

# Regulatory Improvements for Power Reactors Transitioning to Decommissioning

Public Meeting  
May 8-10, 2017

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# Meeting Purpose

- Discuss draft regulatory basis and associated preliminary draft regulatory analysis for the “Regulatory Improvements for Power Reactors Transitioning to Decommissioning” rulemaking
- Enhance stakeholder understanding of these documents to inform development of formal comment submissions
  - 90-day comment period ends on June 13, 2017

# Meeting Purpose (cont'd)

- NRC will not be providing formal comment responses to any oral remarks made at this meeting
  - Staff will consider, to the extent possible, feedback heard during today's meeting in developing the final regulatory basis

# Ground rules

- Approximately 30-45 minutes for each session will be allotted for stakeholder questions/discussion.
- Breaks and lunch times are approximate.
- If a session finishes early, the NRC staff will not begin a new session early to accommodate those who may be planning to participate in specific sessions.

# Agenda May 8

## **Monday, May 8 (Commission Hearing Room):**

9:30 – 10:00 AM – Opening remarks and introductory presentation

10:00 – 11:00 AM – Current Approaches to Decommissioning (Appendix H)

11:00 – 11:15 AM – Break

11:15 AM – 12:30 PM – Current Approaches to Decommissioning (Appendix H) *continued*

12:30 – 1:30 PM – Lunch

1:30 – 1:40 PM – Recap of ground rules

1:40 – 2:40 PM – Backfit (Appendix I)

2:40 – 3:40 PM – Drug and Alcohol Testing (Appendix D)

3:40 – 3:55 PM – Break

3:55 – 4:55 PM – Fatigue Management (Appendix K)

4:55 – 5:15 PM – Recap/closing remarks for the day

5:15 – 5:30 PM – Recap/closing remarks

# Agenda (May 9-10)

## **Tuesday, May 9 (Commission Hearing Room):**

- 9:30 – 9:45 AM – Opening remarks/recap of ground rules
- 9:45 – 10:45 AM – Emergency Preparedness (Appendix A)
- 10:45 – 11:00 AM – Break
- 11:00 – 11:30 AM – Emergency Preparedness (Appendix A) *continued*
- 11:30 AM – 12:30 PM – Lunch
- 12:30 – 12:45 PM – Opening remarks/recap of ground rules
- 12:45 – 1:45 PM – Aging Management (Appendix J)
- 1:45 – 2:45 PM – Cyber Security (Appendix C) and Physical Security (Appendix B)
- 2:45 – 3:00 PM – Break
- 3:00 – 4:45 PM – Cyber Security (Appendix C) and Physical Security (Appendix B) *continued*
- 4:45 – 5:00 PM – Recap/closing remarks for the day

***Please note the change in room on Wednesday morning.***

## **Wednesday, May 10: (AM in ACRS Room; PM in Commission Hearing Room)**

- 9:30 – 9:45 AM – Opening remarks/recap of ground rules
- 9:45 – 11:15 AM – Decommissioning Trust Funds (Appendix F)
- 11:15 – 11:30 AM – Break
- 11:30 AM – 12:30 PM – Onsite and Offsite Insurance and Indemnity Agreements (Appendix G)
- 12:30 – 1:30 PM – Lunch
- 1:30 – 1:45 PM – Opening remarks/recap of ground rules
- 1:45 – 3:15 PM – Certified Fuel Handler Training and Min. Staffing (App. E)
- 3:15 – 3:30 PM – Break
- 3:30 – 5:15 PM – Regulatory Analysis

# Rulemaking Goals

- Provide an efficient decommissioning process
- Reduce the need for requests for exemptions from existing regulations
- Address other decommissioning issues deemed relevant by the NRC staff
- Support the principles of good regulation, including openness, clarity and reliability

# Next Steps

- Final Regulatory Basis
  - Late 2017
- Proposed Rule/Draft Regulatory Guidance
  - Provide to Commission in Spring 2018
- Draft Final Rule/Final Regulatory Guidance
  - Provide to the Commission in Fall 2019



# Submitting Comments

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2015-0070.
- For questions about NRC dockets please contact:
  - Carol Gallagher; 301-415-3463;  
[Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov).
- For technical questions please contact:
  - Alysia Bone; 301-415-1034; [Alysia.Bone@nrc.gov](mailto:Alysia.Bone@nrc.gov)
  - Jennifer Tobin; 301-415-2328; [Jennifer.Tobin@nrc.gov](mailto:Jennifer.Tobin@nrc.gov)

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# Appendix F

# Decommissioning Funding

# Assurance

Michael Dusaniwskyj  
Economist, Office of Nuclear Reactor Regulation  
Public Meeting  
May 10, 2017

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# Background Current Status

- Table of Minimum Amounts
- Commingling of Funds
- Radiological Decommissioning
- Spent Fuel Management
- ISFSI

**Slide 12**

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**DM1**

Dusaniwskyj, Michael, 3/28/2017

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# Current Regulations and Implementation

- 10 CFR 50.2 - Definition
- 10 CFR 50.75 - Certify reasonable assurance
- 10 CFR 50.82 - Allowable expensing
- 10 CFR 50.54(bb) - Spent fuel management
- 10 CFR Part 72 - ISFSI

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# Options

- No Action
- Allow for ancillary decommissioning expenses
- Codify commingling of funds
- Immediate funding of shortfalls
- Replace biennial reports with triennial reports
- 1% flexibility for expenses
- Fund to a site-specific cost estimate (SSCE)

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# Basis for Staff Recommendations

- Minimize regulatory exemptions
- Ensure Decommissioning Trust Funds are fully funded at all times
- Maintain regulatory flexibility for future economic environment (principles of good regulation)
- Reduce regulatory burden - periodic review
- Open and transparent (SSCE and comingling)



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# Cost Benefit Analysis

- Cost
  - NRC cost to develop the proposed rule
  - Industry incremental reviews of site-specific cost estimates
  - Additional NRC staff time needed to review site-specific cost estimates (every 5 years)
- Benefit
  - Averted cost, exemptions not needed
  - Greater transparency of licensee's decommissioning costs
  - Minimize uncertainty associated with estimating decommissioning costs
  - Lower frequency of reporting assurances
  - More licensee flexibility for funding spent fuel management

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# Backfitting & Issue Finality

- The NRC does not anticipate that the options in Appendix F would constitute backfitting under 10 CFR 50.109, “Backfitting.”

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# Targeted Discussion

- **Should NRC dedicated decommissioning trust funds be used for spent fuel management and ISFSI decommissioning without a regulatory exemption?**
- What do stakeholders think are the pros & cons of codifying comingling (should this remain in guidance vs regulations)?
- Do stakeholders agree that the change from biennial to triennial reviews will reduce regulatory burden (as the timing will now match the ISFSI review period)?
- Is the proposed 1% flexibility measure appropriate and is 1% the correct percentage?
- Given the current crop of premature shutdowns, will assuring to a SSCE earlier in the license operating phase provide a greater level of assurance that funds will be available for decommissioning.

# Appendix G: Offsite and Onsite Financial Protection Requirements and Indemnity Agreements

Eric Olvera

Public Meeting  
May 10, 2017

# Background

- Offsite Insurance
  - The Price-Anderson Act
    - Implemented through 10 CFR Part 140
- Onsite Insurance
  - 10 CFR 50.54(w)

# Option 1 - Status Quo

## Current Exemption Process

### Operations

- Offsite Financial Protection
  - Primary Financial Protection
    - \$450M
  - Secondary Financial Protection
    - Industry Retrospective Rating Plan (~\$13B)
- Onsite Financial Protection
  - Onsite Financial Protection
    - \$1.06B

### Decommissioning

- Offsite Financial Protection
  - Primary Financial Protection
    - Reduced to \$100M
  - Secondary Financial Protection
    - Withdraw from Industry Retrospective Rating Plan
- Onsite Financial Protection
  - Onsite Financial Protection
    - \$50M

# Option 2 - Rulemaking

Level	Description	Offsite Requirement	Onsite Requirement
1	Permanently ceased operations and permanently defueled	\$450M; participation in the industry retrospective rating plan	\$1.06B
2	Sufficiently decayed fuel; $\geq 1,000$ gal of radwaste	\$100M; withdrawal from plan	\$50M
3	All spent fuel transferred to an ISFSI or DOE repository	\$50M	\$50M
4	All spent fuel and significant radioactive material removed	\$25M	\$25M / eliminated

# Staff Recommendation

- Staff Recommended Option
  - Option 2: Rulemaking
    - Numbers were qualitatively determined
    - Licensees have opted to maintain full primary coverage
    - Regulatory consistency



# Potential for Backfitting

- Neither of the two options would constitute backfitting under 10 CFR 50.109 or violate any issue finality provision in 10 CFR Part 52.
  - Option 1 would not impose a change and simply maintains the status quo
  - Option 2 is voluntary and would not require licensees to comply

# Cost/Benefit Considerations

Activity	Costs	Benefits
Rulemaking to amend regulations and provide a graded reduction in financial protection	Rulemaking	-Reduced exemption requests  -Align insurance exemption standard with EP graded approach

# Recap of Ground Rules

- Approximately 30-45 minutes for each session will be allotted for stakeholder questions/discussion.
- Breaks and lunch times are approximate.
- If a session finishes early, the NRC staff will not begin a new session early to accommodate those who may be planning to participate in specific sessions.

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# Appendix E

## Minimum Staffing and Training Requirements for Non-Licensed Operators, Including Certified Fuel Handlers

Victoria Huckabay  
Public Meeting  
May 10, 2017

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# Background

- During decommissioning, the principal safety concern is the safe storage of spent fuel in the spent fuel pool.
  - Radiological risk and consequences of an accident for a reactor undergoing decommissioning are significantly reduced.
  - The frequency of events that could lead to a spent fuel uncover and potential zirconium fire is impacted by human error probabilities.
- The establishment of a staffing and training baseline, commensurate with the reduced risks at decommissioning reactors is appropriate.

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# Background (cont.)

- The current regulations that require specified licensed operator staffing for operating reactors are not applicable to a decommissioning plant.
- Licensees have been requesting amendments to their Technical Specifications to eliminate the need to maintain licensed operators.
- Current regulations do not address minimum staffing levels or training requirements for a facility undergoing decommissioning.

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# Current Regulations and Implementation

- 10 CFR 50.2 – *Certified Fuel Handler* means, for a nuclear power reactor facility, a non-licensed operator who has qualified in accordance with a fuel handler training program approved by the Commission.



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## Current Regulations and Implementation (cont.)

- 10 CFR 50.54(x) – allows a licensee to take reasonable actions that may depart from a license condition or technical specification in an emergency.
- 10 CFR 50.54(y) – permits a licensee action under 10 CFR 50.54(x) by a certified fuel handler (CFH), at nuclear power reactors that have permanently ceased operations and defueled, subject to 10 CFR 50.82(a).

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# Current Regulations and Implementation (cont.)

- 10 CFR 50.120, “Training and qualification of nuclear power plant personnel”:
  - Addresses training and qualification requirements for non-licensed reactor operators (NLOs)
  - Requirements apply to all Part 50 and Part 52 licensees
- 10 CFR 50.120 does not address the specifics of how a NLO becomes qualified as a CFH

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## Current Regulations and Implementation (cont.)

- 10 CFR 50.120(b)(2) requires that each licensee establish, implement, and maintain a training program that is derived from a systems approach to training (SAT).
  - SAT process ensures that as plant conditions change, training programs will be revised to reflect these changes (10 CFR 50.120 final rule, 58 FR 21904, 58 FR 21907).

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# Current Regulations and Implementation (cont.)

- 10 CFR 55.4 – *Systems approach to training* means a training program that includes the following five elements:
  - (1) Systematic analysis of the jobs to be performed.
  - (2) Learning objectives derived from the analysis which describe desired performance after training.
  - (3) Training design and implementation based on the learning objectives.
  - (4) Evaluation of trainee mastery of the objectives during training.
  - (5) Evaluation and revision of the training based on the performance of trained personnel in the job setting.

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# Current Regulations and Implementation (cont.)

- 10 CFR 50.120(b)(3) requires that the training program:
  - Incorporate instructional requirements necessary to provide qualified personnel
  - Be developed to be in compliance with facility license, including all TS and applicable regulations
  - Be periodically evaluated and revised as appropriate to reflect industry experience, changes to the facility, procedures, regulations, and QA requirements

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# Current Regulations and Implementation (cont.)

- 10 CFR 50.120(b)(3) also requires:
  - The training program must be periodically reviewed by licensee management for effectiveness
  - Sufficient records must be maintained by the licensee to maintain program integrity and kept available for NRC inspection to verify the adequacy of the program

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# Current Regulations and Implementation (cont.)

- In SECY-00-0145, the NRC staff defined three broad-scope objectives for an acceptable fuel handler training program suitable to qualify CFH:
  - Requisite knowledge and experience in the safe conduct of decommissioning activities;
  - Safe handling and storage of spent fuel; and
  - Capability to evaluate plant conditions and exercise prudent judgment for emergency action decisions.

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# Current Regulations and Implementation (cont.)

- In previous approvals of CFH training programs, the NRC staff:
  - Used the three broad-scope objectives defined in SECY-00-0145;
  - Evaluated the training programs in accordance with 10 CFR 50.120, which includes a requirement that the training program be derived from a systems approach to training as defined in 10 CFR 55.4.



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# Current Regulations and Implementation (cont.)

- 10 CFR 50.54(m) specifies the minimum licensed operator staffing levels for operating reactors
  - Does not apply to licensees that have certified that they permanently shutdown and defueled under 10 CFR 50.82(a)(1) or 10 CFR 52.110(a).
- Licensees that have permanently shut down must continue to meet minimum staffing requirements in TS and required programs.

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# Current Regulations and Implementation (cont.)

- Most of the recent experience with staffing of CFHs and NLOs at permanently shut down reactors is limited to single-unit sites.
- The NRC staff is considering the imposition of minimum staffing levels of NLOs and CFHs for decommissioning reactors.
- Shift Technical Advisor (STA) staffing requirement is not relevant to a decommissioning plant
  - Typically removed via a license amendment from the decommissioning plant TS

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# Option 1

- Option 1 – no action:
  - Retain the current wording of the regulations;
  - Existing regulatory verbiage is sufficiently broad to allow use of CFHs instead of licensed operators at permanently shutdown reactors;
- Continue to review and approve fuel handler training programs suitable to qualify CFH, consistent with current practice;
- Continue to review the staffing requirements proposed in the license amendment requests, on a case-by-case basis.

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# Option 2

- Option 2 – voluntary industry initiatives for staffing and training for permanently shutdown and defueled Reactors and clarification of related definitions:
  - NRC staff would review voluntary industry initiatives, such as guidance on the responsibilities of CFH, minimum staffing for decommissioning reactors, and guidance on the structure and contents of fuel handler training programs suitable to qualify CFH.

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# Option 3

- Option 3 – change regulations for staffing for permanently shutdown and defueled reactors and related definitions:
  - Revise the definition of CFH in 10 CFR 50.2;
  - Specify the minimum staffing requirements in 10 CFR 50.54(m) for a decommissioning reactor licensee that has submitted certifications in accordance with 10 CFR 50.82(a)(1) or 52.110(a);
  - Clarify that the STA position and the associated training program are not needed for a decommissioning reactor, in 10 CFR 50.120.

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## Option 3 (cont.)

- Revise the definition of CFH in 10 CFR 50.2 to:
  - Clarify the management role of CFH consistent with 10 CFR 50.54(y);
  - Eliminate the need for Commission's approval for fuel handler training programs suitable to qualify CFH;
  - Add provision that the training program address the safe conduct of decommissioning activities, safe handling and storage of spent fuel, and appropriate response to plant emergencies; and
  - Require consistency with the existing requirements of training of NLOs in 10 CFR 50.120.

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## Option 3 (cont.)

- Example of proposed changes to the definition of CFH in 10 CFR 50.2:
  - *Certified fuel handler* means, for a nuclear power reactor facility, a non-licensed operator who is responsible for decisions on (1) safe conduct of decommissioning activities, (2) safe handling and storage of spent fuel, and (3) appropriate response to plant emergencies, and has qualified in accordance with a ~~fuel handler~~ non-licensed operator training program ~~approved by the Commission~~ required by 10 CFR 50.120.

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## Option 3 (cont.)

- Example of proposed changes to 10 CFR 50.54(m):
  - Add a table to specify the minimum requirements for the number of CFHs and NLOs on-shift at a permanently shutdown and defueled reactor;
  - Revision of a footnote to clarify the existing table in Section 50.54(m):
    - <sup>2</sup> (i) For the purpose of this table, a nuclear power unit is considered to be operating when it is in a mode other than cold shutdown or refueling as defined by the unit's technical specifications, and (ii) the requirements of this table apply only with fuel in the reactor vessel.



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# Staff Recommendation

- The NRC staff is requesting public comments regarding the three options.
- The staff's recommendation will be documented in the final regulatory basis document
  - The staff's recommended option will be informed by public comments received on the draft regulatory basis document.

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# Staff Perspective

- Significantly lower risk to public health and safety associated with spent fuel pool, as compared to an operating plant.
- No adverse safety impacts related to CFH staffing or training identified, to date.
- However, the NRC staff concluded that there is:
  - A lack of clarity in the regulations with regard to the staffing alternative for licensed operators after a reactor has permanently shut down and defueled under 10 CFR 50.82(a)(1) or 52.110(a);

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# Staff Perspective (cont.)

- A regulatory gap with respect to minimum staffing requirements for staff at permanently shut down and defueled reactors;
- Lack of clarity in the regulations with regard to what requirements an acceptable fuel handler training program for qualifying CFHs would have to meet.

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# Staff Perspective (cont.)

- The NRC staff has reviewed recent precedents:
  - Approvals of licensee fuel handler training programs suitable to qualify a CFH;
  - Amendments to licenses of decommissioning facilities that address the minimum staffing and qualifications of staff.
- The NRC staff believes that Option 3 will closely align with these recent approvals.
- However, Option 2 may address the lack of clarity with regard to the staffing alternative for licensed operators and responsibilities of CFHs and NLOs at decommissioning reactors.

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# Potential for Backfitting

- Option 3 would constitute backfitting.
  - The rulemaking would have to result in a cost-justified, substantial increase in the protection of the public health and safety or common defense and security to be implemented.
  - The NRC staff is evaluating if promulgation of requirements proposed in Option 3 would result in substantial increase in the overall protection of the public health and safety.

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# Cost / Benefit Considerations

- Option 1 – no action:
  - No incremental benefits to licensees or NRC.
  - No incremental costs to licensees or NRC.
  - Continued burden for the licensees and the NRC staff associated with regulatory review and approvals of fuel handler training programs suitable to qualify CFH and necessary license amendments, on a case-by-case basis.

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# Cost / Benefit Considerations (cont.)

- Option 2 – voluntary industry initiatives:
  - Benefits:
    - Promote uniformity and standardization for fuel handler training programs suitable to qualify CFH;
    - Small-to-modest operational savings to licensees.
  - Costs:
    - Costs associated with development of voluntary industry initiatives (e.g., guidance documents);
    - Initial costs for the NRC to review proposed guidance documents and conduct public meetings;
    - NRC costs to develop and publish regulatory guidance, perform supporting analyses, and public outreach efforts.

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# Cost / Benefit Considerations (cont.)

- Option 3 – change the regulations:
  - Benefits:
    - Improved regulatory efficiency and stability;
    - Reduced burden and cost savings to licensees and the NRC staff due to elimination of the requirement to seek Commission’s approval for fuel handler training programs suitable to qualify CFHs.
    - Reduced burden and cost savings to licensees associated with a reduction in the number of RAIs;



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# Cost / Benefit Considerations (cont.)

- Option 3 – change the regulations:
  - Costs:
    - One-time cost to the NRC to undertake the rulemaking process and prepare accompanying guidance;
    - Licensee costs to implement specific provisions of the rule; and
    - Small costs to the NRC and licensees associated with future inspections intended to verify appropriate implementation of the rule.

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# Preliminary Draft Regulatory Analysis

Chris Howells

Public Meeting  
May 10, 2017

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# Background

- The NRC staff prepared the preliminary draft regulatory analysis to support decisionmaking for the draft regulatory basis document.
- The regulatory analysis evaluates the costs and benefits of each alternative for each area of the draft regulatory basis.
- The regulatory analysis covers all nuclear power facilities in the US that would be affected by the rulemaking.
- The preliminary draft regulatory analysis was published in the FRN on 9 May 2017 for public comment.

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# Background

- Sixteen areas are under consideration for no action/status quo, guidance development, or rulemaking in the draft regulatory basis, including:
  - **Emergency Preparedness**
  - **Physical Security**
  - **Cyber Security**
  - **Fitness for Duty – Drug and Alcohol Testing**
  - **Fitness for Duty – Fatigue**
  - **Minimum Staffing and Training Requirements for Certified Fuel Handlers**
  - **Decommissioning Trust Fund**
  - **Offsite and Onsite Financial Protection and Indemnity Agreements**
  - **Application of Backfitting Protection**
  - **Aging Management**

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# Background

- The Current Regulatory Approach for Decommissioning includes six areas of decommissioning that are considered in the draft regulatory basis for no action/status quo, guidance development, or rulemaking. These areas include:
  - **The Level of PSDAR Review and Approval by the NRC**
  - **The Appropriateness of Maintaining the Three Existing Options for Decommissioning**
  - **The 60-year Timeframe Associated with Decommissioning**
  - **The Role of State and Local Governments and Non-Governmental Stakeholders**
  - **Clarifying the Spent Fuel Management Requirements**
  - **Clarifying the Environmental Requirements**

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# Background

- The areas in which the NRC staff has determined that there is sufficient regulatory basis to continue with rulemaking are:
  - **Emergency Preparedness**
  - **Physical Security**
  - **Decommissioning Trust Fund**
  - **Offsite and Onsite Financial Protection and Indemnity Agreements**
  - **Application of Backfitting Protection**
  - **Clarifying the Spent Fuel Management Requirements**
  - **Clarifying the Environmental Requirements**

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# Background

- The NRC staff's draft regulatory basis suggests that development and update of regulatory guidance can be pursued to address the following areas:
  - **The Level of PSDAR Review and Approval by the NRC**
  - **The Appropriateness of Maintaining the Three Existing Options for Decommissioning**
  - **The 60-year Timeframe Associated with Decommissioning**
  - **The Role of State and Local Governments and Non-Governmental Stakeholders**



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# Preliminary Draft Regulatory Analysis Results

- A cost benefit analysis (CBA) was completed for each area of decommissioning.
- The CBA was quantified for the following areas of decommissioning:
  - **Emergency Preparedness**
  - **Physical Security**
  - **Cyber Security**
  - **Part 26 Drug and Alcohol Testing**
  - **Part 26 Fatigue Management**
  - **Minimum Staffing and Training Requirements for Certified Fuel Handlers**
  - **Decommissioning Trust Fund**
  - **Offsite and Onsite Financial Protection and Indemnity**
  - **Application of Backfitting Protection**
  - **Aging Management**

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# Preliminary Draft Regulatory Analysis Results

- The CBA was qualitatively described for the following areas of decommissioning:
  - **The Level of PSDAR Review and Approval by the NRC**
  - **The Appropriateness of Maintaining the Three Existing Options for Decommissioning**
  - **The 60-year Timeframe Associated with Decommissioning**
  - **The Role of State and Local Governments and Non-Governmental Stakeholders**
  - **Clarifying the Spent Fuel Management Requirements**
  - **Clarifying the Environmental Requirements**

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# Decommissioning Areas Costs and Benefits

- Emergency Preparedness
- Physical Security
- Cyber Security
- Fitness for Duty - Drug and Alcohol Testing
- Fitness for Duty - Fatigue
- Minimum Staffing and Training Requirements for Certified Fuel Handlers
- Decommissioning Trust Fund
- Offsite and Onsite Financial Protection and Indemnity Agreements
- Application of Backfitting Protection
- Aging Management

# Emergency Preparedness

Alternative	Activity	Costs	Benefits
EP-2	Rulemaking to amend regulations to provide a graded approach to emergency preparedness / emergency plan changes between levels with NRC approval	<ul style="list-style-type: none"> <li>• Rulemaking</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced exemption requests</li> <li>• Averted FEMA fees</li> <li>• Averted site specific analysis</li> </ul>
EP-3	Same as EP-2 except emergency plan changes <b>without</b> NRC approval	<ul style="list-style-type: none"> <li>• Rulemaking</li> </ul>	<ul style="list-style-type: none"> <li>• Same as EP-2, except amendment submittals are reduced</li> </ul>

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# Physical Security

Alternative	Activity	Costs	Benefits
PS-2	Rulemaking to reduce Physical Security Requirements	<ul style="list-style-type: none"><li>• Rulemaking</li></ul>	<ul style="list-style-type: none"><li>• Reduced exemption requests</li><li>• Reduced amendment submittals</li></ul>

# Cyber Security

Alternative	Activity	Costs	Benefits
CS-2	Rulemaking to remove all cyber security requirements when spent fuel has been transferred to ISFSI	<ul style="list-style-type: none"> <li>• Rulemaking</li> <li>• Labor for keeping IT staff to maintain cyber security until spent fuel has been transferred to ISFSI</li> </ul>	<ul style="list-style-type: none"> <li>• None that would lead to cost savings</li> </ul>
CS-3	Rulemaking to remove all cyber security requirements when spent fuel has sufficiently decayed	<ul style="list-style-type: none"> <li>• Rulemaking</li> <li>• Labor for keeping IT staff to maintain cyber security until spent fuel has sufficiently cooled</li> </ul>	<ul style="list-style-type: none"> <li>• None that would lead to cost savings</li> </ul>

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# Fitness for Duty - Drug & Alcohol Testing

Alternative	Activity	Costs	Benefits
DA-2	Rulemaking to amend 10 CFR Part 26 to clarify the applicability of FFD requirements for decommissioning nuclear power plants. Reduce testing of individuals with unescorted access.	<ul style="list-style-type: none"><li>• Rulemaking</li></ul>	<ul style="list-style-type: none"><li>• Reduced operational costs due to reduced requirements for Drug &amp; Alcohol Testing</li></ul>

# Fitness for Duty - Fatigue

Alternative	Activity	Costs	Benefits
F-2	Voluntary industry initiatives to account for fatigue at decommissioning power reactors	<ul style="list-style-type: none"> <li>Increased operational costs to Industry due to maintenance of fatigue programs</li> </ul>	<ul style="list-style-type: none"> <li>None that would lead to cost savings</li> </ul>
F-3	Rulemaking to codify fitness for duty fatigue requirements for decommissioning power reactors	<ul style="list-style-type: none"> <li>Rulemaking</li> <li>Increased operational costs to both NRC and Industry due to maintenance of fatigue programs</li> </ul>	<ul style="list-style-type: none"> <li>None that would lead to cost savings</li> </ul>



# Minimum Staffing & Training Requirements for CFHs

Alternative	Activity	Costs	Benefits
CFH-2	Voluntary industry initiatives for staffing and training for permanently shutdown and defueled reactors and clarify related definitions	<ul style="list-style-type: none"> <li>Develop initiatives</li> </ul>	<ul style="list-style-type: none"> <li>None that would lead to cost savings</li> </ul>
CFH-3	Rulemaking to change the regulations for staffing and training for permanently shutdown and defueled reactors and clarify related definitions	<ul style="list-style-type: none"> <li>Rulemaking</li> </ul>	<ul style="list-style-type: none"> <li>Eliminate the need for licensees to seek approval of CFH training programs</li> </ul>

# Decommissioning Trust Fund

Alternative	Activity	Costs	Benefits
DTF-2	Rulemaking to amend regulations to minimize exemptions and reduce the ambiguity in the decommissioning trust fund regulations	<ul style="list-style-type: none"> <li>• Rulemaking</li> <li>• Address shortfalls in the DTF within 3 years</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced exemption requests</li> </ul>
DTF-3	Same as DTF-2 except amend regulations to revise when specific site cost estimate needs to be submitted	<ul style="list-style-type: none"> <li>• Rulemaking</li> <li>• Update of the Site Specific Cost Estimate (SSCE)</li> <li>• Require decommissioning facilities to maintain the DTF assurance to the SSCE</li> <li>• Address shortfalls in the DTF within 3 years</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced exemption requests</li> </ul>

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# Offsite and Onsite Financial Protection and Indemnity Agreements

Alternative	Activity	Costs	Benefits
FP-2	Rulemaking to amend regulations to provide a graded reduction in risk with corresponding reductions in financial protection	<ul style="list-style-type: none"><li>• Rulemaking</li></ul>	<ul style="list-style-type: none"><li>• Reduced exemption requests</li></ul>

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# Application of Backfitting Protection

Alternative	Activity	Costs	Benefits
B-2	Update guidance documents to account for backfitting protection of a decommissioning facility	<ul style="list-style-type: none"><li>Update of NUREG-1409 and other guidance documents.</li></ul>	<ul style="list-style-type: none"><li>None that would lead to cost savings</li></ul>
B-3	Conduct rulemaking to clarify how the NRC applies the Backfit Rule to licensees in decommissioning	<ul style="list-style-type: none"><li>Rulemaking</li></ul>	<ul style="list-style-type: none"><li>Clarify when backfitting applies to decommissioning</li></ul>

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# Aging Management

Alternative	Activity	Costs	Benefits
AMP-2	Develop regulatory guidance and ensure the adequacy of inspection programs	<ul style="list-style-type: none"><li>• Develop new regulatory guidance</li><li>• Update facility procedures for inspecting passive and long-lived structures and components that supports the Spent Fuel Pool operation</li></ul>	<ul style="list-style-type: none"><li>• None that would lead to cost savings</li></ul>

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# Current Regulatory Approach to Decommissioning – Decommissioning Areas Costs and Benefits

- The Level of PSDAR Review and Approval by the NRC
- The Appropriateness of Maintaining the Three Existing Options for Decommissioning
- The 60-year Timeframe Associated with Decommissioning
- The Role of State and Local Governments and Non-Governmental Stakeholders
- Clarifying the Spent Fuel Management Requirements
- Clarifying the Environmental Requirements

# The Level of PSDAR Review and Approval by the NRC

Alternative	Activity	Costs	Benefits
DAR-2	Update guidance related to the decommissioning process	<ul style="list-style-type: none"> <li>Revise regulatory guidance</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>
DAR-3	Rulemaking to address areas related to the review of the PSDAR	<ul style="list-style-type: none"> <li>Rulemaking</li> <li>Prepare and submit PSDAR updates and support NEPA review process</li> </ul>	<ul style="list-style-type: none"> <li>None that would lead to cost savings</li> </ul>
DAR-4	Rulemaking to codify requirements for review and approval of the PSDAR	<ul style="list-style-type: none"> <li>Rulemaking</li> <li>Prepare and submit PSDAR as an amendment</li> </ul>	<ul style="list-style-type: none"> <li>None that would lead to cost savings</li> </ul>

# The Appropriateness of Maintaining the Three Existing Options for Decommissioning

Alternative	Activity	Costs	Benefits
O-2	Guidance Development / Enhancement to address various methods to decommission power reactors	<ul style="list-style-type: none"> <li>Develop and/or revise regulatory guidance</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>
O-3	Rulemaking to codify the methods available for decommissioning and establish requirements for each option	<ul style="list-style-type: none"> <li>Rulemaking</li> <li>Industry to address new regulatory requirements and submit additional information / documentation</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>



# The 60-Year Timeframe Associated with Decommissioning

Alternative	Activity	Costs	Benefits
T-2	Guidance Development / Enhancement to address the timeframe available to decommission power reactors	<ul style="list-style-type: none"> <li>Develop and/or revise regulatory guidance</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>
T-3	Rulemaking to decrease the time allowed to complete decommissioning at facilities that are not co-located with operating reactor units and establish requirements for expediting decommissioning	<ul style="list-style-type: none"> <li>Rulemaking</li> <li>NRC to conduct additional technical analyses to support a new decommissioning timeframe</li> <li>Industry to address new regulatory requirements and submit additional information and documentation</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>

# The Role of State and Local Governments and Non-Governmental Stakeholders

Alternative	Activity	Costs	Benefits
GOV-2	Guidance Enhancement to address the creation of community advisory boards at decommissioning power reactors	<ul style="list-style-type: none"> <li>Update regulatory guidance</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>
GOV-3	Rulemaking to codify a requirement that all licensees entering into the decommissioning process create a community advisory board	<ul style="list-style-type: none"> <li>Rulemaking</li> <li>Industry and Government to address new regulatory requirements and submit additional information and documentation</li> </ul>	<ul style="list-style-type: none"> <li>None that would lead to cost savings</li> </ul>

# Clarifying the Spent Fuel Management Requirements

Alternative	Activity	Costs	Benefits
SFM-2	Guidance Development/Enhancement to address the need for decommissioning licensees to consider or plan how to manage and remove spent fuel before they decommission	<ul style="list-style-type: none"> <li>Update regulatory guidance</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>
SFM-3	Rulemaking to clarify and update the regulations as they relate to requirements for a licensee to consider how it is going to manage and remove spent fuel from the site before it decommissions	<ul style="list-style-type: none"> <li>Rulemaking</li> </ul>	<ul style="list-style-type: none"> <li>May lead to less time spent on decommissioning documents submitted to NRC</li> </ul>

# Clarifying the Environmental Requirements

Alternative	Activity	Costs	Benefits
ENV-2	Rulemaking to amend the Environmental Requirements	<ul style="list-style-type: none"><li>• Rulemaking</li></ul>	<ul style="list-style-type: none"><li>• May lead to less time spent on decommissioning documents submitted to NRC</li></ul>

# Preliminary Draft Regulatory Analysis Results

- Decommissioning Areas with Sufficient Justification to Proceed to Rulemaking

Area of Decommissioning	Preferred Alternative	Total Net Benefit (2016 million dollars, 7% NPV)
Emergency Preparedness	EP-3	\$5.42
Physical Security	PS-2	\$0.38
Decommissioning Trust Fund	DTF-2	\$0.12
Offsite and Onsite Financial Protection Requirements and Indemnity Agreements	FP-2	(\$0.19)
Application of Backfitting Protection	BF-3	(\$0.65)
Clarifying the Spent Fuel Management Requirements	SFM-3	---
Clarifying the Environmental Requirements	ENV-2	---

# Preliminary Draft Regulatory Analysis Results

- Decommissioning Areas Requiring Additional Stakeholder Input

Area of Decommissioning	Alternatives	Total Net Benefit (2016 million dollars, 7% NPV)
Cyber Security	CS-2	(\$74.8)
	CS-3	(\$11.8)
FFD - Drug and Alcohol Testing	DA-2	(\$0.21)
FFD - Fatigue Management	F-2	(\$0.91)
	F-3	(\$1.57)
Minimum Staffing and Training Requirements for Certified Fuel Handlers	CFH-2	(\$0.03)
	CFH-3	(\$0.23)
Aging Management	AMP-2	(\$0.23)

# Summary of Costs

- Costs
  - Guidance Documents
  - Rulemaking
  - Extend Cyber Security into Decommissioning
  - Update of the SSCE
  - Address shortfalls to DTF within 3 years
  - Extend Fatigue Management into Decommissioning

# Summary of Benefits

- Benefits
  - Reduced Exemption requests
  - Reduced Amendment requests
  - Reduced Drug & Alcohol testing
  - Elimination of need for licensees to seek approval of the CFH training program



# Questions



# Submitting Comments

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2015-0070.
- For questions about NRC dockets please contact:
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