

NFPA 805

Pre-LAR Application Meeting

April 12, 2011

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NFPA 805 Fleet Submittal Schedule

- Current LAR Submittal Schedule:
 - ◆ Crystal River 3 (CR3) Initial Submittal - June 2011
 - ◆ Robinson (RNP) Initial Submittal - June 2011
 - ◆ Crystal River 3 Planned Supplement – 3rd Qtr 2011
 - ◆ Brunswick (BNP) Initial Submittal - October 2011
 - ◆ Robinson Planned Supplement 1 – 1st Qtr 2012
 - ◆ Brunswick Planned Supplement – 1st Qtr 2012
 - ◆ Robinson Planned Supplement 2 – 3rd Qtr 2012

NFPA 805 Fleet Submittal Schedule

- PRA Peer Review Schedule:
 - ◆ All Internal Events Peer Reviews Completed
 - ◆ CR3 Fire PRA Peer Review Completed
 - ◆ BNP Fire PRA Peer Review – July 2011
 - ◆ RNP Fire PRA Peer Review – 2nd Qtr 2012

Target Mod Completion Dates

- Per Current Plan
 - ◆ CR3 – 2014
 - ◆ BNP – 2014
 - ◆ RNP – 2014
- Individual Modifications Scheduled on a Case by Case Basis

Prioritization Philosophy

- Complete SSA Re-Analysis
- Identify VFDRs– Comp Measures
- B-1,2,3 Tables
- Modifications Scope
- FPRA
- NFPA 805 FPRA Application Calc
- FRE
- EEEEs
- Radiation Release
- NPO
- FSA

Fleet Prioritization

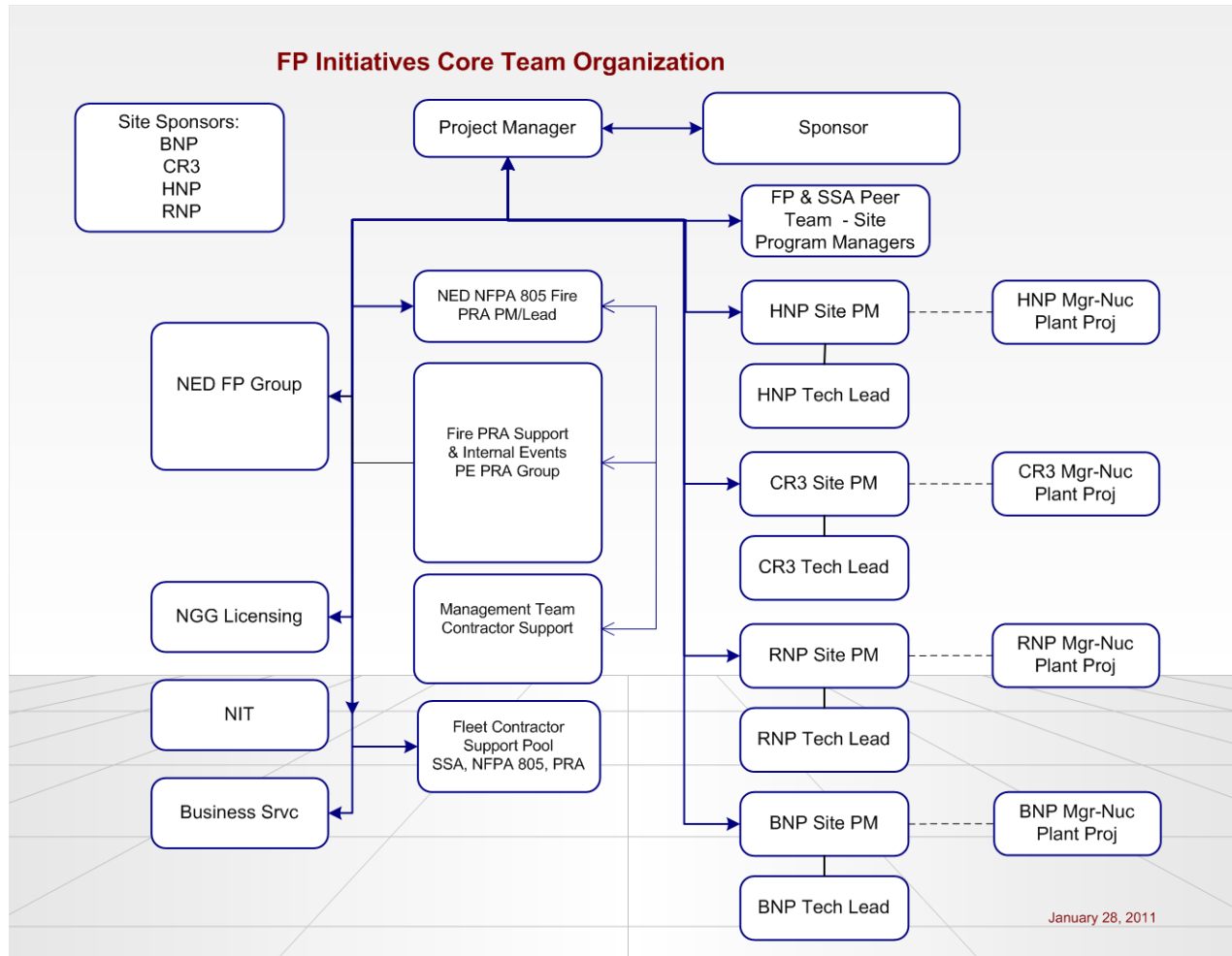
- NFPA 805 Transition
 - ◆ Crystal River 3
 - ◆ Brunswick
 - ◆ Robinson

FLEET DISCUSSION

Fleet FP Project Goals

- Improve Safety Focus Through the Performance Based, Risk Informed Approach
- Address Industry FP Issues
 - ◆ Operator Manual Action (OMAs)
 - ◆ Fire Induced Multiple Spurious Operations (MSOs)
 - ◆ Raceway Fire Barrier Wrap (e.g. HEMYC at HNP)
- Establish a Common Fire Protection Program Across Fleet
- Advancement of Fire Protection and PRA Personnel Knowledge and Skills

Project Organization



Project Philosophy

- Internal Resources
 - ◆ Increased PRA Staff (4 FTE)
 - ◆ Increased Fire Protection Staff (4 FTE)
- External Resources Managed at Both Corporate and Site Level by Progress Energy Staff

Fleet Strengths

- VFDRs are Known and Comp Measures are In Place
 - ◆ Addresses MSO and OMA Issues
- Use of LAR Template For Remaining Plants
- Incorporation of Lessons Learned and Processes from Pilot Plants – HNP and Oconee
- Many Mods at Both RNP and CR3 are Scheduled and Completed – Not Waiting on LAR/SE

Fleet Challenges

- More Than Average Amount of Work Performed with Internal Resources
 - ◆ Resource Priority Challenges
 - Emergent Plant Issues
 - Industry Issues
- External Resources
 - ◆ Continual Competition for These Resources – Particularly PRA and SSA

Fleet Challenges

- HNP 805 Transition
 - ◆ Oversight of New Program
 - ◆ Self Assessment
 - ◆ 1st NFPA 805 Triennial Inspection (Sept)
- Other Triennials Inspections in 2011
 - ◆ CR3 2nd Quarter
 - ◆ BNP 4th Quarter
- Plant Outages

INDIVIDUAL SITE UPDATES

CR3 Scope and Status

- Initial Submittal
- Planned Supplement – Potential Drivers
 - ◆ Non-Power Operations
 - ◆ MOV Weak Link Analysis
 - ◆ Thermo-hydraulic Analysis
 - ◆ Other Open Items

CR3 Plant Specifics

- Number of Fire Areas - 47
- Projected Number of Performance Based Areas - 47
- Fire PRA
 - ◆ Peer Review F&Os Resolution Nearing Completion
 - ◆ Focused Peer Review Not Required
 - ◆ Fire Modeling is Used to Support PRA

CR3 Projected Modifications

- Address Fire Protection NFPA Code Compliance Findings
- Enhance Long Standing Control Complex Ventilation System Fire Mitigation Capabilities
- Implement Additional Plant Fire Protection Barrier Modifications
- Implement Circuit Modifications/Reroutes to Address Fire Induced Circuit Failures - MSOs

CR3 Projected Modifications

- Improve MOV Capability to Maintain Functionality During and After Fire Events
- Seal/Fire Harden Existing Plant Equipment (MCCs or Breaker Cabinets)
- Re-Credit Previously Abandoned Raceway Wrap
- Add Incipient Detection Systems

CR3 Challenges

- EPU Coordination
 - ◆ LARs are Independent
 - ◆ NFPA 805 LAR Will Describe Expected Qualitative Impact of EPU
 - ◆ Modifications Evaluated Case by Case as They are Developed
 - Process Similar to Any Other Mod
 - ◆ Base FPRA Model Does Not Include EPU Changes
- Extended Outage Due to Containment Delamination

CR3 Impact on Safety

- NFPA 805 Performance Based Program, Including NPO, is an Improvement to the Current Program
- Current Issues with MOVs, Thermo-hydraulic Analyses, Unapproved OMAs and MSOs Have Been Entered Into CAP With Appropriate Comp Measures
- Overall Plant Risk Will be Quantified
- Plant Fire Risk Evaluations Will be Complete

CR3 Summary

- Targeting One Submittal
- Will Likely Have One Supplement
 - ◆ No Safety Impact from Extending Final Transition to Allow for More Complete Analysis
- Modifications Schedule Not Impacted by LAR/SE Dates

BNP Scope and Status

- Initial Submittal
 - ◆ Current Target is One Submittal
- Supplement if Needed
 - ◆ Non-Power Operations
 - ◆ Specific Open Items (Currently None Identified)

BNP Plant Specifics

- Number of Fire Areas - 32
- Projected Number of Performance Based Areas - 31
- Fire PRA
 - ◆ Peer Review Planned for July 2011
 - ◆ Fire Modeling is Used to Support PRA
- Modifications Yet to be Identified
 - ◆ Initial Modification List Scheduled June 2011

BNP Challenges

- Dual Unit Plant
- Many Previously Approved III.G.3 Areas
- Cross Unit Power Supply
- Internal Resource Challenges

BNP Impact on Safety

- NFPA 805 Performance Based Program, Including NPO, is an Improvement to the Current Program
- The Analysis Will be Complete Approximately 5 Months After the Original Submittal
- Overall Plant Risk Will be Known
- Plant Fire Risk Evaluations Will be Complete

BNP Summary

- Targeting One Submittal
- May Have One Supplement
 - ◆ No Safety Impact

RNP Scope and Status

- Initial Submittal
 - ◆ NSCA – B-2 and B-3 Tables
 - ◆ Classical Fire Protection – B-1 Table
 - ◆ VFDR List
 - ◆ Initial Modification List
- Planned Supplement 1
 - ◆ Radiation Release
 - ◆ Non-Power Operations
- Planned Supplement 2
 - ◆ Fire PRA Results
 - ◆ MSO Results
 - ◆ Recovery Action Results
 - ◆ Fire Risk Evaluations
 - ◆ Final Modification List

RNP Plant Specifics

- Number of Fire Areas - 21
- Projected Number of Performance Based Areas - 13
- Fire PRA
 - ◆ Fire Modeling is Used to Support PRA

RNP Projected Modifications

- Modifications Completed
 - ◆ Backup Instrument Air for Charging Pumps Speed Control
 - ◆ Pressurizer PORV Electrical Isolation & Alt. Control Scheme for RWST Make-Up to Charging Pumps
 - ◆ Modifications to IN 92-18 MOVs (both Hot and Cold Shutdown Credited Valves)
 - ◆ Replacement of Hemyc Fire Barrier Wrap
 - ◆ Electrical Isolation for EDG Local Test Circuits
 - ◆ Isolation Relays for Emergency Electrical Buses Breakers
 - ◆ Rerouting of ERFIS Cables to Protect Safe Shutdown Equipment
 - ◆ Auto Reload of Battery Chargers on a LOOP
 - ◆ Installation of Fire Walls Between Main Trans., Aux Trans. And Turbine Building

RNP Projected Modifications

- Modifications Pending
 - ◆ Key Locked Isolation Switch in Control Room to Isolate DC Electrical Power to Key Auxiliary Panels
 - ◆ Auto Start/Auto Load of Dedicated Shutdown Diesel Generator on Loss of All AC Power
 - ◆ LCV-115C (Volume Control Tank Outlet) Power Cable Reroute
 - ◆ Protect Steam Generator Wide Range Level Indication
 - ◆ Protect Steam Isolation Valve Circuits
 - ◆ Alternate RCP Seal Injection Study (Potential Mod)

RNP Challenges

- Cable Spread Room and Switchgear Room
 - ◆ Fire Modeling in Support of PRA is Being Developed in These Areas
- Fire PRA Completion – Methods Needed
 - ◆ EPRI Developing Method for Cabinets
 - ◆ Area Wide Incipient Detection Use
 - ◆ Cable Coating Treatment Being Updated
 - ◆ Incorporate Lessons Learned

RNP Challenges

- Fire Induced Control Load Shed
 - ◆ Original Licensing Basis Requirement for the Safe Shutdown Strategy
- Fire Induced Control Load Shed Status
 - ◆ Revised SSA Analysis (In Progress) Included Deterministic Offsite Power Analysis to Reduce Reliance on this Strategy
 - ◆ Further Reduction May be Possible Based on the PRA Insights Gained from NFPA-805

RNP Impact on Safety

- For RNP's Initial LAR Submittal VFDRs Will be Developed
- Overall Methodology Will be Described
- Fire PRA and Fire Modeling Will be Completed to the Original Fleet Schedule
- Modifications Schedule Not Impacted

RNP Summary

- Initial Submittal with 2 Planned Supplements
 - ◆ No Safety Impact
- Modifications Schedule Not Impacted by LAR/SE Dates

Summary

- CR3 June 29th Submittal
 - ◆ Near Term Supplement
- BNP October 17th Submittal
 - ◆ Potential Near Term Supplement
- RNP June 29th Initial Submittal
 - ◆ 2 Planned Supplements
- Monitoring NRC Approval of Staggered Approach

Acronyms

- FPRA – Fire Probabilistic Risk Assessment
- FRE - Fire Risk Evaluation
- FSA – Fire Safety Analysis
- VFDR – Variance From Deterministic Requirements
- EEEE - Existing Engineering Equivalency Evaluations
- FTE – Full Time Equivalent
- NPO – Non-Power Operations
- PORV – Power Operated Relief Valve
- RWST – Refueling Water Storage Tank
- LOOP – Loss of Offsite Power
- ERFIS – Emergency Response Facility Information System
- EDG – Emergency Diesel Generator
- RCP – Reactor Coolant Pump
- EPU – Extended Power Uprate
- F&O – Findings and Observations
- MOV – Motor Operated Valve
- MSO – Multiple Spurious Operations