

- A. Proposed Rule – Emergency Preparedness for Small Modular Reactors and Other New Technologies (85 FR 28436, May 12, 2020, ML20133J896)
- B. Draft Regulatory Guide (DG-1350), Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production or Utilization Facilities (May 2020, ML18082A044)

NSIR/DPR/RLB Comments

A. Proposed Rule – SMRs & ONTs

- 1. Large LWR Exclusion & Definition – (page 4 of 72/FRN 28436)¹ Section entitled Supplementary Information, Executive Summary, Subsection A. Need for the Regulatory Action: The last two sentences state the following:

“This proposed rule does not include within its scope emergency planning, preparation, or response for large LWRs, fuel cycle facilities, or currently operating non-power reactors. For the purposes of this rule, large LWRs are reactors that are licensed to produce greater than 1,000 megawatts thermal (MWt) power.”

See also, Section III (Discussion), first paragraph (page 15 of 72/FRN 28442), which repeats this position for large LWRs in the last sentence. The Proposed Rule (and Draft Regulatory Guidance DG-1350) provides no technical foundation, basis, or justification for the exclusion of large LWRs, fuel cycle facilities, or currently operating non-power reactors, including for the definition of large LWRs as greater than 1,000 MWt. (See, for example, Supplementary Information, Executive Summary Section A, “Need for the Regulatory Action” (page 4 of 72/FRN 28436), which states in part: “This proposed rule does not include within its scope emergency planning, preparation, or response for large LWRs, . . .”)

A technical foundation means, for example, a relationship to risk, accident consequences, or potential dose to the public from credible accidents. (See, for example, the discussion on pages 19-21 of 72/FRN 28444-28445 in the subsection entitled “Risk-Informed and Consequence-Oriented Approaches to Emergency Planning”.) However, in Section III (Discussion), subsection entitled “Objective and

¹ The page number designations are based on a 72-page version of the draft Proposed Rule, which differs from the page numbers from the official *Federal Register* Notice document. As such, both the page number (from the 72-page version) and relevant document section/subsection number and/or title is provided to facilitate locating areas needing suggested revision/clarification. The *Federal Register* Notice page number is also provided as /FRN xxxxx.

Applicability,” the third/last sentence in the fourth paragraph (page 16 of 72/FRN 28442) states the following:

“Large LWRs were not included by the NRC in the scope of this proposed rule because [1] an EP licensing framework already exists for those reactors, and [2] licensees for those plants have not expressed a clear interest in changing that framework.”

Emphasis added. The two reasons for excluding large LWRs, etc. from the Proposed Rule (i.e., [1] and [2], above) are repeated under the second bullet on page 34 of 72/FRN 28452, under Section IV, “Specific Requests for Comments.” The two reasons ([1] and [2]) do not provide either a technical or adequate (non-technical) justification for why large LWRs were not included in the scope of the Proposed Rule. In addition, the second reason ([2]) may not be correct, as the nuclear industry – primarily through the Nuclear Energy Institute (NEI) – has repeatedly requested/encouraged the NRC via letters, White Papers, etc. (since the late 1980s) to establish rules and guidance that address some of the issues addressed in the Proposed Rule (e.g., a reduced plume exposure pathway EPZ). Further, the term “clear interest” is subjective and insufficient to justify the new NRC policy positions taken in the Proposed Rule.

As a minimum, the Proposed Rule should provide an adequate technical justification, including reference to regulatory or guidance documents (if related or applicable), or Commission direction (e.g., a Staff Requirement Memorandum (SRM)) that supports the exclusions and definition of large LWRs (which the cited SMRs do not). If the Proposed Rule reflects new or changed NRC policy positions that the Commission’s approval of the Proposed Rule will establish, then the basis for that new or changed policy should be adequately described and justified in the rule, such that it’s not viewed as arbitrary.

Finally, on page 20 of 72/FRN 28444-28445, the fifth and seventh paragraphs under the section entitled “RISK-INFORMED AND CONSEQUENCES-ORIENTED APPROACHES TO EMERGENCY PLANNING” (shown below), provide a specific technical relationship between dose standards for SMRs/ONTs and large LWRs, including a technical basis for EPZ sizes. Such technical justifications (relationships) appear contrary to the non-technical justification(s) described above for excluding large LWRs, etc., from the Proposed Rule.

“The propose rule would apply the same dose standard for predetermined protective actions to SMRs and ONTs as is required of the current operating large LWRs. By maintaining this consistency, the regulations described in proposed § 50.33(g)(2) would afford the same level of protection of the public health and safety as the current regulatory framework.”

“With the expected safety enhancements in SMR designs and the potential for reduced accident source terms and fission product releases, the NRC is

proposing that SMR applicants would develop reduced EPZ sizes commensurate with their accident source terms, fission product releases, and accident dose characteristics. Pre-application conversations between the NRC and SMR designers have indicated that SMRs also could have reduced offsite dose consequences in the unlikely event of an accident.”

2. Add NUREG-0800 and RG 1.233 (Rev. 0) References – (pages 7-8/FRN 28438 and 44-50 of 72/FRN 28457-28459) Section II (Background), Subsection A (Existing Emergency Preparedness Framework for Nuclear Power Reactors), second paragraph: This paragraph identifies two (“most notable”) EP guidance documents, consisting of NUREG-0654 and RG 1.219. It does not identify Standard Review Plan (SRP) NUREG-0800 Section 13.3 (Emergency Planning) and Section 14.3.10 (Emergency Planning – ITAAC), which apply to Part 50 and 52 applications. See also, the following Subsection B (Existing Emergency Preparedness Framework for Non-Power Production or Utilization Facilities) (page 8 of 72/FRN 28438), which identifies EP guidance documents associated with applications, including NUREG-0849, which is the SRP for research and test reactors (RTRs). Include NUREG-0800 Sections 13.3 and 14.3.10 in Section II.A, as additional EP guidance documents.

Under Section XVII (Availability of Documents) (pages 44-50 of 72/FRN 28457-28459), add a reference to Regulatory Guide (RG) 1.233, Revision 0, June 2020 (Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors). RG 1.233 references draft Regulatory Guide (DG)-1350 and addresses emergency preparedness in Section C (Staff Regulatory Guidance), Subsection 4 (Other Considerations), paragraph entitled “Emergency Preparedness” (page 22).

3. “Hazardous Chemicals” Reference – (page 9 of 72/FRN 28438-28439) Section B (Existing Emergency Preparedness Framework for Non-Power Production and Utilization Facilities), third paragraph: The last sentence includes a reference to “hazardous chemicals,” and discusses a relationship to NUREG-1537 and NUREG-1520. Emergency planning (or preparedness) (EP) in 10 CFR Parts 50 and 52 is generally associated with “radiological hazards.” Hazardous chemicals, while somewhat related to emergency preparedness and response, are addressed elsewhere in NRC regulations and guidance documents.

The introduction of the topic of “hazardous chemicals” here does not provide the basis for why it is relevant, or its relationship to the subject of EP for SMRs/ONTs. See also, DG-1350 (page 16, Section C.5.h.4.a, discussed below in Item B.2 of the comments for DG-1350), which states in part: “including the releases of hazardous chemicals produced from licensed material²,” where footnote 2 references 10 CFR 70.4 (but not NUREG-1537 or NUREG-1520). Also, 10 CFR 70.4 is not referenced on page 9 of 72/FRN 28436, along with NUREG-1537 and NUREG-1520. “Hazardous chemicals

produced from licensed material” are also discussed on page 25 of 72/FRN 28447, under Section III, “Discussion,” Subsection title “DRILLS AND EXERCISES” (sixth bullet, “*Radiological Assessment*”). Clarify how “hazardous chemicals” is relevant to the Proposed Rule (and DG-1350) and correct any inconsistency in listing of references.

4. MWt vs. MWe & Fees – (page 16 of 72/FRN 28442) In Section III (Discussion), the seventh paragraph addresses the definition of “small modular reactor” (SMR). The last two sentences of the paragraph read as follows:

“For the fee-related regulations in 10 CFR part 171 [citation], the NRC determined that using the thermal power equivalent of electric power generating capacity would be fair because SMRs should pay annual fees that are commensurate with the economic benefit received from their license [citation]. Because electrical generating power capacity is not a criterion the NRC uses to determine EP requirements, this proposed rule’s definition would focus on thermal power rating.”

This description (justification) is somewhat confusing, in that – while it appears to quote/summarize fee-related language in Part 171, it does not address the distinction between megawatt thermal (MWt) and megawatt electrical (MWe), in relation to why MWt (i.e., “thermal power equivalent”) is used. Specifically, MWt is an exact number that reflects a reactor’s maximum (design) heat output rating and is included in the operating license as a maximum allowable limit for power operation. In contrast, MWe is basically a measure of the electrical output of the reactor plant, which reflects the overall plant electrical output efficiency, which can vary.

In addition, the mention of what’s “fair” does not include an explanation of what that means, regarding NRC’s role in establishing annual fees. A summary of the quoted paragraph above says: “. . . using the thermal power equivalent . . . would be fair because SMRs should pay annual fees that are commensurate with the economic benefit received from their license.” How is, or is not, this economic benefit received from an SMR license related to the costs and benefits of the Proposed Rule and associated guidance, discussed in Section C (Costs and Benefits) on page 4 of 72/FRN 28436?

This may be addressed/clarified in the ‘draft regulatory analysis’ referenced in Section C, first paragraph, first sentence, and in Section VII (Regulatory Analysis) on page 36 of 72/FRN 28454. Section VII states that the ‘draft regulatory analysis’ addresses “net savings to the industry and NRC,” that appear different than what is described as “fair” in the payment of annual fees, which is addressed in the fee-related regulations in 10 CFR Part 171 (see discussion on page 16 of 72/FRN 28442). See also, the sixth bullet on page 35 of 72/FRN 28453, Section IV, “Specific Requests for Comment,” which addresses incremental cost estimates associated with PRA modeling.

Clarify the relationship/distinction between MWt and MWe, and either remove or explain the reference to Part 171 and the discussion of what is “fair” for the payment of annual fees. If appropriate, explain the difference between what is “fair” in the payment of annual fees, and the net savings to the industry and NRC (discussed in the ‘draft regulatory analysis’).

5. Subtitle Consistency – (page 17 of 72/FRN 28443) Subsection entitled “Proposed Changes”, “TECHNICAL BASES” identifies three areas (criteria) that pertain to the NRC’s proposed alternative approach to EP for SMRs and ONTs, consisting of (1) performance-based, (2) technology-inclusive, and (3) risk-informed and consequence-oriented. For consistency and parallel construction, the subsequent discussions for two of these three areas need minor edits/corrections to the subsection titles, as follows:

(page 17 of 72/FRN 28443) Under the section entitled “Proposed Changes,” change the subsection title from “PERFORMANCE-BASED APPROACH” to read “PERFORMANCE-BASED APPROACH TO EMERGENCY PLANNING”. (page 18 of 72/FRN 28443) Under the section entitled “TECHNOLOGY-INCLUSIVE APPROACH” to read “TECHNOLOGY-INCLUSIVE APPROACH TO EMERGENCY PLANNING”. These two changes will be consistent with the third such title on page 19 of 72/FRN 28444, which reads “RISK-INFORMED AND CONSEQUENCE-ORIENTED APPROACHES TO EMERGENCY PLANNING”.

6. Ingestion Exposure Pathway – (pages 4, 15-16/FRN 28442, 21, and 61 of 72) The issue of ingestion response planning requirements is discussed on pages 4, 21, and 61 of 72, as follows (in part):

- (page 4 of 72/FRN 28436) Section entitled “Supplementary Information, Executive Summary, Subsection B (Major Provisions), forth bullet, states: “B. Major Revisions – Major provisions of this proposed rule and guidance would include the addition of:
[bullet] A requirement to describe ingestion response planning in the emergency plan, including the capabilities and resources available to prevent contaminated food and water from entering the ingestion pathway.
- (page 21 of 72/FRN 28445) Section III (Discussion), Subsection entitled “Risk-Informed and Consequence-Oriented Approaches to Emergency Planning,” 11th paragraph states the following:

“This proposed rule does not provide for a specific ingestion pathway planning zone. The NRC is proposing ingestion response planning requirements instead of an IPZ [ingestion pathway zone] at a set distance as part of the performance-based framework. Ingestion response planning focuses planning efforts on identification of major onsite and offsite exposure pathways for ingestion of contaminated food and water. This proposed rule would require applicants and licensees who comply

with § 50.160 to describe in their emergency plan the licensee, Federal, Tribal, State, and local resources for emergency response capabilities available to sample, assess, and implement a quarantine or embargo of food and water to protect against contaminated food and water entering the ingestion pathway. For those applicants and licensees using § 50.47(b) and appendix E to 10 CFR part 50 [citation], the IPZ requirements would remain unchanged.”

- (page 61 of 72/FRN 28462) Section entitled “Part 50 – Domestic Licensing of Production and Utilization Facilities,” includes the proposed § 50.160(b)(4), which states: “(4) *Ingestion response planning*. Describe or reference in the emergency plan the capabilities that provide actions to protect contaminated food and water from entering into the ingestion pathway.”

Emphasis added. Additional guidance is provided on page 7 of DG-1350, which concludes that an ingestion pathway zone (IPZ) is not needed “because there are additional resources available and there is a better understanding of the process and timing for identifying and removing radiologically contaminated goods from food chains.”

There seems to be a bit of a disconnect between using the 50.160 approach, and the 50.47 and Appendix E approach, regarding the elimination of the IPZ. For a proposed site with an offsite plume exposure EPZ, 50.160(b)(1)(iv)(B) lists 11 items that the emergency plan must describe (i.e., 50.160(b)(1)(iv)(B)(1-11)), which would serve to replace the 16 planning standards associated with 50.47 and Appendix E. These 11 requirements basically consist of a reduced scope of the 16 planning standards.

In contrast, for a proposed site with or without an offsite EPZ, the requirement in 50.160(b)(4) to describe the capabilities to protect food and water is the same. Another way of stating this would be, that for a site with no offsite EPZ, there is only a requirement to describe the capabilities. In contrast, for a site with an offsite EPZ, the description of capabilities requirement is the same. Under 50.160, the disconnect seems to be that the increased radiation risk that forces the inclusion of an offsite EPZ (with the 11 additional requirements in 50.160(b)(1)(iv)(B)(1-11)), does not force any additional offsite contamination planning requirements.

While the reason for the ingestion pathway requirements remaining the same, for both a site boundary and offsite EPZ, is likely that the timing and offsite contamination protection needs are such that the planning would be the same, the additional risk warranting an EPZ beyond the site boundary seems to also increase the risk from offsite contamination. Include a brief discussion that explains why the absence of additional ingestion pathway requirements are not needed if the plume exposure pathway EPZ extends beyond the site boundary. In addition, if the plume exposure pathway EPZ is determined to be 10 miles under 50.160, why is no IPZ required, while under 50.47 and Appendix E a 50-mile IPZ is required? Further, if an SMR with a 10-mile EPZ does not

require an IPZ, why does a large LWR with a 10-mile EPZ still require a 50-mile IPZ? If both the SMR and large LWR have the same size (10-mile) EPZ, isn't the radiological risk then the same, such that they should have the same IPZ requirement? (See related comment/question below, regarding the plume exposure pathway EPZ size, and associated emergency plan requirements.)

10 CFR 50.160 provides general requirements for the applicant/licensee to describe ingestion control areas and capabilities but does not specify any specific contamination limits associated with the pathways (cf., the 1 rem limit for the establishment of the plume exposure pathway EPZ). Describe specific necessary or required ingestion pathway limits or criteria for the various food and water contamination exposure pathways or explain why they are not needed or appropriate.

In Section III (Discussion) (pages 15-16 of 72/FRN 28442), paragraph 3, discusses the background associated with the plume exposure pathway EPZ and ingestion pathway EPZ (IPZ) for large LWRs and case-by-case consideration for reactors with an authorized power level less than 250 MWt. This includes seeking an exemption to determine the EPZ size on a case-by-case basis under § 50.12, and how Appendix E provides the flexibility to determine other emergency planning considerations.

Could a large LWR (with a 10-mile EPZ and 50-mile IPZ) use the exemption request process to replace its IPZ with a description of offsite available contamination control capabilities, pursuant to 50.160, using the argument that an SMR (with a 10-mile EPZ) has the same offsite radiological risk, such that the same offsite ingestion control description requirements are appropriate for both? Base the answer on a purely technical comparison (i.e., radiological risk, including policy considerations such as maintaining consistency and the same level of protection (see risk-informed approaches to emergency planning discussion on pages 19-20 of 72/FRN 28444-28445)) between an SMR and a large LWR, rather than merely citing the definition and exclusion of large LWRs in the proposed 50.160 licensing rule. Finally, could an existing large LWR use the license amendment request (LAR) process under the proposed 10 CFR 50.54(q)(7) to "transition" to the ingestion control requirements under 50.160? (A comparable question, for the plume exposure pathway EPZ requirements, is addressed below in the following comment.)

See also, Section XI (Environmental Assessment and Proposed Finding of No Significant Impact) (page 40 of 72/FRN 28445), which states in part the following:

"The proposed ingestion response planning requirements under proposed § 50.160(b)(4), while not requiring SMR and ONT applicants and licensees to establish an IPZ, would provide the same capabilities available to identify and interdict contaminated food and water in the event of a radiological emergency as required under existing EP regulations. The environmental

effects of the proposed ingestion response planning requirements are similar to that of the existing EP requirements.”

7. Plume Exposure Pathway EPZ – (page 60 of 72/FRN 28462) Section entitled “Part 50 – Domestic Licensing of Production and Utilization Facilities,” includes the proposed § 50.160(b)(1)(iv)(B), which provides requirements when the plume exposure pathway EPZ extends beyond the site boundary. Specifically, for a proposed site with a plume exposure pathway EPZ beyond the site boundary, 50.160(b)(1)(iv)(B) lists 11 items that the emergency plan must describe (i.e., 50.160(b)(1)(iv)(B)(1-11)), which would serve to replace 15 of the 16 planning standards associated with 50.47(b) and Appendix E. These 11 requirements basically consist of a reduced scope of the 16 planning standards.

If an applicant proposed a new site under 50.160, and, using the offsite dose methodology, determined that a 10-mile EPZ is needed, why would it be acceptable to only require the 11 requirements in 50.160(b)(1)(iv)(B)(1-11), rather than the 15 (or 16) planning standards in 50.47(b), for the same 10-mile EPZ size? Please provide clarification regarding this situation, including whether an offsite IPZ would also be required.

In addition, could a large LWR (with a 10-mile EPZ) use the exemption request process to replace the 50.47 and Appendix E EPZ requirements with the 50.160 EPZ requirements, if it was located adjacent to a site with an SMR that has a 10-mile EPZ? This assumes that both the large LWR and SMR have the same offsite radiological risk, which justified a 10-mile EPZ. Base the answer on a purely technical comparison (i.e., radiological risk, including policy considerations such as maintaining consistency and the same level of protection (see risk-informed approaches to emergency planning discussion on pages 19-20 of 72/FRN 28444-28445)) between the large LWR and the SMR, rather than merely citing the definition and exclusion of large LWRs in the proposed 50.160 licensing rule. (A comparable question, for the ingestion pathway zone EPZ (IPZ) requirements, is addressed in the comment above.)

See also, Section XI (Environmental Assessment and Proposed Finding of No Significant Impact) (page 40 of 72/FRN 28455), which states in part the following:

“Under the existing EP requirements and these proposed alternative EP requirements, the dose criteria under which predetermined protective actions would be taken (e.g., evacuation, sheltering) would be similar under both rules, and therefore, the dose consequence to the public would be similar.”

8. Proposed 10 CFR 50.54(q)(7) EP Change Process – (pages 28-29/FRN 28449-28450 and 57 of 72/FRN 28461) Section III (Discussion), Subsection entitled “Changes to Emergency Plans” (pages 28-29 of 72) provides the following in the third/last paragraph, and the proposed rule Section 50.54(q)(7) on page 57 of 72/FRN 28461:

[page 29 of 72/FRN 28450] “For any existing or future holder of an operating or combined license for an SMR or non-LWR, or any future holder of an operating license for an NPUF, proposed § 50.54(q)(7) would stipulate that a licensee desiring to change its emergency plan to comply with the performance-based approach to EP would need to submit a license amendment request with the proposed changes to its emergency plan. The request would need to include an explanation of the schedule and analyses supporting the implementation of a performance-based EP program.”

[page 57 of 72/FRN 28461] “(q)(7) Each holder of an operating license under this part or a combined license under 10 CFR part 52 [citation] for a small modular reactor or non-light-water reactor or each holder of an operating license under this part issued after [date] for a non-power production or utilization facility that wishes to transition to § 50.160 shall submit to the Commission, as specified in § 50.90, a license amendment request for implementing an emergency preparedness program with the associated plan modification necessary to meet the requirements of § 50.160(b). This submittal must include an explanation of the schedule and analyses supporting the implementation of the emergency preparedness program.”

Emphasis added. Could an existing large LWR (licensed under either 10 CFR Part 50 or 52) use the license amendment request (LAR) process under the proposed 10 CFR 50.54(q)(7), above, to transition to no IPZ and the EPZ requirements of 50.160, if the licensee could show, with “[an analysis] supporting the implementation of the emergency preparedness program,” that the radiological risk for the large LWR is the same as for an SMR with a 10-mile plume exposure pathway EPZ? Do not rely on the (arbitrary?) definition and exclusion of large LWRs in 50.160, unless you can explain how this is supported by a radiological risk-informed and consequence-oriented approach to emergency planning. (See, for example, Section III (Discussion), subsection entitled “Risk-Informed and Consequence-Oriented Approaches to Emergency Planning,” on pages 19-21 of 72/FRN 28444.)

9. Editorial – (page 40 of 72/FRN 28455) In Section XI (Environmental Assessment and Proposed Finding of No Significant Impact), first paragraph, third sentence, change “This majority of the provisions” to read “The majority of the provision”.
10. FEMA Level 1 Findings – (pages 57-58 of 72/FRN 28461) Part 50 changes, proposed Section 50.54(gg)(1), change “FEMA identifies one or more deficiencies in the state of offsite emergency preparedness,” to read “FEMA identifies one or more Level 1 Findings in the state of offsite emergency preparedness,” (emphasis added). FEMA has officially changed the term “deficiency(ies)” to “Level 1 Finding(s).”

11. Editorial – (page 58 of 72/FRN 28461) Part 50 changes, proposed Section 50.160(b), “*Requirements*,” change “The NRC will not issue an initial operating license to a licensee unless a finding is made by the NRC that” to read “The NRC will not issue an initial operating license to an applicant unless a finding is made by the NRC that” (emphasis added). The applicant is not a licensee until after the NRC issues the initial operating license.
12. Editorial – (page 59 of 72/FRN 28462) Part 50 changes, proposed Section 50.160(b)(1)(iii)(C), “*Communications*,” if appropriate, change “and make notifications to response personnel and organizations” to read “and make notifications to onsite and offsite response personnel and organizations” (emphasis added). See also, 50.160(b)(1)(iii)(B), “*Protective actions*,” which states in part “recommend protective actions to offsite authorities as conditions warrant.” In addition, it may also be appropriate to make a similar revision in Section 50.160(b)(1)(iii)(F)(1), “*Radiological conditions*,” which changes “and report radiological conditions to the response organization” to read “and report radiological conditions to the onsite and offsite response organizations”. In Section 50.160(b)(1)(iii)(F)(3), “*Core or vessel damage*,” change “and report to the response organization” to read “and report to the onsite and offsite response organizations”. In Section 50.160(b)(1)(iii)(F)(4), “*Releases*,” change “report to the response organization” to read “report to the onsite and offsite organizations” (emphasis added).
13. Evacuation Time Estimate (ETE) – (page 60 of 72/FRN 28462) Part 50 changes, proposed Section 50.160(b)(1)(iv)(B)(5), states the following:

“(B) For a plume exposure pathway EPZ that extends beyond the site boundary, the emergency plan must describe: . . . (5) An evacuation time estimate of the areas beyond the site boundary and within the EPZ;”

Emphasis added. The evacuation time estimates (ETEs) that have been conducted for past new reactor license applications (with an EPZ beyond the site boundary) have included consideration of the evacuation of people located within the site boundary (i.e., licensee personnel, contractors, and site visitors).

In addition, as required by NUREG/CR-7002, the ETE must include any special events or other activities that occur within the EPZ that warrant special consideration, as it relates to evacuation of people (e.g., Race Day at a racetrack located within the EPZ). The nuclear reactor site (i.e., up to, and including, the site boundary) is located within the EPZ. Past ETEs have identified special events as when the large number of construction personnel for the new reactor are onsite, as well as when operations and contract personnel are onsite for a scheduled outage. As such, Section 50.160(b)(1)(iv)(B)(5) should be revised to clarify the consideration of site personnel in the ETE, consistent with NUREG/CR-7002 (and past application practices).

14. FEMA Consultation & Editorial – (page 63 of 70/FRN 28463) Part 52 changes, proposed Section 52.17, “Contents of applications; technical information,” Subsections (2)(i) and (2)(ii) state, in part: “in consultation with the Federal Emergency Management Agency (FEMA), as applicable,” and “in consultation with FEMA, as applicable,” respectively. In addition, proposed Section 52.18, “Standards for review of applications,” states, in part: “after consultation with Federal Emergency Management Agency, as applicable, whether the information required of the applicant by § 52.17(b)(1) shows that there is not [a] significant impediment to the development of emergency plans that cannot be mitigated or eliminated . . .” Emphasis added.

The words “as applicable” should be deleted, as this (1) is an undefined term that does not specifically state what “applicable” means; (2) is inconsistent with the comparable FEMA consultation language in 10 CFR 52.17(b)(2)(i) and (ii), and 10 CFR 52.18, which do not include the words “as applicable”; and (3) is inconsistent with Section V.A, “DHS/FEMA Responsibilities,” Subsection 5, of the FEMA/NRC Memorandum of Understanding (MOU) (ADAMS Accession No. ML15344A371). In addition, in Section 52.18, change “that there is not significant impediment” to read “that there is not a significant impediment”.

B. Draft Regulatory Guide (DG-1350)

1. Editorial – (page 14) Section C, General Section 5.g (Staffing and Operations), Subsection g.1.c: change (if appropriate) “authorization for termination and transition to recovery,” to read “authorization for emergency declaration, termination, and transition to recovery,”. Subsection g.2.a: change “to train and retrain facility personnel” to read “to train and re-train facility personnel” (i.e., hyphenate re-train); and change “within the emergency plan including” to read “within the emergency plan, including” (i.e., add a comma).
2. “Hazardous Chemicals” Reference – (page 16) Section C, General Section 5.h (Radiological Assessment), Subsection h.4.a: This section includes the language “including the releases of hazardous chemicals produced from licensed material²,”, where footnote 2 points to 10 CFR 70.4, which defines “*Hazardous chemical produced from licensed materials.*”

In general, the emergency planning (EP) rules and guidance pertain to radiological hazards (cf., chemical hazards), such that the introduction here of ‘hazardous chemicals’ needs an explanation of its context (beyond just a definition; possibly in the footnote), in relation to how hazardous chemicals are addressed in (and relevant to) DG-1350 (as well as the SMR/ONT rule). See also, Proposed Rule Section B, discussed above in Item A.3, which references NUREG-1537 and NUREG-1520 (but not 10 CFR 70.4). Clarify why “hazardous chemicals” is relevant to DG-1350 (and the Proposed Rule).

3. Clarify “Incident Commander” – (page 17) Section C, Onsite Planning Activities, General Section 6.b.4: The title of “Incident Commander” is used here for the first time, while on the previous page (page 16), Sections 5.h.4.a-b use the title “emergency team leader”. It is unclear if this is the same person and has the same responsibilities. Clarify/define, as appropriate (e.g., is the Incident Commander part of NIMS?).
4. Editorial – (page 20) Section C, Offsite Planning Activities, General Section 7.c (Protective Measures), Subsection 7.c.5: If appropriate, change “methods to expand, relax, suspend, or terminate the protective actions.” to read “methods to initiate, expand, relax, suspend, or terminate the protective actions.” (i.e., add the word “initiate”).
5. Editorial – (page 22) Section C, Subsections 7.j.2 and 7.k.3: If appropriate, change use of the word “periodicities” and “periodicity”, respectively, with the words “frequencies” and “frequency”. (Note that the words “frequency” and “frequencies” are used on page B-1 of Appendix B, Sections B-1 and B-3.)
6. Editorial & Define “Technology-Inclusive” – (page 24) Glossary: For *Non-power production or utilization facility*, if appropriate, change “or 10 CFR 50.22, as applicable, that is not a nuclear power reactor or production facility as defined under” to read “or 10 CFR 50.22, that is not a nuclear power reactor or production facility, as defined under”. For *Performance-based*, change “of EP and planning upon the” to read “of emergency planning upon the”. For *Small modular reactor*, change “of modular design as defined in” to read “of modular design, as defined in” (i.e., add a comma). For *Site boundary*, change “(Ref. 20), specifically Section 20.1003,” to read “(Ref. 20), Section 20.1003,”. For *Technology-inclusive*, this sentence should be re-written to more clearly define what ‘technology-inclusive’ means, in the context of DG-1350 and the SMR/ONT rule – as currently written, it is awkward and confusing.
7. Listing of References – (pages 25-26) References: General comment: As listed, these references do not appear to have been reviewed/revised by a technical editor, as they are inconsistent in format, and not entirely correct. The following provides some recommended improvements/corrections:

Item 10: Add “Revision 1.” Item 11: Add “Revision 3”, “March 2007”, “Section 13.3, “Emergency Planning,”. Item 15: add the document number and Revision number for the FEMA National Response Framework, as applicable. Item 16: change “EPA-400/R-17/001” to read (something like) “U.S. EPA Report No. EPA-400/R-17/001”. Item 18: Change to read “NUREG/CR-7002 (SAND2010-0016P), “Criteria for Development of Evacuation Time Estimate Studies,” November 2011 (Jones et al.)”

Add a reference to Regulatory Guide 1.233, Revision 0, June 2020 (Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors), which references draft Regulatory Guide

(DG)-1350 and addresses emergency preparedness in Section C (Staff Regulatory Guidance), Subsection 4 (Other Considerations), paragraph entitled “Emergency Preparedness” (page 22).

8. “All Hazards Plan” – (page A-1) Appendix A, Section A-1 (introduction), Subsection A-1.b: This subsection introduces the concept of “an all hazards emergency management plan.” If appropriate, add some definition or description of what an/the “all hazards plan” is, including the context in which it is addressed in DG-1350 and the SMR/ONT rule – possibly in a footnote.

See, for example, the TVA Clinch River ESP application June 12, 2019, FSER Section 13.3, “Emergency Planning” (ML19162A157, pages 365-494), which addressed an all hazards plan (i.e., Comprehensive Emergency Management Plan (CEMP) .

9. Editorial– (page A-3) Appendix A, Sections A-3.5 and A-3.6: These two sections refer to “one rem total effective dose equivalent (TEDE) criteria.” and “TEDE of one rem”. On page A-1, Section A-1 (Introduction) defines TEDE, and states “1 roentgen equivalent man (rem)]”, using “1” rather than “one” for the number of rem. Delete the second definition of TEDE on page A-3 and be consistent in the use of either “1 rem” or “one rem”.

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