License Renewal - The Second Time

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History of the License Renewal Rule, 10 CFR 54

- Issued in 1991
- Pilot work was performed on several plants
- The process was determined to not be workable
- Current revision of 10 CFR 54 issued in 1995, and has been successfully implemented

10 CFR 54 in the Future

- The current rule should continue to work, no rule change is needed
- The Integrated Plant Assessment (IPA) and other license renewal processes may be simplified for plants requesting a renewed license the second time around
- The NRC review process may also be simplified the second time around

10 CFR 54 in the Future

- A License Renewal Application (LRA) is based on the plant's Current Licensing Basis (CLB)
- The CLB for a plant with a renewed license includes the LRA, additional correspondence, the NRC Safety Evaluation Report (SER), and the NRC Supplemental Environmental Impact Statement (SEIS)

10 CFR 54

- Scoping and Screening
- Integrated Plant Assessment (IPA)
  - Aging Management Reviews
  - Aging Management Program Reviews
- Time Limited Aging Analysis (TLAA)
- Environmental Report
- Severe Accident Mitigation Alternatives (SAMA)

Scoping and Screening

- Based on the first LRA and SER, an evaluation of changes to the CLB and determination of systems, structures and components (SSC's) installed since the renewed license was issued should be sufficient
- This gap analysis results in a list of SSC's that will continue through the process

Aging Management Reviews

- Must be performed for those SSC's identified in the gap analysis for Scoping and Screening
- A review should be performed for any changes to the combination of Material, Environment, and Aging Effect identified during the first LRA, and these would have to be included in the second LRA

Aging Management Programs

- A review should be performed for the effectiveness of the AMPs credited in the first LRA
  - Weaknesses should be identified and addressed through the Corrective Action Process
  - Current Operating Experience review identifies any changes, trends, or new issues
- Any new AMPs for the SSC's identified in the gap analysis for Scoping and Screening should be identified and reviewed in the second LRA

Time Limited Aging Analysis

- No change to existing regulatory process
  - TLAAs will have to be evaluated to go from 60 to 80 years, just like going from 40 to 60
  - There may be some areas for some plants that will be problematic for 80 years that were not for 60 years, e.g.,
    - Environmental Qualification
    - Neutron Embrittlement
    - Metal Fatigue

Environmental Reviews

- No Expected Changes to the review process
- Timely or more frequent update of the GEIS will be important

Severe Accident Mitigation Alternatives

- SAMA will not be required for the second LRA because SAMA was performed for the first renewal

Material Aging Issues from License Renewal Perspective

- Neutron Fluence of the Reactor Vessel and Internals
  - May become an issue with current knowledge and regulatory requirements
  - Research needed in several areas
    - Annealing the reactor vessel
    - Replace the reactor vessel
    - New analysis techniques

Material Aging Issues from License Renewal Perspective

- Thermal Fatigue of reactor vessel and reactor coolant system
  - May become an issue with increased time
  - Good data collection in first 60 years may avoid problems later
  - Research for Environmentally Assisted Fatigue

Material Aging Issues from License Renewal Perspective

- Environmental Qualification
  - Some components that were good for 60 years may not be good for 80 – research to address component qualification may be needed, e.g.,
    - Electrical cables

License Renewal - The Second Time

- Conclusion
- Questions