BWROG Overview

BWROG –NRC Management Meeting
September 15, 2005
Rockville, MD

Lewis Sumner (Southern Nuclear)
BWROG Executive Chairman
Joe Conen (DTE Energy)
BWROG Chairman
Randy Bunt (Southern Nuclear)
BWROG Vice-Chairman

Topics

- BWROG Overview
- Option 3 – Separation of LOOP and LOCA
- Regulatory Guide 1.97
- Extended Power Uprate
- Recirc Pump Vibration

BWROG Focus Areas

BWR PERFORMANCE

- Safety
- Reliability
- Efficiency

BWROG PERFORMANCE

- Product focus on improving fleet performance
- Product usability and effectiveness

BWROG Resources

FINANCIAL RESOURCES

- 2003 – $5,775,600
- 2004 – $6,272,500
- 2005 - $6,706,400 Projected

LEADERSHIP AND TECHNICAL RESOURCES

- Approximately 100 utility people in leadership roles
- Several hundred more people involved in BWROG activities

BWROG Initiatives

RADIATION PROTECTION AND ALARA

- Committee has functioned for 15 years to devise and share practices for improving performance
- Occupational Exposure has been reduced by 60%

SCRAM FREQUENCY REDUCTION

- Committee tracks 32 formal recommendations developed over 20 years
- BWR SCRAM rate has been reduced by over 60% since 1991

Approximately $1,000,000 has been committed to each of these activities; all BWROG members participate

BWROG-NRC Initiatives

- ECCS Suction Strainers
- Joint Owners' Group MOV Periodic Verification (GL 96-06)
- DC Motor Operated Valve Methodology
- Reduction in response time testing for instrumentation
- Reduction in testing for excess flow check valves
- Elimination of Loose Parts Monitoring System

BWROG–NRC Initiatives

DETECT AND SUPPRESS - II

- Activity initiated in 2001 to resolve methodology issues associated with thermal-hydraulic stability
- New guidelines for calculating plant specific parameters have been developed to resolve these issues
- Approximately $2,600,000 has been committed to this activity, to date

RISK INFORMED TECH SPECS

- Initiated Activity in 1999 to join with other Owners' Groups and NEI in developing Risk Informed Improvements to Technical Specifications
- Several of these initiatives have been approved and implemented by our members
- Additional initiatives are nearing final approval
- Approximately $2,600,000 has been committed to this activity, to date

BWROG Mission

- ***The mission of the Boiling Water Reactor Owners' Group (BWROG) is to provide a forum, in the spirit of partnership with General Electric, which allows its member utilities to maintain and improve plant safety, achieve higher plant reliability, minimize and share costs, facilitate regulatory interaction, and effectively apply limited technical resources for mutual resolution of issues applicable to two or more members***

OPTION 3 LOOP/LOCA

Option 3 LOOP/LOCA

BACKGROUND

- July 2001: SECY-01-0133 –Supports voluntary alternative to 10 CFR 50.46 for ECCS reliability in place of the simultaneous loss of offsite power requirement and single failure criterion
- July 2002: RES recommendation to eliminate design requirement for coincident LOOP/LOCA
- March 2003: Commissioners directed that rulemaking proceed; relax requirements for coincident LOOP/LOCA
- April 2004: BWROG submitted LTR NEDO-33148, "Separation of Loss of Offsite Power from Large Break LOCA"
- April 2005: NRC informed BWROG that LTR review to begin October 2005, with RAIs by December 5

Option 3 LOOP/LOCA

BWROG INITIATIVE

- BWROG initiated activity supporting separation of LOOP and LOCA in 2001
- Approximately $2,600,000 has been committed to this effort, to date; significant additional BWROG and pilot utility resources will be required to complete this effort
- BWROG sees potential for significant improvements in safety, reliability, and efficiency in this initiative, as described in the LTR
- BWROG will work with staff to determine schedule for remaining activities as NRC review is initiated in October

REGULATORY GUIDE 1.97 ACCIDENT MONITORING INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

BACKGROUND

- Regulatory Guide (RG) 1.97 was revised based on lessons from TMI Unit 2
- Individual BWR licensees worked with the NRC to develop plant specific approaches for implementing RG 1.97
- This resulted in different accident monitoring requirements among BWRs

ACCIDENT MONITORING INSTRUMENTATION

BACKGROUND (CONT)

- IEEE Std 497-2002 developed process for establishing accident monitoring instrumentation criteria
  - Based on plant accident analysis and Emergency Operating Procedures (EOPs)

ACCIDENT MONITORING INSTRUMENTATION

NRC DRAFT REGULATORY GUIDE DG-1128

- Released for review in August
- Endorses IEEE Std 497-2002 methodology for establishing accident monitoring requirements
  - Clarifies requirements for use
- BWROG plans to review and provide comments

ACCIDENT MONITORING INSTRUMENTATION

PHASE 1 OF COMMITTEE ACTIVITY

- Share information on implementation of current accident monitoring requirements
- Perform review of application of IEEE Std 497-2002 using safety analysis and EOPs

ACCIDENT MONITORING INSTRUMENTATION

PHASE 2 OF COMMITTEE ACTIVITY

- Dependent on Phase 1 results, develop Topical Report to propose changes to existing BWR RG 1.97 requirements

- Pre-submittal meeting to be held before proceeding with final Topical Report

ACCIDENT MONITORING INSTRUMENTATION

SUMMARY

- RG 1.97 Committee formed to address accident monitoring requirements
- IEEE Std 497-2002 process being reviewed for application in BWR Fleet
- NRC DG-1128 endorses IEEE 497-2002 process with clarification
- BWROG intends to work with NRC on development of revision to RG 1.97 using DG - 1128

Extended Power Uprate

Extended Power Uprate

PURPOSE OF PRESENTATION

- Provide status of recent Industry activities
- Provide status of SIL 644 and NEDC- 33159, "EPU Lessons Learned and Recommendations"
- Discuss planned activities

Extended Power Uprate

BWROG EPU COMMITTEE OBJECTIVES

- Ensure that EPU operating experience and lessons learned are incorporated into power uprate programs to assure safe and reliable operations

Extended Power Uprate

RECENT INDUSTRY EPU ACTIVITY

- SIL 644 Revision 1 issued November 11, 2004
  - Includes inspection and evaluation guidance and BWROG moisture carryover operational guidance

- NEDC-33159, "EPU Lessons Learned and Recommendations" issued on November 23, 2004. Distributed to:
  - NRC
  - INPO
  - B&W Owners' Group
  - NEI
  - EPRI
  - Westinghouse Owners' Group

Extended Power Uprate

RECENT INDUSTRY EPU ACTIVITY

- BWRVIP-139
  - Steam Dryer Inspection and Flaw Evaluation Guidelines published in April 2005
- BWRVIP-06 Section 4
  - Consideration of Loose Parts updated in May 2005
- Survey initiated to update industry EPU experience for 2004-2005 for NEDC-33159 update

Extended Power Uprate

RECENT INDUSTRY EPU ACTIVITY

- Scale model testing and acoustic analysis employed to develop improved methodology for determining steam dryer loading

- Continued work to refine model and analysis based on comparison with instrumented dryers

Extended Power Uprate

PLANNED EPU ACTIVITIES

- BWROG Technical Exchange Meeting in Stockholm to share EPU experiences at US and foreign plants - October 2005
- Monitor steam dryer load predictive modeling
- Update NEDC-33159 to reflect dryer modeling results and updated BWR survey responses
- Meet with NRC staff to discuss industry activities and SIL 644 Revision 1 and NEDC-33159 NRC comments

Reactor Recirculation Pump Shaft Monitoring

RRP Shaft Monitoring

PURPOSE OF PRESENTATION

- Provide BWROG RRP Shaft Committee Objectives
- Provide Background on RRP Issues
- Provide Status on Recent BWROG Activities
- Provide Plans for BWROG RRP Shaft Monitoring Effort

RRP Shaft Monitoring

PURPOSE OF COMMITTEE

- Develop Guidance Document to assist Owners in resolving concerns related to circumferential cracking of RRP Shafts for the BWR fleet.
  - The document will contain guidance on monitoring of vibration and other inspection means for the entire BWR fleet.
  - The document will contain details for addressing the NRC Information Notice 2005-08 dated April 5, 2005

RRP Shaft Monitoring

BACKGROUND

- NRC identified concerns with RRP shafts during December 2004 Management Meeting with BWROG
- BWROG performed surveys and follow-up communications with NRC Staff
  - Surveys confirm Plant differences in design and monitoring strategies
  - Plants have chosen to replace shafts and/or employ a condition based monitoring approach
  - Some BWR pumps do not have seal injection and are not susceptible to thermally induced cracking concern
- Pump suppliers latest designs for pump shafts and internals are less susceptible to shaft cracking by design

RRP Shaft Monitoring

BWROG COMMITTEE WORK

- BWROG Ad Hoc Committee Meeting held in May 2005 included
  - Utility System Engineers/Managers
  - NRC
  - Pump Suppliers
  - Vibration Experts
- BWROG Generic Committee formed in August 2005 to develop BWROG Guidance Document to resolve concerns related to circumferential cracking of RRP Shafts for the BWR fleet.

RRP Shaft Monitoring

RRP SHAFT COMMITTEE PLANS

- Develop a Guidance Document to:
  - Identify design features for Fleet
  - Capture recommendations on monitoring (UT and Vibration)
  - Include safety assessments on potential shaft failure
  - Include pump suppliers' input
  - Draft by December 2005
- Committee meeting and final guidance document expected by July 2006
- Share results with NRC in Summer of 2006