

Enclosure 2
Arkansas Nuclear One Presentation
Meeting Summary of the 6/8/2010 Meeting with
NRC/SNC/FPL/SCE&G
Dated June 17, 2010



Discussion of Screening Criteria

Arkansas Nuclear One (ANO)

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Overview



- Background
- Screening Criteria
 - NRC Working Group Results
 - Arkansas Nuclear One (ANO) Review
- Conclusions

Arkansas Nuclear One (ANO) Background Information



- 2001 Triennial Fire Protection Inspection – Resulted in White Finding
 - Failure to ensure that cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions would remain free of fire damage (in the event of a fire)
 - By means specified in 10 CFR Part 50, Appendix R, Paragraph III.G.2
 - Or by alternate means specified in 10 CFR Part 50, Appendix R, Paragraph III.G.3
 - Fire Areas 98J and 99M in Arkansas Nuclear One, Unit 1 (ANO-1)
 - ANO initiated a Manual Action Review Project to identify potential changes to plant systems and components in order to reduce the complexity of safe shutdown manual actions

Arkansas Nuclear One (ANO) Background Information



- June 30, 2004 - Entergy Operations, Inc. (Entergy) provided the results of the ANO, Units 1 and 2 10CFR50, Appendix R Manual Action Review Project
- December 17, 2004 - Entergy provided the schedule for completion of modifications and analyses to eliminate the time critical complex manual actions at ANO, Units 1 and 2
- March 31, 2005 – NRC closed the White Finding based on the results of Supplemental Inspection 50-313/05-11; 50-368/05-11
- November 2, 2005 – Entergy submitted a letter of intent to adopt NFPA 805

Arkansas Nuclear One (ANO) Background Information



- Current state of Fire Protection at ANO
 - Modifications completed to eliminate time-critical, complex recovery actions
 - Revised Operations Fire Procedures
 - Prescriptive response to notification of a severe fire
 - Non-Compliances addressed since white finding
 - Compensatory actions
 - Tracked in the corrective action process
 - NFPA 805 Project Plans
 - Coordinating with Pilot Plant transition activities
 - Participating in NEI NFPA 805 Task Force activities



Screening Criteria

- NRC Working Group Results
 - Potential issues with protection or separation for safe shutdown equipment
 - Relatively large number of Operator Manual Actions (OMAs)
 - Limited documentation of cable routing
 - Use of complex OMAs
 - Symptom-based fire response procedures with complex OMAs

Potential Issues with Protection or Separation



- Transition to new risk-informed, performance-based alternative per 10 CFR 50.48(c) which endorses NFPA 805

Relatively Large Number of Operator Manual Actions



- ANO is reducing the number of OMAs utilizing NFPA 805
 - Risk analysis
 - Realistic Fire Modeling
 - Modifications
- Compensatory measures
- Current OMAs feasible

Cable Routing Documentation



- Since construction, cable routing data has been maintained electronically
 - ANO cable routing data was initially turned over electronically from the Bechtel Circuit and Raceway schedule after construction
- Electronic Databases have been in use since the 1980's containing the cable to raceway and raceway to fire zone relationships
 - The Plant Data Management System (PDMS) is the current repository for the safe shutdown equipment list and the relationship of equipment to safe shutdown cables
 - PDMS provides for configuration control of cable and raceway data by tracking changes from design through as-built configuration
 - A high level of confidence in the accuracy and integrity of data is provided by PDMS

Use of Complex Operator Manual Actions



- June 13, 2007 – Entergy provided the results of the completed modification and analysis to eliminate the time critical complex manual actions
 - One modification was eliminated by the risk evaluations associated with the transition to NFPA 805
 - The analyses and modifications to eliminate the other identified manual actions statused as complete
- These modifications reduce overall fire risk
- In addition, ANO has a safe shutdown review process that reviews modifications and procedure changes to ensure ongoing control of the required manual actions

OMA Elimination Examples



- U1 OMA – Manual action to re-close B512 load center breaker in 98-J and 99-M
 - To restore offsite power at LC bus B5 without the need to take operator actions, the breaker B512 control cables, specifically cables RCB512C and RCD1109A that were re-routed

OMA Elimination Examples



- U-2 OMA: Eliminate action to de-energize and close sump recirculation header isolation valve 2CV-5649-1
 - Potential existed for a “hot short” to cause 2CV-5649-1 to spuriously open
 - A spurious open signal to the Refueling Water Tank (RWT) outlet valves had potential to drain the RWT to the containment sump
 - The “hot short” issue was resolved by replacing the “hot” conductor with a new cable routed in new conduit between cabinets Control Room

Complex Critical Operator Manual Actions – Unit 1



Commitment	Type (Check one)		Scheduled Completion Date (If Required)
	One Time Action	Continuing Compliance	
Zone 98-J: Eliminate action to manually re-close B512 load center breaker	X		Complete
Zone 98-J: Eliminate action to de-energize and close pressurizer ERV isolation valve	X		Complete
Zone 98-J: Eliminate actions to establish emergency diesel power	X		Complete
Zone 99-M: Eliminate action to manually re-close B512 load center breaker	X		Complete
Zone 99-M: Eliminate actions to establish emergency diesel power	X		Complete
Zone 100-N: Eliminate actions to establish emergency diesel power	X		Complete
Zone 112-I: Eliminate action to de-energize and close pressurizer ERV isolation valve	X		Complete

Complex Critical Operator Manual Actions – Unit 2



Commitment	Type (Check one)		Scheduled Completion Date (If Required)
	One Time Action	Continuing Compliance	
Zone 2040-JJ: Eliminate action to de-energize and close sump recirculation header isolation valve	X		Complete
Zone 2073-DD: Eliminate actions for operation of emergency diesel generator	X		Complete
Zone 2073-DD: Eliminate action to de-energize and close sump recirculation header isolation valve	X		Complete
Zone 2091-BB: Eliminate action to isolate RCS inventory loss through the ECCS vent flow path			Delete – Eliminated by transition to NFPA 805
Zone 2096-M: Eliminate actions for operation of emergency diesel generator	X		Complete

Complex Critical Operator Manual Actions – Unit 2



Zone 2099-W: Eliminate actions for operation of emergency diesel generator	X		Complete
Zone 2100-Z: Eliminate actions to de-energize and close auxiliary cooling water loop isolation valve	X		Complete
Zone 2100-Z: Eliminate actions to close letdown isolation valve	X		Complete
Zone 2108-S: Eliminate actions for operation of emergency diesel generator	X		Complete
Zone 2108-S: Eliminate actions to close letdown isolation valve	X		Complete
Zone 2109-U: Eliminate actions for operation of emergency diesel generator	X		Complete
Zone 2109-U: Eliminate actions to close letdown isolation valve	X		Complete
Zone 2111-T: Eliminate actions to close letdown isolation valve	X		Complete

Symptom Based Fire Response Procedures



- Safe shutdown procedures have evolved since the identification of the original white finding
- Since 2004, safe shutdown procedures are prescriptive upon notification of a severe fire

Screening Criteria Conclusions



- ANO Screening Results
 - Only two screening criteria apply
 - Potential issues with protection or separation for safe shutdown equipment
 - Relatively large number of OMAs
 - Three screening criteria do not apply
 - Limited documentation of cable routing
 - A high level of confidence in the accuracy and integrity of data is provided by PDMS
 - Use of complex OMAs
 - Analyses and modifications to eliminate identified complex, critical manual actions complete
 - Symptom-based fire response procedures with complex OMAs
 - Safe shutdown procedures are prescriptive upon notification of a severe fire