Fort Calhoun Station Extended Power Uprate (EPU) Project

EPU's Impact on Environmental Qualification Program

AGENDA

- Introductions and Overview
- EPU Impact on Environmental Qualification (EQ) Program
- License Amendment Request
- Overview of EQ Project & HELB Reconstitution
- Take Aways
- Question and Answer

Introductions and Overview

Introductions

• Bernard Van Sant	EPU BOP Project Manager
• Mark Frans	Manager Engineering Programs
• Tim Leibel	EPU BOP I&C Electrical Lead
• Tom Shudak	FCS Program Engineer
• Ron Wise	Consultant
• Bill Hansher	FCS Licensing Supervisor

EPU Project Overview

- 17% EPU: 1500 MWt to 1755 MWt
  - 75-80 MWe
- Engineering & Licensing work in progress
- Submit LAR to NRC: May 31, 2011
- Plant modifications: 2011/2012 RFOs
- Implement EPU: Post-2012 RFO

EPU Impact on Environmental Qualification Program

EPU Impact on EQ Program

EPU Impact on the EQ Program focused on:

- Identifying changes to environmental conditions (normal and accident)
- Ensuring that the EQ Program equipment will continue to perform as required following implementation of EPU

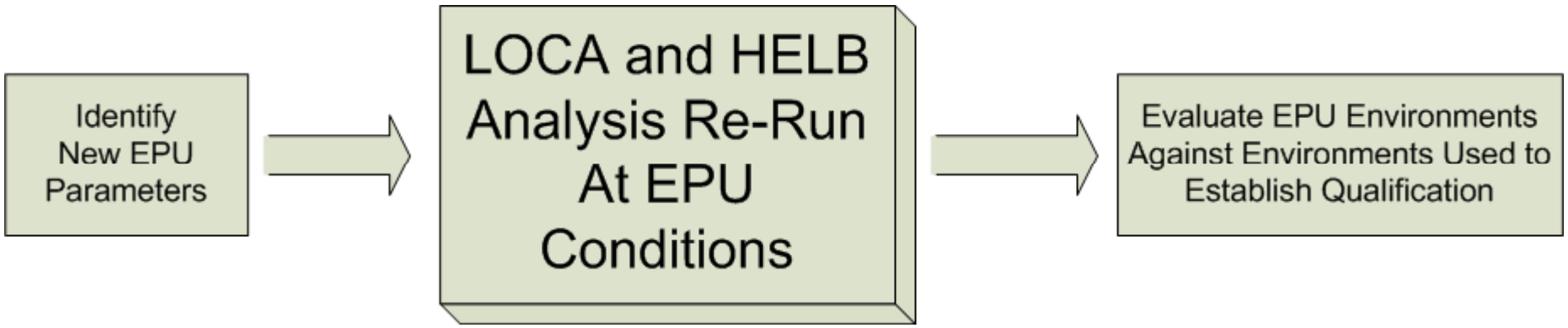
EPU Impact on EQ Program

Licensing Basis Criteria:

- 10 CFR 50.49 / RG 1.89 / SRP 3.11
- DOR Guidelines (Enclosure 4 to IEB 79-01B)
- Final EQ SER

EPU Impact on EQ Program

PROCESS USED FOR EVALUATION



EPU Impact on EQ Program

Method of Evaluation:

- Compared the EPU environments to the current environments and profiles used to demonstrate environmental qualification
- Where EPU profiles exceed the current profiles, then specific parameters were compared against the qualification basis in the EQ File
- Applied Lessons Learned from other utilities

EPU Impact on EQ Program

Evaluation:

- Based on existing EQ SER
- Containment environmental conditions
  - LOCA
  - MSLB
- Auxiliary Building environmental conditions
  - LOCA
  - MSLB / FWLB
  - Other
- Normal environmental conditions

EPU Impact on EQ Program

Results:

Containment

- Peak temperature/pressures are bounded by existing EQ values
- LOCA vapor and sump temperatures profiles increased
- Total integrated doses increased
- Analysis included change in containment spray chemistry up to 2500 ppm boron

EPU Impact on EQ Program

Results:

Auxiliary Building

- MSLB peak temperatures and pressures in Main Steam Line Room increased
- Flood level from a FWLB in Main Steam Line Room increased

EPU Impact on EQ Program

Results:

Auxiliary Building

- Post LOCA temperatures in rooms containing sump recirculation piping increased
- Total integrated doses increased
  - Dose increase did not result in any “Mild” areas becoming radiation “Harsh”

EPU Impact on EQ Program

Impacts:

- Evaluation resulted in the identification of required changes to ensure qualification on a component level
- Changes include:
  - Update to EQ Files to reflect new EPU conditions (equipment remains fully qualified)
  - New or additional test reports need to be incorporated into the EQ Files
  - Equipment replacements identified

License Amendment Request

- Licensing Report prepared in accordance with RS-001
- Licensing Report content based on lessons learned from previous EPU submittals dealing with EQ
- Licensing Report provides a summary of the pre-EPU and post-EPU environmental parameters

Overview of EQ Project and HELB Reconstitution

Overview of EQ Project

- The EQ Project is a program improvement plan to improve the EQ Program (12/2011)
  - Improvements to Program Infrastructure
  - Validating Design Inputs to EQ Program
  - Improvements to the EQ Files
- Scope includes reconstituting HELB analysis outside of containment (6/2011)

HELB Reconstitution

- Systems being evaluated for HELB reconstitution are:
  - Main Steam (complete)
  - Feedwater (complete)
  - Letdown / Charging
  - Steam Generator Blowdown
  - Auxiliary Steam

HELB Reconstitution

- Being performed to reconstitute and upgrade the HELB analysis
- The HELB reconstitution is being performed as part of the EQ Project at EPU levels

Take Aways

Take Aways

- The EPU Project has assessed the impact on the EQ Program
- The assessment focused on the changes to the normal and accident environmental conditions used by the EQ Program
- The EPU assessment has addressed OE from recent submittals related to EQ

Take Aways

- Prior to implementation of EPU all EQ Program equipment affected by EPU will be qualified to EPU conditions
- EQ Project and HELB Reconstitution being performed separately but at EPU Conditions and will be completed prior to EPU implementation

Questions??