CEOG TASK 1037 PSA CERTIFICATION PROCESS

Status Report to the Probabilistic Safety Analysis Subcommittee December 1-3, 1999

PSA CERTIFICATION PROCESS

- Project Objectives
- Status
- Peer Review Schedule
- Lessons Learned
- Lessons Learned Process

PSA CERTIFICATION PROCESS -PROJECT OBJECTIVES-

- Develop Process for Performing Peer Reviews of CEOG Plant PSAs
 - > Coordinate with other Owners Groups
 - Support use of PSAs for Joint Applications
- Perform Peer Review of All CEOG Plant PSAs over period of 2 and a half years.

PSA CERTIFICATION PROCESS -STATUS-

- Draft Peer Review Process Report Issued 9/98
- Revised Checklists Issued 2/99
- Fort Calhoun Peer Review: March 1-5, 1999
 - > Pilot Peer Review
 - > Draft Report Issued for Review 3/19/99
 - > Final Report Issued in April, 1999
- Palo Verde Peer Review: September 13-17
 - > Draft Report Issued for Review Oct xxxx,
 - > Final Report Issued November, 1999
- Millstone 2 Peer Review: October 25-29, 1999
 - > Draft Report in Process

CEOG PSA PEER REVIEW SCHEDULE

- ABB Can Support a Review Approximately Every Six Weeks If We Have a Fixed Schedule
- Need to Identify Host Utilities and Month(/week) For Review
 Need to Set up Review Teams for Next Two Reviews
 Each plant will need to support at least 3 4 reviews
- Schedule Attached

CEOG PSA PEER REVIEW SCHEDULE								
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PLANT	Fort Calhoun	Palo Verde	Millstone 2	Waterford 3				
DATE	Mar. 1-5, 1999	Sept. 13-18, 1999	Oct. 25-29, 1999	Jan. 16-22, 200				
STATUS	Complete	Complete	Draft Report in Process	In Process				
TEAM - 1	D. J. Finnicum	D. J. Finnicum	D. J. Finnicum	D. J. Finnicum				
-2	J. Powers	J. Powers (NU)	M. Hulet (APS)	B. Mrowca				
-3	B. Brogan	R. White (CPCo)	B. Mrowca (BGE)	BGE (TBA)				
-4	M. Hulet	B. Mrowca (BGE)	R. Cavedo (BGE)	R. Weston (ABI				
-5	B. Mrowca	R. Cavedo (BGE)	J. Koelbel (BGE)					
-6	R. Cavedo	B. Logan (INPO)	B. Vincent (FPL)					
-7	T. Mikschl	J. Stone (BGE)	R. Schneider (ABB)					
-8		M. Cimock (CPCo)						

CEOG PSA PEER REVIEW SCHEDULE

PLANT	Palisades	Calvert Cliffs	Arkansas 2	St. Lucie	SONGS
DATE	Apr 17-2, 2000	TBD	TBD	TBD	TBD
STATUS	Scheduled	Not Scheduled	Not Scheduled	Not Scheduled	Not Scheduled
TEAM - 1	D. J. Finnicum				
-2					
-3					
-4					
-5		<u>_</u>			
-6				····	
-7					
-8					
-9					

Lessons Learned - Technical

Initiating Events

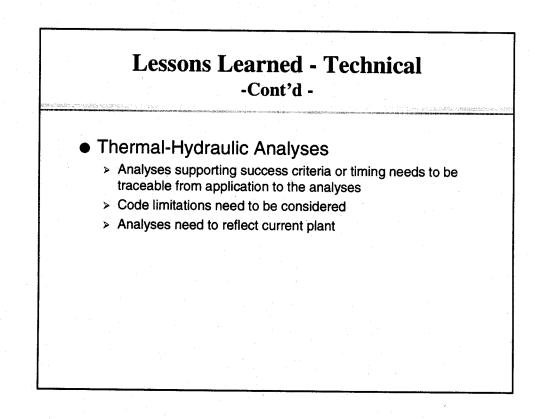
- Need to address the generic set of initiators (e.g. NP-2230)
- Specify which events subsumed and why
- Need process for identifying support system/unique initiators
- Use combination of Industry and plant specific data for determination of frequencies
- Define basis for frequencies (calendar year vs on-line year)
 use consistently
- > Frequencies should be consistent with CEOG standards
- > Analyses should be documented
 - analyses reproducible
 - basis traceable

Lessons Learned - Technical

-Cont'd -

Accident Sequence Analysis

- Event trees should cover expected plant response for all initiators subsumed in the Initiator for each event tree.
- > Success criteria should be documented and traceable
- Success criteria for similar events should be equivalent or basis for difference documented
- > Multi-unit dependencies, if any, need to be addressed
- Impacts of "non-modeled" systems on accident progression need to be addressed
 - e.g. steam removal systems
- > Documentation



Lessons Learned - Technical

-Cont'd -

System Analysis

- > Should have procedure for modeling
- > Need to have dependency matrices
- Need documented bases for assumptions with respect to equipment cooling requirements
- > Common cause failure modeling
 - AFW pumps with the same pump bodies should have CCF of pump bodies even if have different drivers
 - model CCF at function failure level plus lower level to cover selected important random failure plus maintenance alignments
- > Procedure driven manual control actions should be modeled
- Batteries
 - Depletion time basis
 - Demand failures

Lessons Learned - Technical -Cont'd Systems Analysis (cont'd)

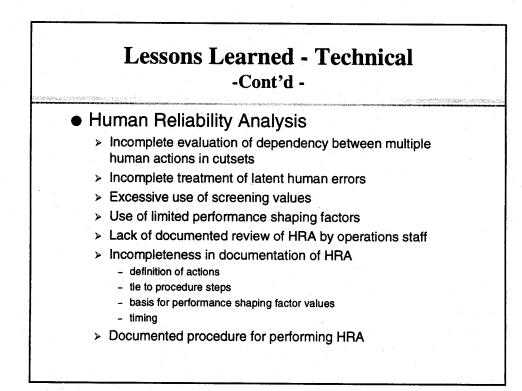
- Flow diversion modeling
- > Treatment of asymmetries
- > Process for identifying and breaking logic loops
- > Treatment of multiple operation cycles during mitigation
 - DG fuel oil transfer pumps
 - relief valves

Lessons Learned - Technical

-Cont'd -

Data Analysis

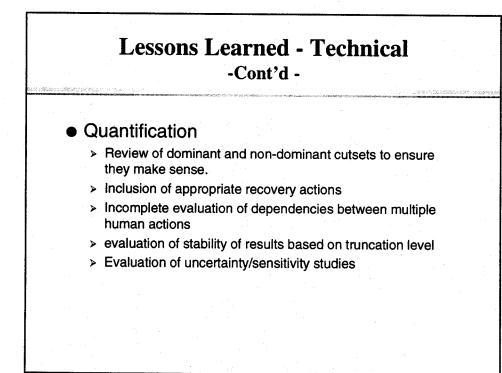
- > Common cause grouping (See Systems Analysis)
- > Documentation of treatment of unique unavailabilities
- > Use of most recent generic data sources
- Documentation of basis for component repair included in models
- > Use of plant specific data for test and maintenance



Lessons Learned - Technical -Cont'd -

Dependency Analysis

- > Limited dependency matrices
- Incomplete evaluation of dependencies between multiple human actions
- > Common cause grouping levels
- > Spatial dependencies
 - cooling/HVAC impactsFlood potential/impact



Lessons Learned - Technical -Cont'd -

Maintenance and Update

- Process to track/identify changes to plant design ands/or operation
- > re-evaluation of plant data (data update)
- > Fixed schedule plus as-needed for major changes
- > Re-evaluation of past PSA applications

Lessons Learned - Technical

-Cont'd -

Level 2 Analyses

Evaluate against NRC simplified approach in NUREG/CR-6451

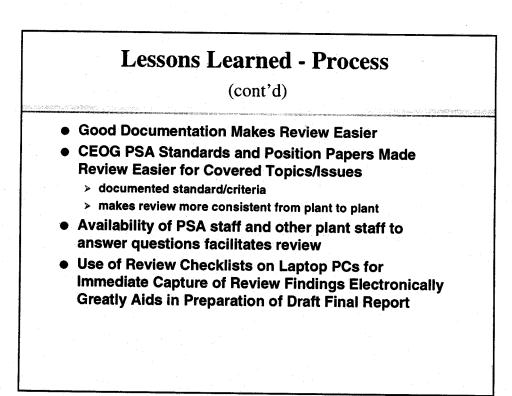
> Full scale Level 2 analysis is benefit if up-to-date

Structural Analysis

- > Assumptions on low pressure pipe rupture for ISLOCA
- > Include vessel rupture as place holder
- > Detailed Containment Analysis a benefit

Lessons Learned - Process

- Host Plant Should Send Out PSA Information Early
- Reviewers Need to Provide Good Mailing Address
- Host Utility Should Do a Self-Assessment Prior to Visit.
- Host Utility Incoming Presentation:
 - > Plant design Key Systems and Components
 - Plant Operations any unique aspects
 - > Plant PSA special features, known problems
- Hold Plant Tour Early to Facilitate Familiarization



Lessons Learned - Process

(cont'd)

- Review Task/Team Member Assignments
 - Review covers eleven technical area
 - Each team member reviews multiple technical areas over the week. Fixed time windows for reviewing the technical areas lead to switching from one area to another "unrelated" with potential for losing train of investigation.
 - > Approach:
 - mapped the 11 technical areas into 4 "review areas" so that elements of review area are related
 - review team divided into sub-teams
 - schedule review periods by "review area" and sub-team.
 - During a given review period, review team will focus on related technical areas
 Benefits:
 - P Denenits.
 - Sub-team can focus on review of related areas
 - Consistent review flow for related technical areas

Lessons Learned (cont'd) Important Areas Documentation of Processes Used to Perform a PSA Documentation of Assumptions and Bases Thoroughness of and Documentation of System Dependency Analyses Use of Performance Shaping Factors in HRA Bases for timing assumptions Link to procedures Collection and Use of Plant Specific Data General Documentation of Model Formal Procedures for Maintaining PSA

相關語

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