

Planned Spent Nuclear Fuel Storage Security Rulemaking

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Agenda



- Security Regulatory Process
- Post 9/11 Security Orders
- Security Assessments
- New Regulatory Requirements
- Current Regulatory Requirements
- Stakeholder Feedback
- Rulemaking status

Security Regulatory Process

Threat

General credible threat against nuclear facilities

Adversary Characteristics

Quantification of the most likely enemy attributes used against the target

Security Assessment

Evaluate risk using credible scenarios, time constraints and response measures

Regulate Risk

Ensure appropriate security measures (barriers, controls and personnel) to prevent, contain and mitigate exposure to radioactive material

Post 9/11 Security Orders



- **Vehicle barrier systems**
- **Access authorization and fingerprinting**
- **Insider threat mitigation**
- **Emergency planning measures**
- **External land-based assault threat**
- **Improved weapons, training & communications**

Security Assessments*

**spent fuel vulnerability assessment report (SFVAR)*



- **Conducted between 2004 -2006 by Sandia National Laboratories**
- **16 scenarios examined 13 deemed credible**
- **Green finding = No immediate additional security measures**
- **Reports may be excessively conservative**
 - However results may have regulatory significance
- **ISFSI security added to regulatory agenda**

New Regulatory Framework



- In 2007 Staff proposed that instead of applying design basis threat for radiological sabotage to all SNF storage installations, licensees calculate potential dose due to releases from security scenarios at each installation
 - Dose limit would be 0.05 Sievert (5 rem) at the controlled area boundary
 - Licensees unable to meet this dose limit would need to implement a denial protective strategy*

*staff's current thinking -- replace with 'increased protective strategy'

New Regulatory Framework



- **An ISFSI specific adversary characteristics document be developed**
- **Licensees with increased protective strategies would be required to submit physical security plans***
 - *Staff's current thinking is to require all licensees to submit physical security plans for prior review & approval
 - Creates a licensing action and hearing opportunity
 - Complexity of security requirements exceed what was originally envisioned for general license

Current Regulatory Framework

- **The design basis threat (DBT) for radiological sabotage applies only to general licensed Independent Spent Fuel Storage Installations (ISFSI)**
 - Does not apply to specific licensed ISFSIs or Monitored Retrievable Storage installations
- **Protective strategy is Detect, Assess, and Communicate for all ISFSIs**
- **Security plans submitted by specific licensed facilities only**

Industry Feedback

- **Comments indicated that, if dose calculations are used, a dose limit greater than 0.05 Sv (5 rem) is preferred**
 - Dose limit greater than 0.05 Sv is possible and could simplify dose calculations
 - However, this introduces new regulatory implications
- **Knowingly exceeding 0.05 Sv at the site boundary also exceeds EPA protective action guidelines and would trigger General Emergency requirements**
 - Currently operating reactors classify emergencies up to a GE
 - ISFSI only up to Alert or Site Area Emergency (1995 ISFSI EP rule)
- **Additionally, dose values exceeding 0.25 Sv could require protecting spent fuel in a vital area**
 - Early Part 72 rulemaking established approach of two security barriers (protected area and cask wall or pool wall) due to low dose levels
 - Vital area requires increased security measures

Industry Feedback

- **Insufficient experimental validation of analytical analyses**
 - produce unnecessarily conservative and costly security regulations
- **Any significant changes to the current ISFSI protective strategy and security requirements unwarranted by current threat**
 - threat has decreased since 2001
- **DBT (design basis threat for radiological sabotage) preferred over dose-based approach**
- **Draft adversary characteristics document beyond DBT**

ISFSI Security Rulemaking Status



- **In 2011 the NRC held multiple meetings with various stakeholders**
 - Meetings were held at a range of information security levels
 - Discussed the draft regulatory (technical) basis, proposed adversary characteristics, and previous studies that underpin the security rulemaking
- **In 2012 provided status briefings presented to industry**
 - NEI Used Fuel Management Conference
 - National Nuclear Security Conference
 - Securitas ISFSI Security Conference
- **In 2013**
 - conduct proof of concept testing Jan 7-12
 - Status briefing for INMM
 - Hold an additional classified meeting Mar 7, 2013
 - Determine need for follow-on testing

ISFSI Security Rulemaking Status



- **Office of Nuclear Regulatory Research (RES) has begun a re-review of previous ISFSI security assessments and supporting info**
 - independent assessment of security studies (SFVAR)
 - Proof of concept experiment analysis
 - Phase 2 experiment in FY 2014, if needed
 - Collaborative effort with industry at an independent facility
- **NRC expects to issue further guidance documents for comment in conjunction with the publication of a proposed rule**
 - Revised draft adversary characteristics - reflecting comment resolution
 - A new guide on ISFSI and MRS physical security program
 - An update of NUREG-1619, ISFSI and MRS Security Standard Review Plan

ISFSI Security Rulemaking Status



- **Develop a Commission paper that provides updated recommendations**
 - Use a dose-based approach or DBT-based approach
 - Updated threat review/evaluation for ISFSIs and MRSs
 - Review of adversary characteristics
 - Insights from other studies
 - Insights from proof-of-concept attack modality experiments
 - Insights from post-9/11 security assessment re-reviews
 - Insights from stakeholder meetings

- Contact Information

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