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General Comment

Illinois Emergency Management Agency Comments. See attached file(s)

Attachments

ILRegulatory Improvements for Decommissioning NPP Comments031816



ILLINOIS EMERGENCY MANAGEMENT AGENCY

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March 21, 2016

Secretary, U. S Nuclear Regulatory Commission
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ATTN: Rulemaking and Adjudications Staff

The State of Illinois believes the efforts of the NRC to develop a rule for Regulatory Improvements for Decommissioning Power Reactors is a positive step. We hope to share pertinent insights that we gained from our experiences with the ongoing decommissioning activities at Zion Station.

Summary of Comments

For a number of years, the NRC has used risk-informed decision-making in regulatory matters and continues to encourage the use of probabilistic risk analysis. IEMA recognizes the importance of PRA analyses, but the proposed ANPR seems to minimize the importance of some non-risk-based elements of emergency planning and remove a component of defense-in-depth in the regulatory policy for decommissioned reactors. Similar to the decision to leave the planning basis unchanged following the Reactor Safety Study, new risk studies should not be the sole basis for emergency planning policy with respect to spent fuel accidents.

When an operating reactor is decommissioned, many years have been invested in planning and partnerships between State and local officials, the utility, and the public. The proposed rule would eliminate all requirements for maintenance of these relationships. Although the risk is greatly reduced for a decommissioned reactor, it does not go to zero. In light of the remaining risk, it is recommended to continue maintenance of the planning and partnerships that have been developed by the OROs within the Emergency Planning Zone.

A tiered approach to the transition from operating to decommissioned levels of emergency preparedness activities would facilitate continuity and engagement of OROs throughout the decommissioning process while ensuring availability of personnel with the requisite skills for a proper response in the event of an accident. Therefore, IEMA recommends a tiered approach where elements such as EPZ size and environmental monitoring could be relaxed as a function of time after shutdown without being eliminated. Furthermore, careful consideration is recommended to ensure that the relaxation of requirements in the proposed rule does not result in logic flaws introduced by cumulative reductions from interdependent components used in the assumptions.

Comments Related to Section II, Background, Part A.

The NRC concludes that mitigating strategies, monitoring of spent fuel pool water level, and placement of spent fuel in a dispersed configuration reduce the likelihood of a release from the spent fuel pool in the event of loss of cooling water. With this as a basis, the NRC has justified reducing or eliminating emergency preparedness zones around nuclear power reactors during the decommissioning phase. These risk analyses were based on generic assumptions that may not be valid for all cases. Specifically, dispersed configuration of spent fuel may be impractical for some plants. Plant-specific risk analysis could potentially indicate higher levels of risk.

Many of the discussions within NUREG-1738 revolve around relative risk levels associated with postulated accidents. While the study demonstrates that the risks are of a low probability, the risks are not zero and therefore the potential for off-site exposures exists and should not be ignored. Some of the postulated accidents have off-site radiation exposures that are considered significant but have been ignored because they are of such a low probability for occurrence. The maintenance of an off-site emergency response plan ensures that immediate and effective measures can be implemented to protect the public and reduce or avoid unnecessary exposures. The existence of a plan provides the public a baseline assurance that the respective government response agencies and the licensee are prepared for a worst case scenario. If the risk of public exposure exists, then plans should remain in place to address that portion of the population as effectively as possible.

For many years, emergency preparedness has served as a cornerstone in the NRC's Defense-in-Depth philosophy. The ANPR on decommissioning appears to be deviating from the NRC's long standing use of Defense-in-Depth as compensation for the inherent uncertainty in risk analysis. The current emergency planning requirements for operating reactors have not changed for over 35 years, although the assessment of risks has changed significantly since the development of the planning basis set forth in NUREG-0396. Therefore, even though the risk for off-site dose consequences from an accident at a decommissioned reactor may be lower when compared to an operating reactor, the risk is not zero. Hence, some form of emergency planning requirements is not only prudent but should form the basis of a Defense-in-Depth strategy for decommissioned reactors, as well as operating reactors.

As described in NUREG-2161 "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor," the reduced risk of early fatalities is, in part, due to the existence of a dedicated off-site emergency response plan specifically in place for radiological incidents at nuclear power plants. There is no supporting evidence that an all-hazards plan would have the same effect. Components of a dedicated radiological emergency plan such as emergency classification, prompt notification of OROs, and protective action decision-making can be crucial to protecting the health and safety of the public. Therefore, adequate emergency planning is necessary as long as there is fuel stored in spent fuel pools.

As expressed by former Chairman Allison Macfarlane in response to Kewaunee Station's exemption request, until adequate analysis is presented warranting that a spent fuel pool zirconium fire resulting in an off-site release is no longer possible, the licensee should retain some limited pre-planned off-site response capabilities. This would necessitate retaining the capability for a licensee to perform dose assessments and provide PARs to off-site officials. At the same time, it would require that off-site response organizations retain their emergency response organization to implement any necessary protective actions for the public. The Illinois Emergency Management Agency agrees with this assessment.

Comments Related to Section II, Background, Part B

The primary goal of this ANPR is to reduce licensing actions. We agree that the burden of licensing actions should be reduced over the course of the transition from operating to decommissioned reactor. However, public health and safety throughout the decommissioning process should continue to be a primary objective as well as continued safety and security of spent nuclear fuel until a long term repository is located.

Comments Related to Section V. Specific Consideration, Part A

IEMA believes that stakeholder review and input on the decommissioning process is essential. Previous approved license exemption requests were site specific and not open to public comment or evaluation.

The ANPR identifies the Environmental Protection Agency (EPA) Protective Action Guidelines (PAGs) level for evacuation as the threshold value for whether or not an off-site emergency response plan for nuclear power plants is necessary to protect the health and safety of the public. The EPA PAG level was established as a guideline for emergency planning and was never intended to be enforced as a regulatory threshold for public radiation exposure

to radiation emergencies. This value should not be explicitly used as a basis for the decision on whether an off-site emergency preparedness program is justified.

The NRC's current exemption process requires licensees to demonstrate that off-site impacts from any postulated accident after permanent cessation of operations be below the EPA PAG value for evacuation in order to approve emergency preparedness plan license amendment requests. This assessment is not sufficient to make the determination of whether or not a radiological emergency response plan specific for a nuclear power plant is the optimal strategy to serve the interests of public health and safety. The NRC should require that all accident studies bound the exposure levels for all postulated accidents in order to determine if an off-site response is necessary. Those studies should assess the risk reduction of a dedicated emergency response plan that has been developed, implemented and tested for adequacy on a regular basis and evaluated by the Federal Emergency Management Agency. It would be prudent to relax the requirement for off-site emergency preparedness when the dose savings projected from a dedicated emergency response plan for nuclear facilities no longer exceed those that could be realized using an all-hazards plan. Until such time, it is prudent to maintain off-site emergency plans, since they are more effective for protecting the public from unnecessary exposure to radiation.

The NRC should re-evaluate the basis for using the EPA PAG as the decision point for emergency preparedness requirements going forward. By using the EPA PAG threshold, the NRC requires that licensees only address the early phase dose of populations as a result of an accident at a fixed nuclear facility.

None of the basis documents for this ANPR require licensees to evaluate and assess the potential environmental impact of a release that may be only a fraction of the EPA PAGs. Following an accident at a fixed nuclear facility and the release of radiation, there will be an extended period of intensive environmental sampling and analysis to evaluate the impact of residual contamination in the environment on food, water and milk and for exposure from continued habitation of the contaminated area by the public. These environmental assessments will occur regardless of the magnitude of the release and require the experience, knowledge and expertise of staff specifically trained for responses to these types of emergency conditions. None of the exemptions granted by NRC to date have asked the licensees to assess the long term environmental and public health impacts of a radiological release considering all pathways for exposure. Similarly, there has been no evidence that licensees have evaluated the impact of a catastrophic failure of the spent fuel pool on groundwater and drinking water supplies from the intrusion of tritium from a liquid release of spent fuel pool inventory. These additional assessments are of even greater importance for sites such as Zion Station that have large populations in very close proximity to the owner controlled area. The size and proximity of public populations has not been a factor in recent decisions but should be included as a consideration when evaluating the need for off-site preparedness and planning functions for state and local agencies.

Questions Related to Emergency Preparedness Requirements for Decommissioning Power Reactor Licensees

EP-1

- a. *What specific EP requirements in § 50.47 and appendix E to 10 CFR part 50 should be evaluated for modification, including any EP requirements not addressed in previously approved exemption requests for licensees with decommissioning reactors?*

From a State perspective, all 16 planning criteria should be evaluated. Any modifications to current EP requirements should not reduce the public health and safety nor the safety and security of the spent fuel. In this evaluation, several guiding principles should be used: the source term, the timing of the release, and the resources required to mitigate the consequences of any postulated design basis accidents.

- b. *What existing NRC EP-related guidance and other documents should be revised to address implementation of changes to the EP requirements?*

Unless an equivalent guidance document specifically for decommissioning is developed, NUREG-0654, the FEMA REP Manual, and NSIR/DPR-ISG-01, Interim Staff Guidance Emergency Planning for Nuclear Power Plants would need to be revised.

c. *What new guidance would be necessary to support implementation of changes to the EP requirements?*

New guidance would not be needed if the existing guidance above was revised. However, if the decision was made not to revise existing guidance, the new guidance should be restricted to clarification of the revised regulations for EP. As an example, since evacuation time estimates would not be required in the revised regulations, the new guidance would not need to address evacuation time estimates.

EP-2

a. *What tiers and associated EP requirements would be appropriate to consider for this approach?*

Using the insights from NSIR/DPR-ISG-02, the first tier should include the first year after final reactor shutdown. The second tier should include the time the fuel remains in the spent fuel pool. The third tier would start after the fuel has been removed from the spent fuel pool and transferred to an interim storage facility.

b. *What factors should be considered in establishing each tier?*

The factors to be considered in EP-2.a should be those that equate to a change in risk. As the primary risk is from a zirconium fire, time would be one of the principal factors.

c. *What type of basis could be established to support each tier or factor?*

The basis for each tier should be related to risk or potential source term. The NRC should establish some risk factors for a zirconium fire as a function of time after the final reactor shutdown and with different fuel configurations and use these to support the basis for each tier.

EP-3

a. *Presently, licensees at decommissioning sites must maintain the following capabilities to initiate and implement emergency response actions: Classify and declare an emergency, assess releases of radioactive materials, notify licensee personnel and off-site authorities, take mitigative actions, and request off-site assistance if needed. What other aspects of onsite EP and response capabilities may be appropriate for licensees at decommissioning sites to maintain once the requirements to maintain formal off-site EP are discontinued?*

Additional onsite EP and response capabilities should include training and drills with off-site response organizations. The scope of the training and drills would change over time, as the spectrum of possible accidents change. In addition, staffing requirements should be maintained to adequately address response to the spectrum of design basis accidents.

b. *To what extent would it be appropriate for licensees at decommissioning sites to arrange for off-site assistance to supplement onsite response capabilities? For example, licensees at decommissioning sites would maintain agreements with off-site authorities for fire, medical, and law enforcement support.*

Supplementing onsite response capability with off-site resources would be a good way to maintain relationships and partnerships with local entities. Letters of agreements with the off-site resources should be in place to define the expected response that would demonstrate an adequate level of response.

- c. *What corresponding changes to § 50.54(s)(2)(ii) and 50.54(s)(3) (about U.S. Federal Emergency Management Agency (FEMA)-identified off-site EP deficiencies and FEMA off-site EP findings, respectively) may be appropriate when off-site radiological emergency plans would no longer be required?*

When off-site radiological emergency plans are no longer required the requirements in 10 CFR 50.54(s) (2) (ii) and 10 CFR 50.54(s) (3) do not apply and therefore are not applicable.

EP-5

Under § 50.54(t), nuclear power reactor licensees are required to review all EP program elements every 12 months. Some EP program elements may not apply to permanently shut down and defueled sites; for example, the adequacy of interfaces with State and local government officials when off-site radiological emergency plans may no longer be required. Should § 50.54(t) be clarified to distinguish between EP program review requirements for operating versus permanently shut down and defueled sites? If so, describe how.

Review of the EP program should be limited to applicable elements for decommissioned reactors.

EP-6

The Emergency Response Data System (ERDS) transmits key operating plant data to the NRC during an emergency. Under § 50.72(a)(4), nuclear power reactor licensees are required to activate ERDS within 1 hour after declaring an emergency at an “Alert” or higher emergency classification level. Much of the plant data, and associated instrumentation for obtaining the data, would no longer be available or needed after a reactor is permanently shut down and defueled. Section VI.2 to appendix E of 10 CFR part 50 does not require a nuclear power facility that is shut down permanently or indefinitely to have ERDS. At what point(s) in the decommissioning process should ERDS activation, ERDS equipment, and the instrumentation for obtaining ERDS data, no longer be necessary?

Because monitoring of the spent fuel pool was part of the basis of the risk assessment, methods to continue this monitoring should be present. Therefore, ERDS data should be available until the fuel is removed from the pool.

EP-7

Under § 50.72(a)(1)(i), nuclear power reactor licensees are required to make an immediate notification to the NRC for the declaration of any of the emergency classes specified in the licensee’s NRC-approved emergency plan. Notification of the lowest level of a declared emergency at a permanently shut down and defueled reactor facility may no longer need to be an immediate notification (e.g., consider changing the immediate notification category for a Notification of Unusual Event emergency declaration to a 1-hour notification). What changes to § 50.72(a)(1)(i) should be considered for decommissioning sites?

Over the years, the notification requirements in 10 CFR 50.72 have been revised to be consistent with the notification requirements for EALs and therefore have been revised as certain EALs were deleted. As nuclear power plants enter into decommissioning, their emergency plans will be amended to remove certain EALs. Rather than change the reporting requirements for certain EALs in 10 CFR 50.72, the EALs themselves should be removed from the emergency plan if they no longer meet the threshold for immediate notification requirements.

EP-8

Under § 50.72(b)(3)(xiii), nuclear power reactor licensees are required to make an 8-hour report of any event that results in a major loss of emergency assessment capability, off-site response capability, or off-site communications capability (e.g., significant portion of control room indication, emergency notification system, or off-site notification system). Certain parts of this section may not apply to a permanently shut down and defueled site (e.g., a major loss of off-site response capability once off-site radiological emergency plans would no longer be required). What changes to § 50.72(b)(3)(xiii) should be considered for decommissioning sites?

At a decommissioned site, the urgency to compensate for a degraded state of readiness is diminished and therefore could be relaxed to 24-hour reports without any increase in risk.

Comments Related to Section V. Specific Consideration, Part E

REG-1

- a. *Should the current options for decommissioning – DECON, SAFSTOR, and ENTOMB – be explicitly addressed and defined in the regulations instead of solely in guidance documents and how so?*

Yes, the current guidance should be codified in the regulations, with an option for a licensee to develop alternatives, which leaves room for future innovation. This is the question asked in b.

- b. *Should other options for decommissioning be explored?*

Not specifically, but there should room in the regulations for potential future innovative approaches to decommissioning.

- c. *Should the requirements be changed so that the timeframe for decommissioning is something other than the current 60 year limit?*

IEMA is satisfied with the current 60 year time frame for decommissioning.

REG-2

- b. *Should the regulations be amended to require NRC review and approval of the Post-Shutdown Decommissioning Activities Report (PSDAR) before allowing any “major decommissioning activity,” as that term is defined in § 50.2, to commence? What value would this add to the decommissioning process?*

Yes, the NRC should review and approve the PSDAR prior to the licensee taking any major decommissioning activity. In addition to the NRC review, the PSDAR should be made publically available for comment. The length of the comment period should be sufficient to review the pertinent documents and guidance and provide input to NRC for consideration prior to their approval. With the pre-approval of the PSDAR, the licensee, NRC and stakeholders have been informed and are aware of the process and activities that will occur during decommissioning. The pre-approval will pre-empt any future discrepancies between the regulators, the licensees and stakeholders that could result in excessive delays and additional costs.

Additionally, based on IEMA’s experience with Zion Station, a reasonable cost recovery mechanism needs to be codified to fund ongoing State government activities relevant to and for the duration of the decommissioning project, similar to the NRC cost recovery system. Types of activities would include, but are not limited to: document and plan review, employee site access training, site visits, meeting attendance with the public and the decommissioning entity, waste shipment tracking, environmental monitoring in the community, and associated laboratory services.

REG-3.

- a. *Should the current role of the States, members of the public, or other stakeholders in the decommissioning process be expanded or enhanced, and how so?*

The roles of everyone involved should be expanded and enhanced. The closing of a nuclear power plant that has provided jobs and taxes in a community for up to 60 years is a traumatic local event. Also, for the foreseeable

future, power plant closures will leave an Independent Spent Fuel Storage Installation (ISFSI) on-site. The community needs reassurance that the utility, State, and Federal governments still have responsibilities and will remain engaged with the ISFSI facility. The local community also needs constant reassurance that the site of the former power plant will be cleaned up, restored and monitored. There is a great fear of radiation in the communities that will not decrease with decommissioning.

- b. *Should the current role of the States, members of the public, or other stakeholders in the decommissioning process for non-radiological areas be expanded or enhanced, and how so? Currently, for all non-radiological effluents created during the decommissioning process, licensees are required to comply with EPA or State regulations related to liquid effluent discharges to bodies of water.*

The local communities do not make a clear distinction between radiological and non-radiological effluents. To the local community, everything that leaves a nuclear power site is radiological (air or water). The role of the State should be expanded to formally reassure the public that ALL effluents (radiological and non-radiological) are being monitored. Verbal assurance is not adequate. Sample results should be published and points of contact made available to explain the meaning of the results.

- c. *For most decommissioning sites, the State and local governments are involved in an advisory capacity, often as part of a Community Engagement Panel or other organization aimed at fostering communication and information exchange between the licensee and the public. Should the NRC's regulations mandate the formation of these advisory panels?*

Yes, they should be mandated. The experience at Zion Station has shown the uncertainty of the new decommissioning process creates a great amount of unease in the local communities. The public needs a level of Federal, State and Local governments' involvement where they can feel comfortable they are getting prompt and valid responses to their concerns.

Additionally, the Zion Station, the site was turned over to a completely different company for decommissioning. The local communities and their leaders had to reestablish points of contacts, relationships and trust with a brand new company, who had no history or commitment to the area or state. The local Zion Community Advisory Panel (ZCAP) mostly functioned as a buffer between the members of the community and Zion Solutions. Many of the questions posed to the ZCAP and Zion Solutions were not theirs to answer, but belonged to Exelon, the NRC, or the State. However, there was no mechanism for the public's questions to be answered if they did not directly belong to Zion Solutions. There was no central clearing house for responses to questions. There should be some type of mechanism whereby a question posed to the local Citizens Advisory Panel about a subject, say the long term monitoring of the ISFSI facility, could be forwarded to NRC, Exelon and State for an appropriate and complete response. In many cases it appeared it was left up to the person posing the question to determine who was responsible and to pursue their answers independently. The ZCAP appeared to only have the capability to respond to questions in their narrow jurisdiction and most other questions were just left hanging or dropped. As an example, there are many questions that come up at these community meetings related to the ISFSI and long term use of the property. This question might be more appropriately answered by Exelon instead of Zion Solutions. All entities involved should be required to attend so that questions are answered efficiently and accurately, and therefore increasing the level of trust within the community.

In a perfect world, a Local Advisory Panel would have the authority to take questions and assign them to various agencies (local, utility, State, NRC, decommissioning) to provide answers. This would be a time consuming and detailed job. Realistically, the Local Advisory Panel is a group of local unpaid volunteers with no legal authority. IEMA conducts an ongoing radiological environmental monitoring program and publishes an Annual Report. IEMA attends all ZCAP meetings and NRC public meetings and acts in an advisory capacity. When questions come up about non-radiological wastes going to local facilities (landfills and scrap yards), IEMA is available to reassure the public that these materials have been adequately screened.

Comments Related to Section V. Specific Consideration, Part F

BFP-2 Should NRC propose amendments to 50.109 consistent with the preliminary amendments proposed in SECY-00-145 that would have created a two-section Backfit Rule: one section that would apply to nuclear power plants undergoing decommissioning and the other section that would apply to operating reactors?

Yes, a two-section Backfit rule makes the most sense. Backfit provisions that apply to Spent Fuel Pools and associated support systems must be applied to reactors undergoing decommissioning until a long term solution (i.e. on-site dry cask storage, or movement of fuel off-site) is implemented and the SFP is no longer needed. Other more rigorous Backfit conditions for operating units in many cases need not apply to units undergoing decommissioning.

Comments Related to Section V. Specific Consideration, Part G

DTF-2 a. What changes should be considered for §§ 50.2 and 50.82(a)(8) to clarify what constitutes a legitimate decommissioning activity?

Several changes need to at least be included in the guidance, if not the regulations. Currently excluded items such as demolition of radiologically decontaminated structures and site restoration clearly are legitimate decommissioning costs. These costs are necessary to restore a site to its pre-facility condition, which is what the public expects—not empty shells of clean buildings. In general, the definition of what constitutes a legitimate decommissioning expense needs to be broadened.

The exclusion should be limited to the construction, operation and demolition of facilities used to manage spent fuel, which has a separate funding mechanism.

b. Regulations in § 50.82(8)(ii) states that 3 percent of the decommissioning funds may be used during the initial stages of decommissioning for decommissioning planning activities. What should be included or specifically excluded in the definition of “decommissioning planning activities?”

Is this 3 percent a cap on planning or just what can be spent in the initial stages of decommissioning?

Comments Related to Section V. Specific Consideration, Part J

GEN-1 What regulatory changes should be considered that address the performance or condition of certain long lived, passive structures and components needed to provide reasonable assurance that they will remain capable of fulfilling their intended functions during the decommissioning period?

As discussed in BFP-2, until the fuel is removed from the SFP and moved to a long term solution, either on-site ISFSI, or an off-site facility, the SFP and associated system needs to be maintained. Any passive structures and components associated with the SFP may need to be maintained in a safe condition beyond the license expiration date while the plant is in decommissioning status and fuel remains in the SFP.

GEN-2 Should minimum operations shift staffing at a permanently shut down and defueled reactor be codified by regulation?

Yes. As detailed in the discussion, the current regulations are silent on this area. Minimum staffing has been addressed via individual license actions, which this ANPR is attempting to reduce, therefore, this topic should be included.

Conclusion

The State of Illinois has been involved in the decommissioning process at the Zion Station for over 15 years and therefore strongly believes that regulatory certainty would have simplified the process. A rule on decommissioning should not be based solely on risk-informed decision making. Our comments recognize the importance to maintain a degree of emergency preparedness as an integral part of the NRC's overall safety philosophy using Defense-in-Depth. Additionally, IEMA feels state involvement is vitally important to the decommissioning process.

The agency appreciates the opportunity to comment on this important document. If you have any questions, please feel free to contact Jason Fields at (217) 524-8961 or via e-mail at Jason.Fields@Illinois.gov or Kelly Grahn at 630-293-8242 or via email at kelly.grahn@illinois.gov

Sincerely,



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