



Results of Self Assessment of License Renewal Application Improved Safety Review Process

**Jake Zimmerman
July 21, 2005**

1



Agenda

- **Background**
- **Self Assessment Process**
- **Results/Recommendations**
- **Conclusion**

2



Background

- Improved Safety Review Process
- Why?
- Pilot Plants
 - Farley
 - ANO-2
 - D.C. Cook

3



Self Assessment Process

- Objective
- Methodology & Scope
- Recommendations

4



Results/Recommendations

- **Communications**
- **Guidance Documents**
- **Staff Documents**
- **Project Team Composition**
- **Schedule and Resources**
- **Training**
- **Other Areas**

5



Communications

- **Enhance internal communications**
- **Enhance external communications**

6



Guidance Documents

- **Project Team Documents**
- **GALL Report**
SRP-LR
Draft Regulatory Guide

7



Staff Documents

- **Audit Reports**
- **Safety Evaluation Reports**
- **Requests for Additional Information**

8



Project Team Composition

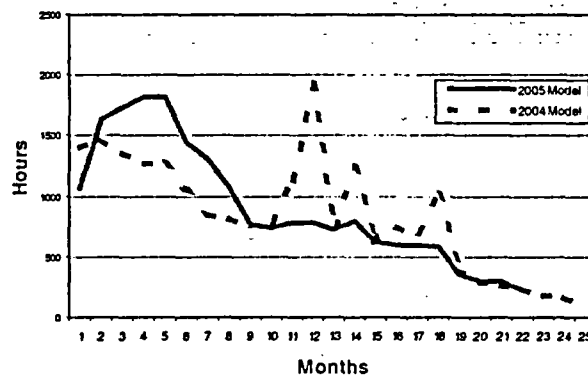
- RLEP-B Project Teams
- DE technical support
- Project Manager Support

9



Schedule/Resources

LRA Review Model - Equivalent Staff Hour
Monthly Expenditure Rate



10



- On-the-job
- Refresher



Other Areas

- DIPM Methodology Audit
- Exceptions to the GALL Report
- Scoping & Screening

13



Industry Focus

- High quality applications
- Licensee resources
- Responsiveness to staff RAIs

14



Conclusion

- Improved process is a success
- Implementation of the recommendations
- Improved effectiveness and efficiency



Kathy Weaver IMPLEMENTATION ACTION PLAN

For Recommendations Identified During the Self
Assessment of License Renewal Application
Improved Safety Review Process

1



Recommendations

- **Purpose of Recommendations**
 - Further enhance the efficiency and effectiveness of the overall license renewal application review process.
 - **7 areas of focus**
 - Communications – 7 total
 - Guidance Documents – 5 total
 - Staff Documents (Audit Reports, SERs, & RAIs) – 12 total
 - Project Team Composition – 3 total
 - Schedule and Resources – 12 total
 - Training – 1 total
 - Other Areas – 3 total

2



Initial Evaluation

The Recommendations were evaluated to determine if the suggested improvements involved changes to enhance the current processes, guidance documents, training practices, or some other refinements that would improve our current performance.

3



Initial Evaluation

Discussions with applicable staff members

- to determine underlying issues or areas for improvements**
- to add clarity to the suggested improvements**
- or obviate the need for further improvements due to actions already taken.**

4



Initial Evaluation

Review of the Self Assessment Report, guidance documents, and any immediate actions already taken in response to the recommendations.

5



Status of Implementation of Recommendations

- **24 Recommendations have already been implemented.**
- **19 Recommendations remain open pending further evaluation. These 19 recommendations are currently being tracked to completion and are identified in the Recommendation and Action Item Cross Reference Table.**

6



- Questions and/or Comments are appreciated



License Renewal Application Review Work Packages

Dan Merzke

NRR/DRIP/RLEP

Thursday, July 21, 2005



LRA Review Work Packages

- Purpose: Improve efficiency
- How: High consistency with GALL (>90%)
 - More AMR line items reviewed by audit team
 - Common "material/environment/aging effect/AMP" combinations should need only one review
 - More focused review
- Same work assignments, different packaging



Work Package Assignments

- Audit team
 - AMPs consistent with GALL
 - AMRs consistent with GALL (Notes A-E)
 - Past precedent
- DIPM – Scoping & Screening Methodology
- DSSA – Scoping
- DE
 - AMPs not consistent with GALL (and emerging issues)
 - AMRs not consistent with GALL (Notes F-J)
 - TLAAAs (except GALL programs)

3



Work Package Examples

- Electrical AMRs
- Fire Protection AMRs
- Concrete AMRs
- Copper Alloy in HX AMRs
- Metal Components (Structures) AMRs
- Non-Metallic Component AMRs

4



Work Requests

Work Request

Monticello License Renewal Application

DE/EMEB-B

Package 17 - Concrete AMR Line Items

Target Date for RAI Inputs DUE to RLEP _____

SC Concurrence _____, Date _____

SC Name Kamal Mandy, Organization DE/EMEB

Target Date for SER Inputs DUE to RLEP _____

SC Concurrence _____, Date _____

EMEB reviewers will review the Concrete AMR line items with Notes F - J (shaded items) for the Monticello LRA and provide input to the SER.

5



Example

Component	Intended Function	Material	Environment	Aging Effect	AMP	GALL Vol. 2	Table 1	Notes
Foundation, Walls (HPCI building)	Flood barrier, Pressure boundary	Reinforced concrete	Below Grade	None	None	III A2.1-h	3 5.1-25	I, 508
Foundation, Walls (EDG building)	Flood barrier, safety-related support	Reinforced concrete	Below Grade	None	None	III A3.1-h	3 5.1-25	I, 508
Foundation, Walls, Slab, Grout (Turbine Building)	Fire barrier, Flood barrier, HELB barrier	Reinforced concrete, Grout	Air/Gas	None	None	III A3.1-j	3 5.1-27	I, 508
Foundation, Walls, Slab, Grout (Reactor Building)	Flood barrier, missile barrier, radiation shielding	Reinforced concrete, Grout	Air/Gas	None	None	III A2.1-j	3 5.1-27	I, 508

6



Example (continued)

- 293 reinforced concrete AMR line items total
- 64 reinforced concrete AMR line items assigned to DE
- 14 – reinforced concrete, below grade, no aging effect, I, 506
- 13 – reinforced concrete, air/gas, no aging effect, I, 508

7



Work Packages

- Hours tracked to determine if efficiencies are being realized
- Bottom Line: LRA Review process is still evolving. Applications consistent with the GALL report should make the safety review more efficient.

8

Plant:	A	B	C	D	E
Type:	PWR-DRYSUB	PWR-DRYSUB	PWR-DRYAMB	PWR-ICECND	PWR-DRYSUB
NSSS:	WEST 3LP	WEST 3LP	WEST 3LP	WEST 4LP	WEST 4LP
A/E	S&W	S&W	SSI	AEP	S&W
Sys Name:	Safety Injection	Safety Injection	Emergency Core Cooling	Emergency Core Cooling	Safety Injection
	Pipe	Pipe	Piping	Piping	Pipe
	Bolting	Bolting	Closure Bolting	Bolting	Bolting
	Flow Element	Flow Element	Flow Element		Flow Elements
	Pump Casings	Pump Casings	High Head & RHR Pump Casings	Pump casing	Pumps
	Accumulators (and cadding)	Accumulators (and cadding)	Safety Injection Accumulators	Tank (including accumulators)	SI Accumulator Tanks
	Valve Bodies	Valve Bodies	Valve Bodies	Valve	Valves
	Tank	Tank	Refueling Water Storage Tanks	Tank (including accumulators)	
	Instrument Valve Assemblies	Instrument Valve Assemblies			
	Sump Screens	Sump Screens			
	Tubing	Tubing		Tubing	Tubing
	Flow Orifices		Flow Orifice	Orifice	Restricting Orifices
	Pump Seal Coolers				
			RHR Heat Exchanger	Heat Exchanger	
				Filter Housing	
				Flex Hose	
				Manifold (piping)	
			Oil Cooler (channel head) (tubes)		SI Pump Lube Oil Coolers
			Vortex Breaker		
				Strainer Housing	Filter/Strainers
				Thermowell	
					SI Pump Lube Oil Reservoirs



Online License Renewal Orientation



www.nrc.gov

Saiwah Ng

July 21, 2005

NRC Home Page - Microsoft Internet Explorer provided by USNRC

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Home

Address: http://www.nrc.gov/

Home | Site Map | FAQ | Help | Glossary | Contact Us

U.S. Nuclear Regulatory Commission

Protecting public health and safety through regulation of nuclear power and the civilian use of nuclear materials

Home | Who We Are | What We Do | Licensing | Nuclear Materials | Regulatory Waste | Facility Info | Public Involvement | Electronic Reading Room

Report a Safety Concern
Radiation Protection
Employment at NRC
Contracting with NRC
FOIA Requests
License Fees
NRC Forms
Electronic Submittals (Including HLW filings)

Access to NRC's Web-based ADAMS document library has been restored. Links elsewhere on the NRC Web site to documents in ADAMS may still result in error messages because some formerly public documents are still being reviewed.

Event Reports
Public Meetings
Current Rulemaking
Hearing Opportunities
News & Info
For the Record
New at Our Web Site
Fact Sheets and Brochures

Key Topics
Safety and Security Improvements at Nuclear Plants
Nuclear Security
Emergency Preparedness
High-Level Waste
Reactor License Renewal
Spent Nuclear Fuel
Plans, Budget, and Performance
Performance and Accountability Reports

for Students & Teachers
FIRST STEP
Regulations.gov
INFORMED DECISION
Nuclear Safety

News Releases

July 13, 2005

- [NRC Approves Expedited Procedures for Permitting Higher Dose Limits for Patient Care Centers](#)

July 11, 2005

- [NRC Seeks Topic Suggestions for Next Year's Regulatory Information Conference](#)

More News Releases

NRC: Reactor License Renewal - Microsoft Internet Explorer provided by USNRC

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

http://www.nrc.gov/reactors/operating/licensing/renewal.html

U.S. Nuclear Regulatory Commission

Home | Status | FAQ | Help | Glossary | Contacts

Search Advanced Search

Home | Nuclear Reactors | Operating Reactors | License Renewal

Reactor License Renewal

This section of our site describes the process, regulations, guidance, opportunities for public involvement, and status of current activities associated with renewal of licenses for commercial operating power reactors.

- [Introduction](#)
- [License Renewal Process](#)
- [Regulations](#)
- [Guidance](#)
- [Public Involvement](#)
- [Commission Papers Presenting Staff Recommendations](#)
- [Status of Current Activities](#)
- [Introduction to License Renewal Tutorial](#)

Privacy Policy | Site Customer

Last re. sed Wednesday, July 13, 2005

NRC: Introduction to License Renewal Tutorial - Microsoft Internet Explorer provided by USNRC

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

http://www.nrc.gov/reactors/operating/licensing/renewal/introduction.html

U.S. Nuclear Regulatory Commission

Home | Status | FAQ | Help | Glossary | Contacts

Search Advanced Search

Home | Nuclear Reactors | Operating Reactors | License Renewal | Introduction

Introduction to License Renewal Tutorial

License renewal rests on the determination that operating plants continue to maintain adequate levels of safety and, over the plant's life, this level has been enhanced through maintenance of the licensing bases, with appropriate adjustments to address new information from industry operating experience. Additionally, NRC activities have provided ongoing assurance that the licensing bases will continue to provide an acceptable level of safety. The license renewal review provides an independent examination, asking the following questions:

- Does the reactor operator understand the effects of aging on critical safety components?
- Has the operator taken appropriate actions to assure safe operation?

The following topics will explain the entire license renewal process:

- [Orientation](#)
- [Safety](#)
- [Inspections](#)
- [Environmental Impact](#)
- [Hazard](#)
- [Decision](#)
- [Process](#)

NRC: Reactor License Renewal Safety - Microsoft Internet Explorer provided by USNRC

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites Media Print Copy Paste

Address http://www.nrc.gov/reactors/operating/learning/renewal/introduction/safety.html

Significant Commission Determinations for License Renewal Rule

- Regulatory process is adequate for ensuring safety of operating plants
- Issues relevant to current operating plants will be addressed by the regulatory process and carried forward into the period of extended operation
- Completion of the current licensing basis (CLB) or reverification of CLB compliance is not necessary for a license renewal review. CLB carries forward into the period of extended operation
- Focus of renewal review is passive, long-lived structures and components and time-limited aging analyses
- Focus on managing the effects of aging during the period of extended operation

Scope of Rule (10 CFR 54.4)

- Safety-related systems, structures, and components relied upon to
 - Maintain integrity of the reactor coolant pressure boundary
 - Ensure capability to shut down and maintain a safe shutdown condition
 - Prevent or mitigate offsite exposures comparable to 10 CFR Part 100
- Non-safety-related systems, structures, and components whose failure could prevent safety related function as outlined above
- Systems, structures, and components relied upon for compliance with regulations:
 - Fire protection (10 CFR 50.49)
 - Environmental qualification (10 CFR 50.49)
 - Pressurized thermal shock (10 CFR 50.61)
 - Anticipated transients without scram (10 CFR 50.62)
 - Station blackout (10 CFR 50.63)

Contents of an Application

- Integrated Plant Assessment (10 CFR 54.21(a)(1))
 - Identify and list structures and components subject to an aging management review (AMR):
 - Perform intended function without moving parts or without a change in configuration or mechanical stresses

NRC: Reactor License Renewal Safety - Microsoft Internet Explorer provided by USNRC

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites Media Print Copy Paste

Address http://www.nrc.gov/reactors/operating/learning/renewal/introduction/safety.html

For reviewing the RALs to verify that they are within the scope of the license renewal rule. In accordance with Office Instruction 101, the project manager will send the draft RALs to the applicant and hold conference calls with the applicant and technical staff, if necessary, to clarify the questions before the RALs are issued.

- Safety Evaluation Report (SER)
 - The SER will provide the technical and legal basis for the NRC's disposition of a License Renewal Application. The level of detail should be commensurate with the requirements of the rule and consistent with the guidance in the Standard Review Plan. The SER should document the bases for the staff's conclusions and provide sufficient information to explain the staff's rationale to someone unfamiliar with the licensee's application.
 - The SER is assembled by the project manager with inputs from the audit, and technical staff.

Documentation of Staff Evaluation

- Audit and review report for the on-site audits and review
- Inspection reports from the regional inspectors
- Safety Evaluation Report (SER)

Safety Review

Take the Review

Privacy Policy | Site Disclaimer
Last revised Wednesday, July 13, 2005

NRC: Reactor License Renewal Review - Microsoft Internet Explorer provided by USNRC

File Edit View Favorites Tools Help

http://www.nrc.gov/res/resour/standards/licensing/renewal/introduction/renew.html

Safety Review

- What is the focus of a safety review?
 - Management of aging effects on the plant structures and components
 - Design of the plant structures and components
- Are structures and components relied on for emergency operating procedures (EOP) within the scope of license renewal?
 - Yes
 - No
- Why is the aging management of "active" structures and components not addressed?

Safety Review - Question 5

The correct answer is b. No. GALL is one acceptable way to managing aging if it is applicable to the plant.

4. The plant's current licensing basis states "maximum wind speed of 100 mph is expected to occur once per 50 years." Is this a time-limited aging analysis?

- Yes
- No

- Must an applicant meet everything in the GALL report?
 - Yes
 - No
- Determine whether the following statements are true:
 - The staff uses the information in the Standard Review Plan as guidance in its review.
 - The applicant uses the information in the regulatory guide as guidance in preparation for its application.

Summary

- www.nrc.gov
 - Key Topics / Reactor License Renewal
 - Introduction to License Renewal Tutorial
 - Safety
 - Inspections
 - Environmental Impact
 - Hearing
 - Decision
 - Review (Quiz)