United States Nuclear Regulatory Commission

NRC's Role in Waste Determinations

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NRC Responsibilities Under the NDAA

- The National Defense Authorization Act (NDAA) requires DOE to consult with NRC on its non-HLW determinations in South Carolina and Idaho
- DOE must also consult with NRC for its disposal plans on waste that exceeds Class C concentrations
- NRC must monitor any on-site waste disposal to assess whether it is compliant with the performance objectives of 10 CFR 61, Subpart C (NRC's low-level waste disposal regulations)

NRC's Path Forward

- Programmatically
  - Staff is preparing to implement its new responsibilities
  - Staff will communicate its plans to the Commissioners for approval
  - NRC will increase staffing
  - NRC and DOE have finalized an Interagency Agreement for NRC's FY05 activities
  - NRC and DOE will develop Memorandum of Understanding

NRC's Path Forward (cont'd)

- Technically
  - Expect that review approach will be similar to previous waste-incidental-to-reprocessing (WIR) reviews
  - Intend to develop a Standard Review Plan for reviews
  - Visited Savannah River Site (SRS) in February for technical meetings and a site tour

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NRC's Previous WIR Reviews

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Overview

- WIR description and criteria
- NRC process for previous WIR reviews
- Summary of site-specific WIR reviews

Incidental Waste Description

- Some wastes resulting from fuel reprocessing do not need to be disposed of as HLW in order to safely manage the risks that it poses
- WIR is not considered to be HLW, but instead is low-level waste (LLW) or transuranic (TRU) waste
- Potential WIR is located at Hanford, Idaho National Engineering and Environmental Laboratory (INEEL), SRS, and West Valley

WIR Determination Criteria

- In 1993, the original three WIR criteria were in a Denial of a Petition for Rulemaking and forwarded in a letter to Hanford:
  1. Waste processed to remove key radionuclides to the maximum extent technically and economically practical
  2. Waste incorporated into a solid physical form at concentrations not exceeding Class C concentrations
  3. Waste managed so that safety requirements comparable to the performance objectives in 10 CFR Part 61, Subpart C, are satisfied
- In 1999, DOE included essentially the same three criteria in its Waste Management Program (DOE Order 435.1)
- In 2000, during a WIR review for SRS, the NRC dropped the second criterion regarding concentration, as the Commissioners instructed the staff to take a more performance-based approach
- In 2002, only two criteria in NRC's West Valley Policy Statement

NRC Involvement in WIR

- In the past, DOE has asked NRC to provide technical advice and consultation on its methodology and conclusions of WIR determinations
- NRC has reviewed WIR determinations for Hanford (1997), SRS (2000), and INEEL (2002 and 2003)
- NRC reviews generally concluded that DOE methodologies were protective of public health and safety, and offered recommendations for improvement

Past Practices for Reviews

1. DOE requests NRC review

2. NRC develops Commission paper with MOU and Interagency Agreement. NRC reviews performed on a reimbursable basis

3. DOE submits preliminary WIR determination and performance assessment (PA)

4. NRC reviews WIR determination for soundness of technical assumptions, analysis, and conclusions

Past Practices for Reviews (cont'd)

5. NRC transmits Request for Additional Information (RAI), then reviews RAI responses and revised WIR documents

6. NRC reviews revised WIR documents, develops Technical Evaluation Report (TER) and Commission paper reporting findings

7. Commissioners review and develop Staff Requirements Memorandum. TER is revised in response, if necessary

8. TER is transmitted to DOE

Hanford

- In 1997, we performed a review of waste removed from the tanks and disposed of on site
- NRC's review was based on interim information and planned DOE actions
- The staff gave a provisional agreement that it appeared that the three WIR criteria would be met

Hanford (cont'd)

- In September 2004, NRC and Hanford established a reimbursable Interagency Agreement
- NRC will review DOE's tank waste retrieval actions for Tank C-106 to determine radiological sufficiency of waste retrieval
- Requests for Additional Information were transmitted to DOE on January 19, 2005

Savannah River Site

- In 1996, DOE requested NRC review of in-place closure of Tanks 17 and 20 and general tank closure plan
- Staff originally assessed compliance with all 3 criteria, including the Class C concentration criterion
- The Commissioners determined that a more performance-based approach should be taken. Therefore, the final report to DOE states that 10 CFR 61 Subpart C can be met even if Class C concentrations are not met
- Final report was provided to DOE in 2000

Savannah River Site (cont'd)

- First review under the NDAA will be for saltstone processing and disposal
- Waste determination was submitted by DOE on February 28, 2005
- DOE has requested that NRC begin review of two tanks and an evaporator in FY05

INEEL

- In 2002, NRC reviewed WIR determination for sodium-bearing waste removed from the tanks and sent to WIPP
- In 2003, NRC evaluated in-place closure of tanks
- DOE has requested additional NRC review of closure of the tanks in FY05 under the NDAA

West Valley

- NRC has responsibilities with respect to DOE as specified by the West Valley Demonstration Project Act
- Provided WIR criteria in West Valley Policy Statement in 2002
- NRC has had limited involvement in some WIR-related activities
- Expect to review WIR determination when completed by DOE

Summary of Results

Review (year completed)	Criteria	Doses
Hanford/Waste removed from tanks and disposed on site (1997)	All 3 original criteria	Not provided in NRC report
SRS/Tanks closed in place (2000)	All 3 criteria reviewed by staff. In SRM, Commissioners stated criteria 1 and 3 would be sufficient	Public: 1.9 mrem/yr at 805 years Intruder drilling: 130 mrem/yr at 700 yrs, well at 1 m from tank farm Intruder teenager: 0.001 mrem/yr

Summary of Results, Continued

Review (year completed)	Criteria	Doses
INEEL/Sodium-bearing waste to be removed from tanks and disposed at WIPP (2002)	Criterion 1 only	Public: Not applicable Intruder: Not applicable Worker: Not provided by DOE
INEEL/Tanks to be closed in place (2003)	Criteria 1 and 3 only	Public: 1.4 mrem/yr at 890 yrs Intruder drilling at yr 100: 232 mrem for acute, 91.1 mrem/yr for chronic Intruder construction at yr 100: 0.93 mrem for acute, 26.1 mrem/yr for chronic Worker dose: 40 mrem/yr

Summary

- Experienced in performing reviews of waste determinations
- Have new responsibilities under the NDAA
- Developing an implementation plan for new activities
- Well prepared to conduct in depth technical reviews at all four DOE sites that may have incidental waste