From: Christian Araguas
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U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Review of the Implementation of Lessons Learned from Early Site Permits

Presentation to:

Advisory Committee on Reactor Safeguards

Sub-Committee on Early Site Permits

October 24, 2007

Agenda

- Background
- Identification of Lessons Learned
- Status of Implementation of Lessons Learned
- Questions / Comments

Background

- Review and Completion of 2 Early Site Permits (ESPs)
- Ongoing Review of 2 ESPs
- Previous ACRS Meeting on Lessons Learned

Identification of Lessons Learned

- Common Understanding Between Staff and Applicant
- Applicability of 10 CFR Part 21 "Reporting of Defects and Noncompliance" Requirements for ESP Applicants
- Applicability 10 CFR Part 50 Appendix B "Quality Assurance Criteria for Nuclear Power Plants" Requirements for ESP Applicants
- Development of Guidance to Ensure Reliability of Internet Information
- Development of Improved Guidance on Electronic Submissions of Applications

Identification of Lessons Learned

- Incorporation of ESP Definitions into Staff Guidance (Site Characteristics, Combined License (COL) Action Item, Permit Conditions, Plant Parameter Envelope (PPE))
- Development of Guidance on the Review of Performance-Based Methodology for Seismic Hazards
- Review the Development and Study of Climate Change for the Next 20 years
- Update Guidance for the Review of Hydrology
- Development of Guidance on the Treatment of the High Frequency Component of Seismic Ground Motion

Status of Implementation of Lessons Learned

- Common Understanding Between the Staff and Applicant
  - Completed Updates to Standard Review Plan (NUREG- 0800) "Review of Safety Analysis Reports for Nuclear Power Plants" March 2007
  - Issued RG 1.206 "Combined License Applications for Nuclear Power Plants" on June 20, 2007
  - Issued Part 52 rulemaking on August 28, 2007
  - Developed Office Instruction, NRO-REG-100, "Acceptance Review Process for Design Certifications and Combined License Applications" on September 26, 2007
  - Held Interactions with Industry (Design-Centered Working Group Meetings)

Status of Implementation of Lessons Learned

- Applicability of 10 CFR Part 21 "Reporting of Defects and Noncompliance" Requirements for ESP Applicants
  - 10 CFR Part 52 Provides Clarity on Applicability of 10 CFR Part 21 to ESP Applicants
- Applicability 10 CFR Part 50 Appendix B "Quality Assurance Criteria for Nuclear Power Plants" Requirements for ESP Applicants
  - 10 CFR Part 52 Provides Clarity on Applicability of 10 CFR Part 50 Appendix B to ESP Applicants

Status of Implementation of Lessons Learned

- Development of Guidance to Ensure Reliability of Internet Information
  - No Additional Guidance Has Been Developed
  - Currently Applying Previous Review Methods from North Anna, Grand Gulf and Clinton ESPs

Status of Implementation of Lessons Learned

- Development of Improved Guidance on Electronic Submissions of Applications
  - Combined all guidance documents for electronic submissions to the NRC into one document
    - Original issued on 6/28/07 in the Federal Register for public comment
    - Revision 2 issued on 10/4/07 in the Federal Register for public comment
  - Simplified PDF document submittal checklist created
  - Video Clips developed to assist users in preparing PDFs in compliance with NRC guidelines
    - Download distiller and preflight profile
    - Convert MS-Word document into PDF
    - Convert Wordperfect document to PDF
    - Pre-flight verification and document testing
  - Desk Reference Guide for PDF Document Generation

Status of Implementation of Lessons Learned

- Incorporation of ESP Definitions into Staff Guidance (Site Characteristics, Combined License (COL) Action Item, Permit Conditions, Plant Parameter Envelope (PPE))
  - The staff has created revision 1 to Standard Review Plan – 0800, section 1.0, to incorporate these definitions
  - The staff trained its reviewers on these definitions for the review of the Vogtle ESP application
- Development of Guidance on the Review of Performance-Based Methodology for Seismic Hazards
  - Incorporated into Regulatory Guide (RG) 1.208, "A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion"

Status of Implementation of Lessons Learned

- Review the Development and Study of Climate Change for the Next 20 years
  - Based on ACRS feedback, the staff has taken a proactive approach regarding potential climate changes.
    - Revised SRP 2.3.1
    - Used new approach for the Vogtle ESP
      - Considered current scientific thoughts, including the 2007 Intergovernmental Panel on Climate Change (IPCC) report
      - Analyzed long-term climate trends surrounding the site
      - Issued an open item relating to an adequate period-of-record for design basis temperatures data
    - Contacted ASCE and ASHRAE regarding climate change
    - Planning attendance at scientific conferences
    - Proposing hurricane research study

Status of Implementation of Lessons Learned

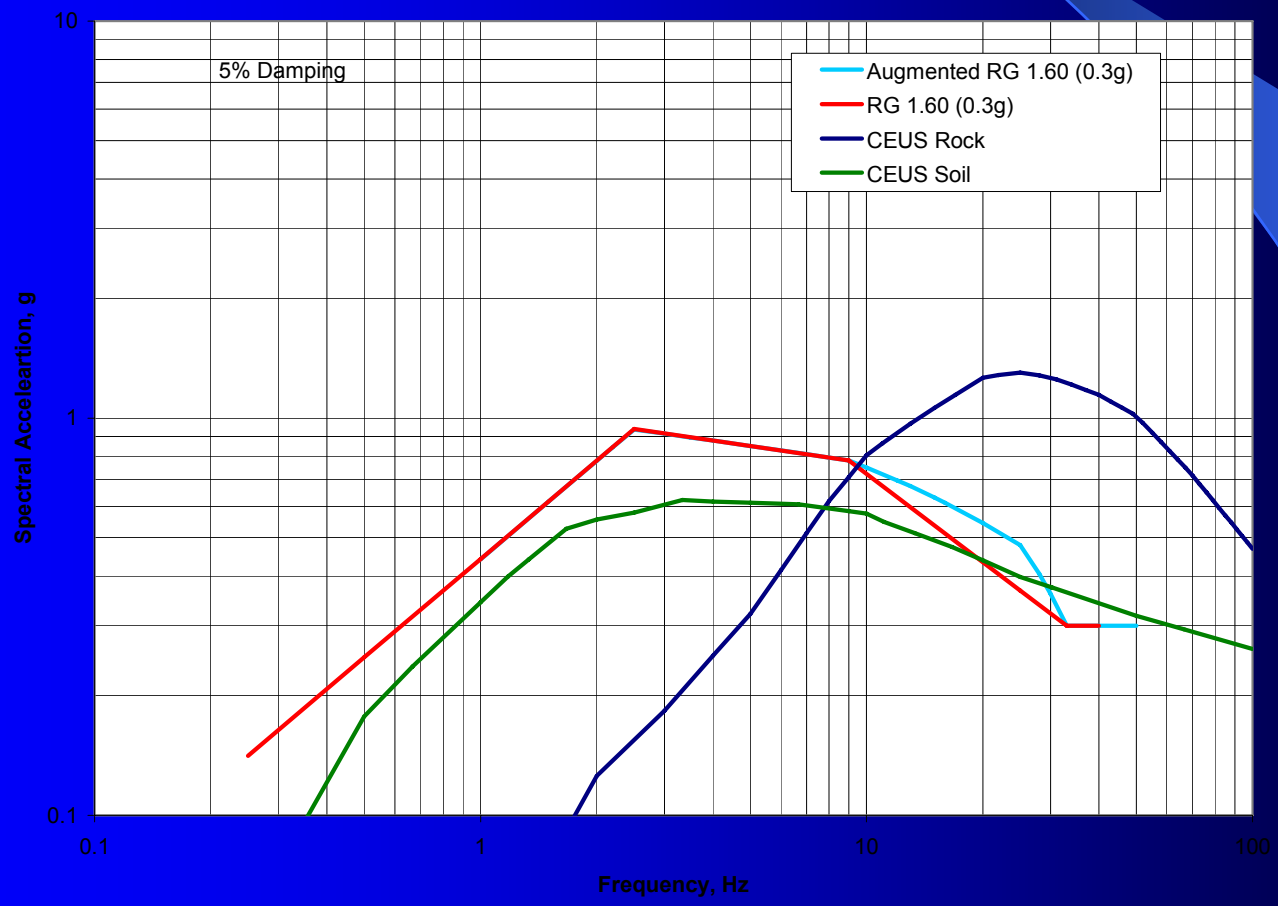
- Update Guidance for the Review of Hydrology
  - Updated SRP Section 2.4
    - Reflects a hierarchical review approach for efficient and timely reviews
    - Tsunami review guidance expanded to other effects – drawdown, erosion etc
      - Close coordination with President's National Tsunami Hazard Reduction Program
      - Participating in International tsunami workshops
      - Participating in IAEA Guidelines on Hydrological and Meteorological Hazards
    - Ice thickness evaluation approach updated
  - All site characteristic parameters must be incorporated in the SSAR
  - Updating of regulatory guide on flooding is underway

Status of Implementation of Lessons Learned

- Development of Guidance on the Treatment of the High Frequency Component of Seismic Ground Motion
  - Guidance on ground motion spectra
    - RG 1.208 and interim staff guidance
  - Extensive interaction with stakeholders
    - Industry technical studies and white papers
    - Corresponding staff review and position
  - Technical approach
    - Ground motion input using realistic incoherency effects
      - Implementation and validation of coherency function in computer codes
    - Potential increase in torsion and rocking effects on structures and in-structure response spectra

Status of Implementation of Lessons Learned

Input Ground Design Spectra

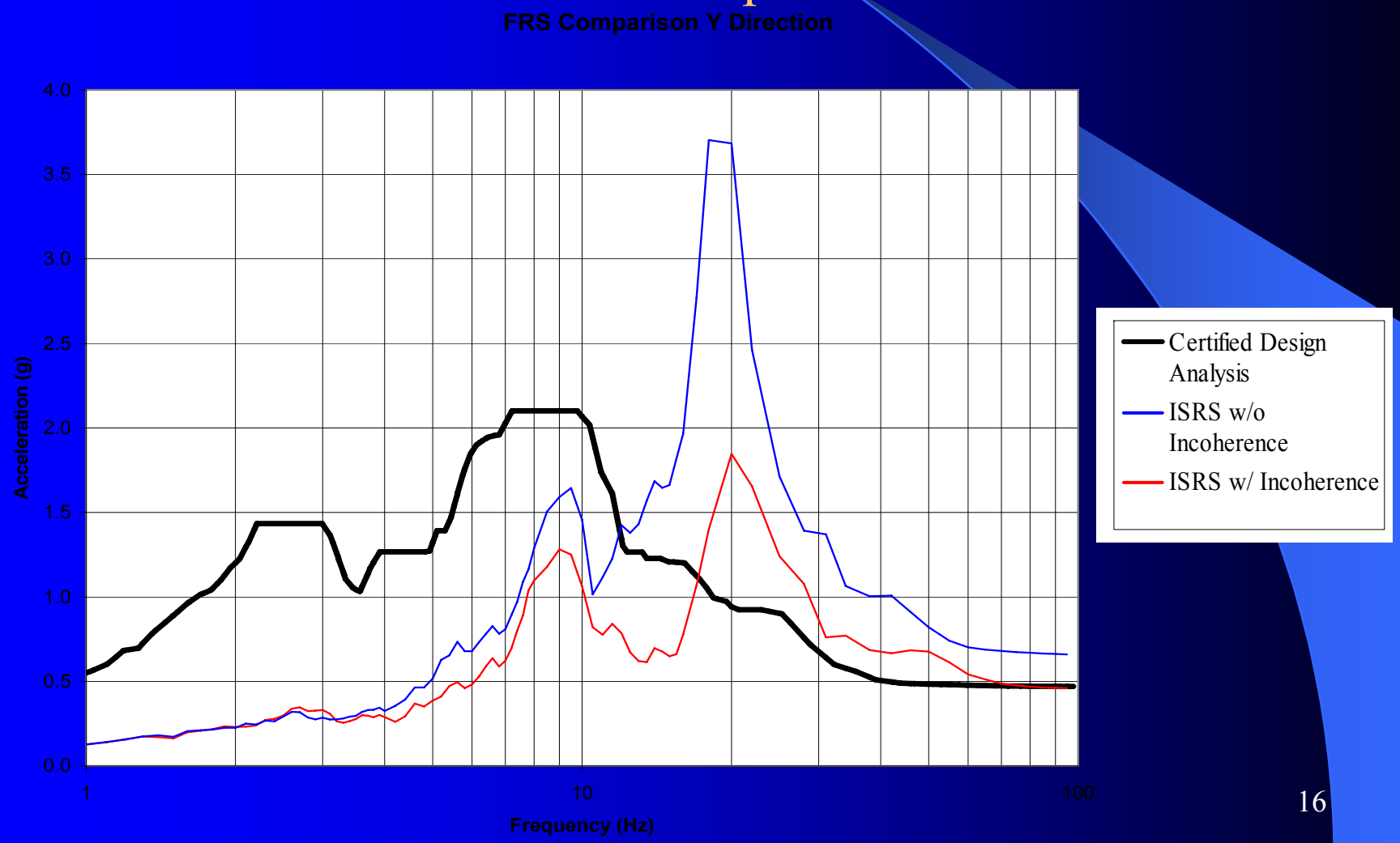


Status of Implementation of Lessons Learned

- Technical approach (Continued)
  - Scope and extent of evaluation to validate existing design for a specific site
  - Effects on sensitive equipment
    - Screening and evaluation
- Updated SRP Sections 3.7.1 and 3.7.2 and draft interim staff guidance provide a path forward

Status of Implementation of Lessons Learned

Exceedances of In-Structure Spectra Can Still Occur



Questions / Comments

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