

## Enclosure 2.A

Slides: RPVH Volumetric Leak Path Assessment

NRC Public Meeting

March 17, 2009



# **RPVH Volumetric Leak Path Assessment**

March 17, 2009

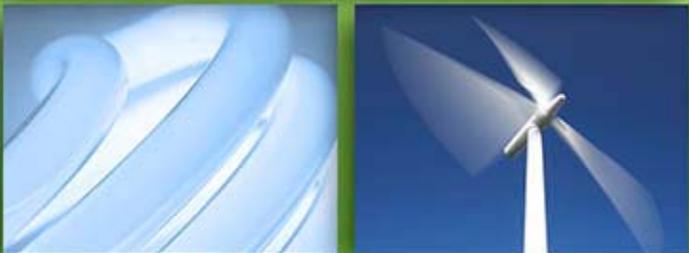
# Agenda

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- Introductions
- NRC Discussion
- Industry Presentation
  - MRP
  - PWROG
- Public Comments
- Action Items and Conclusions

# NRC Discussion of November 24, 2008 Meeting

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**EPR**

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## **RPVH Penetration NDE Qualification and Demonstration Program: ASME N-729-1 & 10CFR50.55a Rulemaking**

### **NRC/Inspection ITG Meetings**

Date: March 17, 2009

Chairman: Terry McAlister

Project PM: Jack Spanner

# Purpose of Meeting

- Provide an update on the volumetric leak path demonstration program
- Reach agreement on a number of technical items
  - Volumetric leak path demonstration strategy
  - Number of mock-ups for leak path (3)
  - Plan for technical justifications
  - Schedule

# Industry Overview

- Program Overview
- Volumetric Leak Path Demonstration Program
- RPVH Penetrations Program Status
- Mockups
- Schedule

# Leak Path Demonstration Program

## MRP Inspection ITG Project

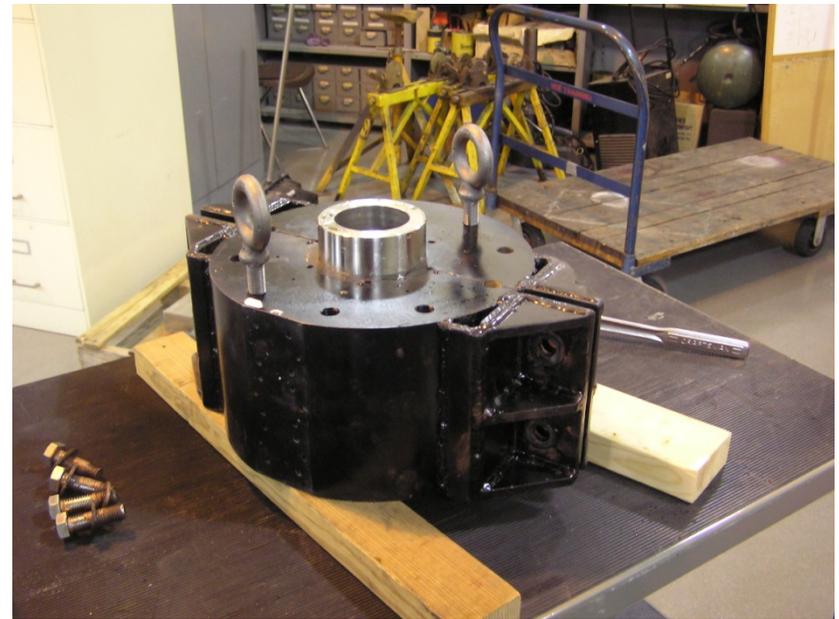
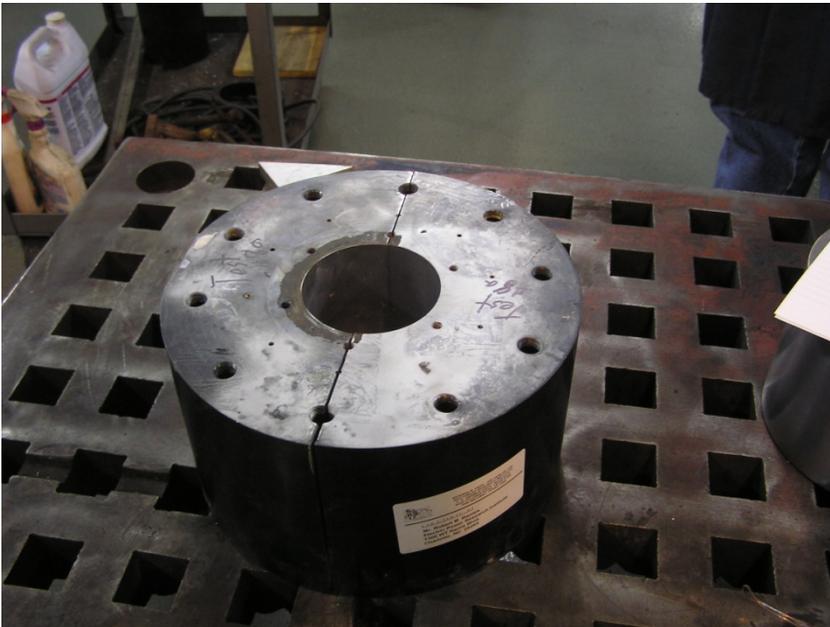
- Evaluate Vendor Technical Justifications (TJ)
- Review OE and North Anna data from PNNL
- Fabricate mockups
- Conduct demonstrations

# Volumetric Leak Path Program Update

- Fall 2009 outage support
  - Third party review of the vendor's procedures by EPRI
  - Develop demonstration program to be included in head penetration qualification activities
  - Complete necessary new mockups
  - Incorporate at least 3 leak path flaws in tube demonstrations as necessary
  - Conduct demonstrations before September 1<sup>st</sup> 2009 deadline

# Leak Path Program Update

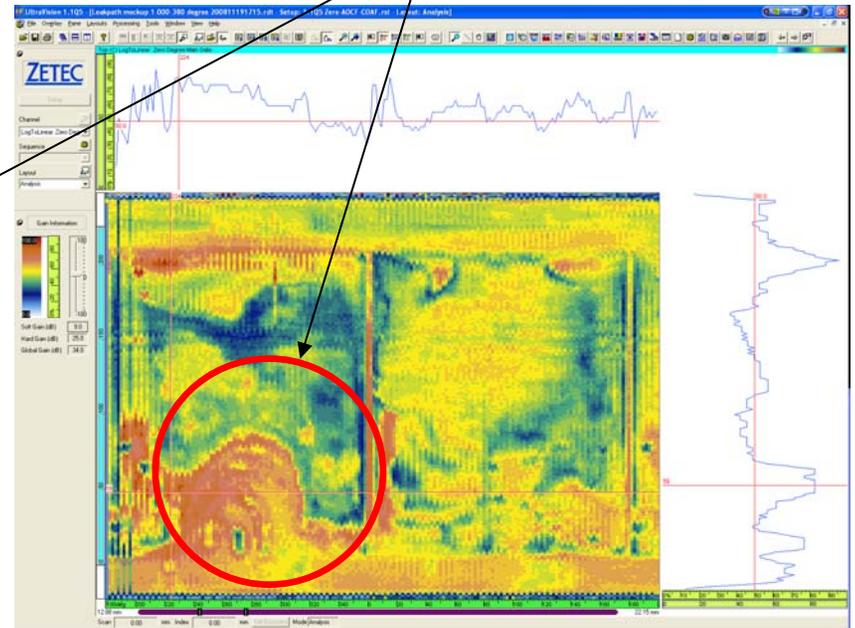
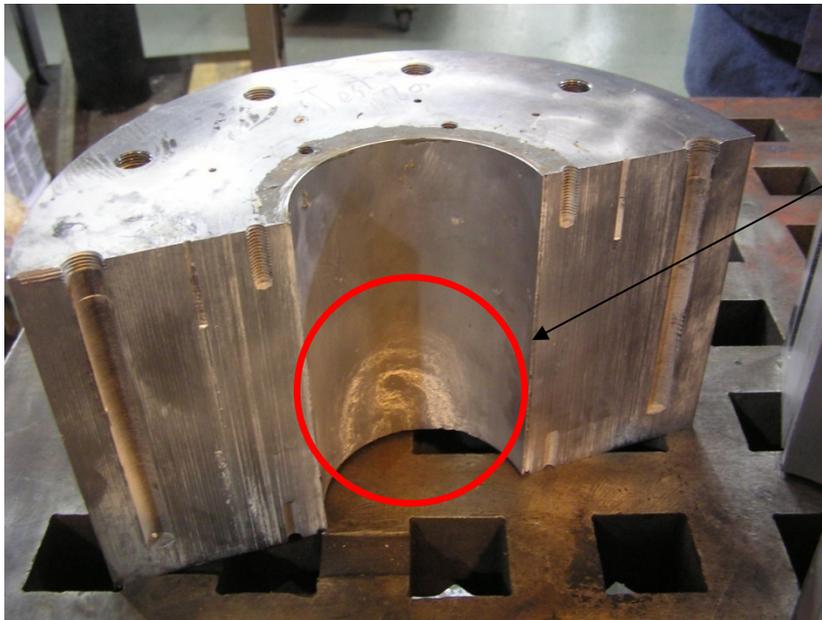
- Acquired test block from SwRI CRDM Boric Acid Corrosion Testing
- Test block clamped around tubing to simulate interference fit of approximately 1.5 mils for this block
  - Mock-ups will bound 0-5 mils interference fit



# Leak Path Research

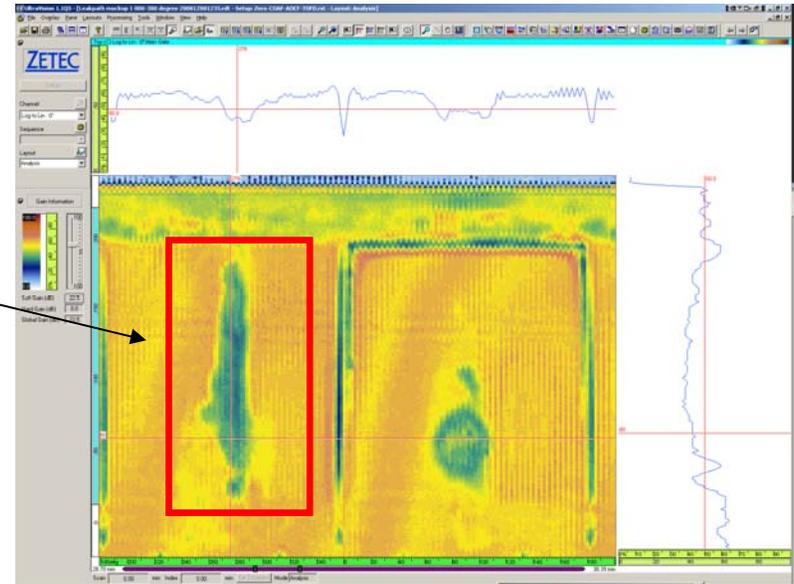
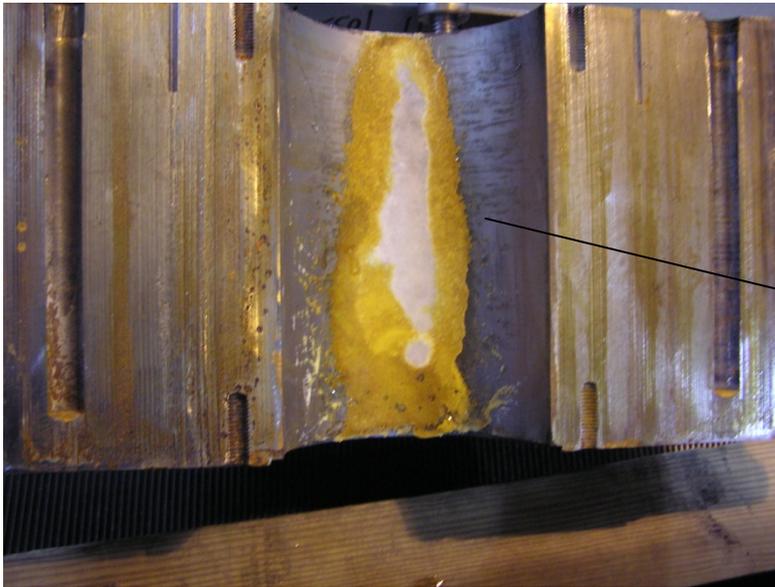
- Zero degree data acquired without boron present
- Presence of back wall signal indicates corrosion area, within interference fit area

Corrosion/Erosion Area  
without the present of boron



# Leak Path Research

- Zero degree data with boron over corrosion/erosion area
- Variance in backwall signal indicates presence of boron



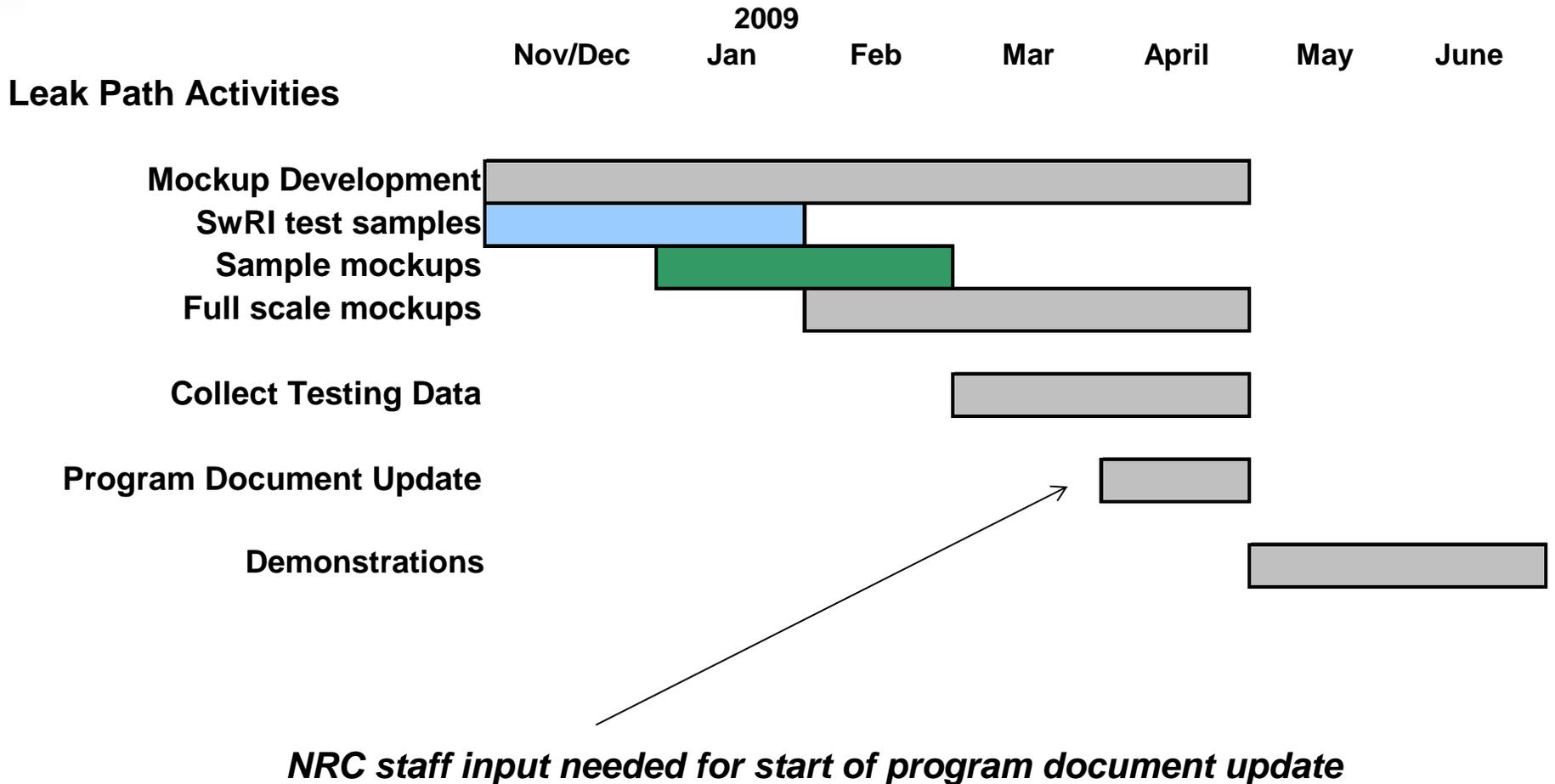
# Leak Path Mock-ups

## EPRI Demonstration Mockups

- Based on the CRDM Boric Acid Corrosion Testing done at SwRI MRP is developing mockups for blind demonstrations.
  - Multiple full scale mockups with simulated leak path flaws
  - These mockups will be available for the procedure demonstrations starting summer 2009.



# EPRI Leak Path Schedule



# RPVH Program Penetration Examinations

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# RPVH Program Penetration Examinations

## Qualification Program

- Program document update in process
  - Requirements of the 50.55a rulemaking
  - Implementation for Fall 09 outage season
- Quality Assurance program updates to meet the changes to the program document
  - Include
    - Grading for detection criteria
    - Depth sizing
    - Length sizing

# RPVH Program Status

## Qualification Program

- Licensee's vendor will participate in program prior to first exam Fall 2009
- Participants will be required to collect mockup data for procedure and personnel qualifications
- Program maintained at EPRI
- Program is available for future procedure qualification to address essential variable changes

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