

RIC 2001 License Renewal, Session #W7



Aging Research & Public Confidence

Dr. Edwin Lyman

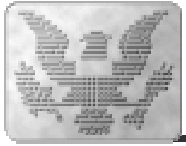
Nuclear Control Institute

March 14, 2001



How to Maintain Public Confidence in Aging Research

- RES must have the capability to confirm results of industry research
- Public access to both data and analysis used in decision-making must be maximized
- Goal of NRC research should be to increase knowledge, not to reduce conservatism
- RES must have the freedom and resources to explore new issues
- Risk significance of license renewal approach should be assessed --- and PRAs "aged"



Example: Risk-Significance

- LR emphasis on current licensing basis neglects impact of aging on beyond-design basis accident risk
- For instance, management of containment aging may preserve design-basis but erode defense-in-depth ($CCFP < 0.1$ for $f > 1 \times 10^{-6}$)
- NRC has authority to consider risk issues in LR but doesn't have the tools

Example: The Impact of MOX Fuel use on the Catawba and McGuire License Renewal

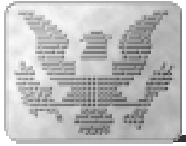


- Use of MOX fuel will increase fast neutron fluence by about 10%
- This effect could
 - accelerate embrittlement of vessel --- effective mitigation through low-leakage fuel management may not be possible
 - promote embrittlement, IASCC and void swelling of internals



MOX and License Renewal (cont.)

- PTS Screening Criteria may need to be revised for MOX fuel:
 - Lower decay heat after scram results in more rapid RCS temperature drop during overcooling transients
 - Greater actinide and ruthenium inventories imply higher consequences of air-oxidation source term (per ACRS letter)



MOX and License Renewal (cont)

- MOX LA applications expected in 2005
- Irradiation period from 2008-2023
- Duke not planning to consider MOX impact on TLAAs in Catawba and McGuire LR submittals
- MOX impacts could affect ability of RPV to meet screening criteria at end of LR period, especially for McGuire 1
- Issue needs to be addressed by RES sooner, rather than later