LaSalle County Station
Pre-Application Meeting

License Amendment Request for
Revision of Suppression Pool Swell Design Analysis

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Exelon Representatives

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Agenda

- Meeting Objectives
- Background
- Issue Overview
- License Amendment Request
  - Need for Amendment
  - Technical Evaluation
- Summary
- Discussion

Meeting Objectives

- Present information to NRC describing a proposed License Amendment Request (LAR) to revise the suppression pool swell design analysis at the LaSalle County Station

- Engage the NRC in an open and transparent dialog regarding the proposed approach to identify technical and regulatory areas that warrant additional discussion such that they may be satisfactorily addressed in the LAR prior to submittal

- Answer questions and obtain feedback from the NRC on the proposed LAR approach and content

Background

- Suppression Pool Swell Phenomena
  - Design Basis Accident Loss of Coolant Accident (DBA LOCA) occurs
  - Air & Steam discharged to suppression pool through downcomers
  - Large bubble forms at downcomer exit
  - Expanding bubble causes suppression pool water to swell up
- Design Analysis
  - Determines impact and drag loads on components located in suppression pool and suppression chamber
  - Verifies components' design margin

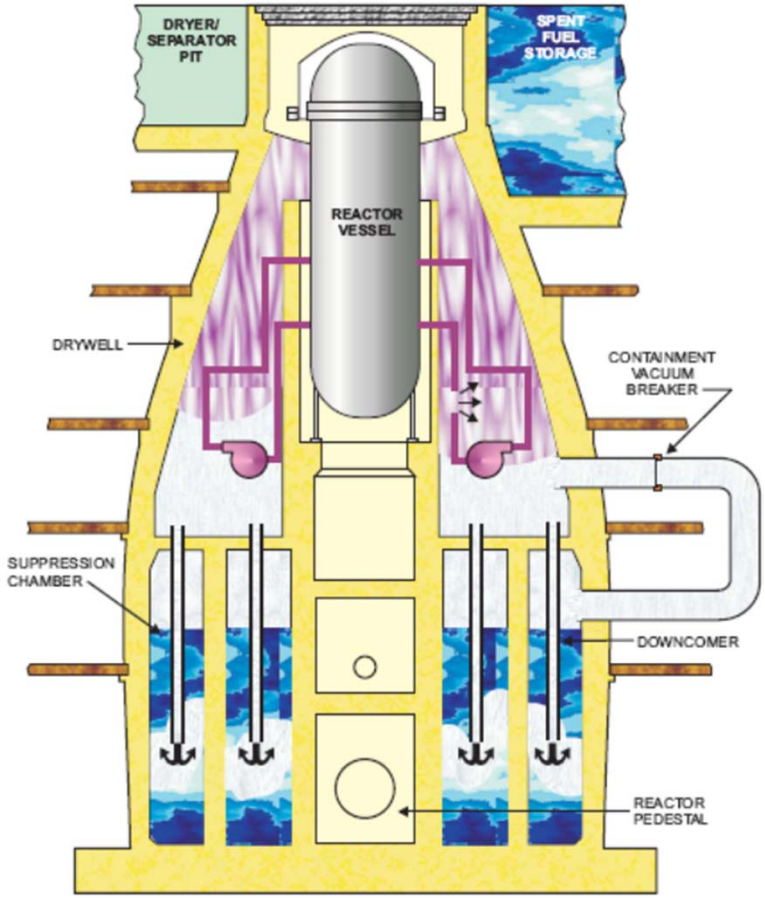

Figure 90-11: DBA LOCA DOWNCOMER CLEARING 9/9/99

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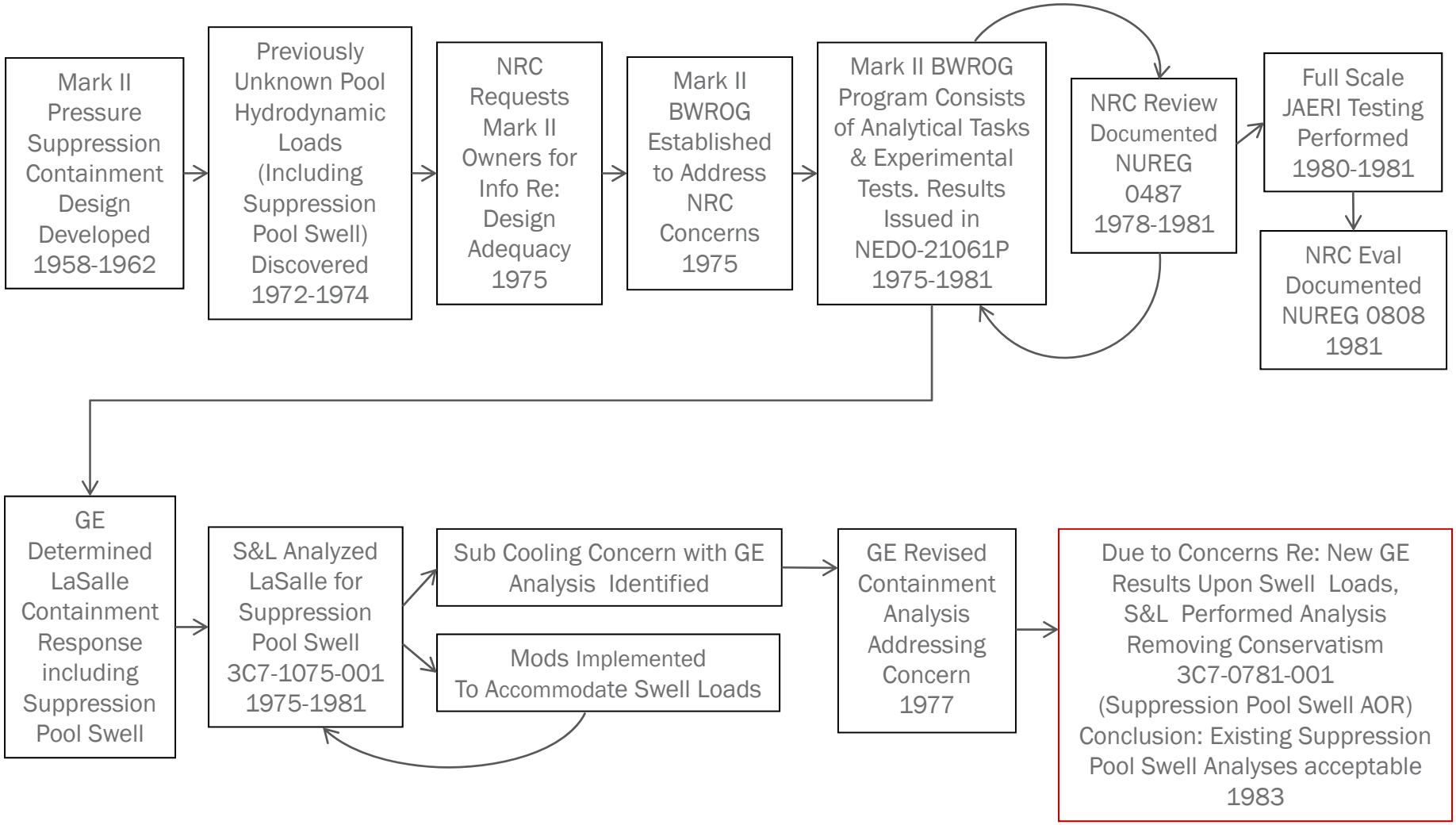
Issue Overview

- LaSalle suppression pool swell calculation contains non-conservative mass and energy release
  - Analysis uses improper reactor water temperature
- Non-conforming condition is subject of Operability Evaluation OE 12-003
- Consequences of correcting the non-conservative mass and energy release
  - Increases impact and drag loads associated with the suppression pool swell phenomena
  - Increased loads affect systems, structures, and components (SSCs) in suppression chamber (e.g., piping and supports)

Issue Overview



License Amendment Request – Need for Amendment

- Changes in methodology to be included in LAR submittal:

  1) The analysis of record (AOR) conservatively uses downcomer vent flow consisting of air; the new analysis initially uses air flow and transitions to a realistic air/steam mixture

  2) The new analysis uses the GEH TRACG computer code to determine break mass and energy release

  3) The new analysis does not account for vent back pressure for drywell pressurization

  4) Calculated suppression pool swell velocity profile modified to meet the NRC acceptance criteria for swell height

License Amendment Request – Technical Evaluation

Composition of the Downcomer Vent Flow Effluent

New analysis initially uses air only flow (until the air mass contained in the non-submerged portion of the downcomer vents is purged) and then uses a realistic air/steam mixture.

- Although the amount of air in the mixture decreases following the LOCA, the new analysis conservatively uses a constant drywell air/steam fraction following vent clearing
- Drywell air/steam fraction use is conservative to the values documented in NUREG-0487, Supplement 1
- The use of an air/steam mix better represents DBA LOCA conditions (i.e., more realistic) as shown by testing

License Amendment Request – Technical Evaluation

- The new analysis uses TRACG to determine break mass and energy release
  - TRACG has been used for mass and energy release by other licensees and accepted by the NRC
- The new analysis does not account for vent back pressure for drywell pressurization
  - Accepted approach referenced in NUREG-0487, Supplement 1
- Calculated suppression pool swell velocity profile modified to meet the NRC acceptance criteria for swell height
  - The calculated swell height is less than the NRC acceptance criteria; therefore, the swell velocity profile is “stretched”

Summary

- NRC approval of the new Suppression Pool Swell Design Analysis will:

  - Enable resolution of a non-conforming condition to full qualification
  - Support closeout of open Operability Evaluation OE 12-003

- Exelon plans to submit the LAR to revise the LaSalle suppression pool swell design analysis in 4Q 2016 requesting NRC approval within one year

DISCUSSION