

May 11, 2023

Ms. Rebecca Colvin
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Division of Environmental Health
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Submitted electronically via <https://dec.alaska.gov/commish/public-notice/>

Subject: Nuclear Energy Institute Comments on Proposed Nuclear Facility Siting Regulations

The Nuclear Energy Institute (NEI) appreciates this opportunity to provide comments on the Alaska Department of Environmental Conservation's (ADEC) proposed "Nuclear Facility Regulations," which are intended to "provide[] environmental review and promote[] local involvement in siting nuclear facilities" in Alaska.¹ NEI's mission is to promote the use of nuclear energy and technologies through optimal industry performance, effective policies, and efficient regulation. As such, we appreciate the State of Alaska's efforts to support the siting and deployment of advanced nuclear technologies, including micro-reactors, within the State. We also appreciate the ADEC's efforts to carry out its mission to enhance the health, safety, economic and social well-being of Alaskans by conserving, improving and protecting Alaska's natural resources and environment, and to involve close observers in those efforts. These comments are shared with the intention of supporting ADEC in accomplishing the objectives of the Nuclear Facility Regulations efficiently and in a manner that best supports the people of Alaska.

In Attachment 1 to this letter, we offer substantive comments and recommendations regarding the ADEC's proposed siting regulations. We first present background on the relevant Alaska and NRC statutory and regulatory frameworks to provide factual and legal context for our comments. We then offer specific comments on the various sections of the proposed regulations. Attachment 2 summarizes our recommendations in tabular form.

In short, we believe there are significant opportunities for the ADEC to streamline its proposed siting regulations, given that many of the proposed requirements are duplicative of U.S. Nuclear Regulatory Commission (NRC) requirements for the siting and licensing of new nuclear reactors.² In some cases, changes may be necessary to avoid direct conflicts with NRC regulations, particularly insofar as those regulations relate to the suitability of a proposed site from a radiological health and safety perspective.

¹ Proposed 18 AAC XX.010(a). In our Attachment 1 comments, we generally refer to the proposed Nuclear Facility Regulations as the proposed "siting regulations." We also generally use section numbers in lieu of formal code citations (e.g., "Section 200" instead of 18 AAC XX.200").

² Attachment 3 to this letter provides a consolidated listing of key regulations and guidance documents (with hyperlinks) governing the NRC's environmental and safety-related site selection and suitability reviews.

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In other cases, we respectfully submit that the ADEC can achieve a more efficient siting approval process – while still fostering local involvement in the siting of nuclear facilities – by leveraging the NRC’s public notice and environmental review requirements and processes. We believe those requirements and processes allow for meaningful and effective participation by State and Tribal governments and local communities in NRC site suitability and environmental reviews.

Thank you in advance for your consideration of NEI’s comments. If you have questions concerning this letter, please contact me at mjo@nei.org or 202-739-8139.

Sincerely,

Martin J. O’Neill

Martin J. O’Neill
Associate General Counsel

Attachments:

Attachment 1: NEI Comments on ADEC’s Proposed Nuclear Facility Siting Regulations

Attachment 2: Summary of NEI Recommendations Regarding ADEC’s Proposed Siting Regulations

Attachment 3: Key NRC Site Selection Regulations and Guidance

NEI Comments on ADEC’s Proposed Nuclear Facility Siting Regulations

We offer substantive comments and recommendations regarding the ADEC’s proposed siting regulations below. Section I contains background on the relevant Alaska and NRC statutory and regulatory frameworks to provide factual and legal context for our comments. Section II contains our specific comments on the various sections of the proposed regulations.

I. STATUTORY AND REGULATORY BACKGROUND

A. Alaska Statutory Provisions Relevant to Nuclear Facility Siting

As relevant here, the ADEC’s proposed regulations cite Alaska Statute (AS) Sections 18.45.020 and 18.45.025 as providing the requisite statutory authority. AS 18.45.020, “United States licenses or permits required,” states in full:

A person may not manufacture, construct, produce, transfer, acquire, or possess a special nuclear material, by-product material, special nuclear material facility, by-product material facility, production facility, or utilization facility, or act as an operator of a production facility or utilization facility, wholly within the state **without first obtaining a license or permit for the activity in which the person proposes to engage from the Nuclear Regulatory Commission** if the commission requires a license or permit to be obtained by persons proposing to engage in the activities. (Emphasis added.)

AS 18.45.025, “Facilities siting permit required,” provides as follows:

(a) A person may not construct a nuclear fuel production facility, nuclear utilization facility, utilization facility, reprocessing facility, or nuclear waste disposal facility in the state without first obtaining a permit from the Department of Environmental Conservation to construct the facility on land designated by the legislature under (b) of this section.

(b) The legislature shall designate by law the land in the state on which a nuclear fuel production facility, nuclear utilization facility, utilization facility, nuclear reprocessing facility, or nuclear waste disposal facility may be located. In designating the land in the state on which

(1) a nuclear utilization facility or utilization facility may be located, the legislature shall act in the interest of regulating the economics of nuclear energy;

(2) a nuclear fuel production facility, nuclear reprocessing facility, or nuclear waste disposal facility may be located, the legislature shall act to protect the public health and safety.

(c) The Department of Environmental Conservation shall adopt regulations governing the issuance of permits required by (a) of this section. However, a permit may not

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be issued until the municipality with jurisdiction over the proposed facility site has approved the permit or, if the proposed facility site is located in an unorganized borough, until the legislature has approved the permit.

(d) Notwithstanding (b) of this section, a person that is otherwise compliant with this chapter may construct a microreactor on land that has not been designated by the legislature.

Paragraph (d) was added in May 2022 and was intended to ease the siting process for microreactors by exempting them from the requirement for legislative approval of land for each proposed microreactor.

B. NRC Statutory and Regulatory Authorities

1. Atomic Energy Act and Federal Preemption Principles

The NRC's authority to license nuclear reactors derives from the Atomic Energy Act of 1954, as amended (AEA), which "sets up a comprehensive scheme of federal regulation of atomic energy, administered by the Nuclear Regulatory Commission."³ The AEA assigns to the NRC the exclusive authority to regulate the possession and use of certain radioactive materials, including source material (uranium and thorium), byproduct material (reactor-produced materials), and special nuclear material (enriched uranium and plutonium).⁴ The AEA also vests in the NRC exclusive authority to regulate nuclear power plants and certain other types of facilities.⁵

The U.S. Supreme Court has found the AEA to be broadly preemptive of state laws seeking to regulate nuclear facilities and radiological materials in three seminal decisions: *Pacific Gas, Silkwood*, and *English*.⁶ To summarize this precedent, the Federal government maintains complete control of the safety aspects of nuclear energy generation.⁷ The states retain their traditional authority over the need for additional generating capacity, the type of generating facilities to be licensed, land use, ratemaking, and the like.⁸ This "field preemption" is all encompassing where the state statute or regulation at issue

³ *Illinois v. Gen. Elec. Co.*, 683 F.2d 206, 214-15 (7th Cir. 1982), *cert denied*, 461 U.S. 913 (1983).

⁴ *See* 42 U.S.C. §§ 2073, 2093, 2111 (AEA §§ 53, 63, 81).

⁵ *See* 42 U.S.C. § 2133 (AEA § 103). Congress amended the AEA in 1959 to authorize the Commission to enter into agreements with States (i.e. "Agreement States"), under which the Commission may cede to the States regulatory authority over specified radioactive or nuclear materials for the duration of the agreement. 42 U.S.C. § 2021(b) ((AEA § 274(b)). However, the scope of these Federal-State agreements is limited to industrial, medical, commercial, and research uses of agreement material (i.e., source, byproduct, and small quantities of special nuclear material as identified in Section 274b. of the AEA), and does not include nuclear reactors.

⁶ *See Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n*, 461 U.S. 190, 213 (1983) (holding that "the federal government has occupied the entire field of nuclear safety concerns, except the limited powers expressly ceded to the states"); *Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, 248 (1984) (noting that "the fundamental teaching of *Pacific Gas* is that state regulation of nuclear power is pre-empted to the extent the purpose is to regulate safety"); *English v. Gen. Elec. Co.*, 496 U.S. 72, 84 (1990) (noting that Congress has taken "great pains to make clear that state regulation of matters directly affecting the radiological safety of nuclear-plant construction and operation" is not permitted).

⁷ *Pacific Gas*, 461 U.S. at 213.

⁸ *Id.*

involves nuclear safety.⁹ If a state statute was enacted with the purpose of protecting against radiation hazards, or if a state regulation directly affects radiological safety (regardless of the regulation's purposes), then it is preempted.¹⁰ If nuclear safety is not directly affected by the state statute, the state law or regulation may still be preempted if (1) there is an irreconcilable conflict between the Federal and State standards; (2) the imposition of a state standard in a damages action would frustrate the objectives of the Federal law; or (3) there is "some direct and substantial effect" on the decisions made by those who build or operate nuclear facilities concerning radiological safety levels.¹¹

2. NRC Licensing Pathways for Nuclear Reactors

The NRC currently has two licensing pathways for power reactors: 10 CFR Part 50 and 10 CFR Part 52.¹² The Part 50 licensing pathway is a two-step process. A prospective licensee applies first for a construction permit (CP). NRC regulations at 10 CFR 50.34(a) outline the information an applicant must submit in a preliminary safety analysis report (PSAR) to obtain a CP. The application also must contain a comprehensive assessment of the environmental impact of the proposed plant. After reviewing the application and determining that the plant design meets all applicable regulations, the NRC then issues a safety evaluation report (SER). Following issuance of the CP, the holder of the permit may apply for an operating license (OL). An OL application includes a final SAR (FSAR), with content specified by 10 CFR 50.34(b), describing the facility's licensing basis. The NRC reviews the FSAR to develop the agency's final SER. At the end of construction, if the NRC determines that the applicant satisfies the applicable requirements, then the NRC issues the OL, which is valid for a period of no more than 40 years (but can be renewed). With the exception of the new Vogtle Units 3 and 4 in Georgia, all nuclear power plants operating in the United States were licensed under 10 CFR Part 50.

In the Part 52 licensing pathway, a prospective nuclear power plant operator applies for a combined license (COL) that authorizes both construction and, after certain criteria are met, plant operation. The COL may, but is not required to, reference a design certification (DC), which allows for NRC pre-approval of the design of a nuclear plant without a specific site. The COL also may, but is not required to, reference an early site permit (ESP), which allows for NRC pre-approval of certain aspects of a site, including an environmental review. The NRC includes in the COL the inspections, tests, analyses, and acceptance criteria (ITAAC) that the agency will use to evaluate, after construction, whether the plant has been built as specified in the COL before authorizing plant operation. The aforementioned Vogtle Units 3 and 4 were licensed under Part 52.

Importantly, both licensing pathways offer extensive opportunities for public participation. Those opportunities include public meetings near the proposed site to familiarize the public with the safety and environmental aspects of the application, the planned location and type of plant, the NRC's

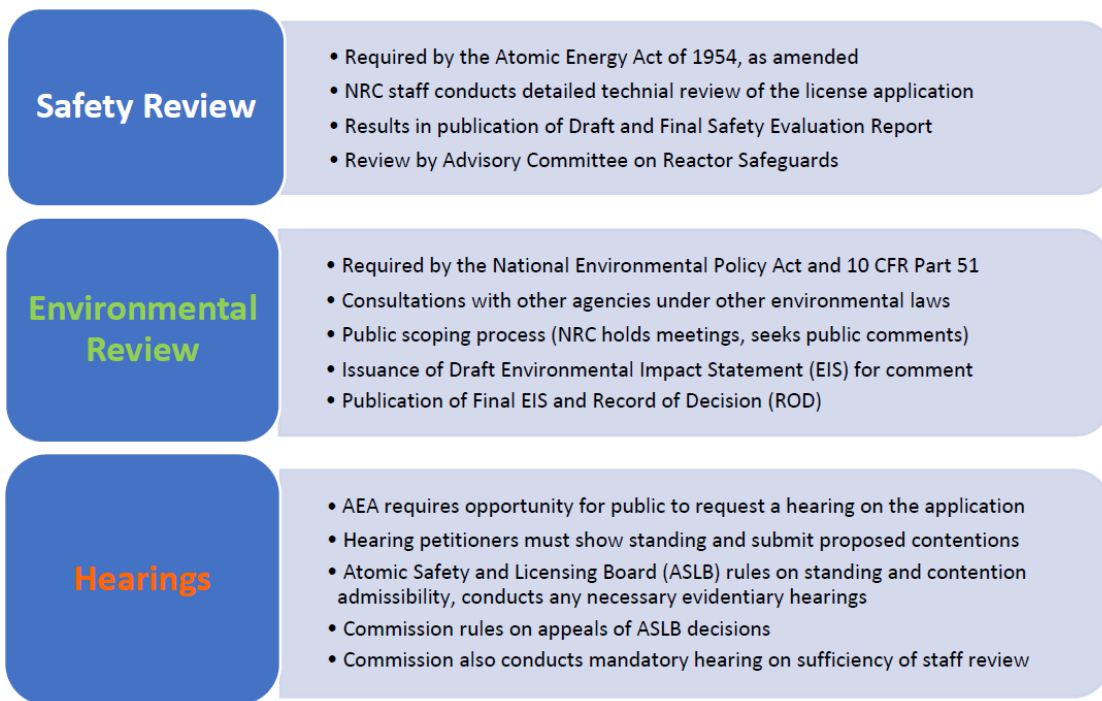
⁹ *Id.*

¹⁰ *English*, 496 U.S. at 79.

¹¹ *Silkwood*, 464 U.S. at 256; *English*, 496 U.S. at 79.

¹² For additional background on the NRC's licensing processes, see NRC, "Nuclear Power Plant Licensing Process" (July 2020) (<https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/licensing-process-fs.html>); *Nuclear Power Plant Licensing Process* (NUREG/BR-0298, Rev. 2) (July 2009) (<https://www.nrc.gov/docs/ML0421/ML042120007.pdf>); *Frequently Asked Questions About License Applications for New Nuclear Power Reactors* (NUREG/BR-0468) (Dec. 2009) (<https://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0468/index.html>).

licensing process, and the opportunities for public participation in the proceeding.¹³ The NRC also holds public meetings with the applicant throughout the licensing process to discuss the plant's design and construction and other relevant issues. During its environmental review of an application under the National Environmental Policy Act (NEPA) and 10 CFR Part 51, the NRC solicits public comments (to which the agency must respond in writing) on the scope of the review and on its draft environmental impact statement (EIS), and holds related public meetings near the proposed site.¹⁴ The NRC also offers members of the public opportunities to request a hearing on the application and to participate in the hearing process through various channels (e.g., as an intervenor/party, interested governmental entity, limited appearance statements). The NRC notifies the public of these various opportunities through a combination of means, including *Federal Register* notices, press releases, newspaper ads and radio scripts, and project-specific webpages. It also coordinates closely with other Federal, State, local, and Tribal governmental entities, and conducts targeted outreach to local communities, including those that may have environmental justice (EJ) impacts.¹⁵ The figure below summarizes how NRC environmental reviews, public meetings, and hearings fit into the overall licensing process.



¹³ The NRC makes most of its correspondence and documents publicly available on its Agencywide Document Access Management System (ADAMS) (<https://www.nrc.gov/reading-rm/adams.html>). Documents containing proprietary or other sensitive information may be withheld from public disclosure.

¹⁴ For a detailed overview of the NRC's environmental review process, including relevant NRC regulations and guidance, as well as opportunities for public participation, see O'Neill, M., "Forging a clear path for advanced reactor licensing in the United States: Approaches to streamlining the NRC environmental review process", NUCLEAR LAW BULLETIN No. 105/Vol. 2020/2, OECD Publishing, https://inis.iaea.org/collection/NCLCollectionStore/_Public/52/048/52048856.pdf.

¹⁵ In April 2022, the NRC staff released the results of its systematic review of the agency's EJ programs, policies and activities. The NRC staff provided its findings and recommendations to Commission in [SECY-22-0025](#), setting forth six specific recommendations. For additional information, see the NRC's [EJ and the NRC](#), [EJ Public Outreach](#), and [EJ Assessment](#) webpages. As reflected in our [Environmental Justice Principles](#), NEI and its members also are committed to advancing the environmental justice objectives of fair treatment and meaningful involvement of all communities with regard to industry operations and activities.

II. NEI COMMENTS ON ADEC'S PROPOSED SITING REGULATIONS

A. Article 1. General Standards, Requirements, and Limitations

Section 10. Purpose and Applicability

NEI Comments

Section 10(a) states that the new chapter on nuclear facility siting "provides environmental review and promotes local involvement in siting nuclear facilities." The purpose and scope of this "environmental review" are unclear. We note that NEPA requires the NRC to perform a detailed environmental review of its proposed licensing actions. In 10 CFR 51.20(b), the NRC has presumptively determined that the issuance of a limited work authorization, CP, ESP, OL, or COL for a nuclear power reactor requires the preparation of an environmental impact statement. In reviewing an application, the NRC considers both the safety and environmental aspects of reactor siting (e.g., site suitability and the applicant's site selection process, including analysis of alternative sites) under the AEA and NEPA, respectively. Thus, we recommend that the ADEC clearly define "environmental review." If the ADEC is referring to compliance with applicable state environmental permitting requirements, then it should make that clear. The ADEC also should consider indicating that the NRC will conduct a detailed environmental review of any proposed new reactor under NEPA and 10 CFR Part 51.

Section 10(b) states that the siting regulations apply to the "construction or installation" of a: (1) nuclear fuel production facility; (2) nuclear utilization facility, including a microreactor; (3) utilization facility; (4) reprocessing facility; or (5) nuclear waste disposal facility. Each of these terms is defined in Section 900 (Definitions) of Article 5 of the proposed siting regulations. Some of these definitions, in turn, cross-reference AS 18.45.900. As discussed in our comments on Section 900, a number of these terms are defined in the AEA and NRC regulations. To ensure consistency in the meaning and use of these terms, we recommend that the State adopt the Federal definitions of these terms, as applicable. Additionally, the State should consider avoiding separate definitions of "nuclear utilization facility" and a "utilization facility," as the reason and basis for this distinction are not clear.

Section 10(c) provides that the siting regulations do not exempt the holder of a siting permit from other statutory or regulatory requirements to (1) obtain other state permits and (2) comply with other state permit requirements. While we have no specific comments on this provision, we recognize that NRC license applicants also must obtain various permits and authorizations from other Federal, State, and local agencies. NRC regulations (see 10 CFR 51.45(d)) require that an applicant's environmental report discuss the status of compliance with applicable environmental quality standards and requirements including, but not limited to, applicable zoning and land-use regulations, and thermal and other water pollution limitations or requirements which have been imposed by Federal, State, regional, and local agencies having responsibility for environmental protection. The NRC uses this information in assessing environmental impacts in its EIS. For additional information concerning the types of Federal, State, and local permits, authorizations, and consultations required for a new nuclear reactor, we refer the State to **Appendix F** of Draft NUREG-2249, *Generic Environmental Impact Statement for Advanced Nuclear Reactors – Draft Report for Comment* (Dec. 2021) (ADAMS Accession No. [ML21222A055](#)).

B. Article 2. Pre-Application Requirements

Section 100. Pre-application requirements

NEI Comments

Section 100 contains numerous “pre-application” requirements. They include the submittal of a “preliminary application” and associated fact sheet, copies of which must be made available to the public; written notices to the public, legislature, and relevant municipality; and the opportunity for one or more informal public meetings. The written notices must describe the proposed facility, including how the applicant will meet applicable State and Federal requirements for the protection of public health and the environment and monitor any facility emissions to the air, water, or land.

The need for these preapplication requirements is unclear. In essence, Section 100 requires a prospective applicant to submit a draft application to the ADEC. Thus, the requirements therein are largely duplicative of requirements contained in Article 3 (Siting Permit Procedures) of the proposed siting regulations. Moreover, the requirements in Section 100(c)(3) concerning environmental compliance and emissions monitoring prematurely seek information that is likely to be developed as part of the final site permit application (see Section 200(b)(6)). As such, they would impose unnecessary administrative burdens and costs on prospective applicants without any commensurate benefit to either the public or the applicant.

Additionally, the Section 100 requirements are redundant to NRC regulations governing the tendering and docketing of NRC permit and license applications. 10 CFR 2.101 contains public notice requirements for applicants that are triggered by the NRC’s determination that an application is complete and acceptable for docketing. Specifically, Section 2.101(a)(3) requires an applicant to:

- (ii) Serve a **copy** on the **chief executive of the municipality** in which the facility or site which is the subject of an early site permit is to be located or, if the facility or site which is the subject of an early site permit is not to be located within a municipality, on the chief executive of the county, and serve a **notice of availability** of the application or environmental report on the **chief executives of the municipalities or counties** which have been identified in the application or environmental report as the location of all or part of the alternative sites, containing as applicable, the docket number of the application; a brief description of the proposed site and facility; the location of the site and facility as primarily proposed and alternatively listed; the name, address, telephone number, and e-mail address (if available) of the applicant's representative who may be contacted for further information; notification that a draft environmental impact statement will be issued by the Commission and will be made available upon request to the Commission; and notification that if a request is received from the appropriate chief executive, the applicant will transmit a copy of the application and environmental report, and any changes to these documents which affect the alternative site location, to the executive who makes the request. In complying with the requirements of this paragraph, the applicant should not make public distribution of those parts of the application subject to § 2.390(d). The applicant shall submit to the Director, Office of Nuclear Reactor Regulation, an affidavit that service of the notice of availability of the application or

environmental report has been completed along with a list of names and addresses of those executives upon whom the notice was served; and

(iii) Make direct distribution of additional copies to **Federal, State, and local officials** in accordance with the requirements of this chapter and written instructions furnished to the applicant by the Director, Office of Nuclear Reactor Regulation, or Director, Office of Nuclear Material Safety and Safeguards. Such written instructions will be furnished as soon as practicable after all or any part of the application, or environmental report, is tendered. The copies submitted to the Director, Office of Nuclear Reactor Regulation, or Director, Office of Nuclear Material Safety and Safeguards, as appropriate, and distributed by the applicant shall be completely assembled documents, identified by docket number. Subsequently distributed amendments to applications, however, may include revised pages to previous submittals and, in such cases, the recipients will be responsible for inserting the revised pages. (Emphasis added.)

10 CFR 2.101(a)(4) provides that within 10 days after docketing, the applicant must submit to the relevant NRC Office Director an affidavit that distribution of the additional copies to Federal, State, and local officials has been completed in accordance with the specified requirements. It further requires that amendments to the application and environmental report be filed and in the same manner as for the initial application and environmental report.

The information required by 10 CFR 2.101(a)(3)(ii) coincides closely with the information required by Section 100(b) of ADEC's proposed siting regulations. As noted above, NRC regulations (10 CFR 51.45) require an applicant to discuss its compliance with applicable zoning, land-use, and environmental requirements imposed by other Federal, State, and local agencies or authorities.

Importantly, the NRC licensing process typically begins long before an entity submits a license application to the NRC in the form of pre-application meetings and other interactions between the prospective applicant and NRC staff. NRC regulations and guidance encourage such pre-application activities, which allow the staff to become familiar with the proposed project and with the application's anticipated contents.¹⁶ These activities also enable the staff to identify and secure the necessary expertise and resources for its safety and NEPA reviews, estimate review times, provide information and feedback to prospective applicants regarding the agency's review process, and determine whether the environmental and safety portions of the application appear ready for submission. In addition, the NRC staff and applicant are likely to establish contacts with other Federal, State, and local agencies, as well as hold public outreach meetings.

In fact, the NRC's Advanced Reactor Policy Statement "encourages the earliest possible interaction of applicants, vendors, **other government agencies**, and the NRC to provide for early identification of regulatory requirements for advanced reactors and to provide **all interested parties, including the public**, with a timely, independent assessment of the safety and security characteristics of advanced

¹⁶ See, e.g., 10 CFR 51.40, "Consultation with NRC staff." NRC pre-application activities may include a tour of the site, discussions with applicant personnel who are familiar with the proposed site and siting process and involved in developing the applicant's environmental report, and a records assessment of the environmental portions of the application (including, for example, the availability of relevant environmental studies and environmental information).

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reactor designs.”¹⁷ Additionally, in May 2021, the NRC issued draft guidance that “provide[s] information to advanced reactor developers on the benefits of robust pre-application engagement in order to optimize both safety and environmental application reviews.”¹⁸ The NRC expects that applicants will conduct meetings, support audits, and provide white papers on key environmental topics, potentially including the applicant’s site selection process, beginning as early as two years prior to application submittal. The guidance notes that “[e]arly engagement is important for assuring that sufficient data is available in the application and that **appropriate engagement with other Federal and State agencies has begun.**”¹⁹ It also recommends that applicants interact with other permitting agencies as discussed in [NEI 10-07](#) (an NEI-issued guidance document), and provide a list of the necessary project authorizations, permits, licenses, and approvals.²⁰

In view of the above, we recommend that the ADEC leverage the NRC public notice requirements and processes to the maximum extent practicable and **in lieu of the requirements proposed in Section 100**. If desired, the ADEC could still include a provision that makes clear that the Federal, State, and local officials to whom NRC license applicants must distribute notices of application availability under NRC regulations include those identified in Section 100 – *i.e.*, the ADEC, legislature, and mayor of the nearest municipality. The ADEC also might consider a provision that requires companies to notify the State when they formally notify the NRC of their intent to file a nuclear facility license application for a site in Alaska and/or initiate preapplication activities with the NRC.²¹ Furthermore, the ADEC might consider holding a public information session or meeting to provide information about the NRC’s siting, licensing, and environmental review requirements and processes, either independently or in concert with the NRC. Such a meeting could be held before and/or after a project sponsor submits its license application to the NRC.

We further recommend that the requirement to use traditional media in Section 100(a)(2) be amended to allow greater flexibility, e.g., the use of alternative, equivalent forms of communication as a means of compliance. The existence of these traditional media cannot be assumed in the future for all communities, and thus applicants should be permitted to use a range of options to notify and convey information about their projects to the public.

¹⁷ NRC, Final Policy Statement on the Regulation of Advanced Reactors, 73 Fed. Reg. 60,612, 60,616 (Oct. 14, 2008) (emphasis added). While NRC Policy Statements do not impose binding legal requirements like regulations, they convey the Commission’s expectations and thus provide important guidance to the NRC Staff and applicants/licensees.

¹⁸ NRC, Draft Pre-application Engagement to Optimize Advanced Reactors Application Reviews, at 1 (May 2021) (ADAMS Accession No. [ML21145A106](#)).

¹⁹ *Id.* at 9 (emphasis added).

²⁰ *Id.* at 10.

²¹ The NRC maintains a [Pre-Application Activities for Advanced Reactors](#) web page through which the public can access information on pre-application activities, including the NRC electronic dockets containing pre-application documents. On its [Public Meeting Schedule](#) web page, the NRC regularly posts notices of upcoming pre-application meetings. Unless the meeting or a portion thereof is closed to the public (e.g., due to the discussion proprietary or other sensitive information), members of the public can participate in the meeting via teleconference.

C. Article 3. Siting Permit Procedures

Section 200. Application requirements

Section 200 is a highly prescriptive regulation that requires applicants for ADEC siting permits to submit considerable administrative and technical information about their proposed micro-reactors to the State. That information includes, among other things, a description of the proposed facility and site topography, geology, climate, surface hydrology, and groundwater hydrology; a copy of an NRC-issued early site permit; aerial photographs and maps of the site; a discussion of the applicant's plans to monitor facility emissions to the air, water, and land; copies of relevant property instruments (e.g., deeds, lease agreements); copies of public notices provided under Section 100(a) and related publisher's affidavits; and copies of written responses to concerns expressed during the pre-application period and any related applicant commitments.

Section 200 imposes unnecessary burdens on applicants insofar as it seeks information that a reactor applicant would need to provide in any CP, ESP, or COL application submitted to the NRC. [Section 51.45](#) of NRC regulations describes the required contents of an environmental report. NRC regulatory guidance, including Regulatory Guide 4.2, *Preparation of Environmental Reports for Nuclear Power Stations* (Rev. 3, Sept. 2018) (ADAMS Accession No. [ML18071A400](#)) and interim staff guidance (ISG) COL-ISG-029, "Environmental Considerations Associated with Micro-reactors" (ADAMS Accession No. [ML20252A076](#)), provide detailed guidance to applicants on the format and content of environmental reports. It is clear from these documents that an NRC license applicant's environmental report will encompass the environmental information requested in Section 200 of the ADEC's proposed siting regulations. This information is needed for the applicant's and NRC's assessment of the potential impacts associated with the construction and operation of a nuclear facility on ecological resources, water use, land use, radiological accidents, air quality, aesthetics, socioeconomics, and environmental justice.²² The environmental report also must describe the process used by the applicant to select the proposed site and potential alternative sites. Accordingly, we recommend that the ADEC take advantage of the substantial safety and environmental review work performed by the NRC and the applicant by revising Section 200 to cross-reference relevant NRC requirements and guidance, and allow use of an applicant's NRC-required license application/environmental report to meet the relevant requirements of the ADEC's proposed nuclear facility siting regulations.²³

As explained below, we have other concerns about specific provisions in Section 200 of the proposed siting regulations. The ADEC should consider removing or modifying these provisions, as appropriate.

Section 200(a) provides that an applicant must submit a completed siting permit application no later than three years after the public notice requirements of Section 100 have been met. Section 200(d), in turn, provides that if an applicant fails to submit the application within the 3-year timeframe, then it

²² NRC regulations require radiological effluent monitoring and radiological environmental monitoring by nuclear power plant licensees. See, e.g., 10 CFR 50.36a; 10 CFR 50.36b; 10 CFR 51.50(a), (b)(4), and (c).

²³ See, e.g., Florida Administrative Code (F.A.C.) 62-17.051(b) ("Application for a Site Certification") ("The applicant may substitute the United States Nuclear Regulatory Commission's or its successor's format for an application for a nuclear power plant as outlined in 10 CFR, Part 50 and 10 CFR, Part 51, January 1, 2007, in lieu of the [Florida Department of Environmental Protection's] format for a new application or a supplemental application.").

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must “repeat” the Section 100 public notice requirements. As an initial matter, we reiterate our suggestion above that the ADEC remove the Section 100(a) public notice requirements, because they are redundant to the public notice requirements associated with the NRC licensing process. Doing so, in turn, would eliminate the need for Sections 200(a) and 200(d).

Furthermore, the 3-year application filing period (the basis for which is not clear) could have unintended consequences. Section 200(d)(2) of the ADEC’s proposed siting regulations directs applicants to include a copy of an NRC-issued early site permit. As explained below, the NRC’s ESP process is **optional**; i.e., a company may apply for an NRC construction permit or COL without first obtaining an early site permit. In any case, given the time required to obtain an ESP from the NRC (historically on the order of three years or more), the 3-year filing period might serve as a disincentive. Namely, nuclear facility sponsors might be reluctant to file their siting approval applications with the ADEC until they are close to obtaining the requested NRC authorization (ESP or otherwise) to avoid “timing out” under the 3-year provision in Section 200(d). This would undermine the ADEC’s goal of facilitating local involvement in siting nuclear facilities and the Alaska Office of Energy Innovation’s goal of fostering collaboration between public and private institutions in the siting of advanced nuclear technologies in Alaska. It would also undermine an applicant’s ability to meaningfully review and address public concerns about its siting proposal. As discussed above, we believe the optimal approach is for the ADEC to leverage the siting review and associated public participation opportunities afforded by the NRC’s Parts 50 and 52 licensing processes and Part 51 NEPA review process.

Section 200(b)(2) states that a siting permit application must include “a copy of an early site permit granted to the site under 10 C.F.R. 52.24 by the [NRC].” This provision is problematic in several respects and should be removed.

First, an ESP issued under 10 CFR 52.24 is an **option** available to applicants under the Part 52 licensing process; it is **not** a requirement or prerequisite to seeking a CP, OL, or COL from the NRC.²⁴ In fact, 10 CFR 52.15(a) expressly states that “[a]ny person who may apply for a construction permit under 10 CFR part 50, or for a combined license under this part, **may** file an application for an early site permit with the Director, Office of Nuclear Reactor Regulation.” An ESP is simply an optional means of resolving safety and environmental issues related to siting (sometimes referred to as “banking” a site), often through the use of a bounding analysis approach, and typically long before an applicant needs to make large resource commitments.²⁵

Second, given that the ESP process is optional, the necessary site suitability analyses for proposed reactors may be performed as part of a CP application under 10 CFR Part 50 or in a COL application filed under 10 CFR Part 52, both of which refer to 10 CFR Part 100 requirements. That is, if a CP or COL

²⁴ Relatedly, Section 10(b) states that the proposed siting regulations apply to the construction of a nuclear fuel production facility, nuclear utilization facility, including a microreactor, utilization facility, reprocessing facility, or nuclear waste disposal facility. However, when read together, Section 200(b)(2) would require an ESP for all these facilities, which is impossible under the NRC’s regulations. For this additional reason, we recommend deleting this requirement from the proposed regulations.

²⁵ See Licenses, Certifications, and Approvals for Nuclear Power Plants; Final Rule, 72 Fed. Reg. 49,352, 49,439 (Aug. 28, 2007) (noting that the 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”).

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application does not reference an ESP, then the applicant must provide site information greater than that included in an ESP application. Additionally, ESP, CP, and COL applicants may seek a limited work authorization (LWA) under 10 CFR 50.10 that authorizes an applicant to perform certain “construction” activities (as defined in 10 CFR 50.10) at the applicant’s risk, prior to the issuance of an ESP, CP, or COL. An LWA, which requires the issuance of an EIS, may be granted only after the NRC has made the required NEPA findings and determined that there is reasonable assurance that the proposed site is a suitable location, from a radiological health and safety standpoint, for a reactor of the general size and type proposed by the applicant.²⁶

Third, the ADEC should not require (or otherwise assume) that an applicant will already have obtained an ESP, CP, or COL when it files its siting permit application with the ADEC. Indeed, it is more likely that an applicant will seek an ADEC siting permit prior to, or concurrently with, its filing of an application with the NRC. While it may prove to be shorter for micro-reactors, the NRC’s Part 50 and 52 licensing processes typically have required at least several years to complete. As such, it is not reasonable to assume that an applicant for an ADEC siting permit will already have obtained a permit or license from the NRC. Section 200(b)(2) should be modified accordingly.

In view of the above, the ADEC’s regulations should be amended to remove the requirement for an approved ESP before beginning the site permitting process with ADEC. Requiring the acceptance of an ESP application before the main process for the ADEC site permit effectively reduces ADEC’s ability to engage the public during the important site review stage by the NRC. The ADEC should be involved throughout the NRC review process for site suitability and environmental issues as part of its review of a CP, COL, ESP, and/or LWA application.

Section 210. Preliminary permit decision

Section 210(a) states that after receiving a complete application, the ADEC will make a preliminary decision to issue or deny a permit after reviewing the information contained in the application and the public record, based on the considerations specified in Section 210(a)(1)-(8). If the ADEC grants preliminary approval, then it would prepare a draft permit. The preliminary decision and draft permit would then be made available to public for comment and sent to the entities involved in the pre-application process. The ADEC would also request approval or denial of the draft permit from the municipality with jurisdiction over the proposed facility site or the legislature, as applicable.

The proposed regulations do not indicate how much time would be required for the ADEC to reach a preliminary decision on the application (approval or denial) and to issue a draft permit. Nor is it clear how much time the relevant municipality or legislature has to approve or deny the draft permit, and on what ground(s) it may deny the permit. As such, NEI recommends that the ADEC include specific time limits, or at least approximate milestone schedules, for the key decision points – i.e., issuance of the preliminary decision, the draft permit, and the decision of the municipality or legislature.

With regard to the eight considerations specified in Section 210(a)(1)-(8), we reiterate that any applicant for an NRC ESP, CP or COL under Part 50 or 52 would need to address the status of its

²⁶ An LWA applicant must include a redress plan that describes the scope of the actions to be taken following any suspension of construction activities and addresses the mitigation of impacts incurred due to the performance of construction activities.

compliance with the Alaska environmental regulations listed in paragraphs (a)(3)-(6). Further, as discussed below, any potential "location requirements and restrictions" (see paragraph (a)(3) and proposed Section 300 of the siting regulations) and the "long-term stability of the facility in areas subject to natural events" (see paragraph (a)(7)) would be addressed by the NRC during its site suitability review for proposed micro-reactor under 10 CFR Part 50/52 and 10 CFR Part 100. With regard to paragraph (a)(8), we note that because some siting approval applicants may have no prior experience performing activities subject to ADEC permitting authority, they would lack any "compliance history." It is unclear what information, if any, they would need to provide in that circumstance.

Finally, it is unclear if and when the proponent of a micro-reactor project may undertake preconstruction (including site characterization and site preparation) and limited construction activities (under an LWA) during the pendency of ADEC's review of a siting permit application. As discussed herein, the NRC's Part 50 and Part 52 licensing process may require several years to complete. Consequently, companies seeking to build advanced reactors (including micro-reactors) need the ability to perform site characterization and other preconstruction work as expeditiously as possible. As revised in 2007, NRC regulations afford reactor license applicants the flexibility to conduct preconstruction activities **before** license issuance.²⁷ NRC regulations prohibit any person from commencing "construction" of a reactor on a site on which the facility is to be operated prior to NRC issuance of a CP, COL, or LWA.²⁸ The NRC defines "construction" to include activities that have a "reasonable nexus to radiological health and safety and/or the common defense and security."²⁹ NRC regulations do **not** preclude applicants from engaging in the following "preconstruction" activities, which the NRC has expressly **excluded** from the definition of "construction" in 10 CFR 50.10 and 10 CFR 51.4:

- Changes for temporary use of the land for public recreational purposes;
- Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;
- Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;
- Erection of fences and other access control measures that are not safety or security related, and do not pertain to radiological controls;
- Excavation;

²⁷ See NRC, Limited Work Authorizations for Nuclear Power Plants; Final Rule, 72 Fed. Reg. 57,416 (Oct. 9, 2007) (2007 LWA Rule).

²⁸ 10 CFR 50.10(c).

²⁹ NRC, 2007 LWA Rule, 72 Fed. Reg. at 57,417. NRC regulations define "construction" to include the driving of piles; subsurface preparation; placement of backfill, concrete, or permanent retaining walls within an excavation; installation of foundations; or in-place assembly, erection, fabrication, or testing, for any structure, system, or component of a facility required by NRC regulations to be described in the preliminary or final safety analysis report. See 10 CFR 50.10(a)(1); 10 CFR 51.4.

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- Erection of support buildings (e.g., construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility; and
- Building of service facilities (e.g., paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines).

NEI seeks clarification from the ADEC as to whether an entity seeking to build a reactor on a site in Alaska could undertake any of these activities (at its own risk) prior to receiving a final siting permit and, if so, subject to what conditions or approvals from the State.

D. Article 4. Location Requirements and Restrictions

Section 300. Location requirements for a microreactor facility

This section proposes numerous, highly prescriptive requirements (i.e., limitations) for siting a microreactor facility in Alaska. For example, the ADEC proposes to ban microreactors within 50 feet of any property boundary, and specifies a minimum separation distance between a microreactor and the nearest residence of 2,700 feet. The proposed regulations would further prohibit microreactors from being located on any coastal area “that is vulnerable to storm surge” (which would appear to be any coastline in Alaska); within 300 feet of an area subject to “high risks” from volcanic activity, ice floes, or avalanches; within a 100-year flood plain; and in state waters “except to the extent permitted by 33 U.S.C. 1344 (Clean Water Act, section 404), and applicable state water laws.”

Section 300 raises a number of concerns from our perspective. Most importantly, the rationale for many of the location requirements contained in this section is unclear. Although some of the requirements evidently are intended to protect the environment in accordance with applicable Federal and State environmental laws and regulations, others appear to be motivated by radiological health and safety concerns that fall within the exclusive regulatory jurisdiction of the NRC. As such, they are likely preempted by the AEA and NRC regulations, particularly those contained in 10 CFR Part 100.

10 CFR Part 100, “Reactor Site Criteria,” sets forth the NRC’s “approval requirements for proposed sites for stationary power and testing reactors” licensed under 10 CFR Part 50 and 52. Section 100.1(c) states:

Siting factors and criteria are important in assuring that radiological doses from normal operation and postulated accidents will be acceptably low, that **natural phenomena and potential man-made hazards will be appropriately accounted for in the design of the plant**, that site characteristics are such that adequate security measures to protect the plant can be developed, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified. (Emphasis added.)

Section 100.20 identifies specific factors to be considered in the NRC’s siting review. They include:

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- population density and use characteristics of the site environs, including the exclusion area, the population distribution, and site-related characteristics;
- the nature and proximity of man-related hazards (e.g., airports, dams, transportation routes, military and chemical facilities); and
- physical characteristics of the site, including seismology, meteorology, geology, and hydrology.

Additional details are contained in 10 CFR 100.21, which provides non-seismic criteria, and 10 CFR 100.23, which provides geologic and seismic criteria. The NRC also has issued detailed implementing guidance, including Regulatory Guide 1.206, *Applications for Nuclear Power Plants* (Rev. 1, Oct. 2018) ([ML18131A181](#)) and Regulatory Guide 4.7, *General Site Suitability Criteria for Nuclear Power Stations* (Rev. 3, Mar. 2014) ([ML12188A053](#)).³⁰ The NRC's site suitability review includes, but is not limited to, consideration of all geologic and seismic factors (including earthquake and volcanic activity) that may affect the design and operation of the proposed nuclear power plant; the maximum probable flood along with the potential for seismically induced floods; maximum probable wind speed and precipitation; and factors important to hydrological radionuclide transport (such as soil, sediment, and rock characteristics, adsorption and retention coefficients, groundwater velocity, and distances to the nearest surface body of water).

Notably, given their unique safety and environmental attributes, the NRC is actively considering strategies to streamline the licensing of advanced reactors, including micro-reactors.³¹ Some of those strategies relate to the NRC's siting and emergency preparedness requirements. For example, the NRC is currently developing guidance on a performance-based approach to meeting Part 100 requirements that would allow applicants greater flexibility in siting advanced reactors relative to nearby population centers. The NRC also has developed a final rule (which is pending Commission approval) that would provide alternative emergency preparedness requirements for these types of facilities. This rule would allow, among other things, the use of a scalable approach for determining the size of the plume exposure pathway emergency planning zone (EPZ).

Accordingly, in finalizing its proposed siting regulations, the ADEC should ensure that any location requirements included in Section 300 do not seek to regulate or directly affect the radiological safety of reactor construction and operation, or otherwise conflict with the NRC regulations and guidance documents discussed above.³² To the extent the ADEC wishes to include specific limitations on reactor

³⁰ Appendices A and B to Regulatory Guide 4.7, Rev. 3, respectively, summarize the important safety-related and environmental considerations for assessing the site suitability of nuclear power stations, and include a non-exhaustive listing of relevant regulations and regulatory guidance. For further discussion of this topic, see Chokshi, N. et al., "United States Practice of Site Evaluation for Nuclear Power Plants," *Transactions*, SMIRT-24 BEXCO, Busan, Korea (Aug. 20-25, 2017), https://repository.lib.ncsu.edu/bitstream/handle/1840.20/36218/SMIRT-24_SoA1-01-02.pdf?sequence=1&isAllowed=y.

³¹ See, e.g., NRC Draft White Paper, "Micro-reactors Licensing Strategies" (Nov. 2021) (ADAMS Accession No. [ML21328A189](#)).

³² For example, Section 35-11-2101 ("Advanced Nuclear Reactors; Requirements") of the State of Wyoming's Statutes states: "Nothing in this section shall be deemed to affect the authority of the United States Nuclear Regulatory Commission." W.S. 35-11-2101(c). It further states: "The provisions of the Industrial Development Information and Siting Act, W.S. 35-12-101 through 35-12-119, shall apply only to the extent that those provisions do not interfere with, contradict or duplicate any requirements of the United States Nuclear Regulatory Commission." W.S. 35-11-2101(e).

siting in Section 300, it should ensure that such limitations are supported by a non-nuclear safety basis or rationale. It also should consider cross-referencing applicable NRC regulations and guidance as governing the radiological safety aspects of micro-reactor siting.

E. Article 5. General Provisions

Section 900. Definitions

Section 900 defines numerous key terms, some of which also appear in the AEA and/or NRC regulations. To avoid confusion and ensure consistency in the meaning and use of these terms, we recommend that the State adopt the Federal definitions of these terms, as applicable. The terms of interest and the sources of their Federal (i.e., NRC) definitions are listed in the table below, along with an explanation of why the current State definitions are potentially problematic.

Term	Federal Citation	NEI Explanatory Comment
Construction	10 CFR 50.10(a)(1) 10 CFR 51.4	The ADEC definition for "construction" appears to be inconsistent with the NRC definition for "construction" provided in 10 CFR 50.10 and further discussed in guidance in SECY-07-0030 , COL/ESP-ISG-04 , and RG 1.206 . The NRC definition of "construction" has a clear nexus to nuclear safety and security. To avoid inconsistencies and confusion, it would be appropriate for ADEC to use the same NRC definition of "construction" and adopt the guidance already established by the NRC to perform environmental reviews.
Micro-reactor	42 USC 16271 (statutory definition of "advanced nuclear reactor") NRC regulations do not define "micro-reactor." As reflected in NRC guidance and policy documents, the NRC views micro-reactors as a subset of advanced nuclear reactors. See, e.g., COL-ISG-029 ("Characteristics shared by designs referred to as micro-reactors include the low potential for transients and accidents, low potential for radioactive releases, low potential	The ADEC definition of "microreactor" provided in AS 18.45.900 is as follows: "microreactor" means a nuclear utilization facility that: (A) is a nuclear fission reactor consistent with the definition of "advanced nuclear reactor" in 42 USC 16271; and (B) is capable of generating no more than 50 megawatts of electric energy. ADEC should ensure that its definition is consistent with what the DOE and NRC consider as a microreactor. The DOE and NRC discussion about microreactors focuses on individual reactor units. The ADEC definition of a microreactor as a "nuclear utilization facility" could impose undue restrictions on proposed facilities that may contain multiple microreactor units. Also, the proposed ADEC definition fails to consider thermal energy ratings or impacts of multiple microreactors at a single location, future uprates, etc.

Term	Federal Citation	NEI Explanatory Comment
	consequences from radiological release, small building and site footprints, operating power levels on the order of tens of megawatts-thermal or less, and increased reliance on passive systems and inherent characteristics used to control power and prevent radioactive releases.”).	Since current and future designs envision the capability of these reactors to provide both electrical power and thermal energy for other uses concurrently, the current definition could be misinterpreted in a way that could allow a reactor that is larger than a microreactor to be classified as such. In addition, as written, a “facility” of 1000 MWth that only produces enough electrical for its own internal needs could be defined as a micro-reactor, which is clearly not the intent. A “facility” can be interpreted as being a single piece of equipment (i.e., the RPV) or all equipment, devices and components required to achieve “a self-supporting and controlled chain reaction.”
Production facility	AEA Section 11.v 10 CFR 50.2	Proposed Section 900(14) states that “production facility” has the meaning given in AS 18.45.900, which is “equipment or a device capable of the production of special nuclear material in quantity of significance to the common defense and security, or to affect the health and safety of the public; or any important component part especially designed for the equipment or device.” Although this definition is generally consistent with that appearing in the AEA, we note that NRC regulations (10 CFR 50.2) define “production facility” with greater specificity, as follows: “(1) Any nuclear reactor designed or used primarily for the formation of plutonium or uranium-233; or (2) Any facility designed or used for the separation of the isotopes of plutonium, except laboratory scale facilities designed or used for experimental or analytical purposes only; or (3) Any facility designed or used for the processing of irradiated materials containing special nuclear material, except (i) laboratory scale facilities designed or used for experimental or analytical purposes, (ii) facilities in which the only special nuclear materials contained in the irradiated material to be processed are uranium enriched in the isotope U-235 and plutonium produced by the irradiation, if the material processed contains not more than 10 ⁻⁶ grams of plutonium per gram of U-235 and has fission product activity not in excess of 0.25 millicuries of fission

Term	Federal Citation	NEI Explanatory Comment
		<p>products per gram of U-235, and (iii) facilities in which processing is conducted pursuant to a license issued under parts 30 and 70 of this chapter, or equivalent regulations of an Agreement State, for the receipt, possession, use, and transfer of irradiated special nuclear material, which authorizes the processing of the irradiated material on a batch basis for the separation of selected fission products and limits the process batch to not more than 100 grams of uranium enriched in the isotope 235 and not more than 15 grams of any other special nuclear material."</p>
<p>Utilization facility</p>	<p>AEA Section 11.cc 10 CFR 50.2</p>	<p>Section 900 of the proposed siting regulations cross-references AS 18.45.900, which defines "utilization facility" as "equipment or a device, except an atomic weapon, capable of making use of special nuclear material in a quantity significant to the common defense and security, or in a manner affecting the health and safety of the public, or peculiarly adapted for making use of atomic energy in a quantity significant to the common defense and security, or in a manner affecting the health and safety of the public; or an important component part especially designed for the equipment or device." Section 900 and AS 18.45.900 includes a separate definition for "nuclear utilization facility." That term is defined as "an apparatus, device, or equipment in which nuclear fission is sustained in a self-supporting and controlled chain reaction; the term does not include an apparatus, device, or equipment used exclusively for educational, medical, or research purposes."</p> <p>It is unclear why AS 18.45.900 and Section 900 of the proposed siting regulations separately define "utilization facility" and "nuclear utilization facility." We recommend that the State adopt the NRC's definition of utilization facility in 10 CFR 50.2, which, as relevant here, is "[a]ny nuclear reactor other than one designed or used primarily for the formation of plutonium or U-233."</p>

Summary of NEI Recommendations Regarding ADEC’s Proposed Siting Regulations

ADEC Proposed Regulation	NEI Recommendations
<p>18 AAC XX.010 (Purpose and applicability)</p>	<p>The ADEC should clearly define or explain “environmental review” in 18 AAC XX.010(a). If the ADEC is referring to compliance with applicable state environmental permitting requirements, then it should make that clear. The ADEC also should consider indicating that the NRC will conduct a detailed environmental review of any proposed new reactor under the National Environmental Policy Act (NEPA) and 10 CFR Part 51, a process in which the State of Alaska and members of the public can participate.</p> <p>To ensure consistency in the meaning and use of the terms referenced in 18 AAC XX.010(b), we recommend that the State of Alaska adopt the Federal definitions of these terms, as applicable. Additionally, the State should consider avoiding separate definitions of “nuclear utilization facility” and a “utilization facility,” as the reason and basis for this distinction are not clear. See NEI’s detailed comments on 18 AAC XX.900 in Attachment 1.</p> <p>With regard to 18 AAC XX.010(c), the ADEC should be aware that NRC regulations (10 CFR 51.45(d)) require that an NRC license applicant’s environmental report discuss the status of compliance with applicable environmental quality standards and requirements including, but not limited to, applicable zoning and land-use regulations, and thermal and other water pollution limitations or requirements which have been imposed by Federal, State, regional, and local agencies having responsibility for environmental protection.</p>
<p>18 AAC XX.100 (Pre-application requirements)</p>	<p>The ADEC should leverage NRC public notice requirements and processes (see, e.g., 10 CFR 2.101) to the maximum extent practicable and <u>in lieu of</u> the requirements proposed in 18 AAC XX.100. If desired, the ADEC could still include a provision that makes clear that the Federal, State, and local officials to whom NRC license applicants must distribute notices of application availability under NRC regulations include those identified in Section 100 – <i>i.e.</i>, the ADEC, Alaska legislature, and mayor of the nearest municipality. The ADEC also might consider a provision that requires companies to notify the State when they formally notify the NRC of their intent to file a nuclear facility license application for a site in Alaska and/or initiate preapplication activities with the NRC. Furthermore, the ADEC might consider holding a public information session or meeting to provide information about the NRC’s siting, licensing, and environmental review requirements and processes, either independently or in concert with the</p>

ADEC Proposed Regulation	NEI Recommendations
	<p>NRC. Such a meeting could be held before and/or after a project sponsor submits its license application to the NRC.</p> <p>The requirement to use traditional media in 18 AAC XX.100(a)(2) should be amended to allow greater flexibility, e.g., the use of alternative, equivalent forms of communication as a means of compliance. The existence of these traditional media cannot be assumed in the future for all communities, and thus applicants should be permitted to use a range of options to notify and convey information about their projects to the public.</p>
<p>18 AAC XX.200 (Application requirements)</p>	<p>As noted above, the ADEC should remove the 18 AAC XX.100(a) public notice requirements, because they are redundant to the public notice requirements associated with the NRC licensing process. Doing so, in turn, would eliminate the need for 18 AAC XX.200(a) and (d).</p> <p>The ADEC should clarify the basis for the 3-year application filing period in 18 AAC XX.200(a) or consider removing this proposed requirement because it might undermine the ADEC’s goal of facilitating local involvement in siting nuclear facilities, as well as an applicant’s ability to meaningfully review and address public concerns about its siting proposal. Again, we recommend that the ADEC leverage the siting review and associated public participation opportunities afforded by the NRC’s Part 50 and Part 52 licensing processes and Part 51 NEPA review process for both the State of Alaska and its citizens.</p> <p>The ADEC should remove the proposed requirement in 18 AAC XX.200(b)(2) that a siting permit application include “a copy of an early site permit [ESP] granted to the site under 10 C.F.R. 52.24 by the [NRC].” As explained in our comments, an ESP issued under 10 CFR 52.24 is an option available to applicants under the Part 52 licensing process; it is not a requirement or prerequisite to seeking a Part 50 construction permit (CP), Part 50 operating license (OL), or Part 52 combined license (COL) from the NRC. Requiring the acceptance of an ESP application before the main process for the ADEC site permit effectively reduces the ADEC’s ability to engage the public during the important site review stage by the NRC. The ADEC should be involved throughout the NRC review process for site suitability and environmental issues as part of its review of a CP, COL, ESP, and/or limited work authorization (LWA) application.</p>
<p>18 AAC XX.210 (Preliminary permit decision)</p>	<p>18 AAC XX.210(a) does not indicate how much time would be required for the ADEC to reach a preliminary decision on the application (approval or denial) and to issue a draft permit. Nor is it clear how much time the relevant municipality or legislature has to approve or deny the draft permit, and on what ground(s) it may deny the permit. NEI recommends that the</p>

ADEC Proposed Regulation	NEI Recommendations
	<p>ADEC include specific time limits, or at least approximate milestone schedules, for the key decision points – i.e., issuance of the preliminary decision, the draft permit, and the decision of the municipality or legislature.</p> <p>The ADEC should carefully review 18 AAC XX.210(a)(1)-(8) and revise that provision as necessary, because it appears to impose requirements that are redundant to, or in conflict with, NRC requirements in 10 CFR Parts 50, 51, and 52. With regard to paragraph (a)(8), the ADEC should clarify what, if any, information an applicant should provide if it has no prior “compliance history” in Alaska.</p> <p>The ADEC should clarify whether an entity seeking to build a nuclear reactor on a site in Alaska could, at its own risk, undertake “preconstruction” and limited “construction” activities (under an NRC-issued LWA), as those terms are defined by the NRC, prior to receiving a final ADEC siting permit and, if so, subject to what conditions or approvals from the State.</p>
<p>18 AAC XX.300 (Location requirements for a microreactor facility)</p>	<p>To avoid preemption concerns and promote comity between State and Federal requirements, the ADEC should ensure that any location requirements included in 18 AAC XX.300 do not seek to regulate or directly affect the radiological safety of reactor construction and operation, or otherwise conflict with the NRC regulations and guidance. To the extent the ADEC wishes to include specific limitations on reactor siting in 18 AAC XX.300, it should ensure that such limitations are supported by a non-nuclear safety basis or rationale. It also should consider cross-referencing applicable NRC regulations and guidance as governing the radiological safety aspects of micro-reactor siting.</p>
<p>18 AAC XX.900 (Definitions)</p>	<p>We recommend that Alaska adopt the Federal definitions of certain terms (or at least ensure consistency with those Federal definitions and related NRC guidance) listed in this proposed regulation, including construction, micro-reactor, production facility, and utilization facility. The State should consider avoiding separate definitions of “nuclear utilization facility” and a “utilization facility” to avoid confusion. See NEI’s detailed comments on 18 AAC XX.210 and 18 AAC XX.900 in Attachment 1 for further discussion of our concerns about the State’s definitions of these terms.</p>

Key NRC Site Selection Regulations and Guidance

The U.S. Nuclear Regulatory Commission’s (NRC) site selection and suitability requirements are contained in the following portions of Title 10 of the *Code of Federal Regulations*.

10 C.F.R.	Subject
Part 50	<p>General Design Criterion 2 specifies technical “Design Bases for Protection Against Natural Phenomena.”</p> <ul style="list-style-type: none"> Requires structures, systems and components “important to safety” to be designed to “withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions.”
Part 51	<p>Prescribes the required contents of an applicant’s environmental report (ER), as well as the NRC’s draft and final environmental impact statements (EIS), including the need to discuss alternatives to the proposed action.</p>
Part 52	<p>Contains various requirements directly related to site characteristics, as well as to events and conditions outside the nuclear power unit.</p> <ul style="list-style-type: none"> For example, Sections 52.17 and 52.79 require an application for an ESP or a combined license (COL) to include, among other things, “the seismic, meteorological, hydrologic, and geologic characteristics of the proposed site with appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area” and “physical characteristics of the proposed site, such as egress limitations from the area surrounding the site, that could pose a significant impediment to the development of emergency plans.”
Part 100	<p>Establishes approval requirements for proposed sites for the purpose of constructing and operating stationary power and testing reactors pursuant to the provisions of 10 CFR Parts 50 or 52. Specifies the detailed “Reactor Site Criteria” for determining site acceptability, including natural and man-made hazards, the physical characteristics of the site, and seismic and non-seismic criteria.</p>

Further explanation of the NRC’s environmental and safety-related site suitability reviews can be found in the following guidance documents:

- Regulatory Guide 4.2, *Preparation of Environmental Reports for Nuclear Power Stations* (Rev. 3, Sept. 2018) (NRC ADAMS Accession No. [ML18071A400](#)) (overview of the site selection process to prepare an environmental report)

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- Regulatory Guide 4.7, *General Site Suitability Criteria for Nuclear Power Stations* (Rev. 3, Mar. 2014) ([ML12188A053](#)) (provides broad overview of NRC's site suitability review; Appendices A and B, respectively, summarize the important safety-related and environmental considerations for assessing the site suitability of nuclear power stations, and include a non-exhaustive listing of relevant regulations and regulatory guidance)
- Regulatory Guide 1.70, *Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants* (Rev. 3, 1978) ([ML011340122](#)), and Regulatory Guide 1.206, *Applications for Nuclear Power Plants* (Rev. 1, Oct. 2018) ([ML18131A181](#)) (both identify requirements for safety-related site characteristics)
- NUREG-0800, *Standard Review Plan (SRP) for the review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition* (Mar. 2007) ([see NRC website](#)) (provides the criteria used by the NRC staff for reviewing the safety analysis report)
- NUREG-1555, *Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan for New Site/Plant Applications* (Rev. 1, June 2013) ([ML13106A246](#)) and Supplement 1 (provides criteria used to review the environmental report)
- COL/ESP-ISG-026, *Environmental Issues Associated with New Reactors* (Aug. 2014) ([ML14100A471](#))
- COL/ESP-ISG-027, *Specific Environmental Guidance for Light Water Small Modular Reactor Reviews* (Aug. 2014) ([ML14100A648](#))
- COL-ISG-029, *Environmental Considerations Associated with Micro-reactors* (NRC 2020) (Oct. 2020) ([ML20252A076](#))
- NRC Draft White Paper, "Micro-reactors Licensing Strategies" (Nov. 2021) ([ML21328A189](#))

In connection with its development of a proposed (draft) Generic Environmental Impact Statement (GEIS) for advanced nuclear reactors (see [ML21222A055](#)), the NRC has issued the following **draft** guidance documents:

- Draft Regulatory Guide DG-4032, *Preparation of Environmental Reports for Nuclear Power Stations* (ML21208A120), which would be Revision 4 to Regulatory Guide 4.2 ([ML21208A120](#))
- COL-ISG-030, *Environmental Considerations Associated with Advanced Nuclear Reactor Applications that Reference the Generic Environmental Impact Statement (NUREG-2249)* ([ML21227A005](#))

These draft documents also contain some guidance specific to alternative sites analysis for advanced nuclear reactors.