

As of: 6/27/17 8:35 AM
Received: June 27, 2017
Status: Pending_Post
Tracking No. 1k1-8x6s-hwzj
Comments Due: June 27, 2017
Submission Type: Web

PUBLIC SUBMISSION

Docket: NRC-2015-0225
Emergency Preparedness Requirements for Small Modular Reactors

Comment On: NRC-2015-0225-0002
Emergency Preparedness for Small Modular Reactors and Other New Technologies: Draft Regulatory Basis for Comment

Document: NRC-2015-0225-DRAFT-0036
Comment on FR Doc # 2017-07502

Submitter Information

Name: Sarah Fields
Address:
PO Box 344
Moab, UT, 84532
Email: sarah@uraniumwatch.org

General Comment

See attached file(s)

Attachments

UW_NRC_SMR_EP_Comments_170626

Uranium Watch

P.O. Box 344
Moab, Utah 84532
435-260-8384

June 26, 2017

via Federal Rulemaking Web site

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-001
Attn: Rulemakings and Adjudications Staff
<http://www.regulations.gov>

Re: Emergency Preparedness for Small Modular Reactors and Other New Technologies.
RIN Number: 3150-AJ68. NRC Docket ID: NRC-2015-0225. Regulatory Basis—Draft Document for Public Comment. April 2017

Dear Sir or Madam:

Below please find comments submitted by Uranium Watch on “Emergency Preparedness for Small Modular Reactors and Other New Technologies,” Docket ID NRC-2015-0225. Uranium Watch is a public interest not-for-profit 501(c)(3) organization. I have lived in Moab, Utah, has lived within 2-miles of the Diablo Canyon Nuclear Reactor for four years during the construction of the reactor. I currently work and conduct activities within the 50-mile emergency planning zone for the proposed Blue Castle Project nuclear reactor in southeast Utah. Comments will focus on Small Modular Reactors (SMRs), a new technology that is proposed in Idaho and involves Utah municipal power providers.

I remember the shock I felt when I realized that the emergency response plan map for the 2-mile zone for Diablo Canyon Nuclear Reactor, which contained a few rural homes, did not show my home (which was visible from the road) along with the other homes shown on the map and did not include evacuating residents that did not own vehicles or have a phone (such as my family). Further there was no plan to evacuate residents when the bridges at both ends of the mountain road were washed out and yet to be replaced, leaving residents isolated (which had happened within the previous 10 years due to an intense winter storm).

A few years ago I attended an emergency planning meeting for the proposed reactor at Green River, Utah, associated with a proposed Early Site Permit application for the Blue Castle Project. It was apparent that even for the 10-mile Emergency Planning Zone

(EPZ), the planners would need to involve hospitals and doctors 50 and 65 miles away, because that was the location of the nearest hospitals and doctors.

1. GENERAL COMMENTS

1.1. The Nuclear Regulatory Commission (NRC) should have established a web page specifically for this proposed rulemaking, with links to all cited documents and other relevant information.

1.2. The NRC should have waited until it had completed the design certification process for the NuScale SMR before proposing changes to NRC emergency planning regulations for SMRs.

1.3. It does not appear that the NRC has reached out to specifically involve communities where SMRs have been proposed (for example, Idaho and Tennessee) in this comment process. In the future, communities might discover that an SMR is proposed, but it was too late to provide input on new rules that would affect emergency planning. That is why any decisions regarding exemptions to current emergency preparedness (EP) rules must be part of the application process, not a predetermined set of exemptions.

2. REGULATORY BASIS - INTRODUCTION

2.1. Section 1.2, Background, states:

As the industry proposed new and innovative reactor designs, the staff considered the need to modify EP requirements. The new designs typically have lower probabilities of severe accidents, and SMRs have smaller radiological source terms because they are lower in power or have special design features.

Their smaller size or innovative safety features are likely to lead to lower risk or less demanding accident conditions, motivating reconsideration of the EP requirements that were developed to support the large LWRs in operation today.

COMMENT

2.1.1. Currently there is no SMR design that has been approved by the NRC. The NRC is currently reviewing an SMR design certification application submitted by NuScale Power LLC. Until the NRC and the public have had an opportunity to review the application and the NRC completes the design certification process, including public comments, the NRC does not have a basis for assumptions that SMRs “are likely to lead to lower risk or less demanding accident conditions.” Words like “typically” and “likely”

are not firm foundations for evaluation the risks of new designs and technologies that have no proven operational track record.

3. EXISTING REGULATORY FRAMEWORK

3.1. Section 2, Existing Regulatory Framework, references the NRC and Environmental Protection Agency (EPA) a technical basis for EP, published in NUREG-0396 (EPA 520/1-78-016), "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," December 1978.

COMMENT

3.1.1. This section should discuss the lessons learned from 1978 regarding emergency response planning, the issues that have arisen in the past 40 years, particularly the emergency response and preparedness issues associated with the accident in Fukushima, Japan.

3.1.2. The NRC should discuss the issues with respect who pays for emergency response planning and implementation. Recently, Blue Castle Holding began the process to develop an Emergency Plan for the proposed nuclear reactor at Green River, Utah. However, there was no plan to reimburse the public, tax-payer supported agencies and entities that were involved in that process. Therefore, the emergency response plan was being developed at tax-payer (and not even rate-payer, since the rate-payers are unknown) expense.

3.1.3. The division between 10-mile, 50-mile, and beyond 50-mile EP zones and impacts does not take into consideration meteorological conditions that could create significant impacts outside the zones, due to wind, precipitation, air flow above surface water (such as rivers), and other factors. Additionally, the zone divisions do not take into consideration impacts of the emergency responses (such as evacuations) beyond the zones. The NRC should discuss the various exigencies that must be addressed in current EP.

3.1.4. In general, the current EP framework does not take into consideration the complexities of emergency response planning and the reality of emergency responses in the vicinity of nuclear reactors and should be revisited.

4. REGULATORY ISSUES

4.1. Section 3, Regulatory Issues states (page 3-1):

In 2010, in SECY-10-0034, the staff identified potential policy and licensing issues for SMRs based on the preliminary design information supplied in pre-application interactions and discussions with SMR designers and the U.S. Department of Energy (DOE). In general, these

issues result from the key differences between the new designs and the current-generation large LWRs, such as size, moderator, coolant, fuel design, and operational parameters. Also, the issues result from industry-proposed review approaches and industry-proposed modifications to current policies and practices.

COMMENT

4.1.1. Here, the NRC is only relying on industry and an industry-promoting/industry financing federal agency. There is no mention of other organizations, or ideas that might come from a community, where an SMR is being proposed. This section makes no mention of the current (and only) application for approval of a SMR design and how the application, NRC review process, and public comment will inform the issues related to EP. This is why the NRC cannot change its EP regulations until all issues related to the NuScale SMR design are resolved.

4.1.2. This section must include the numerous issues associated with new technologies, new designs and designers, new licenses, new component contractors, new construction contractors, new operators, newly trained employees, new sites, and other aspects associated with the deployment of new reactors designs that will impact EP.

4.2. Section 3.2, Source Term, Dose Calculations, and Siting (page 3-1) states:

Furthermore, the staff must consider the source terms associated with the multi-module (multi-reactor) designs of some SMRs and ONTs, where those modules share structures, systems, and components (SSCs) to such an extent that there is a potential for fuel damage and fission product releases to the environment from more than one module.

COMMENT

4.2.1. It is unclear at this time how, exactly, the NRC will be taking into consideration the risks associated with multi-modular accidents at an SMR facility. Until the NRC has completed its review of the NuScale design and all associated risks are identified, characterized, and evaluated the NRC must not make any assumptions regarding multiple-unit accidents and risks.

4.2.2 The NRC must also discuss and take into consideration the fact that the NRC has not developed a specific SMR regulatory framework, but is relying on regulations for large conventional reactors, and possible exemptions from those regulations. Various exemptions that might be requested by the designer or licensee and granted by the NRC would affect the accident potential and possible consequences.

4.2.3. This section assumes that there will be bases for determining less risky scenarios for SMRs, not that there may be certain aspects of SMRs that might be more

risky; for example, 1) the design and construction of the containment building 2) the presence of the reactor units and spent fuel in a single pool of water, or 3) inability to access control room during initial reactor shutdown during an accident. All possible conditions and scenarios must be taken into consideration and not given short-shrift by the NRC.

4.3. Section 3.6, Performance-Based Approach to Emergency Preparedness discusses a performance-based approach to EP rulemaking and lists various criteria and aspects of EP.

COMMENT

4.3.1. One aspect of a Performance-Based Approach is that there is no performance history for SMRs and new reactor designs. Therefore, any determinations regarding performance will be based on assumptions and not on any operational history and actual performance. Therefore, it would be negligent for the NRC to reduce the EP requirements when there is no performance history for SMRs and other new reactor designs.

4.3.2. This section does not recognize that it is not just the licensee that is the foundation of EP and real-life emergency response. It is the local, state, and federal entities: police, fire, emergency responders, schools, hospitals, doctors, elected governments, radiological assessment teams, and others that must be trained and be prepared for emergencies. The consequences of limiting the preparation of the non-licensee responders by limiting the response zones might be disastrous and must also be taken into consideration.

5. REGULATORY APPROACHES

5.1. Section 4.1, Option 1: Exemptions and Guidance, would maintain the current EP regulations and would include a guidance for applying exemptions on a case-by-case basis. The Assessment of Option 1 states:

Because certain existing EP requirements could impose unnecessary regulatory burdens on SMR and ONT licensees, the potential applicants have indicated that they would request EP exemptions.

COMMENT

5.1.1. The NRC has yet to approve the design of a single SMR design. Therefore, the NRC does not have a basis for determining which specific “unnecessary” regulatory burdens would be imposed with respect to EPs. Further, it is the communities and the public that need to be involved in determining whether EP requirements are necessary or unnecessary, not the industry and industry proponents and supporters.

5.1.2. Commenter supports Option 1. The public and local, state, and federal emergency responders should have an opportunity, on a case-by-case basis, to have input on various EP exemption requests. It is likely that the communities in the vicinity of proposed and future SMRs will have the opportunity or awareness to weigh in at this time on a rulemaking (Option 2) that may affect them many years from now.

5.2. Section 4.2, Option 2: Conduct Rulemaking proposes to amend EP regulations and guidance with respect SMR and new design operations.

COMMENT

5.2.1. Commenter does not support Option 2.

5.2.2. The NRC and the public must consider other factors besides dose-at-distance for emergency planning. Many of those factors are site-specific and design specific.

5.2.3. Currently the NRC does not have the technical or other basis for determining all possible dose scenarios for SMRs, because there is no approved SMR design and no operational (performance) history for any SMRs.

5.2.4. It is hard to imagine a situation where involvement of local, state, and federal emergency planners and responders in SMR or other nuclear design emergency response preparations would not be advisable. It is hard to imagine a situation where emergency preparation beyond the site boundary and beyond a 10-mile zone would not be advisable. It is unreasonable to think that radiological and other impacts, including long-term impacts, will be limited to pre-designated zones.

5.2.5. The NRC must consider the consequences of an emergency where off-site and beyond responders are required, but they have not been involved in any planning, preparation, training, or are otherwise unprepared to respond when needed.

5.2.6. The NRC must consider the impacts from any on-site emergency, including non-radiological, on the surrounding area. This might include fire, flood, evacuation of the site, or other site emergencies that a community must also be prepared for.

5.2.7. With no approved SMR design, the NRC has no basis for the assumption that SMRs “are designed to have a reduced potential for accident-related offsite releases” and that the “consequences from an accident involving these technologies may have a limited impact on public health and safety, thereby forming a basis for smaller EPZs.” The NRC must also consider the numerous issues associated with new technologies, new designs and designers, new licensees, new component suppliers, new construction contractors, new operators, newly trained employees, new sites, and other aspects associated with the deployment of new reactors designs that will impact EP.

5.2.8. The NRC must take into consideration the fact that “predetermined protective actions” may be required when there is no off-site preparedness for such actions.

5.2.9. The NRC must take into consideration the fact that “predetermined protective actions” might not be sufficient to protect public health and safety and the environment.

5.2.10. At this time, there is no basis for a determination that the NRC has the knowledge and information available to determine all possible accident source terms, fission product releases, associated dose characteristics of the SMR designs, other design and operational parameters, or the required “commensurate” response.

5.2.11. The NRC must lay out, with specificity, all of its assumptions that lead to the determination that source terms for SMRs and other possible new designs are small and may, following a proposed process, have a small plume exposure pathway EPZ or none required.

5.3. Section 4.3, Conclusions compares Options 1 and 2, giving significant consideration to burdens upon the applicant and NRC staff, resources expected to be expended by the applicant and NRC staff, and regulatory stability and predictability.

COMMENT

5.3.1. The NRC must give primary consideration to public health and safety, not relief from assumed or imagined burdens, resources expended, and need for regulatory stability and predictability.

5.3.2. The NRC must provide the NRC regulation and guidance with respect to giving priority to burdens, including financial and resources, and the need for regulatory stability and predictability with respect emergency planning for nuclear reactors that the NRC believes trumps other EP and reactor operation concerns.

5.3.3. It is unreasonable and troubling that the NRC is griping about potential burdens and resources that would be expended by NRC staff if Option 2 is not chosen. NRC staff is paid staff. It is their job to review license applications, including requests for exemptions, no matter how much time and resources are expended. It is NRC staff’s job to do this work, so there should be no “burdens” that must be alleviated. It is shabby for the NRC to claim otherwise.

6. OTHER REGULATORY CONSIDERATIONS

6.1. In this section, the NRC provides various justifications for choosing Option 2.

COMMENT

6.1.1. With no approved SMR design and no complete analysis of the risks associated with every aspect of the operation of SMRs and other new reactor designs, the NRC has no basis for the proposed rulemaking outlined in Option 2.

6.1.2. Just because SMRs and ONTs are being designed with smaller source terms does not mean there are possible risks and accident scenarios that will not justify the reduction of EPZs. Particularly, these new designs have no operational history and have numerous factors other than “design” that have the potential to impact risks and emergency planning. Until every aspect of the new technologies and new designs, including new designers, new licensees, new component contractors, new factories, new construction contractors, new operators, newly trained employees, new sites, and other factors associated with the deployment of new reactors designs have been fully reviewed, the NRC has no basis for the assumption that the “designs” will, in fact, reduce the expected source terms or that other factors will not affect the source terms of the proposed reactor.

6.1.3. It does not appear that the NRC is considering accidents and radioactive releases associated with the long-term storage of irradiated nuclear fuel in spent fuel pools or in dry cask storage. Already there are concerns related to the types of thin-walled canisters for irradiated fuel that the NRC has approved for long-term dry storage of nuclear fuel; for example the Holtec 1/2" thick stainless steel canisters, which the NRC and Holtec President admit are vulnerable to cracking, were not designed to find or repair cracks, and not designed to be maintained or monitored to prevent radioactive leaks. The presence of irradiated nuclear fuel and the radiation release potential from those canisters over an unknown period of time (measured in decades) is a factor that the NRC must consider in emergency response planning and the establishment of planning zones.

7. CONCLUSION

7.1. As discussed above, Uranium Watch does not support the proposed rulemaking outlined in Option 2. The NRC has not provided the information needed for the NRC and the public to make an informed rulemaking regarding emergency planning for new technologies with no design certifications and no construction or operational track records.

7.2. It is too early to make generic assumptions that will apply to future applications and EP for SMRs and other new nuclear technologies.

Sincerely,

Sarah Fields
Program Director