

VC Summer  
NFPA 805 LAR  
Pre-Application Meeting  
March 15, 2018

# Agenda

- Introduction
- Meeting Purpose
- Background
- 2018 LAR Scope
- 2018 LAR Submittal Schedule

# Introduction – VC Summer Team

- Wayne Stuart – General Manager, Engineering Services
- Bruce Thompson – Manager, Nuclear Licensing
- Jody Galloway – Supervisor, Design Engineering
- Ken Leonelli – Supervisor, Nuclear Fuels & Analysis
- Justin Bouknight – Engineer, Nuclear Licensing
- Francisco Joglar – Consultant, JENSEN HUGHES
- Andy Ratchford – Consultant, JENSEN HUGHES

# Meeting Purpose

- Discuss Background on NFPA 805 Transition and implementation challenges
- Discuss scope of the 2018 LAR
- Address comments and questions
- Discuss the submittal schedule

# Background

- VC Summer received NFPA 805 SE on 2/11/15
- Transition License Conditions included completion of plant modifications by 12/31/15
- Final Implementation Items for full compliance by 3/31/16
- Implementation Item 22 included update of Fire PRA to reflect as-built modifications and implementation items

# Background

- Reviews in 2016 indicated that certain committed modifications had not been completed as described in the LAR/RAIs
- Several self-identified Fire PRA and Fire Protection issues warranted updates and refinement
- NRC inspection identified issues warranted an update
- Ongoing industry Fire PRA treatments were in the approval stages and warranted inclusion in the Fire PRA

# Background

- Fire PRA model was updated and refined in 2016
  - De-scoped modifications
  - Self-identified issues addressed
  - NRC identified issues addressed
  - Update for industry Fire PRA treatments
- Demonstrated transition change in risk is within RG 1.174 criteria
- De-scoped modifications require LAR submittal

# 2018 LAR Goal

- Obtain review and approval of de-scoped modifications
- Reconcile completion of the Transition License Condition
- Attain approval for a new performance-based method for treatment of thermal insulation materials



# 2018 LAR Scope

- Apply guidance from NRC letter to NEI dated 3/2/16 for modification changes
- Option B was chosen since changes to PRA approaches have been included
- Incorporate current regulatory methods
  - NUREG-2180 for new treatment of incipient detection
  - NUREG-2169 for new ignition frequencies
  - NUREG-2178 for new electrical cabinet HRRs

# 2018 LAR Scope

## 3/2/16 NRC Letter to NEI, Option B

- Summary of modification changes
- Summary of PRA model changes
- New LAR Attachments
  - Att. M - License Condition
  - Att. S – Modifications
  - Att. W – Fire PRA Fire Area Change in Risk
- Defense-in-Depth, Safety Margin
- PRA Methods
- Demonstration of Acceptability of Methods
- Summary of NSCA Changes (LAR Att. C & G)
- New/Removed VFDRs and Recovery Actions

# 2018 LAR Scope

- Specifics planned for inclusion in the 2018 LAR:
  - 10 CFR 50.48(c)(2)(vii) for Thermal Insulation Materials
  - Fire Door – NRC Inspection Issue (B-1 Table Revision)
  - RCP Lube Oil Collection System – NRC Inspection Issue

# 2018 LAR Scope – Modification Changes

- Original LAR Attachment S provided very general description of committed plant modifications
- RAI responses provided more detail with respect to cable numbers, protection methods, related VFDRs, etc.
- Over course of transition activities, certain modification details were de-scoped using risk-informed methods without proper NRC approval

# LAR Scope – Modification Changes

ECR	Withdrawn Scope	Affected FA/FZ
50810	AB 400' el. Sprinkler System - Extend Coverage	AB01.09
50784	Protect Circuits for XVT08109A and XVT08109B	AB01.04 AB01.09
50810	AB 463' el. Sprinkler System - Extend Coverage	AB01.21.01 AB01.21.02
50784	Protect Circuits for INI00032	CB01
50784	Protect Circuits for XCP06104-CS-SG02A and -SG02B	CB01
50784 50800	Modify cables associated with XSW1DA-U01 and -U015	IB17
50784	Protect Circuits for IFV02030	IB25.01.03
50784	Protect Circuits for LCV00115E	IB25.04
50784	Protect Circuits for XSW1DB-U01	IB25.06.02
50784	Protect Circuits for XSW1DB-U16	IB25.06.02

# 2016 Fire PRA Updates and Refinements

- Updated the ignition frequency calculations due to the addition of new ignition sources to selected fire zones
- Updated the scenario target sets due to cable re-routes or the construction of electrical raceway fire barrier systems
- Detailed fire modeling of selected ignition sources
- Screening of multi compartment scenarios using detailed fire modeling techniques
- Refinement to the internal events model including the RCP seal LOCA model

# 2016 Fire PRA Updates and Refinements

- Transient initiators in Fire PRA model logic
- Revised use of QRecover rules and FRANX excluded gates features
- Additional refinement in MCR abandonment model to provide more realistic abandonment and non-abandonment treatment
- Logic correction and refined treatment of fire-induced RWST draindown MSO scenario
- More detailed treatment of containment isolation paths
- Refinements in HRA dependency analysis
- More explicit modeling of disconnect switches used for electrical isolation

# 2018 LAR Scope – PRA Changes

- NUREG-2180 – Incipient Detection – Change from approved FAQ 08-0046 approach to new approach results in significant change in quantified risk. Additional refinements needed to attain realism.
- NUREG-2169 – Ignition Frequencies – Change to implement new values results in significant change in quantified risk. Additional refinements needed to attain realism.
- NUREG-2178 – Electrical Cabinet HRRs. Application has provided more realistic treatment.



# 2018 LAR Scope – Other PRA Topics

- Changes to Internal Events and Other External Event PRA models since NFPA 805 SE
- Current Status of Seismic PRA
  - Submittal on track for September 2018
- Internal Events/Internal Flooding Peer Review

# 2018 LAR Scope – Other Changes

- Changes to the NSCA (e.g., VFDRs and Recovery Actions) will be included in the 2018 LAR:
  - Fire Areas crediting approved Performance-Based Fire Modeling (NFPA 805 Section 4.2.4.1) now assessed using approved Fire Risk Evaluation approach (NFPA 805 Section 4.2.4.2)
  - Several additional Fire Areas credit local trip of RCP breakers
  - Changes associated with completion of plant modifications
- Clarification of items from 2017 NFPA 805 SE self-assessment

# Submittal Schedule

- LAR is planned for submittal by June 30, 2018

# Questions?

# Acronyms

- HRA – Human Reliability Analysis
- HRR – Heat Release Rate
- LAR – License Amendment Request
- MCR – Main Control Room
- MSO – Multiple Spurious Operation
- NEI – Nuclear Energy Institute
- NFPA – National Fire Protection Association
- NRC – Nuclear Regulatory Commission
- NSCA – Nuclear Safety Capability Assessment
- PRA – Probabilistic Risk Assessment
- RAI – Request for Additional Information
- RCP – Reactor Coolant Pump
- RG – Regulatory Guide
- RWST – Refueling Water Storage Tank
- SE – Safety Evaluation
- VFDR – Variance from Deterministic Requirements