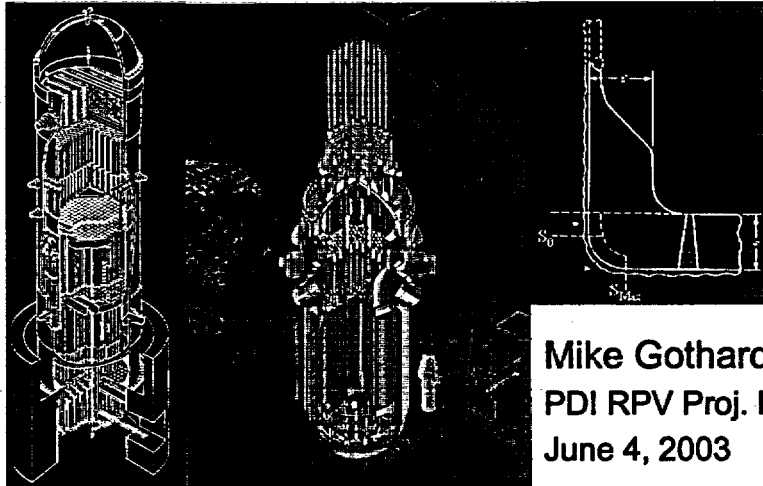




PDI/NRC - Meeting



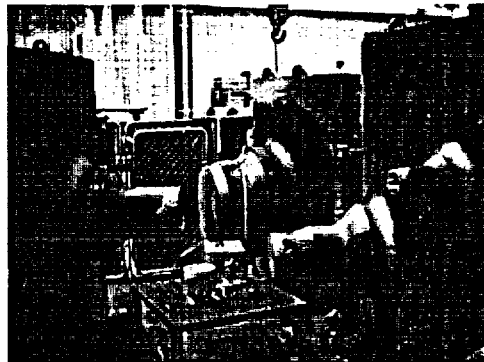
Mike Gothard
PDI RPV Proj. Mngr.
June 4, 2003



Status of RPV Demonstration Program

◆ Introduction

- Supplement 5 Update.
 - Nozzle inside radius section.
- Supplement 7 Update.
 - Nozzle to vessel welds.
- Current Status.
 - PDI/RFR.
 - PDI/ASME.
 - PDI/Rule.

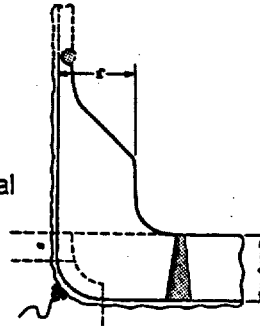




Status of RPV Demonstration Program

◆ Supplement 5 – From the ID (PWR)

- Most utilities electing to do enhanced VT-1 exams.
- One vendor qualified automated (limited).
 - Detection – 4 individuals.
 - Sizing – 4 individuals.
- One vendor collected automated conventional and phased array data.



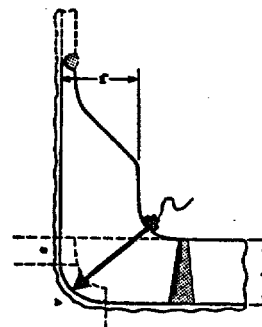
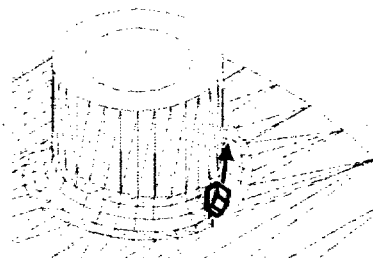
Nozzle Inside Radius Section



Status of RPV Demonstration Program

◆ Supplement 5 – From the OD (BWR)

- Code Case N-552 per 10CFR50.55a...(xv)(J).
- Compound curvature requires modeling.



Nozzle Inside Radius Section

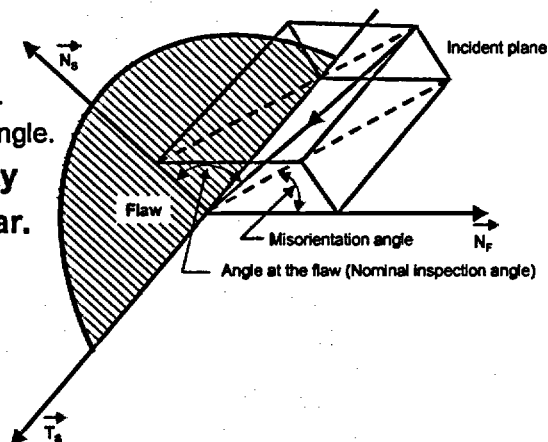


Status of RPV Demonstration Program

◆ Supplement 5 – From the OD (BWR)

- Modeling establishes:
 - Misorientation angle.
 - Maximum metal path.
 - Nominal inspection angle.

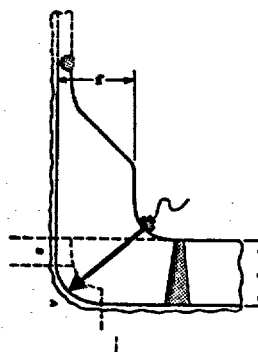
◆ Forward plotting utility scheduled for this year.



Status of RPV Demonstration Program

◆ Supplement 5 – From the OD (BWR)

- One vendor qualified automated.
 - Detection – 5 individuals.
 - Sizing – 4 individuals.
- One vendor qualified manually.
 - Detection – 6 individuals.
 - Sizing – 2 individuals.
- One vendor qualified manually.
 - Detection – 3 individuals.
 - Sizing – 1 individual.
- Additional vendor qualified manually
 - Detection - 5 individuals.
 - Sizing – 7 individuals.



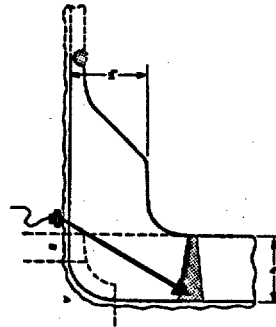
Nozzle Inside Radius Section



Status of RPV Demonstration Program

◆ Supplement 7 – From the ID (PWR)

- Augmented examination to obtain 4 direction coverage in the inner 15% and radial coverage in outer 85%.
- One vendor qualified automated.
 - Detection – 6 individuals.
 - Sizing – 6 individuals.
- One vendor qualified automated.
 - Detection – 3 individuals.
 - Sizing – 3 individuals.
- One vendor acquired automated conventional and phased array data.



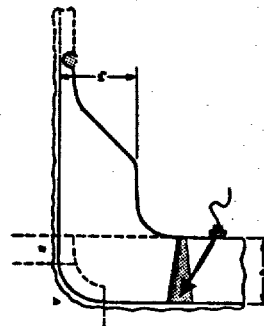
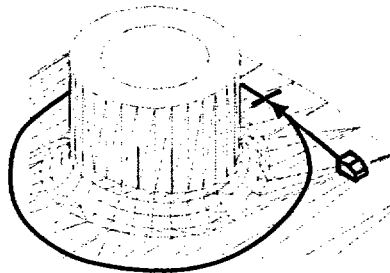
Nozzle to vessel weld



Status of RPV Demonstration Program

◆ Supplement 7 – From the OD (BWR)

- Code Case N-552 – Extension of Supplement 5 Qualification for inner 15% circumferential scans per 10CFR50.55a...(K)(3)(I). Compound curvature requires modeling.



Nozzle to vessel weld

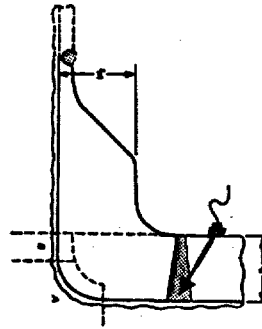


Status of RPV Demonstration Program

◆ Supplement 7 – From the OD

◆ Procedure extension = Supplement 5

- One vendor qualified automated
 - Detection – 5 individuals.
 - Sizing – 4 individuals.
- One vendor qualified manually.
 - Detection – 6 individuals.
 - Sizing – 2 individuals.
- One vendor qualified manually.
 - Detection – 3 individuals.
 - Sizing – 1 individual.
- Additional vendor qualified manually.
 - Detection – 5 individuals.
 - Sizing – 7 individuals.



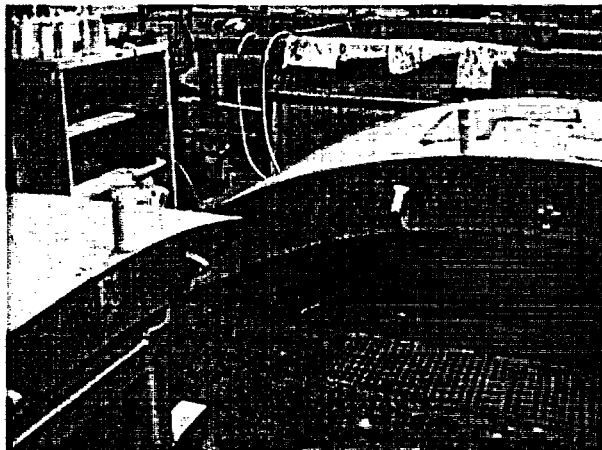
Nozzle to vessel weld



Status of RPV Demonstration Program

◆ Supplement 4 and 6 OD Thickness Expansion

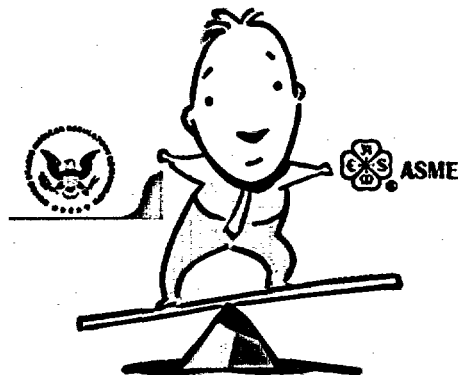
- 6.88" to 11.07"
- One vendor
 - Automated.
 - Detection.
 - Sizing.
 - Single side access.
 - Manual.
 - Detection.
 - Sizing.
 - Dual side Access.





Relief Update

- ◆ Required Reliefs
- ◆ Suggested Reliefs
- ◆ Requests for Additional Information



Relief Update

- ◆ Required Reliefs
 - Supplement 10, Rev. 2 (ALL)
 - Supplement 14, Rev. 2 (PWR)
 - Supplement 11, Rev. 1 (Weld-overlay)
 - Supplement 4, paragraph 3.2(c) (ALL)
- ◆ Suggested Reliefs
 - Code Case N-613-1 (Reduction to ½" exam volume for nozzles)
 - Code Case N-648 (Enhanced VT in lieu of Supplement 5)
 - Code Case N-663 (UT in lieu of PT)
- ◆ Requests for Additional Information
 - Incorporated into Supplement 11
 - Incorporated into Supplement 10 and 14
 - Received for Code Case N-613-1



RPV Related Code Activities

◆ Current activities

- Revised Supplement 5 to address modeling (CC N-552) including lessons learned.
- Revised Supplement 7 to address augmented bore qualification, modeling, including lessons learned.

◆ Future Activities

- Remove off-axis flaw requirements from Code and next Rulemaking.
 - Flaws detected length and depth sized by qualified:
 - *Shear wave techniques*
 - *Longitudinal wave techniques*
 - *Bimodal (tandem) techniques*



Piping Related Code Activities

◆ Completed Activities

- Revised Supplement 10 to include:
 - Alternative flaw mechanisms.
 - Revision of sample set tolerances.
- Created Supplement 14 to address coordinated ID qualification for DM, SS, and Fe.
- Sample Requests for Relief are now at Rev. 2 due to Code Editorial changes and Supplement 14 tolerance changes – available on EPRIQ website.

◆ Future activities

- Revise Supplement 11 to update WOR requirements.



RPV Related NRC Activities

- ◆ Examination coverage requirements for circumferential scans of the outer 85% of nozzle-to-vessel welds

federal register

Voluntary
February 21, 1998

Part 8
Up
Nuclear Regulatory
Commission

10 CFR Part 8
Industry Codes and Standards, Atomic
Regulatory Plant Rule