

## **POWER UPRATE DRAFT GUIDANCE**

PUBLIC WORKSHOP  
AUGUST 23, 2001

## **OBJECTIVE**

- Perform Power Uprate Reviews in Most Optimum Manner While Maintaining Safety
  - NRC has Assigned Power Uprate Reviews a High Priority
  - NRC Staff Believes that Improvements can be Made to Shorten Review Time for all Classes of Power Uprates without Compromising Safety
  - Staff is Developing Guidance Document for Measurement Uncertainty Recapture (MUR) Power Uprates in order to help Standardize the Submittals and Review Process

## **SUCCESS**

- Reduce Review Time of MUR Power Uprates by 2 to 3 Months
- Obtain Feedback on the Following Areas in order to Finalize the Draft Guidance
  - Scope
  - Depth
  - Clarity
  - Specificity

## **POWER UPDATES**

- Measurement Uncertainty Recapture
  - 27 Applications (10 to 15 Per Year Over Next Two Years)
  - Current Process - 6 to 8 Months for Review
- Stretch Power Uprates
  - 3 Applications (1 Per Year Over Next Three Year)
  - Current Process - 9 to 15 Months for Review
- Extended Power Uprates
  - 15 Applications (4 to 6 Per Year Over Next 3 Years)
  - Monticello Review - 25.5 Months
  - Hatch Review - 14.5 Months
  - GE Topical Report Approval Estimated 18 Months for Review

## OPTIMIZING SUBMITTALS

- Standardize Format
- Simplify by Not Including Other Requests in the Power Uprate Application
- Address RAIs Asked on Previous Submittals
- Address Information Needs of the NRC Staff - Draft Guidance

## STRETCH & EXTENDED POWER UPRATES

- Extended Power Uprates
  - Conduct Lessons Learned Workshop Following Completion of First Few Application Reviews
  - Review Process to Identify Areas for Improving Efficiency
- Stretch Power Uprates - Incorporate Lessons Learned From Efforts on MUR and Extended Power Uprates

## PLANNING/COORDINATION

- Keep NRC Staff Updated on Plans for Future Uprates
- Inform the NRR Project Manager Responsible for your Plant
- Give 3 to 6 Month Lead Time for Planning Purposes

## AGENDA

- 1:00 - 1:15 Opening Remarks (B. Sheron)
- 1:15 - 2:00 Review of Draft Guidance (M. Shuaibi)
- 2:00 - 2:10 Break
- 2:10 - 3:10 Breakout Sessions
- 3:10 - 3:20 Break
- 3:20 - 4:20 Discussion/Feedback (Group Leaders)
- 4:20 - 4:30 Closing (S. Bajwa)

## BREAKOUT SESSIONS

- Five Groups
- Bullets of Significant Comments/Feedback
- Discussion of Comments/Feedback

## BACKGROUND

- MUR Power Uprates Facilitated by the 10 CFR 50, Appendix K Rulemaking Which Allowed Licensees to Use Power Uncertainty Less than 2% in LOCA Analyses
- Reduction in the Uncertainty in Power Level Has Been Achieved by Implementation of State-Of-The-Art Feedwater Flow Measurement Techniques

## BACKGROUND (Continued)

- September, 1999 - Comanche Peak 2
- June, 2000 - Appendix K Final Rule
- January, 2001 - Watts Bar
- May, 2001 - Salem 1 & 2
- May, 2001 - Staff Requirements Memorandum (SRM)
- July, 2001 - San Onofre 2 & 3
- July, 2001 - Susquehanna 1 & 2
- July, 2001 - SECY-01-0124 - Response to May, 2001 SRM
- July, 2001 - Hope Creek
- August, 2001 - Draft Guidance & Public Workshop

## APPROACH

- Standardize Format
- Eliminate/Minimize RAIs
- MUR Power Uprate Requests not Accompanied by Other Changes
- Guidance to Improve Quality of Submittals
  - Explicitly Identify Areas Affected and Areas not Affected
  - Detailed Discussion of Areas that are Affected
  - Confirmatory Information for Areas that are Not Affected
- Focus Technical Review on Flow Instrument and Areas that are Affected by the Increase in Power

## AREAS OF REVIEW

### I. Feedwater Flow Measurement Technique/Power Measurement Uncertainty

- Proposed Method
- NRC Approval
- Plant-Specific Implementation
- Criteria Identified in NRC Letter/SE Approving Method
- Total Power Measurement Uncertainty Calculation

## AREAS OF REVIEW

### II. Areas Not Affected by the Uprate

- Identify Specific Area
- Confirm
  - Existing Analyses Bound Requested Power Uprate
  - Existing Analyses Have Been Previously Approved by the NRC or were Conducted Using Methods or Processes Previously Approved by the NRC
  - Analyses of Record are not Changed by the Power Uprate
  - Bounding Event Determinations Continue to be Valid
- Provide Reference to NRC's Approvals Discussed Above

## AREAS OF REVIEW

### III. SRP Chapter 15 and Other Licensing Analyses Affected by the Uprate

- Specific Transient/Accident
- Important Inputs and Assumptions (Pre and Post Uprate)
- Limiting Event Determination
- Methodologies Used to Perform Analyses (Any Changes)
- References to Staff Approvals of the Methodologies

## AREAS OF REVIEW

### III. SRP Chapter 15 and Other Licensing Analyses Affected by the Uprate (Continued)

- Limitation/Restrictions in NRC's Approval of the Methodologies
- Sequence of Events
- Single-Failure
- Plots of Important Parameters
- Changes in Required Equipment Capacities
- Results and Acceptance Criteria (Any Change)

## AREAS OF REVIEW

### IV. Mechanical/Structural/Material Component Integrity and Design

- Guidance Provided List of Components Covered in NRC Review
- Areas to be addressed:
  - Cumulative usage factors
  - Flow induced vibration
  - Changes in temperature
  - Changes in pressure
  - Changes in flow rates
  - High energy line break locations
  - Jet impingement and thrust forces

## AREAS OF REVIEW

### IV. Mechanical/Structural/Material Component Integrity and Design (Continued)

- Reactor Vessel
  - Pressurized thermal shock calculations
  - Fluence evaluation
  - Heat-up and cooldown pressure-temperature limit curves
  - Low temperature overpressure protection
  - Upper shelf energy
  - Surveillance capsule withdrawal schedule
- Code of Record and Any Changes to the Code of Record
- Changes to Component Inspection, Testing and Erosion/Corrosion Programs

## AREAS OF REVIEW

### V. Electrical Equipment Design

- Guidance Provided List of Items Covered in NRC Review
- Areas to be addressed:
  - Capacities and Ratings
  - Loads
  - Voltages
  - Short circuit values
  - Environmental qualifications
  - Grid stability

## AREAS OF REVIEW

### VI. System Design

- Guidance Provided List of Systems Covered in NRC Review
- Power Uprate Related Effects

## AREAS OF REVIEW

### VII. Other

- Emergency and Abnormal Operating Procedures
- Risk-Important Operator Actions Sensitive to Power Uprate
- Operator Action Times
- Control Room Controls, Displays, and Alarms
- Safety Parameter Display System
- Operator Training Program and the Control Room Simulator

## AREAS OF REVIEW

### VII. Other (Continued)

- Test Program Associated with Uprate
- Final Environmental Statement

## AREAS OF REVIEW

### VIII. Changes to technical specifications, protection system setting, and emergency system setting

- Identify Change
- Analyses Affected by and/or Supporting the Change
- Justification for the Change

## LOOKING AHEAD

- Finalize and Issue Guidance
- Gain 2 to 3 Months in Duration of Reviews
- Feedback Lessons Learned from Ongoing and Future Reviews into the Guidance