NFPA 805
Pre-LAR Application Meeting
April 12, 2011

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NGG
Think Fleet.

Progress Energy

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

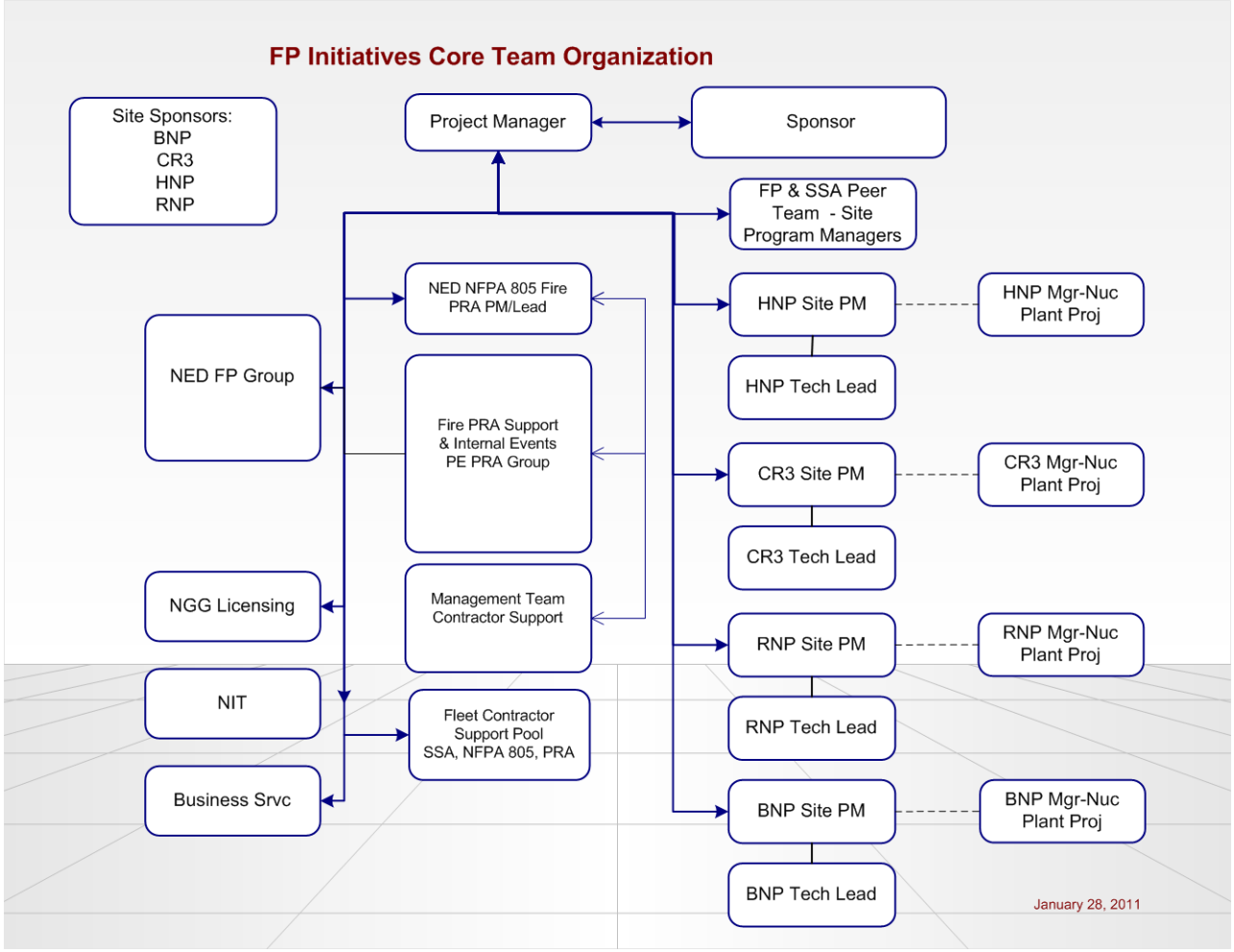
- NFPA 805 Transition
  - Crystal River 3
  - Brunswick
  - Robinson

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