, is a technically relevant and robust document that is suitable for use and reference by ESP renewal applicants.

Additionally, the NRC staff has developed draft guidance to support use of the New Reactor GEIS by applicants and the staff, including Draft Regulatory Guide DG-4032 (proposed Revision 4 to Reg Guide 4.2) (Sept. 2024) (ML24176A228) and Draft Interim Staff Guidance COL-ISG-030, "Environmental Considerations for New Nuclear Reactor Applications that Reference the Generic Environmental Impact Statement for Licensing of New Nuclear Reactors (NUREG-2249)" (Sept. 2024) (ML24176A231). Both documents contain guidance on identifying and evaluating new and significant information that is generally like that contained in other guidance documents referenced above.

DG-4032 adds a new Appendix C to Reg Guide 4.2 that provides guidance on the preparation of ERs for license or permit applications for new nuclear reactors that reference the New Reactor GEIS. Appendix C indicates that an applicant's ER must contain any new and significant information regarding the environmental impacts of the new reactor of which the applicant is aware. For a Category 1 issue, new and significant information is information not available or considered in the assessment of impacts evaluated in the New Reactor GEIS that could lead to a seriously different picture of the environmental consequences of the action than previously considered, *such as an environmental impact finding different from that codified in Table C-1 of 10 CFR Part 51*. New and significant information may also be information that identifies a significant environmental impact issue that was not available or considered and not addressed in the New Reactor GEIS and, consequently, not codified in Table C-1.

An applicant should state in the ER whether it is aware of any new and significant information and describe the process used to identify such new information and evaluate its significance. This process description should include: (1) the methods that the ESP renewal applicant uses to ensure that it identifies new information if it exists, and (2) the process it uses for evaluating the significance of such new information.

The various NRC guidance documents discussed above (current and draft) also contain specific guidance on the form and content of an applicant's new and significant information analysis process. As adapted to an ESP renewal applicant, these documents collectively provide that:

- The ESP renewal applicant should have a reasonable and auditable process to identify new and significant information and should describe the process in the ER. This process description should include: (1) the *methods* that the applicant uses to ensure that it identifies new information if it exists and (2) the *process* used for evaluating the significance of such new information.

- Methods used to ensure the identification of new information may include the following:

    - Reviewing environmental monitoring results;

- Reviewing related scientific literature;
- Conferring with environmental professionals familiar with the site environs (e.g., environmental and operations staff of a nearby nuclear or industrial facility);
- Exchanging information within the industry through peer groups and industry organizations;
- Consulting with subject matter experts knowledgeable of the local environment;
- Consulting with Federal, State, Tribal, and local environmental, natural resource, permitting, and land use agencies;

- The applicant should describe any new and significant information and any associated environmental impacts. For each adverse impact, the applicant should describe mitigation measures that were considered and those that could be implemented. If the applicant determines that no new and significant information exists, then it should state this determination in the ER.

- The ER does not need to include detailed supporting information, but such information should be available in an auditable form for review by the NRC staff. Such *supporting information* may include:
  - Qualifications of participants involved in the process, their organizational affiliations, how they interact among themselves, and the role they serve in the process;
  - Organizational procedures for handling reports of new information and the criteria used to determine the applicability of such information.
  - Communications with subject matter experts and Federal, State, Tribal, and local environmental, natural resource, permitting, and land use agencies;
  - New information identified and the assessment of its significance (with information that the applicant determines to be both new and significant submitted in the ER); and

As noted, the NRC had not previously received and reviewed ESP renewal application prior to the development of this guidance document. However, based on the guidance outlined above, an ESP renewal applicant's approach to identifying and evaluating new and significant information should largely resemble that used to develop the ER for Vogtle Units 3 and 4 for the Combined License Stage (ML092740400) (which references a previously issued ESP) or the ER for Kairos Power's Hermes 2 CP (ML23195A125) (which references the ER for Hermes 1 CP). The NRC staff's environmental reviews of those applications, in turn, are documented or otherwise discussed in the following documents:

- "Final Supplemental Environmental Impact Statement for Combined Licenses (COLs) for Vogtle Electric Generating Plant Units 3 and 4, Final Report," NUREG-1947 (Mar. 2011) (ML11076A010).
- "Environmental Assessment and Finding of No Significant Impact for the Construction Permits and Environmental Review Exemptions for the Kairos Hermes 2 Test Reactors – Final Report" (Aug. 2024) (ML24240A034).

4.4 Limited Work Authorization/Site Redress Plan

The LWA process allows COL applicants, and applicants for, and holders of, ESPs to request approval to perform certain limited construction activities before the issuance of a COL. The regulations in 10 CFR 50.10, "License Required; Limited Work Authorization," govern the issuance of LWAs and specify the information to be included in an LWA application. The regulations clarify that activities defined as "construction" are those that fall within the NRC's regulatory authority and require an LWA because they have a reasonable nexus to radiological health and safety or common defense and security.

As stated in § 50.10(d)(1), a LWA authorizes the holder to perform "the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining wall within an excavation installation of the foundation, including placement of concrete, any of which are for an SSC of the facility for which either a construction permit or combined license is otherwise required. As required by § 50.10(d)(3), an LWA application must include:

1. A safety analysis report required by 10 CFR 50.34, 10 CFR 52.17 or 10 CFR 52.79, as applicable, a description of the activities requested to be performed, and the design and construction information otherwise required by the Commission's rules and regulations to be submitted for a construction permit or combined license, but limited to those portions of the facility that are within the scope of the LWA. The safety analysis report must demonstrate that activities conducted under the LWA will be conducted in compliance with the technically relevant Commission requirements in 10 CFR Chapter I applicable to the design of those portions of the facility within the scope of the LWA;

2. An environmental report in accordance with § 51.49 of this chapter; and

3. A plan for redressing activities performed under the LWA, should limited work activities be terminated by the holder or the LWA be revoked by the NRC, or upon effectiveness of the Commission's final decision denying the associated construction permit or combined license application, as applicable.

An LWA issued in conjunction with an ESP would be addressed as part of the ESP renewal application. Updates to the safety analysis report and plan for site redress, if any, would be addressed in the renewal application. Absent changes to the safety analysis report or site redress plan, the renewal application would simply reference the original application, stating that there are no changes.

4.5 Emergency Planning

Emergency Planning is addressed in § 52.17(b)(2), which does not specifically require submission of an emergency plan but states the site safety analysis report "may" (i) propose major features of the emergency plans or (ii) propose complete and integrated emergency plans for review and approval.

If the original ESP application proposed "major features" of the emergency plan, then the renewal application would update that information, as appropriate. If there are no changes to the "major features," then the ESP renewal application would simply reference the original application, stating there are no changes. Further, if the original ESP application submitted a complete and integrated emergency plan that

was reviewed and approved by the NRC, the ESP renewal application would reference the current version of the approved emergency plan.

4.6 Quality Assurance

QA is addressed in § 52.17(a)(1)(xi), which requires: "For applications submitted after September 27, 2007, a description of the quality assurance program applied to site-related activities for the future design, fabrication, construction, and testing of the structures, systems, and components of a facility or facilities that may be constructed on the site. Appendix B to 10 CFR part 50 sets forth the requirements for quality assurance programs for nuclear power plants. The description of the quality assurance program for a nuclear power plant site shall include a discussion of how the applicable requirements of Appendix B to part 50 of this chapter will be satisfied."

It is common for applicants, permit holders, and licensees to periodically update their QA program and submit the update for NRC review and approval. During the duration of an ESP, the QA program may be updated several times.

The ESP renewal application should reference the most recently approved QA program. This would provide the "up to date" information required by § 52.29(a). It may be useful to NRC reviewers to summarize the differences between the Program submitted in the original ESP application and the currently approved Program. However, the specific requirement to provide "up to date" information would be addressed by referencing the currently approved Program.

It should be noted that it is common for applicants or permit holders to not have their own QA program. Applicants and permit holders may instead choose to delegate ESP QA organizational responsibilities, including QA oversight, to its principal subcontractor. The subcontractor-generated QA program would apply to those activities performed by the subcontractor associated with the generation of site-related information that could be used as input to the design of future SSCs to ensure that these measures can provide reasonable assurance of the integrity and reliability of the information, assuming that the QA measures are equivalent in substance to the criteria of Appendix B to 10 CFR Part 50.

Ultimately, the applicant or permit holder is responsible for the QA programs of other parties, such as vendors and suppliers, and should include those parties on its supplier list as qualified vendors. The ESP renewal application should reference the QA program of its subcontractor and the applicant or permit holder should be able to supply the appropriate documentation that details the QA program under which the subcontractor is performing its activities to assist the staff in its inspections/audits, confirming that the applicant and its principal subcontractors have applied adequate QA measures.

4.7 Departures and Exemptions

One ESP application explicitly addressed Departures and Exemptions as part of the application. This information is not explicitly required by § 52.17. However, Table 1 in Regulatory Guide 1.206 (Rev. 1) identifies "Exemptions, Departures, and Variances" as appropriate content "if applicable."

If this information was included in the original ESP application, then it should be updated as part of the ESP renewal application. If it was not included in the original application, then consideration should be given to including applicable information in the renewal application to facilitate timely and efficient review by the NRC.

5 CONCLUSIONS

Timely renewal of ESPs can provide permit holders with additional years to consider installing a facility on the ESP site and provide an applicant with flexibility and optionality in its business planning. This guidance is intended to support the preparation of a renewal application in an efficient and cost-effective manner. If meeting the "timely renewal" time of 12 months in advance of expiration of the ESP proves challenging, then seeking an exemption from the timely renewal criteria in §§ 52.29 and 2.109(c) is a viable means of ensuring that the timely renewal protections are in place.

The approaches in this guidance are designed to reference and rely on the original application content to the maximum extent possible. In some cases, additional work and application content cannot be avoided. Nonetheless, the proposed approach is to make use of other available, reliable data rather than perform entirely new assessments, which can be costly and time-consuming. Specifically, this is the approach proposed for updating site characterization information. Overall, this guidance sets forth an approach to preparing ESP renewal applications that supports timely and cost-effective preparation of the application as well as timely and efficient NRC review of the application.

6 RECOMMENDATIONS

The time and cost spent by applicants on the development and formatting of the ESP renewal application need not be overly onerous, and applicants should rely significantly on the information previously provided and be similarly organized. When bringing up to date the ESP ER, where the information is the same as that provided in the original ESP application, it should simply be stated as such. Further, where no new and significant information regarding the information has been identified, it should simply be stated as such.

Further, it is expected that the physical characteristics of the site and the surrogate design information referenced in the ESP renewal application would be similar, if not identical, to the previously reviewed information. Therefore, large portions of the site safety analysis report (SSAR) should be identical to the previous SSAR. For example, in its CP application, Kairos highlighted the differences between Hermes 1 and Hermes 2 using blue font in the Hermes 2 PSAR to identify any modified or new text. Kairos also provided a summary of the information that was not transferred from the Hermes 1 PSAR in the generation of the Hermes 2 PSAR (ML23195A132). Based on its previous review of the Hermes 1 CP application and the information provided by Kairos explicitly outlining the differences between Hermes 1 and Hermes 2, the NRC staff's review of the Hermes 2 CP application focused on these differences.

NEI believes that the NRC staff's review of ESP renewal applications could be optimized based on the assumption that NRC staff's safety review would be focused primarily on the differences between the original ESP application and any updates to the analysis or facility designs as denoted in the renewal application. NEI further expects that similar efficiency gains can be realized for the environmental review through the preparation of an environmental assessment or other efficiencies, with the appropriate staff exemptions from certain requirements, pursuant to 10 CFR 51.6, "Specific exemptions," where the NRC staff has, upon its own initiative, previously determined that an exemption from certain requirements is authorized by law and otherwise in the public interest.[17] Additionally, using Requests for Confirmation of

17 In recent years, the NRC has undertaken multiple initiatives to further streamline and enhance the agency's environmental review process by implementing process-related improvements in the context of individual licensing actions. The NRC also has implemented, or proposed to implement, numerous other enhancements to its environmental review process in response to the Fiscal Responsibility Act of 2023 amendments to NEPA and Section 506 of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act). See SECY-24-0046, "Implementation of the Fiscal Responsibility Act of 2023 National Environmental Policy Act Amendments" (May 30, 2024) (ML24078A013);

Information and focused audits in lieu of Requests for Additional Information during the staff's review would provide a streamlined process to reviewing the necessary information, especially where the information is factual and of low technical complexity, and the staff has high confidence in what would be reported by the applicant considering the information previously provided in the applicants' ESP application.

NRC Report to Congress, "Modernization of Nuclear Reactor Environmental Reviews" (Jan. 2025) (ML24290A159); "U.S. Nuclear Regulatory Commission Report to Congress and the Office of Management and Budget on the Federal Permitting Improvement Steering Council Fiscal Year 2024 Recommended Best Practices for Environmental Reviews and Authorizations" (Apr. 25, 2025) (ML25069A302).

APPENDIX A. NEI POSITION ON ALTERNATE APPROACH TO ESP RENEWAL

Introduction

The purpose of this appendix is to provide a potential alternative method or approach for satisfying the requirements of 10 CFR Part 52 for Early Site Permit (ESP) Renewals. However, applicants may elect to use other suitable methods or approaches for satisfying NRC requirements and completing an ESP renewal application. An applicant may follow these methods or propose alternative methods on a case-by-case basis subject to NRC approval.

Description of Current Regulatory Framework

The description of the current regulatory framework for the renewal of early site permits is described in the main body of the guidance above. The key regulation, however, is 10 CFR § 52.29(a), which states, "An application for renewal must contain all information necessary to bring up to date the information and data contained in the previous application."

Scope of Issues

The current regulatory framework does not explicitly provide any guidance for the specific content and format of ESP renewal applications, or the process for renewal. The approach in this guidance is anticipated to enable costs of less than $500k to the applicant, and a schedule burden of less than a year in total for both the applicant and the staff.

As it stands, 10 CFR § 52.39 states that, except in certain limited circumstances, issues resolved in a proceeding on an ESP shall be treated as resolved in any later proceeding on an application that references the ESP. The degree of regulatory finality achieved with an ESP is dependent on the degree and accuracy of design information provided.

The ESP EIS, for example, resolves environmental issues within certain bounding conditions; therefore, such issues are considered resolved at the CP/COL stage if no "new and significant" information has become available. For issues resolved at the ESP stage, if no new and significant information is identified at the CP/COL stage, the NRC staff may rely on the ESP EIS and will state in the subsequent EIS its conclusion as set forth in the ESP EIS. This approach is efficient if the ESP holder promptly seeks a CP or COL referencing the ESP. However, there is little benefit to the finality provided in the ESP for the environmental review if the data and information to support the NRC's conclusions in their FEIS are considered outdated in a time period that is much shorter than the duration of the permit.

Therefore, for ESP renewals that must bring their ER up to date and have the potential to be incorporated into a CP or COL, the applicant is likely to be required to update the ER twice. Since the ESP does not authorize construction and the ER would need to be updated as part of the CP or COL application that incorporates by reference the ESP (in this scenario, an ESP renewal for which the ER was never updated),[18] the NRC has assurance that the environmental considerations would be up to date before authorizing construction in the CP or COL. Therefore, an option that allows an ESP renewal to defer the updating of the ER to the CP or COL application is needed.

This guidance allows the holder of an ESP to either bring up to date the general, site safety, environmental, and other required information and data contained in its previous ESP application for renewal or to defer

18 See 10 CFR 51.50(c).

doing so to the CP/COL application stage.

Recommended Approach for ESP Renewal

For the renewal or extension of an ESP, it would be expected that:

1. The action would not involve any material change in the probability or consequences of an accident previously evaluated, did not create the possibility of a new or different kind of accident from any previously evaluated, and did not involve a material reduction in the safety margin; and

2. There is reasonable assurance that the health and safety of the public will not be endangered by the extension of the early site permit expiration dates.

As previously mentioned, it is conceivable that an applicant may make the business decision to defer bringing up to date the information and data contained in the previous ESP application and accept the condition that this be done at the CP/COL stage, as is already required. Conversely, an applicant may make the business decision to bring up to date the information and data contained in the previous ESP application and address any new and significant environmental or facility-related information for NRC staff resolution to achieve a degree of regulatory finality at the CP/COL stage. That said, the decision on the selected pathway for renewal should be based on an applicant's business needs and risk tolerance, understanding that this path would require an exemption from current NRC regulations.

NEI believes that an exemption is a viable pathway. Exemptions from the requirements of

Part 52 is governed by 10 CFR 52.7, which states that an exemption under Part 52 must meet the exemption requirements in 10 CFR 50.12. Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 52 when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) special circumstances are present, as defined in 10 CFR 50.12(a)(2).

As noted in this guidance, while the NRC considers an ESP to be a "partial construction permit" insofar as it resolves safety and environmental issues related to siting, unlike an actual construction permit, an ESP is *not* an authorization to construct and/or operate a nuclear power plant. Although 10 CFR 52.29 provides that "[a]n application for renewal must contain all information necessary to bring up to date the information and data contained in the previous application," that requirement does not appear to be set or fixed by statute. Namely, while Section 185 (Construction Permits and Operating Licenses) of the Atomic Energy Act of 1954 (AEA), as amended, contains comparable language, that language is specific to the need to update a CP application upon completion of construction of the facility and prior to issuance of an operating license. Section 185.a states in full:

> SEC. 185. CONSTRUCTION PERMITS AND OPERATING LICENSES. — a. All applicants for licenses to construct or modify production or utilization facilities shall, if the application is otherwise acceptable to the Commission, be initially granted a construction permit. The construction permit shall state the earliest and latest dates for the completion of the construction or modification. Unless the construction or modification of the facility is completed by the completion date, the construction permit shall expire, and all rights thereunder be forfeited, unless upon good cause shown, the Commission extends the completion date. *Upon the completion of the construction or modification of the facility, upon the filing of any additional information needed to bring the original application up to date*, and upon finding that the facility authorized has been constructed and will operate in conformity

> with the application as amended and in conformity with the provisions of this Act and of the rules and regulations of the Commission, and in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of this Act, the Commission shall thereupon issue a license to the applicant. For all other purposes of this Act, a construction permit is deemed to be a "license."[19]

The AEA contains no other language concerning the need to bring "up to date" an application, including any similar provision requiring an ESP renewal application to be updated. Indeed, ESPs were not contemplated when Section 185 was written, and that section's updating requirement is limited to the CP-to-OL transition. Thus, there appears to be no statutory bar to the exemption-based approach described in this Appendix, subject to the ESP renewal applicant demonstrating compliance with the other criteria specified on 10 CFR 50.12.

Granting an exemption from 10 CFR 54.29(a) would not present any undue risk to the public health and safety. An ESP does not itself permit the construction or operation of a nuclear facility – it only addresses site suitability issues. Before any license to construct or operate a reactor at the site is granted in the future, the NRC will verify that the site and design meet all current safety requirements, including consideration of new information since the original ESP review. Such an exemption also would have no detrimental effect on security and defense, and it would preserve the NRC's ability to thoroughly review all safety and security issues at the construction and operating licensing stages.

With regard to special circumstances under 10 CFR 50.12(a)(2), an ESP holder seeking an exemption from 10 CFR 52.29(a) putatively could demonstrate the existence of one or more of the following:

Application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule (10 CFR 50.12(a)(2)(ii)). The underlying purpose of the 10 CFR 52.29(a) "update" requirement is to ensure that, when the NRC reviews an ESP renewal, it has sufficiently current information to make sound safety and environmental determinations. In the case of an ESP, the ultimate safety and environmental decisions on plant construction and operation are deferred to the later CP or COL application. The ESP renewal itself does not authorize construction or any new activity; it simply extends the period during which the site remains "banked" for potential future use. The NRC's regulations already require that at the time of a CP or COL application, the environmental review be supplemented to account for any "new and significant" information and that the safety analysis incorporate the actual reactor design and current site data. The underlying purpose of 10 CFR 52.29(a) – to base licensing decisions on accurate, up-to-date information – will not be undermined by this exemption. The NRC will still receive all necessary updated information (safety analyses, environmental data, etc.) at the proper time (prior to construction authorization). Therefore, strict application of the "bring up to date" provision in 10 CFR 52.29(a) e is not necessary to serve the rule's underlying purpose.

Compliance would result in undue hardship or other costs significantly in excess of those contemplated when the rule was adopted (10 CFR 50.12(a)(2)(iii)). Requiring an ESP holder to fully update every element of the previous ESP application (especially where no major physical changes to or uses of the site have occurred) imposes an undue burden that was likely not fully contemplated when the regulation was adopted. Preparing a complete update of the ESP Safety Analysis Report, Environmental Report, and other documentation is essentially akin to re-doing much of the original application's work (which was an extensive multi-year effort). It would potentially entail new site studies, revisiting environmental surveys and population/socioeconomic data, updating meteorological and geological analyses, etc., to reflect the current conditions and any changes since the permit was issued. The cost of this effort can be substantial –

19 AEA §185.a, 42 USC 2235(a) (emphasis added).

possibly requiring hundreds of thousands of dollars in analysis and documentation costs and a year or more of dedicated effort. This is a substantial expenditure for a site that ultimately may not be developed and utilized for an operating reactor(s) if market or other conditions prove to be unfavorable. Moreover, as noted above, much of the required update work likely would need to be repeated when a CP or COL application is eventually prepared. If the ESP is renewed now (with updated information) but the actual CP or COL application is not submitted for several more years, the "new" data gathered for ESP renewal purposes could itself become outdated, necessitating yet another round of updates. In effect, strict compliance with 10 CFR 52.29(a) could result in duplicative updates – one now for ESP renewal and another later for the CP/COL application. Imposing this cost at the renewal stage could discourage ESP holders from maintaining valid site permits, contrary to the NRC's updated mission statement, focus on improving regulatory efficiency, and recent congressional and executive directives that are aimed at expediting new domestic nuclear deployments and which did not exist when 10 CFR 54.29(a) was promulgated in 1989.

There are other material circumstances not previously considered, such that granting the exemption would be in the public interest (10 CFR 50.12(a)(2)(vi))). The public interest is served by a modern and efficient regulatory process that focuses resources on areas of safety significance. Congress and the NRC have recently emphasized the importance of avoiding unnecessary regulatory burdens that do not meaningfully contribute to safety. For example, the ADVANCE Act of 2024 directs the NRC to modernize its licensing framework and explicitly calls for regulatory processes to be "efficient and not unnecessarily limit" the development of nuclear energy. Requiring an ESP holder to undertake duplicative updates and analysis – when those updates will have to be repeated at the CP or COL stage – could be an unnecessary regulatory impediment that offers no significant safety or environmental benefit. Granting the exemption described herein would be consistent with the ADVANCE Act's overarching purpose, the NRC's updated mission statement, and the May 23, 2025, Executive Order titled "Ordering the Reform of the Nuclear Regulatory Commission," which calls for "expeditious processing of license applications and the adoption of innovative technology." It also is in the public interest for both the NRC and applicants to use their resources efficiently, focusing on the most safety-significant reviews. Granting an exemption to 10 CFR 52.29(a) would allow ESP holders to efficiently maintain their license and be ready to move forward with new nuclear development when appropriate, without unnecessary regulatory burdens in the interim. This outcome would clearly serve the public interest by facilitating potential future energy development, conserving resources, and still ensuring that all necessary information will be reviewed by NRC at the proper time.

Regulatory Precedent

Although there is no precedent yet for the extension or renewal of an ESP, the action and associated level of review should be viewed as comparable to an extension of the completion date in a construction permit. Under AEA Section 185.a and 10 CFR 50.55(b), the NRC may extend the completion date for a construction permit "upon good cause shown." The Tennessee Valley Authority (TVA), for example, has made use of this provision on numerous occasions for its Watts Bar Unit 2 and Bellefonte Nuclear Plants (BLN).

On December 24, 1974, the U.S. Atomic Energy Commission, predecessor to the NRC, issued CPPR-122 and CPPR-123, thereby authorizing TVA to construct BLN Units 1 and 2, respectively. As required, each CP included the latest date for completion of construction for each Unit; the latest completion date for Unit 1 was December 1, 1979, and for Unit 2 was September 1, 1980. TVA began construction of BLN Units 1 and 2 and, as authorized by extensions of the CPs, continued construction until 1988.

In 1988, due to numerous economic and regulatory factors, TVA decided to defer the completion of BLN Units 1 and 2 and lay them up until construction could be resumed. On October 31, 1988, the NRC agreed with TVA's layup approach, finding it consistent with the NRC's 1987 "Policy Statement on Deferred Plants,"

52 Fed. Reg. 38,077 (Oct. 14, 1987). Although actual construction activities were halted, the CPs remained effective and allowed the maintenance and preservation of equipment in accordance with the Commission's Policy Statement.

Over a span of 50 years since the first issuance of the CP application for BLN Units 1 and 2, and in response to TVA's requests, the latest completion dates specified in the CPs were extended by the NRC based on "good cause" shown by TVA. For example, on April 19, 1994, TVA filed a request pursuant to 10 CFR § 50.55(b) for extensions of the completion dates for BLN Units 1 and 2. As "good cause" for the request, TVA cited the delay in construction activities resulting from a lower-than-expected load forecast and considering the lowest-cost options for providing an adequate supply of electricity to its customers. The NRC found that these delays constituted "good cause" for extending the BLN Units 1 and 2 completion dates to October 1, 2001, and October 1, 2004, respectively. On July 11, 2001, TVA filed another request pursuant to 10 CFR § 50.55(b) for extensions of the expiration dates of CP Nos. CPPR-122 and CPPR-123. On March 4, 2003, the NRC issued an Order amending CPPR-122 and CPPR-123, thereby extending the latest completion dates to October 1, 2011, and October 1, 2014, respectively. The NRC again concluded that TVA had demonstrated "good cause" for the delays. Most recently, on January 22, 2021, the NRC issued an Order (ML20335A393) amending CPPR-122 and CPPR-123, thereby extending the latest completion dates to October 1, 2021. The NRC again concluded that TVA had demonstrated "good cause" for the delays. In these cases, the NRC issued a concise safety evaluation and environmental assessment/finding of no significant impact.

NEI recognizes that the CP extensions cited above may be viewed against the unique regulatory backdrop associated with the Commission's Policy Statement on Deferred Plants. During the construction of NRC-licensed nuclear power plants in the 1970s and 1980s, some plant owners decided to either postpone or permanently cease construction. Consequently, in October 1987, the Commission issued its Policy Statement on Deferred Plants to address the procedures that apply to nuclear power plants under these circumstances, including "deferred plants," and "terminated plants."[20] Specifically, the Policy Statement outlines (1) the NRC's regulatory provisions for deferring and preserving a deferred nuclear power plant until such time as it may be reactivated and (2) the applicability of new regulatory staff positions to a deferred plant when it is reactivated. It also provides guidance on measures that should be considered for reactivation or transfer of ownership of terminated plants.

As most relevant here, the Policy Statement provides that deferred plant licensees must ensure that their CPs do not expire, and that an "[e]xtension of the completion date for a CP will be considered in accordance with 10 CFR 50.55(b)." The statutory authority for 10 CFR 50.55(b) is found in AEA Section 185, the same section of the Act (along with Section 103) that authorizes the NRC to issue an early site permit, which, as noted above, is a "partial construction permit" and a license under the AEA. Thus, neither AEA Section 185 nor the Policy Statement on Deferred Plants appears to preclude the NRC from implementing a similar approach for ESPs, i.e., extending the expiration dates for "good cause" shown. As discussed above, ESP holders seeking to use this alternative approach would need to request an exemption from the relevant Part 52 regulations, including 10 CFR 52.29, which prescribe a specific renewal (as opposed to extension) process for ESPs.

It bears mention that the Commission's Policy Statement on Deferred Plants was issued approximately 18 months prior to the NRC's promulgation of its initial Part 52 regulations in April 1989 (54 Fed. Reg. 15,372; Apr. 18, 1989). As such, it discusses only the regulatory framework applicable to the two-step licensing

20 A "deferred plant" means a nuclear power plant at which the licensee has ceased construction or reduced activity to a maintenance level, maintains the CP in effect, and has not announced termination of the plant. A "terminated plant" is a nuclear power plant at which the licensee has announced that construction has been permanently stopped, but which still has a valid CP.

process under Part 50. However, in 2018, the NRC staff issued a paper (ML18065B257) in which it clarified that the Policy Statement "may be applied to plants licensed under 10 C.F.R. Part 52." Specifically, the staff noted that Part 52 combined license (COL) holders – even those that have not started construction – may follow the applicable parts of the Policy Statement and similarly describe their partially-constructed facilities as "deferred" or "terminated" while continuing to comply with NRC regulations and their COL terms and conditions. While the NRC staff's 2018 paper does not mention ESPs, presumably because they do not authorize any plant construction that could be deferred or terminated, it reflects a pragmatic willingness by the staff to provide flexibility to Part 52 licensees. The NRC should afford similar flexibility to ESP holders who, for valid economic or other business reasons, may not seek construction authorization in the form of CP or COL during the initial term of their early site permits and hence need to renew or extend those permits via the approaches discussed herein.

Conclusions

An efficient NRC review process is critical to timely and predictable licensing proceedings for both current plants and new reactors and thus has been a priority for both the NRC and industry. However, in view of the NRC's current regulations and the lack of regulatory guidance, current and future ESP holders could unnecessarily expend a large amount of time and resources renewing their permits. Thus, optimizing the ESP renewal process also should be a high priority for the NRC and industry, particularly given the potentially significant role that ESPs may play in the licensing of future U.S. nuclear power plants.

The ESP helps to get early decisions on site suitability issues for a new nuclear facility and allows permit holders to maintain a flexible range of generating options and alternatives for future base-load power supplies and competitive energy production choices. NEI believes that an applicant requesting to extend or renew its ESP should only be required, at a minimum, to submit a letter to the NRC staff requesting an extension and providing the basis for that extension. This approach is analogous to an applicant's request to extend a construction permit based on "good cause" shown. NEI's conclusion is derived from three important considerations. First, CP or COL applicants referencing an ESP are required to provide, and bring up to date, all the necessary information to demonstrate compliance with content of application requirements to support the NRC staff's safety and environmental reviews of their CP or COL applications. Thus, doing so for the sole purpose of renewing or extending an early site permit is unnecessary as a practical matter. Second, such efforts are not only redundant to activities undertaken at future licensing stages; They also could require significant time and resource expenditures at a time when the financial viability of an ongoing project is uncertain, thereby potentially undermining the project. Third, extensive analysis of safety and environmental factors would be unnecessary at the ESP renewal stage, as the health and safety of the public will not be endangered by the mere extension of the early site permit expiration dates.

It should be the applicant's business decision as to whether to perform that update of information and analysis of potential new and significant safety or environmental information during renewal of the ESP application or at future licensing stages, depending on the applicant's expected timing for pursuing a CP/COL application. This allows flexibility in an applicant's business decision-making processes, reduces the time/cost burden to the applicant and NRC, and avoids an unduly onerous ESP renewal process for a permit that does not authorize actual construction or operation of a nuclear power plant.