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NRC EP Rulemaking Activities

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U.S. Nuclear Regulatory Commission

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NRC EP Rulemaking Activities

- Power Reactors Transition to Decommissioning
- Small Modular Reactors and Other New Technologies (SMR/ONT)
- Mitigation of Beyond Design Basis Events (MBDBE)
- 10 CFR 50 and 52 Alignment

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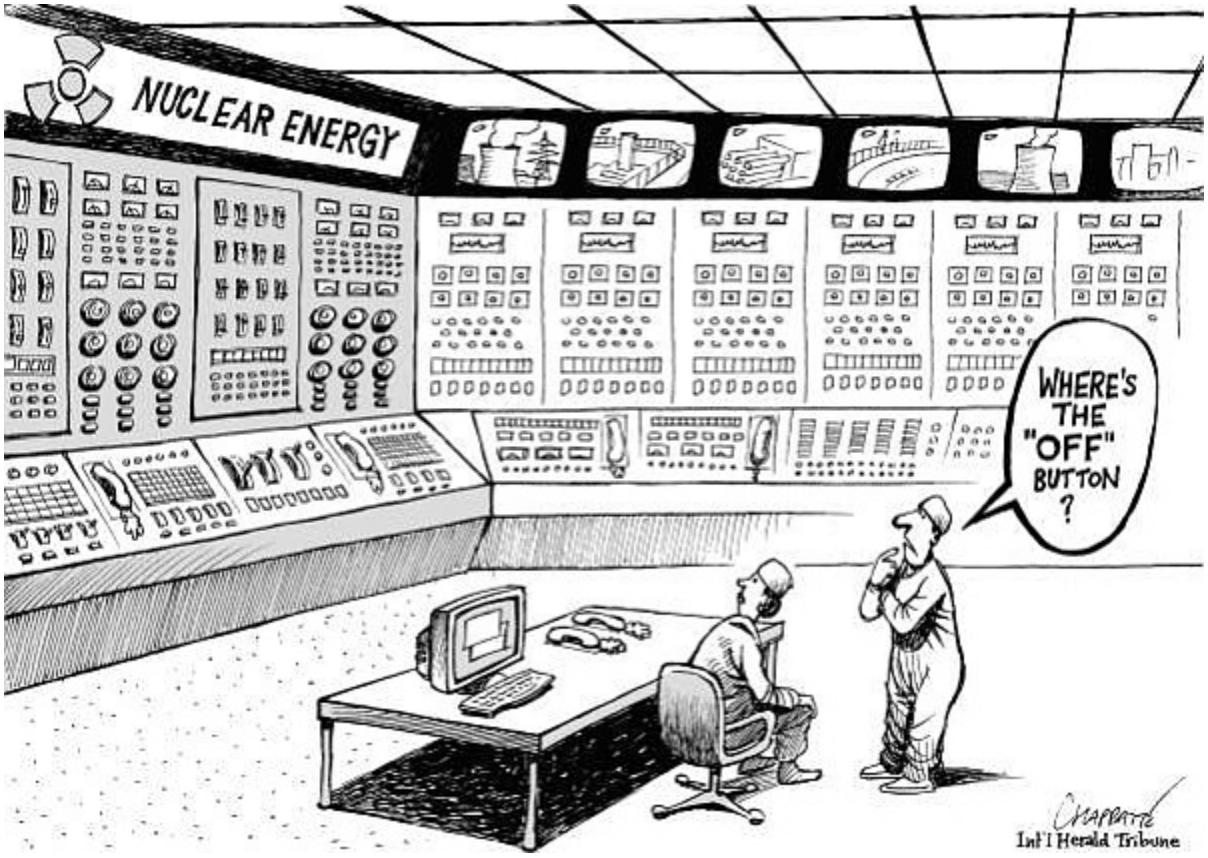
EP Decommissioning Rulemaking



EP Decommissioning Rulemaking

Research to Support Rulemaking

- **NUREG-1738**, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants"
- **NUREG-2161**, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor"
- **Supporting Research Studies** (ADAMS ML16110A416)
  - Analysis of Mitigative Actions
  - Spent Fuel Decay Time
  - Dose Rate of Accidental Radiological Release from Spent Fuel Pool

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EP Decommissioning Rulemaking

- **The following contains information that was provided to the Commission on May 7th to support the Draft Proposed Transition to Decommissioning Rulemaking.**
- **Although made public on May 22nd, the rulemaking has not been issued for public comment.**
- **The Commission will vote on the rulemaking and provide a Staff Requirements Memorandum (SRM) with direction on how to proceed.**
- **As such, the rule language and accompanying guidance may change and should not be considered final.**

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EP Decommissioning Rulemaking

Graded Approach

Level 1 — Permanent cessation of operations and all fuel in spent fuel pool

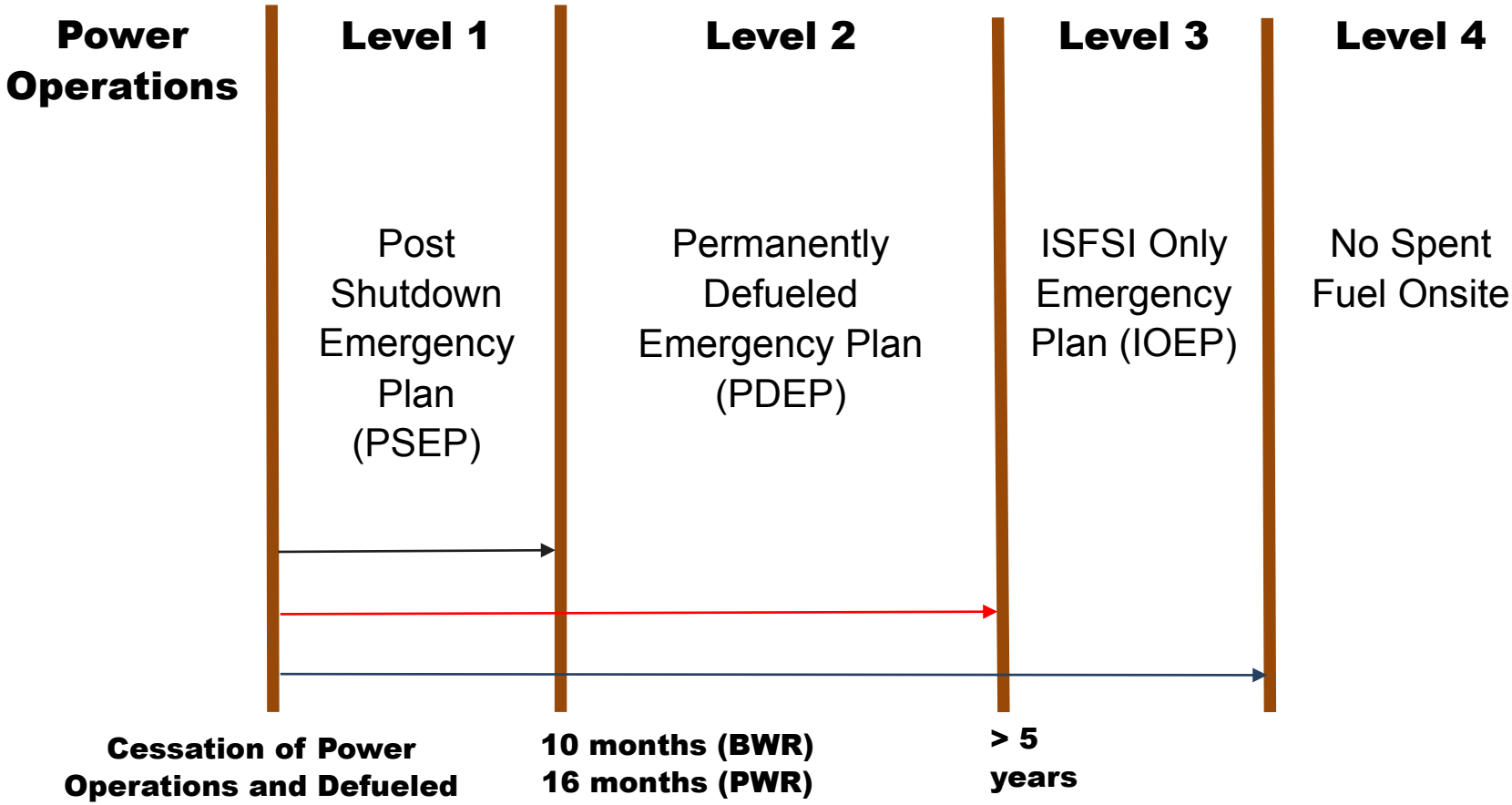
Level 2 — Spent fuel has sufficiently decayed (10 hour adiabatic heatup time)

Level 3 — All fuel is in dry cask storage

Level 4 — All fuel removed from site

EP Decommissioning Rulemaking

Decommissioning EP Levels



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EP Decommissioning Rulemaking

Post-Shutdown EP (PSEP)

- PSEP may start after NRC dockets licensee's certifications of certifications of permanent cessation of operations and permanent removal of all fuel from the reactor vessel.
- PSEP is a transition period
  - May only last 10 months (BWR) to 16 months (PWR)
  - Significant changes to plan not anticipated
  - No changes to regulations for offsite emergency plan

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EP Decommissioning Rulemaking

Post-Shutdown EP (PSEP)

- 10 CFR 50.200(a)
- Proposed Rule provides for:
  - Reduced ERO staffing
  - Revisions to EALs
  - ETE updates no longer required
  - Annual dissemination of information to the public
    - future plant status
  - Revised exercise schedule (drill cycle maintained)

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EP Decommissioning Rulemaking

Permanently Defueled EP (PDEP)

- 10 CFR 50.200(b) and (c)
- Proposed Rule provides for:
  - Reduced ERO staffing
  - Classification and Notification timeliness commensurate to risk and accident timing
  - Events classified as NOUE or Alert
  - No offsite (REP) planning requirements
    - No defined EPZs beyond the site boundary
    - No demonstration of capability for prompt public alerting
    - No pre-determined Protective Actions

EP Decommissioning Rulemaking

Permanently Defueled EP (PDEP)

- Proposed Rule provides for:
  - Revisions to EALs
  - Emergency response facilities (TSC, OSC, EOF) may be combined
  - Biennial exercise within 2 years of entering into decommissioning (drill cycle maintained)
  - No hostile action requirements (security EALs maintained)

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EP Decommissioning Rulemaking

Permanently Defueled EP (PDEP)

- 10 CFR 50.47(f) — Planning standards do not apply to offsite EP if EPZ does not extend beyond the site boundary.
  10 CFR 50.54(s)(3) — Clarifies how NRC will make findings and determinations of reasonable assurance when planning standards do not apply to offsite.
  (s)(3)"If the planning standards for radiological emergency preparedness apply to offsite radiological emergency response plans, the NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the licensee's emergency plans are adequate and capable of being implemented."
  10 CFR 50.54(t) — EP program element review at 2 year intervals until all fuel in dry cask storage.

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EP Decommissioning Rulemaking

ISFSI Only EP (IOEP)

- IOEP may start after all spent fuel is in dry cask storage
- IOEP utilizes established EP planning standards for ISFSIs contained in 10 CFR 72.32(a)
- Part 50 and Part 52 licensees are granted a general Part 72 license
- Application for a specific Part 72 license would require NRC approval of emergency plan

EP Decommissioning Rulemaking

- Emergency Plan Change Process
  - Transition to Levels
  - Changes within Levels
  - Changes in Final Safety Analysis Report (FSAR)
  - Changes in Emergency Action Levels (EALs) Classifications and Scheme(s)
- 10 CFR 50.54(q)(7) — Licensee may elect to follow and maintain a Level standard when conditions are met.
- 10 CFR 50.54(q)(8) — Clarifies Reduction in Effectiveness (RIE)
- Transition between levels is not an RIE if changes comply with standards.
- Changes to e-plan are not RIEs if supported by Final Safety Analysis Report (FSAR) for Safety Systems and Components (SSCs) out of service.
- Changes to EAL not RIE if physically unattainable.
- Draft EP Regulatory Guide to accompany proposed rule
  - DG-1346, "Emergency Planning for Decommissioning Nuclear Power Reactors" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17311B018)

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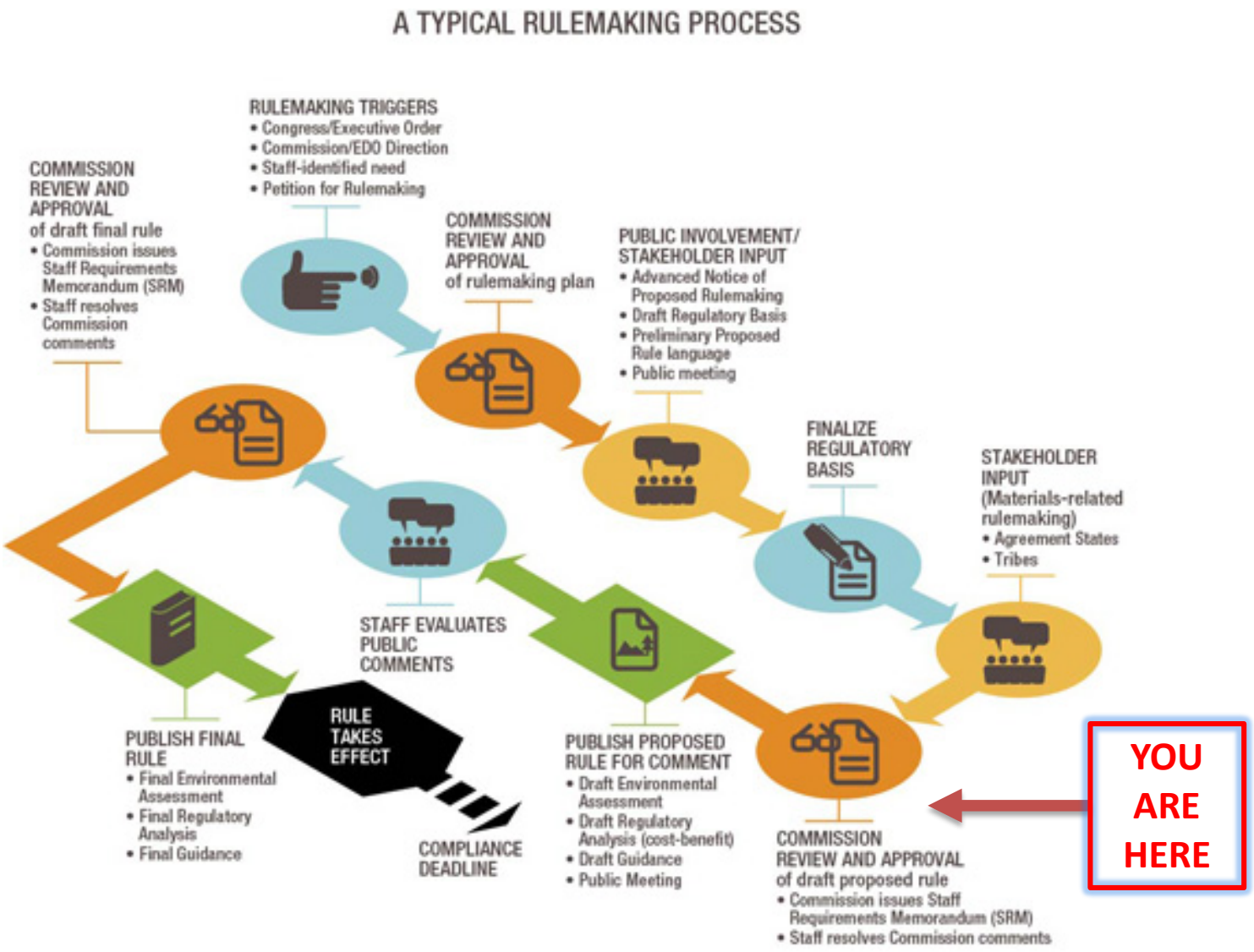
EP Decommissioning Rulemaking



EP Decommissioning Rulemaking

Decommissioning Rule Schedule

- Final Regulatory Basis
  - November 2017, ML17215A012
- Proposed Rule/Draft Regulatory Guidance
  - Provided to Commission May 7, 2018
  - Public May 22, 2018, ADAMS Package ML18012A019
- Public Comment Period (current estimate)
  - June 28, 2019
- Final Rule/Final Regulatory Guidance
  - August 31, 2020, Provide to Commission
  - March 15, 2021, Issue Final
- Regulations.gov Docket ID NRC-2015-0070

Draft Proposed EP SMR/ONT Rulemaking

This draft document was released to support the August 22, 2018 Advisory Committee on Reactor Safeguards Sub-Committee public meeting. This draft document has not been subject to Commission, NRC management, and legal reviews and approvals, and its contents should not be interpreted as official agency positions. Following the public meeting, the NRC staff plans to continue working on this document as well as other documents related to this rulemaking.

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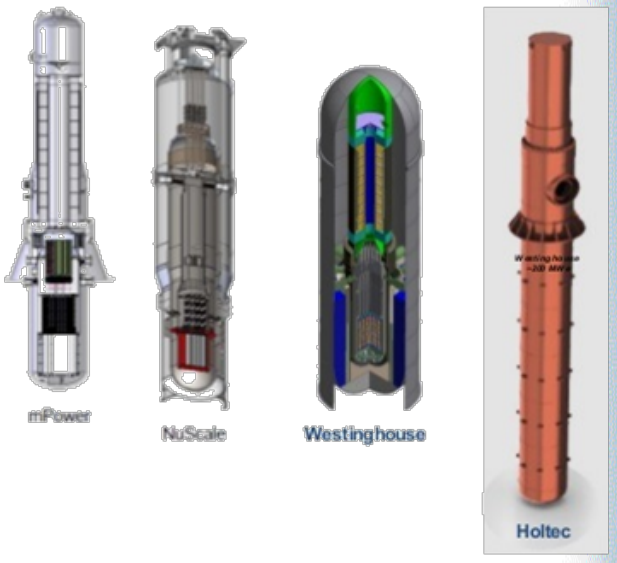
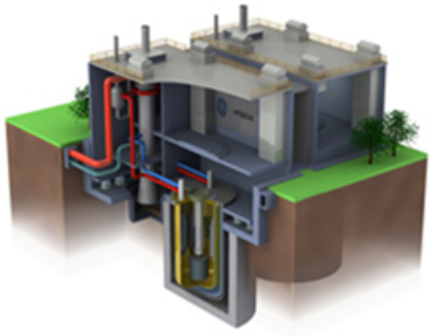
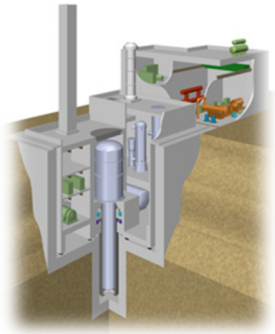
SMR/ONT Rulemaking

Develop a clear set of rules and guidance for SMRs and ONT

- Technology Neutral or Inclusive
- Risk-Informed, Performance Based
- Principle of dose-at-distance and consequence-oriented approach to determine EPZ size







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SMR/ONT Rulemaking

- Proposed Rule and Guidance:
  - Performance-based, risk-informed
  - Some capability based planning standards
  - Consequence-oriented, graded-approach
  - Technology-inclusive, but does not alter existing nuclear power reactor EP requirements
  - Recognizes offsite response & preparedness

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SMR/ONT Rulemaking

- Proposed Performance Measures:
  - Event mitigation
  - Protective actions,
  - Communications,
  - Command and control,
  - Staffing, and
  - Radiological assessment
- Proposed Guidance:
  - General information (non-design specific)

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SMR/ONT Rulemaking

- Regulatory Basis issued (ADAMS No.ML17206A265)
  - November 2017
- Draft Proposed Rule/Regulatory Guidance Package
  - August 3, 2018, Publicly Available (ADAMS No. ML18213A264)
  - August 22, 2018, Advisory Committee on Reactor Safeguards Subcommittee
  - October 12, 2018, Provided to Commission
- Public Comment Period (current estimate)
  - June 28, 2019
- Final Rule/Final Regulatory Guidance
  - March 27, 2020, Provide to Commission
  - July 27, 2020, Issue Final
- Rulemaking information
  - RIN Number: 3150-AJ68
  - www.Regulations.Gov
  - Docket ID NRC–2015–0225

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MBDBE Rulemaking

- **Multi Source Dose Assessment** capability was removed as a requirement in the rule prior to the final rule affirmation by the Commission.
- EP items that were determined by Commission to be addressed at the regulatory guidance level and were removed from the final rule
  - **Sufficient staffing** to support implementation of the capabilities required by the rule
  - **Sufficient communications** capability, both onsite and offsite to support implementation of the strategies required by the rule
  - **Drills or exercises** to demonstrate a capability to use the strategies and guidelines required by the rule

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MBDBE Rulemaking

- Addressed at the regulatory guidance level and the Commission concluded that the requirements imposed by the Orders (NRC Order EA-12-049 and NRC Order EA-12-051) are sufficient to provide reasonable assurance of adequate protection of public health and safety.
- Licensees have previously committed to have in place and maintain these items via the 50.54(f) letters that were issued on March 12, 2012.
- These items have been inspected using TI-2515/191 and NRC will determine the continuing inspection process for these items going forward.

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MBDBE Rulemaking

- **Appendix E to Part 50 – Emergency Planning and Preparedness for Production and Utilization Facilities**
  - This appendix has been revised to eliminate the pointer to §50.54(hh)(2) in IV.F.2.j.and now points to the "implementation of strategies, procedures, and guidance under §50.155(b)(2)"

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MBDBE Rulemaking

Appendix E to Part 50 IV.F.2.j - Exercising §50.155(b)(2)

- NSIR/DPR-ISG-01, page 33

"The portion of a biennial exercise that involves demonstration of strategies associated with 10 CFR 50.54(hh)(2) ***may be conducted separately from the main exercise timeline and sequence of events****. Thus,* ***the initiating event(s) for entry into site-specific guidelines or procedures associated with 10 CFR 50.54(hh)(2) may differ from the initiating event(s) of the main exercise scenario*** *and could involve an initiating event other than hostile action, such as a fire, flood, or explosion affecting large areas of the site, or station blackout. At a minimum, TSC and OSC staff would need to participate in this portion of the exercise. Participation of CR personnel, EOF staff, JIC staff, and offsite officials may be simulated consistent with the purpose of this portion of the exercise to maintain key ERO skills for familiarity with guidelines, procedures, and strategies associated with 10 CFR 50.54(hh)(2), including the (simulated) deployment and use of equipment associated with these strategies and intended to maintain or restore core cooling, containment, and/or spent fuel pool cooling.* ***The portion of the exercise scenario addressing demonstration of 10 CFR 50.54(hh)(2)-related strategies should be included in the licensee's submittal of the biennial exercise scenario for NRC review."***

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10 CFR 50/52 Rulemaking

- In SRM-SECY-15-0002 (ML13277A420) the Commission approved development of a regulatory basis to revise the regulations in 10 CFR Part 50 for new power reactor applications to more closely align with requirements in 10 CFR Part 52

- Commission also approved revision of 10 CFR Part 52 and supporting regulations to reflect lessons learned from recent new reactor licensing activities

- The staff is considering what items should be included in the scope of that rulemaking.

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