Risk Communication Case Study
Normal Operations:
Seabrook Station License Renewal

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Background

Reactor License Renewal

– NRC grants nuclear power plants 40 year operating licenses; Companies can apply to NRC for 20 year renewals
– NRC’s typical review takes about 22 months
  – Safety review ensures plants can manage the effects of aging during a period of extended operation
    » The review is not a re-licensing – NRC does not look at all of the issues as it would for a new license
  – Environmental review determines whether impacts are so great that renewal would be unreasonable
  – Anyone can request a hearing before an adjudicatory board, called an Atomic Safety and Licensing Board Panel
– Typical outreach activities:
  – Meetings with those living and working near plant and local officials
  – Press releases
  – Publicly available documents
  – Media outreach
  – Social media
  – Webpage
License Renewal Process

- 94 reactor licenses renewed
- Renewal applications for 4 additional units expected
- Applications for 5 units under NRC review for a second license renewal
Background

Seabrook Station

– Owned by NextEra Energy
– Located in northeastern U.S.
– Single-unit pressurized water reactor
– Commercial operation in 1990
– Generates about 1250MWe
– About 118,000 people live within 10 miles (about 16 km) of the plant in two states
– Submitted license renewal application in 2010 for a renewed license that would expire in 2050
– Identified concrete degradation affecting plant structures
Concrete Degradation

• Alkali-silica Reaction (ASR)
  – ASR is a chemical reaction in concrete that occurs over time in the presence of water
  – While preparing to submit a license renewal application, plant workers found some below-grade concrete structures with fine random cracking that was later determined to be caused by ASR
  – NextEra’s analysis showed structures were “operable, but degraded,” which allowed continued operation
  – This issue required NextEra to request the NRC amend its current license to reflect current plant conditions; and have an acceptable plan to manage ASR during the period of extended operation for license renewal to be approved
Stakeholders

– Plant workers and the industry
– U.S. Congress
– State/local officials
– Public interest groups
– General public/local residents
– Media
Stakeholder Concerns

• They believed:
  – The degraded concrete could cause an accident that had a radiological release
  – If the license were renewed, NRC would be allowing an “old, brittle” plant to operate
  – The license renewal process should consider all of the areas considered in initial licensing
  – The existence of ASR should preclude the agency from renewing the plant’s license
Communication Methods

– Formal meetings between NRC staff and public/elected officials and government entities such as local towns and state officials
– Open houses – casual meetings for one-on-one discussions (brochures, pamphlets and posters to convey information)
– Meetings with company officials that stakeholders could observe
– News releases
– Newspaper advertisements
Communication Methods

• Dedicated webpages on NRC website
Communication Methods

– Editorial board meetings
– Media availabilities
– Letters to the Editor
– Social Media
  • Twitter/Facebook/blog
– Routine communications with public/local groups
  • Telephone calls
  • Emails
  • Letters
Key Messages

For license renewal

• NRC will ensure that the safety of Seabrook will continue to be maintained before renewing the license by ensuring that aging effects will be adequately managed, and that the plant’s licensing basis will be maintained.

• Before a new license is issued, the NRC will complete a safety evaluation report and an environmental impact statement to document the technical and legal basis for granting a new license for up to an additional 20 years.

• NRC will ensure that license renewal is a transparent process and that the public has access to information and opportunities to comment on the basis for granting a renewed license.

After identifying ASR

• NextEra found Alkali-silica reaction degradation in concrete structures, which can cause expansion and cracking in concrete, which results in structural issues.

• NRC has reviewed NextEra’s preliminary evaluation and found it acceptable for continued operation.

• NextEra is continuing its analysis of the issue. The NRC’s continued oversight will ensure safe operation of Seabrook Station.

• The staff will not make a decision on license renewal before it fully understands both the issue with ASR-affected structures and NextEra’s plan to address it.
Key Messages

Final Key Messages

• NRC has approved NextEra’s application for renewal of the operating license for Seabrook Station.

• Following a lengthy 8-year review, the NRC staff has concluded that NRC requirements for renewing the Seabrook license have been met.

• NextEra’s programs to manage age-related degradation - including for ASR affected structures - provide reasonable assurance that Seabrook can be operated for the period of extended operation without undue risk to the public.
Implementation Challenges

– Keeping stakeholders informed and up-to-date
– Helping technical staff use “plain language”
– Helping reporters understand license renewal process/technical issues to write accurate stories
– Explaining complex technical/regulatory issues to stakeholders
– Impact of Fukushima accident on public’s perception of nuclear plant safety
Resources Needed

– Effective communication with stakeholders requires significant staff time/planning – more than public affairs staff needed
– Dedicated web pages require IT staff involvement
– Renting meeting space
– Travel/accommodations for staff
– Buying advertisements
Outcomes

Communicated with all interested stakeholders

- Explained NRC’s process and decision-making
- Adapted outreach efforts to reflect stakeholder concerns and emerging issues

Renewed license was granted

- Stakeholders understood what we were doing and why, even if they didn’t agree with our decision
Lessons Learned

– Communicate early and often
– Dedicated webpages for both license renewal and concrete degradation provided a central location for documents on the issues
– Public meetings contributed to a continuing dialogue and a more informed public
– Helping reporters understand NRC’s processes and technical issues led to more accurate reporting
Lessons Learned

– Photos/graphics helped explain technical issues
– Making subject-matter experts available to the public helped keep them informed of the agency’s review of ASR and license renewal and built credibility
– Public meetings and open houses allowed staff to talk with stakeholders to understand their concerns
Lessons Learned

• You can’t convince people you’re making the right decision; you can help them understand your basis for the decision