NRC FORM 658
(9-1999)

U.S. NUCLEAR REGULATORY COMMISSION

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DATE OF MEETING
9/13/00

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s): Project No. 691

Plant/Facility Name:

TAC Number(s) (if available):

Reference Meeting Notice: 8/16/00 ML003741291

Purpose of Meeting
(copy from meeting notice): To discuss issues with NEC management that are key to the Boiling Water Reactor Owner's Group

NAME OF PERSON WHO ISSUED MEETING NOTICE: Robert M Pulsifer

TITLE: Project Manager, Section 2

OFFICE: NRR

DIVISION: DLPM

BRANCH: PD I-2

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Docket File/Central File
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DF03

Presentation to NRC Management On Appendix R Committee

BWROG EOC/NRC Management Meeting

September 13, 2000

Background

- Appendix R Issues identified during FPFI's/Inspections
- BWROG Committee formed in Fall 1997
- Multiple meetings with NRC Staff in '98, '99, & '00
- Letter to Commissioner Diaz 11/3/98
- Products have been delivered to NRC
- BWROG Guidance endorsed by PWRs

Progress to Date

- **BWROG Products delivered ('99) to NRC**
  - **SRV+LPS "Redundant" Shutdown Paths (Rev 1)**
    - **Subsequent submittal 7/20/2000**
    - **Subsequent submittal [Pending]**
  - **Post-Fire Safe Shutdown Guidance Document**
- **Established Integrated approach for Industry under NEI.**

Actions to Close

- NRC issue SER on SRV + LPS Submittal
- NRC, w/BWROG support, present results of SRV + LPS Issue & basis of Generic Guidance to ACRS - (Oct '00)
- NRC concur that BWROG Guidance Document provides reasonable assurance of compliance with existing regulations
- NRC continue "hold" on expansion of NRC Inspection criteria pending completion of NEI 00-01
- NEI finish work to complete & submit NEI 00-01
- NRC issue SER on NEI 00-01

Issues Resolution

- **Unresolved issues will be addressed**
  - **Multiple Spurious failures $\Rightarrow$ NEI CF ITF**
  - **IN 92-18 mechanistic failures $\Rightarrow$ NEI CF ITF**
- **Issues determined to have high safety significance will be addressed**

Conclusion

- Provide SER on BWROG Position on SRV + LPS
- BWROG Guidance Document
  - Is a solid regulatory compliance approach
  - Continue "hold" on NRC expansion of Inspection criteria pending completion of NEI 00-01
- Resolve open issues through integrated industry effort under NEI

Loose Parts Monitoring System Regulatory Relaxation

Presentation for BWROG/NRC Management Meeting

September 13, 2000

Washington, DC

Loose Parts Monitoring System Regulatory Relaxation

BWROG Committee Participation:

- CP&L, ComEd, Detroit Edison, Entergy Operations, First Energy, Amergen-Clinton, NMPC, PECO Energy, PPL, PSE&G, SNC, Energy NW
- None of the 8 non-participating utilities have Loose Parts Monitoring Systems

Loose Parts Monitoring System Regulatory Relaxations

Loose Parts Monitor Regulatory Requirements:

- 19 U.S. BWRs do not have requirements for this system
- 15 U.S.BWRs are currently required to maintain this system
  - RG1.133
  - Technical Specification or TRM
  - FSAR commitments

Loose Parts Monitoring System Regulatory Relaxations

Loose Parts Monitor Elimination:

- BWROG LTR NEDC-32975P, "Regulatory Relaxation for BWR Loose Parts Monitoring Systems" transmitted to NRC on July 31, 2000
  - Contains plant specific design information and experience summary
- Operating experience does not demonstrate that LPM Systems provide safety benefits
  - Compared RG1.133 requirements/expectations to system operating history

Loose Parts Monitoring System Regulatory Relaxations

Key BWROG Findings

- Although loose parts have been detected by LPMs, none have involved a failed or weakened safety component
- BWRs employ aggressive foreign material exclusion programs
- A foreign object or loose part in the reactor coolant system has a tendency to migrate to a low-flow region and remain there

Loose Parts Monitoring System Regulatory Relaxations

Key BWROG Findings (Continued)

- Based on BWROG survey, potential detrimental effects identified in RG1.133 have not occurred at any BWR
- None of the BWR PRAs rely on or address LPMs
  - Quantitative risk assessments cannot be made
  - Risk insights based on several hundred years of plant experience indicated the existence or non-existence of LPMs will have no affect on core damage or large early release frequencies

Loose Parts Monitoring System Regulatory Relaxations

LPM Cost Burden

- Median annual maintenance cost is $45K
  - Includes a $10K allowance for an exposure of 1 person Rem
- Some BWRs will require system replacement within next few years
  - $500K per plant
- Based on operating experience, the negligible safety benefits do not justify cost burden
- Regulatory requirements for LPMs may be eliminated for all BWRS with no impact on safety

Loose Parts Monitoring System Regulatory Relaxations

NRC Review of LTR

- BWROG requests timely review of NEDC-32975P
- NRC commitment requested to support system removal in spring 2001 refueling outages

BWROG
RISK INITIATIVES

Presentation for
BWROG/NRC Management Meeting

Washington, DC

September 13, 2000

Greg Krueger (PECO Energy)

PURPOSE OF THE PRESENTATION

- Provide a status of on-going initiatives
  - Maintenance Rule
  - Industry Standards
  - Risk Informed Part 50 Option 2 Pilot
  - Risk Informed Technical Specifications

MAINTENANCE RULE

- Provided a risk informed process for plant work management personnel
- Drafted a position for PRA personnel on issues such as evaluations using:
  - Predetermination based on one time Analysis or periodic analysis
  - Reduction in scope based on one time analysis

INDUSTRY STANDARDS

- ASME full power standard
  - Draft 12 finished public review
  - Detailed comments received from NRC
  - Working Group will consider options
- ANS standards on External Events and Low Power/Shutdown
  - External events review in 2000
  - BWROG position is that a quantitative low power/ shutdown standard is unnecessary

RISK INFORMED PART 50 OPTION 2 PILOT

- Committee developed preliminary cost benefit information
- Five systems considered for RISC 1-3
  - SGTS and LPCS selected
- Multiple BOP systems considered for RISC 4-2
  - Feedwater selected

RISK INFORMED PART 50 OPTION 2 PILOT

- Schedule impact for the lead plant :
  - Two months delay over initial year-end schedule
  - Original work considered only one system from RISC 1-3
  - Additional system may cause additional delay
  - Lead plant to be complete by mid-2001

RISK INFORMED TECHNICAL SPECIFICATIONS

- Early 2000 tasks included:
  - Develop a BWR 4 generic model for Initiative 1 (modified end states)
  - Write a report for Initiative 1 submittal (using CEOG report as a model)
  - Monitor Initiatives 2 and 3 (missed surveillances and flexible mode restraints)

RISK INFORMED TECHNICAL SPECIFICATIONS

- Late 2000 tasks included:
  - Develop "how to" report on the model for Initiatives 4 and 6 (AOTs and LCO 3.0.3)
  - Investigate value of Initiative 8 (elimination of some Technical Specifications)
  - Support Initiative 5 (Removal of some surveillance requirements to owner controlled program)

RISK INFORMED TECHNICAL SPECIFICATIONS

- STATUS
  - Model is completed and reviewed
  - Initiative 1 report is drafted and reviewed
    - Final publication is on hold until after Initiative 3
    - Initiative 3 delayed to get all Owners' Groups to submit a generic position
    - BWROG generic table due early September
    - Initiative 2 submitted for NRC
      - The "how to" report will start after Initiative 1 report is issued and should be done in 2000.

EXPECTED 2001 TASKS

- Expand the model to:
  - Include low power in addition to Modes 3 and 4
  - Include sensitivities for BWR 2/3 and 5/6
- Continue work on remaining initiatives
- Evaluate containment isolation valve AOT extension
- Participation in NEI RITSWG

DC MOTOR METHODOLOGY

Presentation for BWROG-NRC Management Meeting

September 13, 2000

DC MOTOR METHODOLOGY

PURPOSE OF PRESENTATION

- **Program Status**
- **Results of August 30 BWROG-NRC Meeting**

DC MOTOR METHODOLOGY

BACKGROUND

- **Issue: Motor speed/output affected by stem load, supplied voltage and winding temperature.**

- **Potential Impact:**
  - **Longer MOV stroke times**
  - **Lower motor output (torque), thus lower valve thrust**

DC MOTOR METHODOLOGY

METHODOLOGY DEVELOPMENT

- **Methodology developed with vendor input.**
- **Methodology provided to utilities.**
- **Utility training conducted.**

DC MOTOR METHODOLOGY

RESULTS OF 8/30 BWROG-NRC MEETING

- **BWROG applauded for extensive effort in DCM methodology development.**
- **Only NRC concern was small testing sample as basis for generic methodology validation.**
- **No major comments from INEEL.**
- **BWROG prefers Staff communication to industry to be via Information Notice vice Safety Evaluation (BWROG never requested SE).**

DC MOTOR METHODOLOGY

RESULTS OF BWROG-NRC MEETING

- **Limitorque likes methodology; committed to an endorsement NLT 20 October via a published Technical Update pending resolution of Peerless "motor curve" verification.**
- **Staff requested EOC update on status of BWROG Utility Implementation Schedule (Staff wants BWROG letter)**

DC MOTOR METHODOLOGY

SUMMARY

- **BWROG pro-actively developed methodology.**
- **BWROG methodology models INEEL test results.**
- **Methodology provided to utilities & training performed.**
- **Utilities being provided guidance for implementation.**

PASS, H_2 Recombiner, H_2/O_2 Monitors, Regulatory Relaxations

Presentation for

NRC/BWROG Management Meeting

September 13, 2000

Washington, DC

PASS, H_2 Recombiner, H_2/O_2 Monitors, Regulatory Relaxations

Committee Objective:

- Eliminate unnecessary post-accident sampling and analysis requirements for BWRs
- Declassify H_2/O_2 monitors to non-safety related
- Eliminate requirements for H_2 recombiners and Containment Air Dilution (CAD) systems or relax to non-safety

Presentation Objective:

- Update NRC Management

PASS, H_2/O_2 Monitors, H_2 Recombiner, Regulatory Relaxations

PASS Current Status/Schedule

- Following NRC issuance of SERs regarding WOG and CEOG sample stations, BWROG is drafting Licensing Topical Report to eliminate PASS requirements
  - Will submit report to NRC in 4Q00 prior to completion of revised BWR Core Damage Assessment Procedure

PASS, H_2 Recombiner, H_2/O_2 Monitors, Regulatory Relaxations

H2 Recombiner, H2/O2 Monitor, CAD System Current Status/Schedule

- Deterministic evaluation not successful if core iodine release is in accordance with NUREG-1465

  –Detonable gas mixture could occur

PASS, H_2 Recombiner, H_2/O_2 Monitors, Regulatory Relaxations

H2 Recombiner, H2/O2 Monitor, CAD System Current Status/Schedule (Continued)

- **BWROG will proceed with Licensing Topical Report asking for declassification to non-safety based on low probability of events leading to high iodine concentrations**
  - **Severe accident scenarios only**
  - **Consistent with findings by NRC from risk informing 10CFR50.44 program**
- **Target submittal is 4Q00**

Reportability of RCIC Loss of Function

Presentation for BWROG/NRC
Management Meeting
September 13, 2000

Presentation Objective

- Describe current issues concerning RCIC reportability
- Describe BWROG effort to evaluate the issue
- Request NRC action to achieve resolution

Background

- A BWR utility recently received a level 4 non-cited violation for failure to report RCIC unavailability in accordance with 10 CFR 50.72 and 50.73
- Several BWR owners have responded to inquiries from NRC inspectors by reporting RCIC unavailability
- Some BWRs report RCIC unavailability; some do not

BWROG Evaluation

- BWROG is preparing a white paper explaining why RCIC unavailability is not reportable under 10 CFR 50.72 and 50.73
- RCIC is a risk-significant system which is adequately controlled by the Maintenance Rule

RCIC Design Function

- RCIC, with backup from HPCI or HPCS, provides high pressure inventory control
- RCIC provides a redundant supporting function to HPCI or HPCS in meeting Appendix R requirements
- RCIC plays a significant role in the SBO scenario

RCIC Design Function Summary

- RCIC is designed to mitigate Anticipated Operational Occurrences and not Design Basis Accidents

Requested NRC Action

- Defer NRC action to resolve the issue pending review of the BWROG white paper currently scheduled for submittal October 2000

Fluence Methodology

Presentation for BWROG/NRC
Management Meeting

September 13, 2000

Fluence Methodology Purpose of Presentation

- Discuss concerns regarding recent NRC actions with respect to fluence calculational methodology
- Gain an understanding of NRC undocumented generic BWR fluence concern

Fluence Methodology
Industry Perspective

Fluence Methodology is a generic issue for which individual licensees' submittals on P-T curves, power uprates, and capsule deferrals should not be delayed

No established near term safety significance

Not cost-effective to revise fluence methodology (on a site by site basis) to conform to draft RG

$100K to $125K per unit

Fluence Methodology
Industry Perspective (Continued)

- Potential cost to BWR fleet could be approx. $4.4 Million
- Given that there are no established safety issues, individual licensee efforts are not warranted
- The industry desires a cost effective resolution

Fluence Methodology Background

NRC requesting that BWRs comply with draft RG-1053 fluence methodology for:

- Revised P-T curves
  - Dresden: required to use end-of-life fluence, but only valid for 1 fuel cycle (no questions asked for Quad Cities)
  - Limerick: approved with same interim requirement
- Power Uprates
  - Browns Ferry: TVA elected not to challenge NRC approach
- BWRVIP capsule deferral

Fluence Methodology Current Approaches

- GE submitted fluence Licensing Topical Report (LTR) for NRC review and approval in August 2000
  - Includes good agreement with benchmark as required by draft RG
  - Addresses uncertainties as required by RG
  - Expected to resolve NRC concerns for fluence calculations performed by GE
- BWRVIP is going to address fluence in 2001 as part of Integrated Surveillance Program (ISP)

Fluence Methodology Position Summary

- Interim fluence methodology restrictions are not necessary
- Current NRC approach is not cost effective
- Request NRC support for
  - Complete review of GE LTR on fluence calculations by year end
  - Accept P-T curves and power uprates with no restrictions
  - Grant deferral of capsule removal (with technical justification)

BWR Vessel and Internals Project (BWRVIP) Status Report

by
Carl Terry, BWRVIP Chairman
Niagara Mohawk

September 13, 2000
NRC Offices
Rockville, MD

BWRVIP

BWRVIP Organization

Carl Terry
NMPC
Chairman

Joe Hagan
PECO Energy
Vice Chairman

Assessment	Inspection	Mitigation	Repair	Integration
Geoge Vanderheyden ComEd Executive Chair	Bill Eaton Entergy Executive Chair	Lewis Sumner SNC Executive Chair	George Jones PPL Executive Chair	Harry Salmon NYPA Executive Chair
Rich Ciemiewicz PECO Energy Tech Chair	Carl Larsen VT Yankee Tech Chair	John Wilson AmerGen Tech Chair	Bruce McLeod SNC Tech Chair	Vaughn Wagoner CP&L Tech Chair
Bob Carter EPRI Task Mgr	Greg Selby EPRI Task Mgr	Raj Pathania EPRI Task Mgr	Ken Wolfe EPRI Task Mgr	Tom Mulford EPRI Task Mgr

Jack Dillich
NPPD
BWRVIP Liaison to EPRI Nuclear Power Council

BWRVIP Key 2000 Activities

- Support NRC review and closure on all BWRVIP guidelines
- Support NRC review of I&E guidelines license renewal appendices
- Support NRC review of BWR Integrated Surveillance Program (ISP) Plan and produce implementation plan
- Submit fracture toughness and crack growth evaluations of irradiated stainless steel
- Coordinate assessment of BWRVIP implementation similar to steam generator assessments
- Continue complementary BWRVIP and NRC RES work on weldability of irradiated material
- Continue transition to a maintenance mode

BWRVIP

BWRVIP Direction in 2000

- **Expect closure with NRC on BWRVIP base program guidelines in 2000**
- **BWRVIP transition to a maintenance mode**
- **Executive oversight and timely response to industry issues will be maintained**
  - continue NRC interaction
  - collection and dissemination of plant inspection data and experience
  - utility implementation assessments
  - implementation, training and assistance
  - program maintenance based on industry experience
- **Streamlined BWRVIP organizational structure will be implemented for 2001 and beyond**

BWRVIP Organizational Structure for 2001 and Beyond

BWRVIP Utility Executive Committee

BWRVIP Maintenance Mode Transition Organization

Chairman

Vice Chairman

Assessment Committee	**Mitigation Committee**	**Integration Oversight**
Executive Chairman	Executive Chairman	Executive Chairman
Technical Chairman	Technical Chairman	Technical Chairman
EPRI Task Manager	EPRI Task Manager	EPRI Task Manager

Utility Member
as
BWRVIP Liaison to EPRI Nuclear Power Council

BWRVIP

BWRVIP Summary

- **BWRVIP base program guidelines have been submitted to NRC**
- **Need to continue close coordination to obtain NRC approval of submitted products. Concentrated NRC effort requested on:**
  - License renewal appendices
  - Revised GL 88-01 inspection schedules (BWRVIP-75)
  - Inspection relief for HWC (BWRVIP-62)
  - RPV I&E guidelines (BWRVIP-74)
  - Integrated Surveillance Program (BWRVIP-78)
- **BWRVIP issuance of <u>final</u> documents for utility implementation tied to completion/resolution of NRC review**

Tech Spec Instrument Uncertainties

Presentation for

BWROG/NRC Management Meeting

September 13, 2000

Washington, DC

Tech Spec Instrument Uncertainties BWROG Committee Objective

- Proactively resolve NRC concerns with respect to Tech Spec instrument uncertainties
- Provide guidance for BWRs to manage instrument uncertainty to assure that plant safety is maintained

Tech Spec Instrument Uncertainties Presentation Objective

- Describe program to NRC management and present preliminary evaluation results

Tech Spec Instrument Uncertainties
Resolution Approach

- **"Screen" BWR Standard Tech Spec Surveillance Requirements to eliminate need for consideration of instrument uncertainties**
  - **Qualitative assessment only**
  - **NRC approved industry standard (ASME etc)**
  - **EOP variables**
- **For all other surveillances, margin in BWR safety analyses are compared to instrument uncertainties**

Tech Spec Instrument Uncertainties Evaluation Results

- For non-RG 1.105 parameters, BWR safety analysis margin is sufficient such that no additional instrument uncertainty evaluations are warranted
- For RG 1.105 parameters, less than 10% of the setpoint evaluations are warranted