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Comment On: NRC-2019-0226-0003
Agency Action Regarding the Exploratory Process for the Development of an Advanced Nuclear Reactor; Generic Environmental Impact Statement

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General Comment

Uranium Watch Comments Attached.

Attachments

UW_NRC_ANR_GEIS_Comments_NRC-2019-0226_012420

Uranium Watch

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January 24, 2020

via Federal Rulemaking Website

Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attn: Program Management, Announcements,
and Editing Staff

RE: Agency Action Regarding the Exploratory Process for the Development of an Advanced Nuclear Reactor Generic Environmental Impact Statement. 84 Fed. Reg. 62559, November 15, 2019. Docket ID NRC-2019-0226.

Dear Sir or Madam:

Below please find Uranium Watch's comments regarding the Nuclear Regulatory Commission (NRC) Agency Action Regarding the Exploratory Process for the Development of an Advanced Nuclear Reactor Generic Environmental Impact Statement (GEIS). Uranium Watch is a public interest nonprofit. Uranium Watch staff has extensive experience in NRC and other federal licensing and permitting actions and other matters related to the implementation of the National Environmental Policy Act (NEPA). Uranium Watch has been closely following the NuScale Power, LLC, Small Modular Nuclear Reactor (SMR) Design Certification Application (DCA) review process.

The Nuclear Regulatory Commission (NRC) should not move forward with the development of an Advanced Nuclear Reactor (ANR) Generic Environmental Impact Statement (GEIS) based on information and discussion below.

1. GENERAL COMMENTS

1.1. The GEIS is for the construction and operation of a broad, diverse, and undefined category of advanced nuclear reactors, which at this time, except for the DCA by NuScale Power, LLC, are purely hypothetical. The development of such a GEIS would be

contrary to the NEPA regulations (40 C.F.R. Part 1500) for an informed and transparent NEPA process.

1.2. The NRC has failed to identify the types and designs of anticipated "Advanced Reactor" designs in the November 15, 2019, *Federal Register* Notice (FRN). The NRC has yet to receive a DCA for a so-called "advanced reactor" design (not including light-water small modular reactors). The NRC has not received any applications to construct and operate such a reactor. Therefore, there are no proposed federal actions or reasonably foreseeable federal actions for the NRC to evaluate. Further, the NRC lacks a technical and environmental foundation for determining the environmental impacts associated with these, yet to be identified, reactor designs and possible deployments.

1.3. The November FRN states that, "if developed, an ANR GEIS would streamline the environmental review process for advanced nuclear reactor environmental reviews." However there is no documentation that supports the assertion that the GEIS would, in fact, streamline the NEPA process, nor explains why a streamlined process would benefit the public.

1.4. The development of a ANR GEIS is not an efficient way for the NRC to spend its time, money, and resources. It is unlikely to actually improve the efficiency of environment reviews (the nature of which are unknown at this time). An ANR GEIS would not focus the environmental reviews in appropriate way, because there is currently no technical and environmental documentation that would serve as a basis for such reviews. There is no documentation that supports the notion that anticipated reactor designs and the construction and operation of those reactor designs are similar in ways that are meaningful.

There are various new reactor types and designs being discussed by the nuclear industry. However, there is no information regarding the similarities in the power levels, source terms, types of fuel, manufacturing methodologies, uses, anticipated locations, irradiated fuel storage requirements, water use, radioactive and non-radioactive emissions, site location requirements, emergency planning, cumulative impacts, alternatives, environmental impacts, mitigative measures, and the numerous other aspects of very divergent designs that would have to form the bases for a GEIS. If any one of these aspects is similar to another type of reactor, such as power level, it does not follow that other aspects of the design and siting, such as source term or accident consequences, are similar.

1.5. Any new reactor construction and operation applicant would have to provide a great deal of additional supplemental information—negating the purpose of the GEIS. The applicant and the NRC would still need to do a complete and through environmental analysis for each sited reactor, based on the actual details of the design, site location, construction and operation, and all relevant factors.

1.6. Not only does the NRC lack any actual ANR design applications—let alone an NRC, Advisory Committee on Reactor Safeguards (ACRS), and public review of such designs—there are no operating histories of such designs.

1.7. The NRC cannot rely on information provided on a prospective DC applicant's website or information provided by an industry representative outlining their possible ANR design that is submitted in response to the November 15, 2019, FRN. The NRC can only rely on documentation provided to the NRC as part of a DC or Combined Construction and Operating License (COL) Application (COLA) and final NRC DCA or COLA determination.

1.8. The NRC does not appear to have, and has not provided to the public, information regarding the technical and economic feasibility of any anticipated or yet to be developed new reactor designs. Therefore, time and funds would be spent to evaluate speculative reactor designs or siting proposals that may never reach the design approval or construction and operation phases.

1.9. Even it the NRC had a DCA to review, changes will probably be made in the design during the design review process. Further, some aspects of a rector design may be shifted over to a Standard Design Approval (SDA) application or the COLA process. Such will be the case with the NuScale Power, LLC, SMR DCA. The final NuScale SMR design will not be known until the Standard Design and a COLA are approved. The success of the design will not be known until there is a period of successful operational history. Therefore, the NRC and the public lack much of the necessary data and information to evaluate the environmental impacts for such designs.

1.10. Developing a GEIS for new types of reactor designs, when there has been no technical and environmental data and review of those designs makes a mockery of the NEPA process that must be undertaken when, and if, a COLA is submitted for NRC review.

1.11. The GEIS development would not include participation of the parties that would be routinely consulted as part of a Site-Specific NEPA process. These parties include: other federal entities, state and local government representatives and entities, tribal governments, and community organizations and individuals. With no site-specific proposal to consider, these entities will not be known or consulted.

1.12. A site-specific EIS includes information regarding other applicable federal, state, and local statutes and regulations and compliance with those requirements. The ANR GEIS under discussion could not possibly include this important, site-specific information.

1.13. It appears that the NRC is responding to political pressure: pressure that represents the interests of the nuclear industry, not pressure that is in the interest of the public. Certainly, the proposed ANR GEIS is not the interest of the citizens of who knows how many communities where these advanced reactors might be sited, since those locations are unknown.

1.14. If the NRC decides to move forward with an Advanced Reactor GEIS, small modular light water reactors, such as the NuScale Power, LLC, reactor design, should not be included. Only a site-specific evaluation of the environmental impacts from the construction and operation of such reactors would meet NEPA requirements.

2. RESPONSE TO NRC QUESTIONS

The NRC asked that the public respond to specific questions related to whether to proceed with the development of an ANR GEIS. Below are responses questions asked in the November 15 FRN and in NRC slide presentation at the November 15, 2019, public workshop. The NRC did not refer potential commenters to the applicable NEPA regulations and NRC implement of those regulations in this instance.

2.1. NRC Question: *Whether an ANR GEIS would improve the efficiency of the environmental review process, where the advanced nuclear reactors would be located, the types of technologies that would be involved, and which environmental impacts should be addressed in the ANR GEIS.*

RESPONSE: As discussed above and below at 3, an ANR GEIS would not improve the efficiency of the environmental review process. At this time the NRC and the public do not even have any substantive knowledge of the designs and environmental impacts associated with any possible ANR designs. Without such knowledge, a comprehensive ANR GEIS is impossible. Since there have been no applications to site an ANR, the NRC would have to consider all possible locations—an impossible task. Since there are no ANR design or COL applications, there is no factual basis for an evaluation of the technologies involved. Nor, is there a basis for evaluating any of the environmental impacts associated with the siting of reactors of an unknown technology at an unknown location.

2.2. NRC Question: *Assess whether an ANR GEIS could avoid duplication of effort and focus the review on important environmental issues.*

RESPONSE: As discussed above, an ANR GEIS would not avoid duplication of effort. The ANR GEIS process would expend effort on evaluating purely speculative designs, site locations, and environmental impacts. The process would have no technical and factual bases. Much future effort would be expended in sorting out what exactly had been considered in the GEIS and what must be addressed in any DCA or COLA. The GEIS process would be confusing to the public and a waste of their time.

As discussed below, an ANR GEIS would not meet NEPA requirements and could not be relied on to identify environmental issues or avoid duplication of effort.

2.3. NRC Question: Investigate how an ANR GEIS can align with the goals and best practices of Federal government efforts to streamline the National Environmental Policy Act processes.

RESPONSE: It does not appear that the ANR GEIS process, yet to be fully described by the NRC, would contribute to federal government efforts to streamline the NEPA process. GEIS's are usually used to evaluate known technologies, with known operating histories, and with known or generally understood environmental impacts. For example, the NRC "Generic Environmental Impact Statement for In Situ Leach Uranium Milling Facilities."

However, the NRC is now contemplating developing a GEIS to evaluate various unknown technologies, with no operating histories, and with no data and information regarding actual or potential environmental impacts.

Further, the ANR GEIS process ignores the lengthy and detailed NRC staff review process for design certifications and construction and operational license applications. The federal government and the public do not benefit from hasty reviews and decision-making regarding a technology that involves significant radiological and non-radiological impacts to workers, communities, and the environment.

Since the ANR GEIS would not meet the requirements of NEPA, as discussed below at 3, it would not align with any NEPA streamlining goals.

2.4. NRC Question: S*hould the scope of the ANR GEIS include reactors regardless of technology or be limited to specific reactor technologies?*

RESPONSE: It was not until the January 8, 2020, public workshop that the NRC provided any information regarding reactor technologies that might be under consideration. They were not included in the November FRN. The 5 reactor types mentioned are of different technologies and have power ranges from 3 megawatts energy (MWe) to 850 (MWe) or more. Even individual design types have a range of potential power levels. The slides reference industry websites for additional information. There are no references to any documentation that has been submitted to the NRC.

None of these companies have submitted a DCA to the NRC. Therefore, the NRC has no technical basis for the inclusion of any of these reactor types in a GEIS. At this time, the types of technologies that may be constructed and operated are purely hypothetical. A formal NEPA process is not meant to evaluate environmental impacts from hypothetical proposals.

2.5. NRC Question: *What reactor sizes (footprint) and power levels should the NRC include in the scope the ANR GEIS?*

RESPONSE: As discussed herein, the NRC does not have a basis for determining the reactor sizes and power levels for any so-called advanced reactors that may, at sometime in the future, be proposed for construction and operation at an—as yet unknown—location.

2.6. NRC Question: *One possible option NRC is considering is limiting the ANR GEIS to certain regions with common environmental conditions.*

RESPONSE: The NRC does not have a reasonable and acceptable basis for determining whether certain regions have "common environmental conditions." Areas in the US that

may be very close have very different environmental conditions. The Slides for the November 15 public meeting list various Environmental Impact Areas that may be considered. These include land use, terrestrial and aquatic impacts, water use, air quality/ greenhouse gas, socioeconomic, environmental justice, noise, visual impacts, historic and cultural resources, radiation and non-radiation human health, postulated accidents and Severe Accident Mitigation Alternatives (SAMAs), fuel cycle, transportation of fuel and wastes, waste management, decommissioning, cumulative impacts, alternatives, and cost benefit. There are other environmental impacts that were not mentioned, for example: population density, financial resources, economic base, site suitability, geology, hydrogeology, seismicity, meteorology, endangered species, community acceptance, emergency planning and resources, and worker health and safety. All of these potential environmental impact areas, individually and as they relate to each other, are very site specific and are not amenable to a comprehensive generic evaluation.

2.7. NRC Question: *Should the NRC consider the geographical site of a reactor when developing the scope of the ANR GEIS?*

RESPONSE: As discussed at 2.6 and below at 3., there are numerous aspects of an environmental review that are site specific and would have limited value if evaluated generically. This includes geography.

2.8. NRC Question: *Should the NRC consider a set of bounding plant parameters when developing the scope of the ANR GEIS? If so, what parameters should be considered?*

RESPONSE: Plant parameters are based on the design of a specific reactor, as that design is reviewed and approved by the NRC. At this time there are no technical, environmental, or other bases for the NRC to develop a set of plant parameter envelopes.

2.9. NRC Question: *Is there sufficient available information regarding types of technologies and environmental impacts to support development of an ANR GEIS?*

RESPONSE: NO! *See* discussion herein.

2.10. NRC Question: *What are the costs and benefits of doing an ANR GEIS versus doing individual environmental reviews?*

RESPONSE: As discussed herein, the NRC does not have the necessary data and information about new reactor designs to support a GEIS. Nor, does the NRC have an idea of when specific design applications will be submitted for NRC approval, or if they will be submitted at all. There is no information regarding any prospective COL applications.

Just because a reactor design is under development, does not mean a final design approval or eventual construction and operation. A GEIS based on designs that have not been approved by the NRC is not a productive use of public resources. A GEIS with limited information regarding the design and no information about where the design will

be constructed and operated, is not worth the effort. There will be costs, with few benefits.

Further, the NRC has not provide any data related to the development and use of GEIS's for new technologies and unknown site locations versus the development of individual environmental reviews based on know, approved reactor technologies and know site locations. With no approved ANR technologies, no ANR operational histories, and no site locations to consider, any GEIS would be woefully inadequate.

It is likely that the reliance on an ANR GEIS would lead to administrative and legal challenges of a site-specific COLA, leading to the unnecessary expenditures of NRC, applicant, and community time, money, and other resources.

3. NATIONAL ENVIRONMENTAL POLICY ACT

As discussed below, the proposed ANR GEIS would not meet the requirements of NEPA, 40 C.F.R. Part 1500, Sections 1500 to 1508.

3.1. The NRC cannot insure that the environmental information available to public officials and citizens before decisions are made and before actions are taken would be of high quality. There would be no basis for accurate scientific analyses, expert agency comments, and informed public scrutiny, which are essential to implementing NEPA. *See* § 1500.1(b).

3.2. The NRC does not have the relevant information needed to achieve the purposes of NEPA. At this time, there are no proposed actions and no foreseeable actions. There is no basis for determining the significance or insignificance of issues and environmental impacts, range of alternatives, or even which agency actions would be evaluated. Therefore, the NRC would not be able to use the ANR GEIS process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment. *See* §§ 1500.2(e) and 1502.1.

3.3. The possible proposals identified by the NRC for inclusion in an ANR GEIS are not proposals or parts of proposals that are related to each other closely enough to be, in effect, a single course of action to be evaluated in a single impact statement. ANR COLAs would not the subject of broad NRC actions. They are not amenable to lumping together geographically; generically, based on timing, impacts, alternatives, methods of implementation, media, or subject matter; or state of technological development. An ANR GEIS would not make s signifiant contribution to the decision making process related to specific applications. *See* § 1502.4.

3.4. An ANR GEIS, as proposed by the NRC, would not have sufficient information on which to base an analysis of alternatives to anticipated proposed actions, affected environment, environmental consequences, environmental effects of alternatives, energy requirements and conservations, potential of alternatives and mitigation measures, and the means to mitigate adverse environmental impacts associated the possible deployment

of ANRs of unknown designs at unknown locations. *See* §§ 1502.14, 1502.15, and 1502.16.

3.5. The information necessary to develop an ANR GEIS that would meet the requirements of NEPA is incomplete or unavailable. This lack of information cannot be rectified. *See* § 1502.22.

3.6. The NRC would not be able to meet NEPA environmental review and consultation requirements, because the GEIS would not be able to identify the sites for deployment of ANRs. *See* § 1502.25.

3.7. The NRC would not be able to identify and request comments on the ANR GEIS from appropriate state and local agencies, Native American tribes, and impacted members of the public. *See* § 1503.1.

3.8. The ANR GEIS could not reasonably be able to assist the NRC in making decisions on a site-specific COLA submitted by an unknown applicant requesting to construct and operate an unknown ANR design at an unknown location at some unforeseeable time in the future.

3.9. Given the hypothetical nature of the ANR GEIS, the NRC would not be able to adequately fulfill their public involvement responsibilities, because they would not be able to identify affected citizens, communities, tribes, state and local governments, environmental controversies, and other information required to implement public involvement requirements. *See* § 1506.6.

3.10. An ANR GEIS would not meet the requirements of a federal action related to the "adoption of official policy, "adoption of formal plans." "adoption of programs," or "approval of specific projects." There are, in fact, no "proposals" or "specific projects" under consideration by the NRC at this time. There are no "actions," "range of actions," "connected actions," or "cumulative actions." See § 1508.25

3.11. As a basis for the proposed ANR GEIS, there are no "similar actions, which, when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as a common timing or geography." As discussed above, the NRC has not received any DC applications that would identify a specific ANR design that could be deployed. There are no applications to site, construct, and operate a specific reactor design at a specific location. There is no information on which to base a meaningful determination of possible "foreseeable" actions. *See* § 1508.25.(a)(3).

3.12. An ANR GEIS would not have information that could be relied on to determine the context or intensity of the, as yet to be identified, proposed actions. There would be little

basis for 1) a determination of the beneficial and adverse impact impacts; 2) the degree to which the proposed action affects public health or safety; 3) unique characteristics of the geographic area; 4) degree to which the effects on the quality of the human environment are likely to be highly controversial; 5) the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks; 6) the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; 7) whether the action is related to other actions with individually insignificant, but cumulatively significant impacts; 8) the degree to which the action may adversely affect sites listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources; 9) the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973; or 10) whether the actions threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment. *See* § 1508.27.

3.13. The ANR GEIS under discussion by the NRC would not meet the requirements for Tiering:

> §1508.28
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> Tiering. "Tiering" refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.
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> Tiering is appropriate when the sequence of statements or analyses is:
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> (a) From a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis.
>
> (b) From an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe.

An ANR GEIS would not address a program, plan, or policy environmental impact statement. An ANR GEIS is not related to a sequence of statements or analyses from an environmental statement on a specific action at an early stage (such as need or site selection) to a supplement or subsequent statement at a later stage (such as environmental mitigation). It would not allow "the lead agency to focus on the issues

which are ripe for decision and exclude from consideration issues already decided or not yet ripe."

There are no "specific" actions under consideration. There is no information that would support an analysis of the need or site selection of an unknown ANR design. There are no bases for determining which issues related to the deployment of unknown ANR designs to unknown locations are "ripe," or not so "ripe," for consideration. *See* §1508.28.

3.14. In sum, the ANR GEIS that the NRC is considering would not meet applicable NEPA requirements and would be a waste of government, nuclear industry, and citizen time, money, and resources. It was an ill-advised proposal.

Thank you for providing this opportunity to comment.

Sincerely,

Sarah Fields
Program Director