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Regulatory Improvements for Power Reactors Transitioning to Decommissioning

Comment On: NRC-2015-0070-0178

Regulatory Improvements for Power Reactors Transitioning to Decommissioning; Request for Comment on Draft Regulatory Basis

Document: NRC-2015-0070-DRAFT-0215

Comment on FR Doc # 2017-05141

Submitter Information

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General Comment

See attached file(s)

Attachments

IL Regulatory Basis Decommissioning Comments - 06.13.17



ILLINOIS EMERGENCY MANAGEMENT AGENCY

OFFICE OF THE DIRECTOR

Bruce Rauner
Governor

James K. Joseph
Director

June 13, 2017

Secretary, U. S Nuclear Regulatory Commission
Washington D.C. 20555-0001

ATTN: Rulemaking and Adjudications Staff

The Illinois Emergency Management Agency (IEMA) believes the efforts of the Nuclear Regulatory Commission (NRC) to develop a rule for Regulatory Improvements for Decommissioning Power Reactors is a positive step. We have reviewed the Draft Regulatory Basis Document for “Regulatory Improvements for Power Reactors Transitioning to Decommissioning” and appreciate the opportunity to comment.

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 (PRA). IEMA recognizes the importance of PRA analyses, but the proposed Draft Regulatory Basis Document 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 decommissioning reactors.

At the time an operating reactor begins the decommissioning process, many years have already been invested in planning and partnerships between state and local officials, the utility and the public. The Draft Regulatory Basis Document does not fully define the maintenance of these established relationships. Although the risk is greatly reduced for a reactor during decommissioning, it does not drop 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 off-site response organizations (OROs) within the Emergency Planning Zone (EPZ).

IEMA supports the phased approach and agrees with the need to establish Level 1, 2, 3 and 4. Our comments are primarily related to the technical basis behind the requirements that have been established for Level 2.

Those comments relate to the following five topics:

1. All-hazards plans
2. Defense-in-Depth
3. EPA Protective Action Guidelines (PAG)
4. Radiological consequences beyond early phase
5. Differences in PRA application

Detailed Comments

1. All-Hazards Plan

One of the arguments for relaxed emergency planning requirements for decommissioning reactors is that planning can be handled by an all-hazards emergency plan, as there will be adequate time for off-site authorities to take response actions. The Draft Regulatory Basis Document references a 10-hour heat up-time for zirconium ignition as the measurement that has been used to support previous exemption requests. 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 partially 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.

2. Defense-in-Depth

In the Draft Regulatory Basis Document, the NRC proposes a graded approach to emergency planning that is commensurate with the reductions in radiological risk for a decommissioning reactor. For almost 40 years, the NRC has chosen to maintain current emergency planning regulations as a key component of their Defense-in-Depth philosophy of nuclear safety, even though the assessment of risk from a reactor accident has changed. The NRC has maintained that the current emergency planning basis is not solely dictated by PRA analysis, but also has to account for the inherent uncertainty in risk analysis. IEMA believes that a reduction in emergency planning for decommissioning reactors cannot exclusively be based on PRA analysis but must also take into account the need for additional planning beyond what is called for in an all-hazards emergency plan. In the Draft Regulatory Basis Document, the NRC maintains that the proposed technical basis includes consideration of Defense-in-Depth. However, it does not appear as if it is the same level of Defense-in-Depth that currently exists in the emergency planning basis for operating reactors. Furthermore, even though the risk for off-site dose consequences from an accident at a decommissioning reactor may be lower when compared to an operating reactor, the risk is not zero. Hence, emergency planning requirements should form the basis of a Defense-in-Depth strategy for decommissioning reactors, similar to that for operating reactors.

3. EPA PAGs

The Draft Regulatory Basis Document identifies the Environmental Protection Agency (EPA) PAG level for evacuation as the threshold value for whether 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 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. Until the dose savings from a dedicated emergency response plan reach the level that could be realized with an all-hazards plan, off-site emergency plans should be maintained since they are more effective for protecting the public from unnecessary exposure to radiation.

4. Radiological Consequences Beyond Early Phase

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. The long-term phase is a large contributor to overall health effect risks beyond the EPZ. The need for planning beyond the early phase means that even if evacuations can be carried out by an all-hazard plan, the long-term protective actions cannot be carried out by all-hazard planning alone.

None of the basis documents for this Draft Regulatory Basis Document 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.

5. Differences in PRA Application

The current emergency planning basis for operating plants is based on source terms from WASH-1400. These source terms are much larger than those reported in the SOARCA “State of the Art Reactor Consequence Analysis” report. The PRA analysis for decommissioning reactors is based on more up-to-date PRA techniques and source term, similar to the methodology and consequence analysis used in SOARCA. To compare PRA analysis from operating reactors to those from decommissioning reactors, there must be consistency in the methods used. Additionally, consequence results are based on effective emergency response actions. 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.

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. IEMA agrees with this assessment.

Comments Related to Specific Elements of the Emergency Plan

Staffing and Emergency Response Organization

IEMA is in basic agreement with the proposed basis for emergency response organization staffing for the various levels of the decommissioning process.

Emergency Action Levels and Emergency Classification Levels

IEMA does have comments on the proposed classification levels and emergency action levels that would be possible in Level 1 and Level 2. Most of the comments we have regarding Level 1 are related to some of the proposed guidance in NEI-99-01 Rev 6. As these comments are more site-specific, we will not be providing them in response to generic rulemaking. IEMA’s comments concerning Level 2 relate to the fact that the NRC feels that it is not necessary to have an emergency classification level higher than Alert. As stated, on page A-19 of the Draft Regulatory Basis Document, “In Level 2, the probability of a condition reaching the level above emergency classification of Alert is very low.” This philosophy would seem to be inconsistent with the philosophy used for operating reactors. Evidence of this is the fact that a General Emergency has not been declared since TMI.

Therefore, it is evident that the probability of an operating reactor ever declaring a General Emergency is low, nevertheless this does not negate the need to keep this classification level. In summary, IEMA believes that the NRC is not justified in removing these classifications levels as long as there is a finite probability of reaching this classification level.

Evacuation Time Estimate Studies

IEMA is in agreement that once a reactor enters into decommissioning, it is not necessary to update evacuation time estimates.

Annual Dissemination of Public Information

IEMA is in basic agreement that once Level 2 is reached in the decommissioning process, there is no further need to disseminate public information brochures.

Drill and Exercise Program

IEMA is in basic agreement with the NRC that further explanation is needed on both NRC and FEMA regulations to clarify the timing and scope of exercise and drill requirements for decommissioning reactors. IEMA also agrees that the risk is reduced and the need to do a full-scale exercise is no longer required after Level 2 is met.

Hostile Action Requirements

IEMA agrees with the NRC that once Level 2 has been reached, the HAB requirements can be relaxed. IEMA strongly agrees with the plan to eliminate HAB exercises once a reactor enters the decommissioning process.

Emergency Response Data System

Although IEMA has a separate agreement with the utility to receive plant process data, it is appreciated that the NRC states that some OROs may have these agreements. Because of this, these licensees shall continue to provide this information to the ORO through the decommissioning process.

Off-Site Radiological Emergency Response Plans

IEMA takes exception to the NRC position that once a minimum of 10 hours is available to take appropriate response actions off-site, formal radiological off-site emergency plans are not necessary. As stated previously, IEMA strongly believes that even though the risk is less, the need for specialized plans, as opposed to all-hazard plans, continues to exist well into Level 2. Additional measures beyond all-hazard plans will be required to adequately ensure public health and safety in the remote, but finite hazard, which continues to exist beyond the typical all-hazard emergency plan.

Notification Requirement to State and Local Government Agencies

IEMA is in basic agreement with the change to a 60-minute requirement for off-site notification. It is suggested that the words be changed to “notify as soon as possible but not later than 60 minutes following the emergency classification.”

Public Alert and Notification Systems

IEMA agrees that there is no need to maintain a public alert notification system once Level 2 has been entered.

Off-Site Radiological Protective Action Recommendations

As mentioned previously, IEMA feels that there needs to be a plan in place for the small but finite probability that protective action recommendations may be needed.

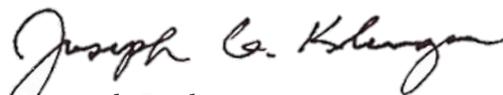
Conclusion

IEMA has been involved in the decommissioning process at the Zion Station for more than 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 Ken Evans at (217) 785-9912 or e-mail at Ken.Evans@Illinois.gov.

Sincerely,

A handwritten signature in black ink that reads "Joseph G. Klinger". The signature is written in a cursive style with a large initial "J".

Joseph G. Klinger
Deputy Director