

Fire Protection Initiatives

NRC Meeting December 9, 2004

Brunswick (BNP)

Crystal River 3 (CR3)

Harris (HNP)

Robinson (RNP)



No commitments are made or implied by this presentation.

Information is presented to stimulate dialogue.

Fire Protection Initiatives

Progress Energy Participants

- ▶ Paul Gaffney, Corporate - Chief Elect/I&C Engineer
- ▶ Jeff Ertman, Corporate - Fire Protection Engineer
- ▶ Frank Dola, CR3 - Operations
- ▶ Steve Hardy, BNP - SSA Project Manager
- ▶ John Kunzmann, HNP - SSA Engineer
- ▶ Frank Modlin, RNP - Appendix R Engineer
- ▶ Chuck Baucom, RNP - Licensing Supervisor
- ▶ Ken Heffner, Corporate - Licensing
- ▶ Additional personnel by phone
 - ◆ Tony Maness, HNP – FP Project Manager

Fire Protection Initiatives Outline

- Background
- Status
- Results
- Areas of Continuing or Future Interest
- Provide additional results and insights using examples
- Closing Summary

Background

- What Progress Energy is doing:
 - Safe Shutdown Analysis (SSA) Validation
 - Revised Manual Action Feasibility Evaluations
- Why:
 - Address specific site issues
 - Incorporate latest industry information into the SSA

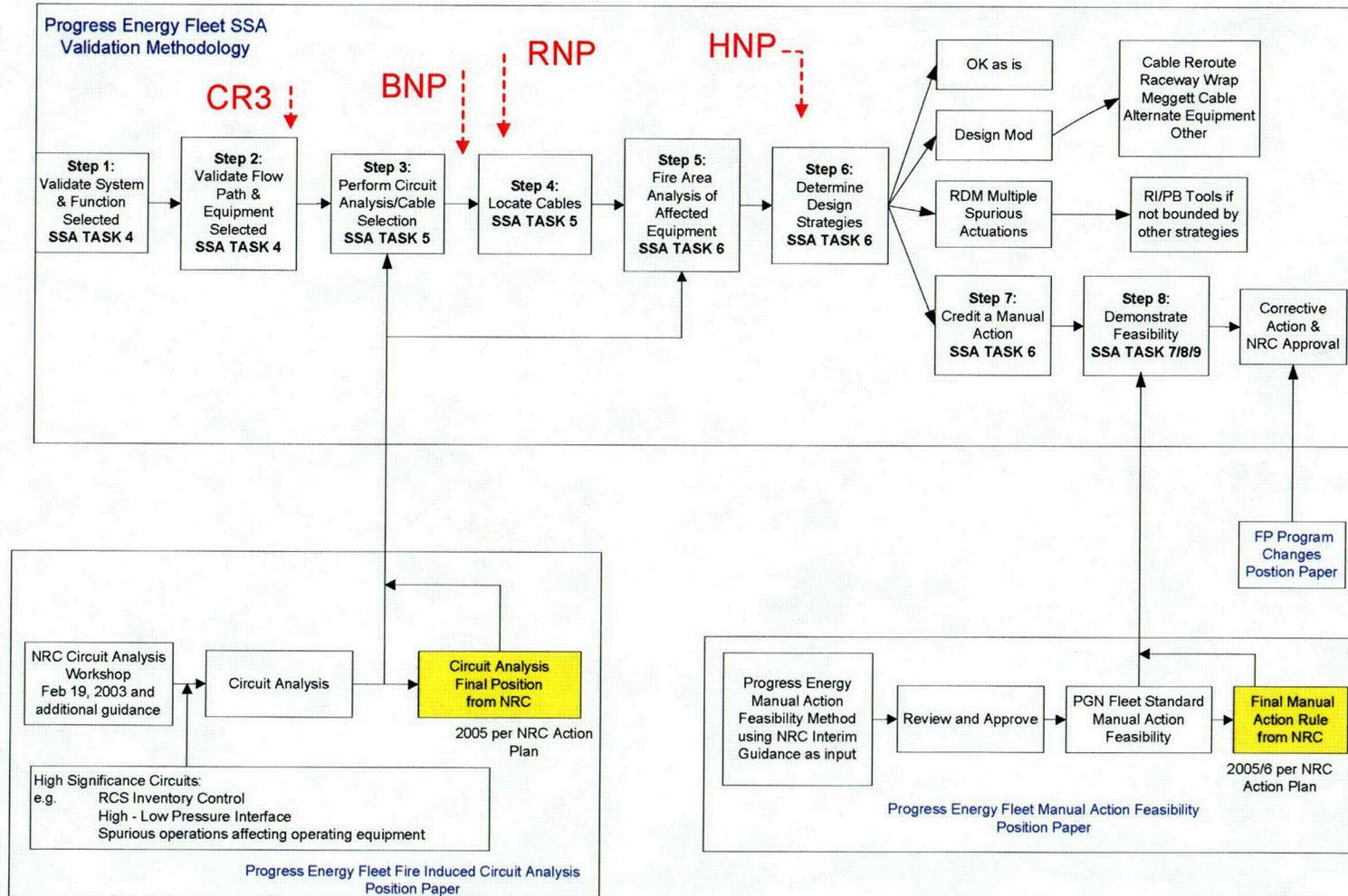
Background

Fire Protection SSA Goals

- Safety
 - Compliance - Current Design Methodology (CDM)
 - ◆ Existing Design Criteria
 - ◆ Appendix R/NUREG 800 (HNP)
 - Add New Criteria - Revised Design Methodology (RDM) based on new data
- Consistent Approach at all PE Sites
- Forward Looking Tools
 - Use Computer Aided Fault Tree Analysis (CAFTA) tool for logic development

Background

PE SSA Methodology Overview



Background

SSA Revised Design Methodology

- Examples - RDM Criteria added SSA:
 - ▶ Multiple circuit failures per circuit – for ‘enhanced’ cable selection
 - ▶ Multiple components with in a single cable
 - ▶ Up to two concurrent spurious actuations
- Examples - Enhanced Manual Actions Criteria:
 - ▶ Define higher complexity areas
 - ▶ Add timeline definition

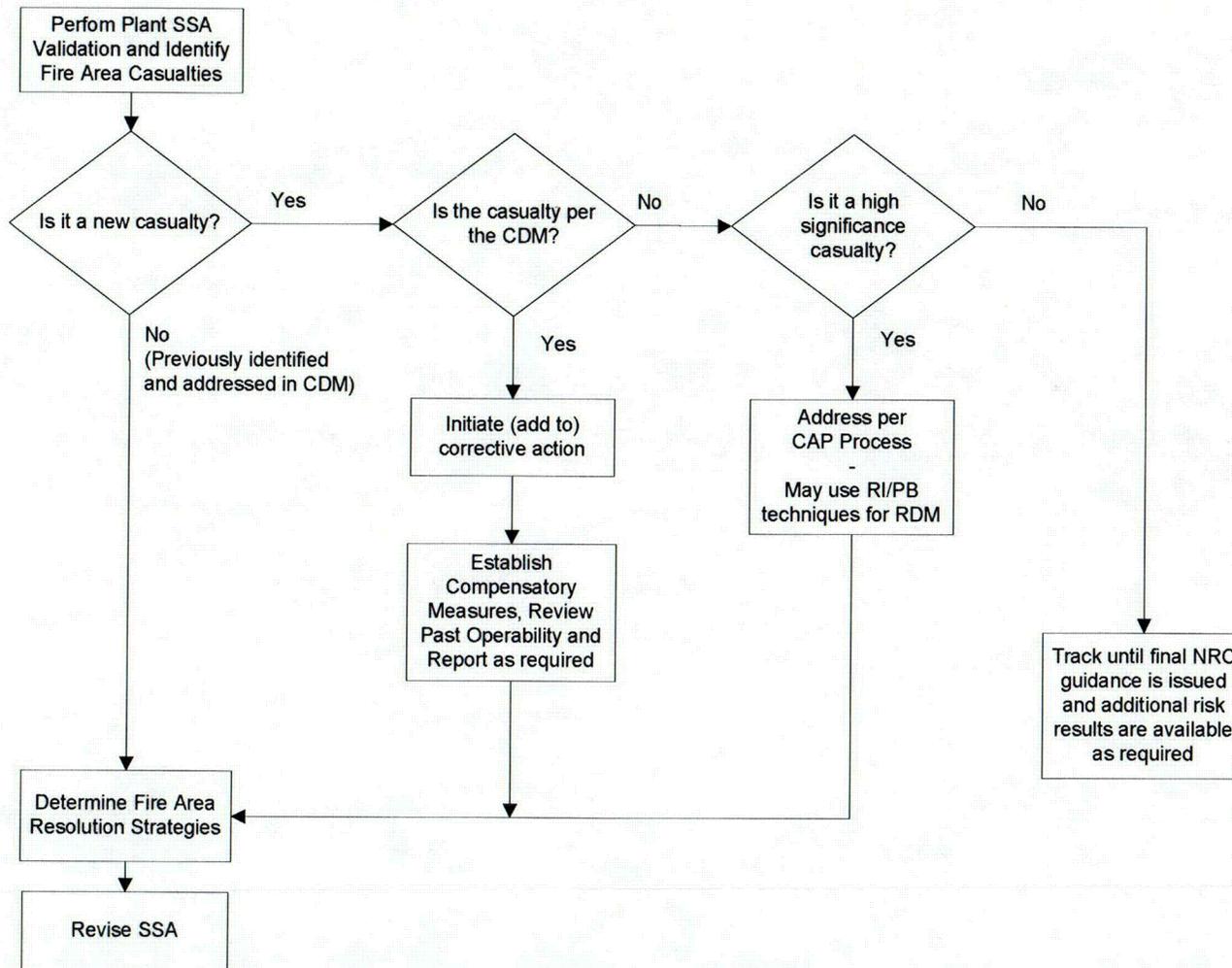
Background

SSA Methodology Development

- Some of the References:
 - ▶ EPRI cable test data
 - ▶ February 2003 NRC Fire Induced Cable Failure workshop results
 - ▶ Revised IP71111.05
 - ▶ RIS 2004-03
 - ▶ NRC Federal Register Notice on Manual actions late 2003
 - ▶ NEI 00-01, NEI 04-06

Background

PE FP SSA Project Problem Resolution



Status

SSA Validation Project

- Established design guidelines from available published information – some details previously provided
- Various stages of Project implementation at each site
- HNP current target complete in 2005
- BNP, RNP, CR3 current target complete analysis by end of 2006
- Recognize PE will need to address final NRC criteria in the future
- Problem resolution and modifications not included in this project schedule

Status

SSA Validation Project

- The PE SSA Validation Project meets the intent of NEI 04-06 Self Assessment guidance
- PE views our Validation Project as meeting the self assessment requirement for applicability of NRC proposed enforcement discretion for circuit failure findings

Status

Revised Manual Action Feasibility

- Used NRC Criteria from the late 2003 Federal Register notice – not a major change from previous PE criteria
- Demonstrate that the time to complete manual operator actions is bounded by the time to reach an unrecoverable condition
- CR3 and RNP completed in 2004; BNP scheduled in early 2005; HNP in mid 2005
- Recognize PE will need to address final NRC criteria in the future

Results to Date

SSA Current Design Methodology

- Majority of the existing analysis has been demonstrated effective
- Have identified some cables that are not protected
- Improved Fire SSD Procedures
- Added systems for increased flexibility such as off site power

Results to Date

SSA Revised Design Methodology

- Equipment added to Safe Shutdown Equipment List (SSEL)
 - Boundary Valves in series
- Scope of Cables Selected
 - For SSEL components, typically did not result in more cables pulled into the analysis
 - More cables were evaluated as spurious
- Multiple spurious actuations being systematically addressed

Areas of Continuing or Future Interest

- Progress Energy Internal Initiatives
 - ▶ Addition of RDM criteria into SSA
 - ▶ Use of PB/RI tools to address multiple cable failures and resulting spurious actuations
 - ▶ Credit offsite power for non-III.G.3 Fire Areas
 - ▶ Change Fire Area resolution strategy from III.G.3 to shutdown from the control room
 - ▶ Use of available off site power in addition to on site emergency power supplies for selected III.G.3 Fire Areas

Areas of Continuing or Future Interest

- Fire Rated Cable to Meet III.G.2 (or NUREG-0800 Equivalent) Requirements
- Resolution of Manual Actions
 - Manual actions not previously approved in accordance with III.G.2
 - Suppression in Fire Areas with manual actions
 - Alternative means of establishing manual action time line

Additional Discussion of Results and Insights

- Discuss Examples
- Answer Questions

Summary

- All sites current engaged in SSA Validation
- Waiting for completion of staff guidance on some aspects of the initiatives