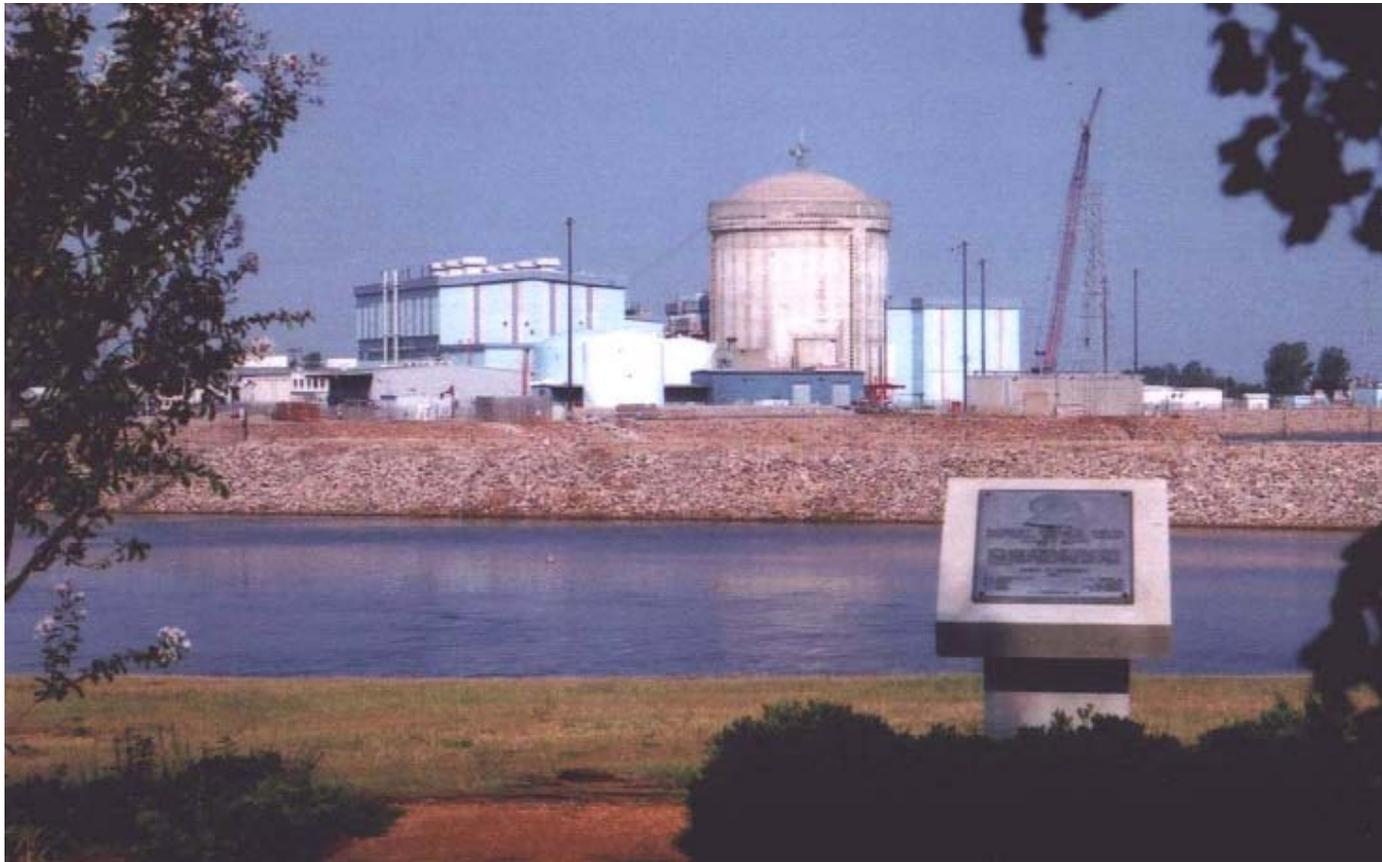


# V. C. Summer Nuclear Station



# VCS Participants

Steve Byrne	Senior VP, Nuclear Operations
Jeff Archie	General Manager, Nuclear Plant Operations
Mike Fowlkes	General Manager, Engineering Services
Ron Clary	Manager, Nuclear Licensing
Alan Torres	Outage Manager
Jerry Weatherford	RHR Retrofit Project Lead



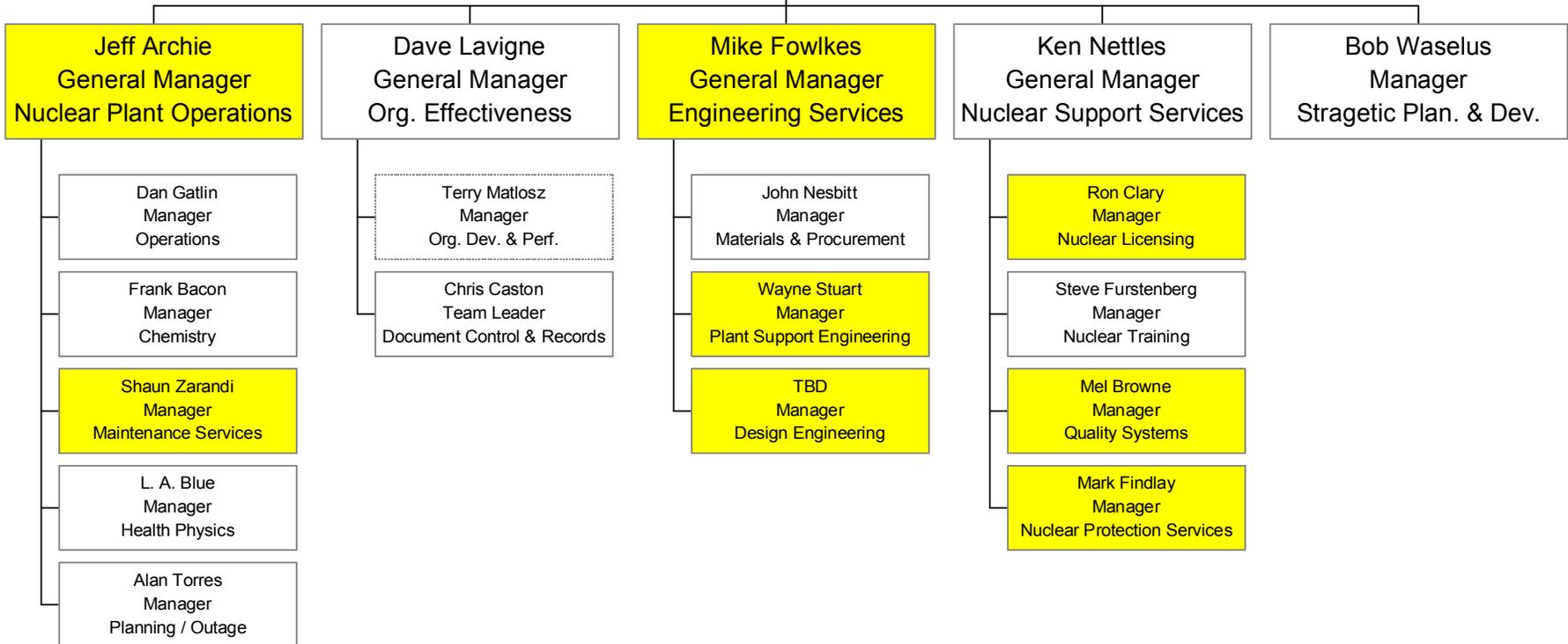
# Agenda

- VCS Organization Changes Steve Byrne
- RF-14 Alan Torres
- Reactor Vessel ISI Ron Clary
- RHR Pump Jerry Weatherford



# V. C. Summer Nuclear Station Management Organizational Changes

Steve Byrne  
Sr. Vice President  
Nuclear Operations Division



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# Organizational Development & Performance

- Human Performance
- Corrective Action Program
- Root Cause Analysis
- Operating Experience
- Trend Analysis
- Self Assessments
- Benchmarking



# Refuel -14

## General Overview



# Refuel-14 Goals

- Our Number 1 Goal
  - Safety
    - Nuclear
    - Radiological
    - Industrial
- Duration - 36 days
- Dose goal - To be determined after source term
- Emphasize human performance



# Refuel-14 Modifications

- Modifications
  - RHR pump seal
  - Complete RHR miniflow switch relocation
  - RHR vent addition
  - CW pump trip circuitry
  - Feedwater heater level transmitter logic change
  - Gravity boration flow path
- PRA review indicates no change in CDF

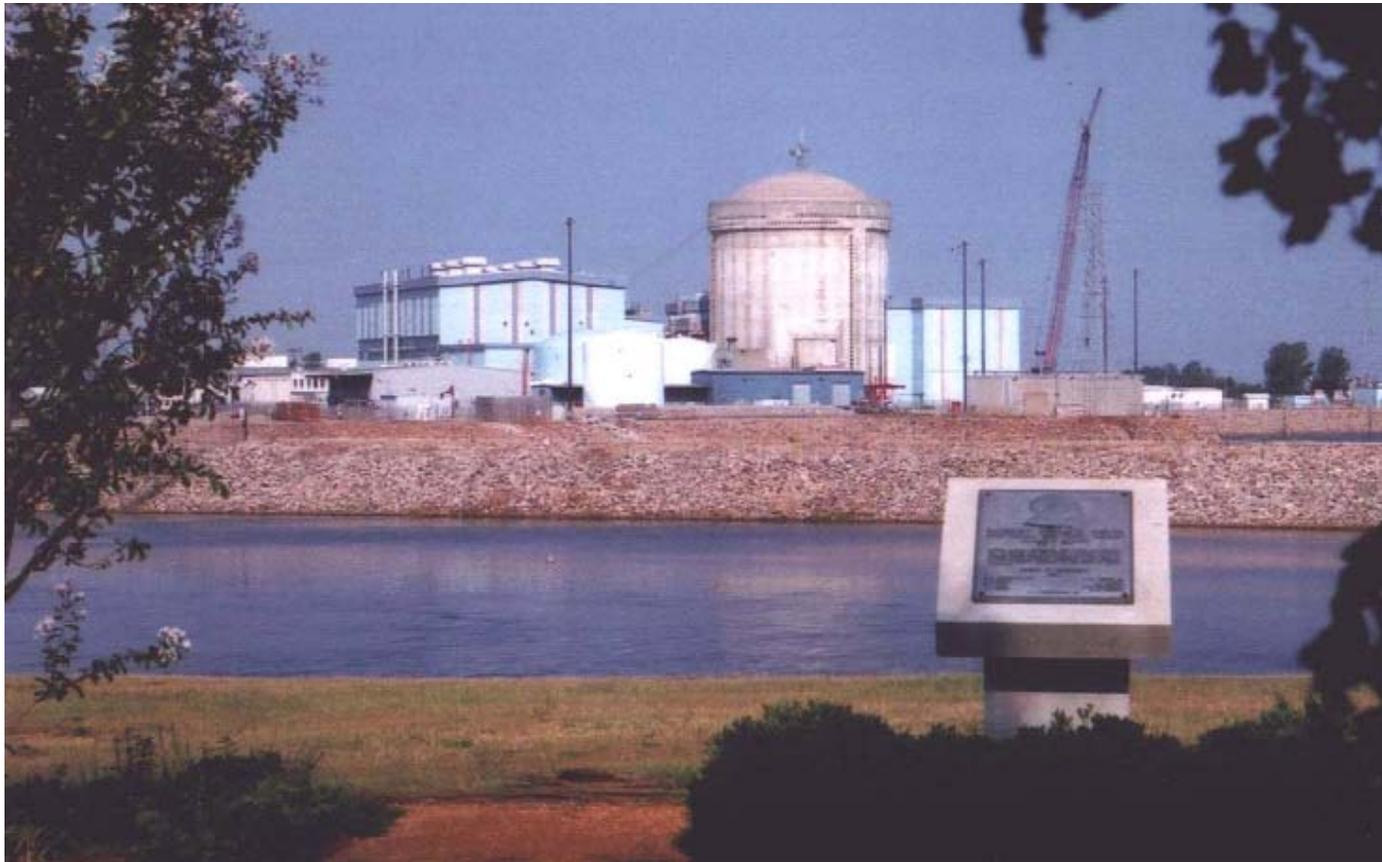


# Major Work Activities

- Reactor Vessel
  - Ten Year ISI
  - Bare metal visual inspections – Head/BMI
- Low pressure turbine maintenance
- ILRT of the Reactor Building
- “A” Train electrical maintenance
- “B” CCW heat exchanger repair and coating
- “C” RCP
  - Seal replacement
  - Motor replacement



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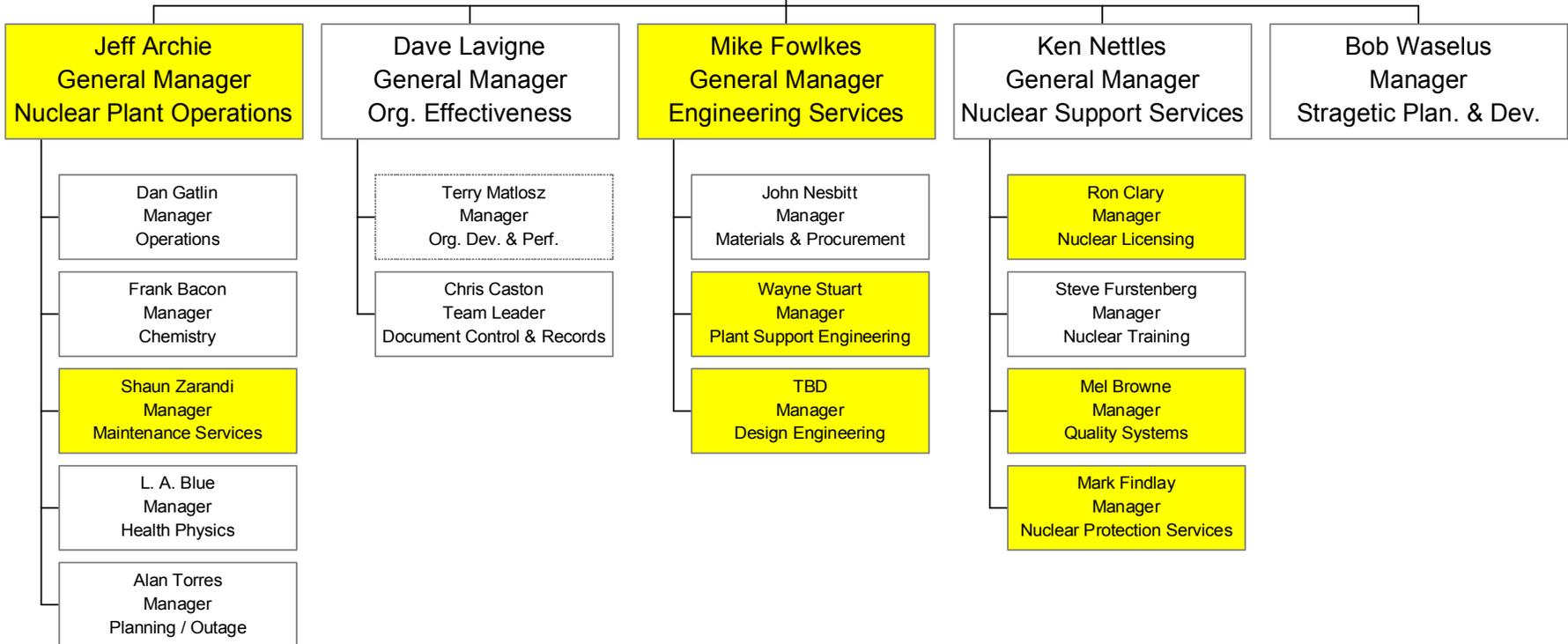
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# Organizational Development & Performance

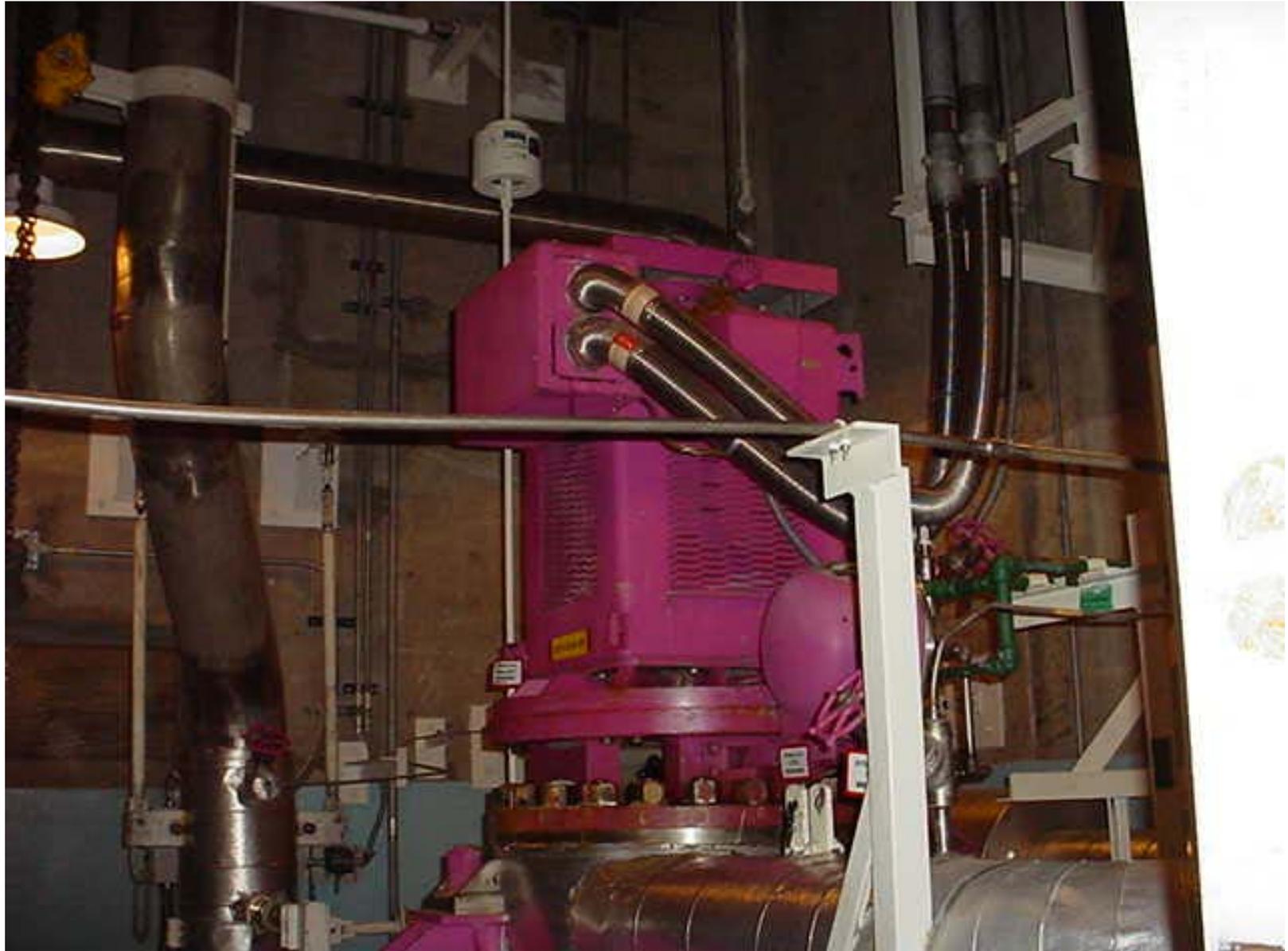
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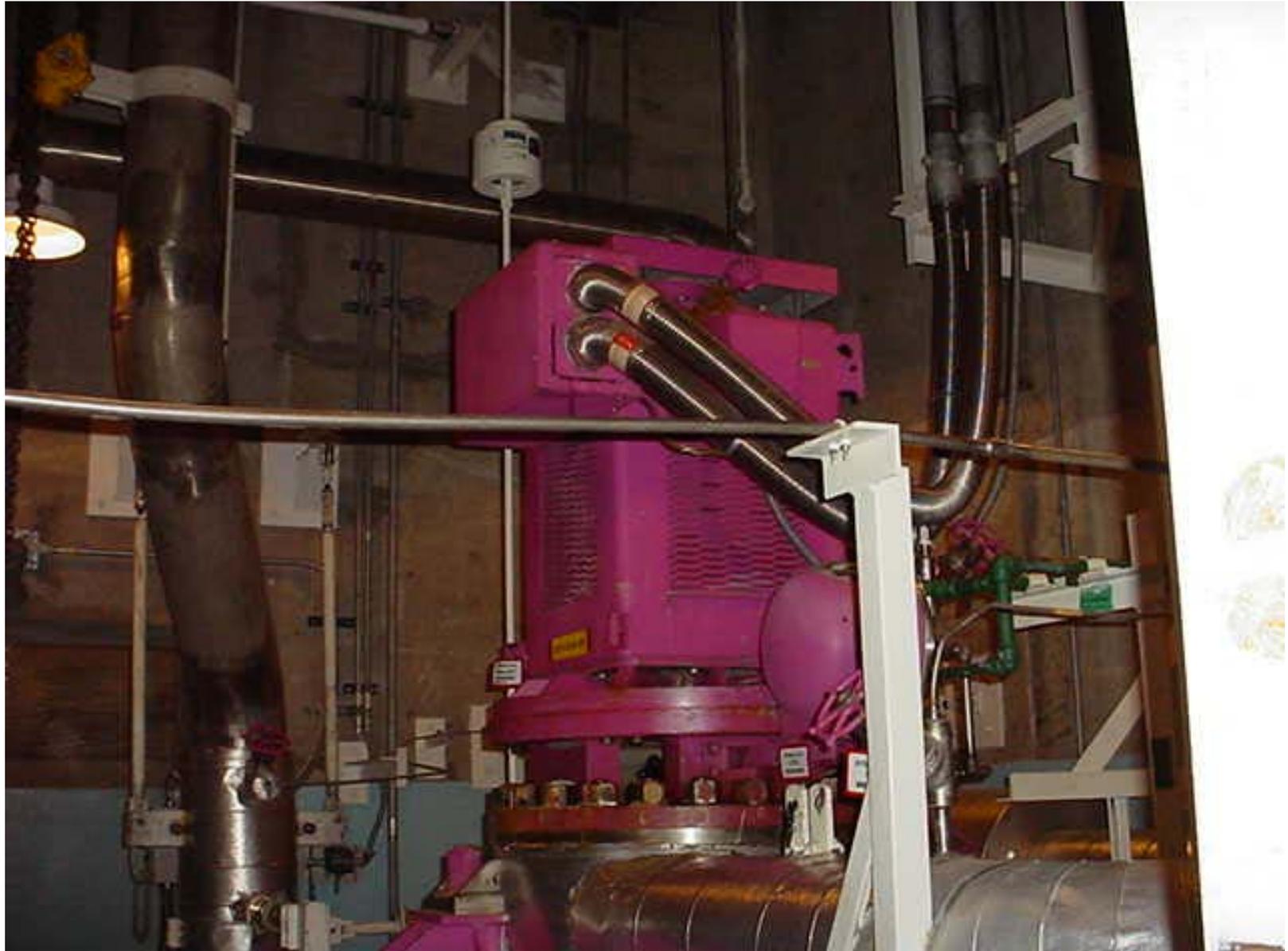


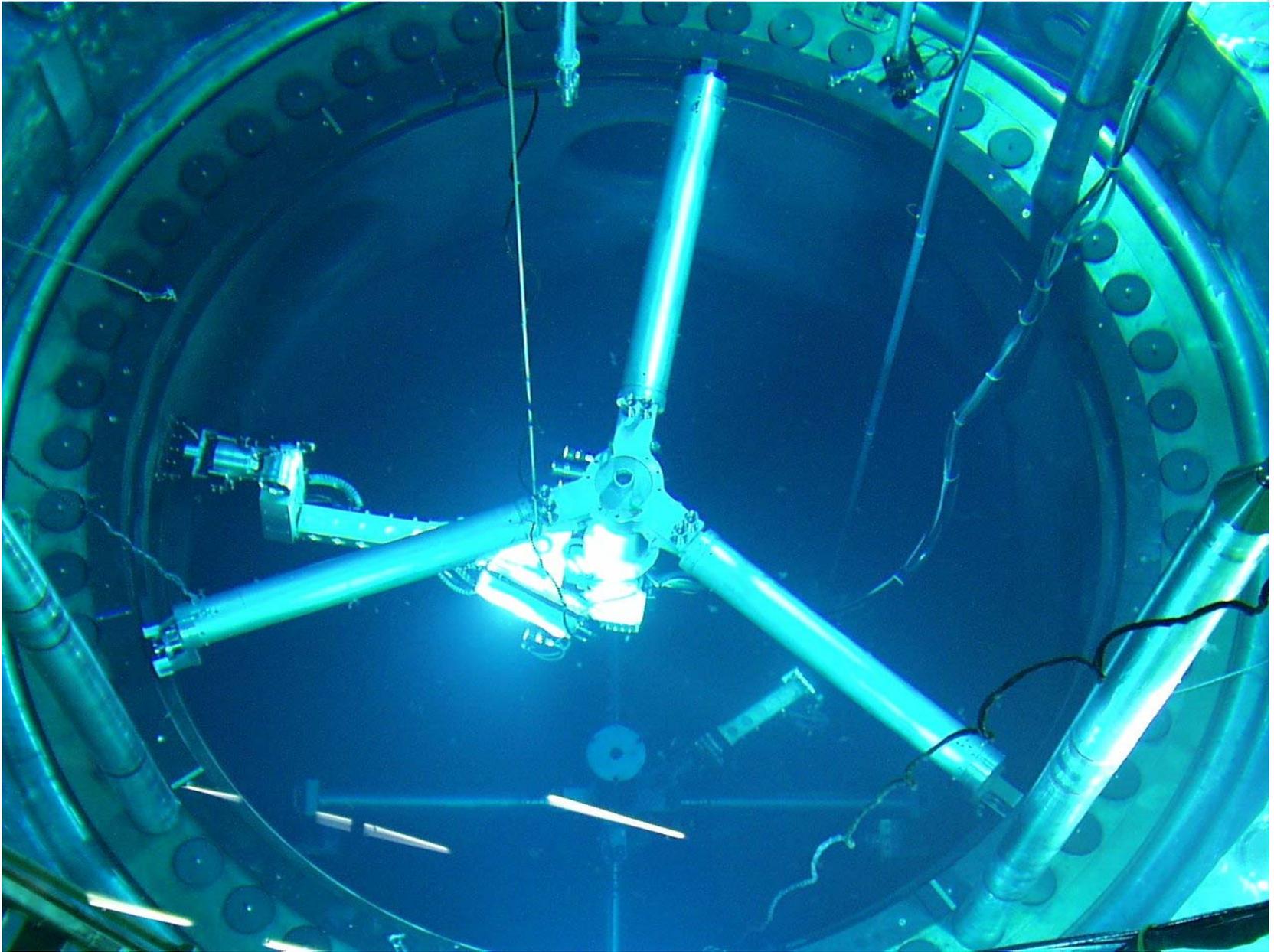
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# Outage Challenges

- ILRT
- Finding the fuel leak
- Coating the “B” CCW heat exchanger
- Timing of inspection of bottom of Reactor Vessel



# Reactor Vessel Nozzle Weld Inspections



# ISI Interval Information

- V. C. Summer currently in 2nd ISI Interval
  - January 1, 1994 through December 31, 2003
  - RF-14 scheduled October 11 through November 15, 2003
- 10 year ISI
  - Reactor Vessel \*
  - Cold Legs\*
  - Hot Legs

\* Core barrel must be removed to perform



# Wesdyne PDI Qualification Results

- Fully qualified for detection and length sizing of circumferential flaws
- Procedure limitation in the detection of axial flaws
- Limited qualifications for depth sizing of flaws
  - Demonstrated to size within 7.38 % RMSP of the wall thickness at the location of the flaw



# RV Nozzle Examinations

- UT
  - Circumferential and axial directions
- ET
- Remote Enhanced Visual
- Surface Profile Mapping



# DM Weld Flaw Measurement Plan

## Detected Circ Flaw

Length Size – UT

Depth Size – UT

Difference between actual vendor RMS sizing error and 0.125" RMS will be added to the through-wall size before assessment.

## Detected Axial Flaw

Length Size – ET

First Option - UT

Difference between actual vendor RMS sizing error and 0.125" RMS will be added to the through-wall size before assessment.

Second Option –

Conservative depth assumption based on ET measured length if not detected by UT.



Loop	Leg	RF-12 Circ. Location/ Orientation	RF-12 Length (Eddy Current)	RF-13 Length (Eddy Current)	RF-13 UT Length / Depth
A	Cold (N335)	326/circ.	0.5"		
B	Hot (N265)	35/circ.	0.6"	0.5"	
		200.8/axial**	0.25"	0.5" *	0.625" / 0.317"
		348/axial	0.25"	0.25"	
B	Cold (N215)	No Indications			
C	Hot (N145)	309/circ.**	0.5"	0.5"	0.375" / 0.11"
C	Cold (N95)	200/circ.	0.5"		

\* Attributed to improved detection and sizing capability

\*\* Indications also defined by UT examination. Evaluated and accepted to IWB 3600.



# NRR Identified the Following Expectations for RF-14 at the September 10 Meeting



# RF-14 Inspection Expectations

- Identify and characterize the previously identified indications
- If all previously identified indications are not found – then supplemental NDE must be performed
- Discuss actual inspection results with NRR



# Future Outage Inspections

- If the results demonstrate no crack growth:
  - Restart without the need for further (beyond RF-14) NRC staff approval
  - Complete three successive examinations of the welds in accordance with ASME Code requirements
  - Provide highlighted reference in cover letter of 90 day ISI report on Hot Leg exam results



# Future NDE

- Results of RF-14 examinations will drive NRC staff's expectations for future NDE
  - Demonstration that current examination methods accurately characterize indications (may not need supplemental NDE)
  - Surface indication results show “not a flaw” (may not need supplement NDE)
  - Inconclusive surface indication results (may need supplement NDE)



# If the Results Reveal Crack Growth

- Staff evaluation is required
- If the condition is safe for the duration of the next outage, then the licensee will be allowed to restart for one cycle, subject to new inspection requirements



# Conclusions

- VC Summer and NRR agreed at the 9-10-03 meeting that the direction being taken by VC Summer in RF-14 is appropriate.



RF-14 RHR Retro Fit  
Modification  
VC SUMMER  
Westinghouse  
FlowServe

A Successful Future  
With the Right Tools

Safety  
Team Work  
Dose

RF-14

V.C. Summer

The logo is a circular emblem with a blue and red border. It features a stylized grey and blue cylindrical component on the left. The text 'A Successful Future With the Right Tools' is at the top, 'Safety Team Work Dose' is in the center, 'RF-14' is on the right, and 'V.C. Summer' is at the bottom.



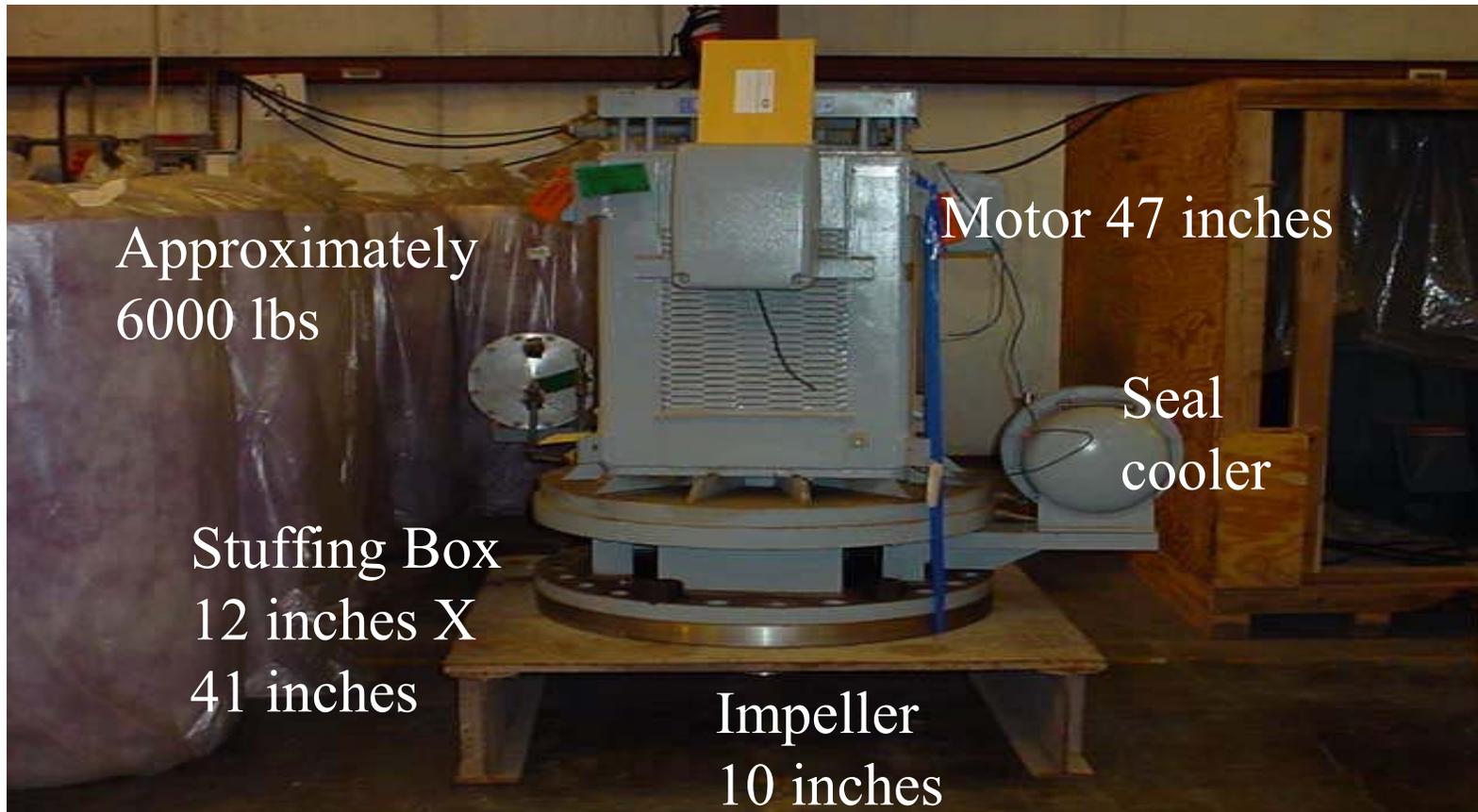
# Brief Overview of RHR Project

- Scope of modification “A” RHR Pump
  - Support stand
  - Spacer coupling
  - Upper & lower hub Assembly
- Project duration 5 days
- ALARA estimate 2.75 REM

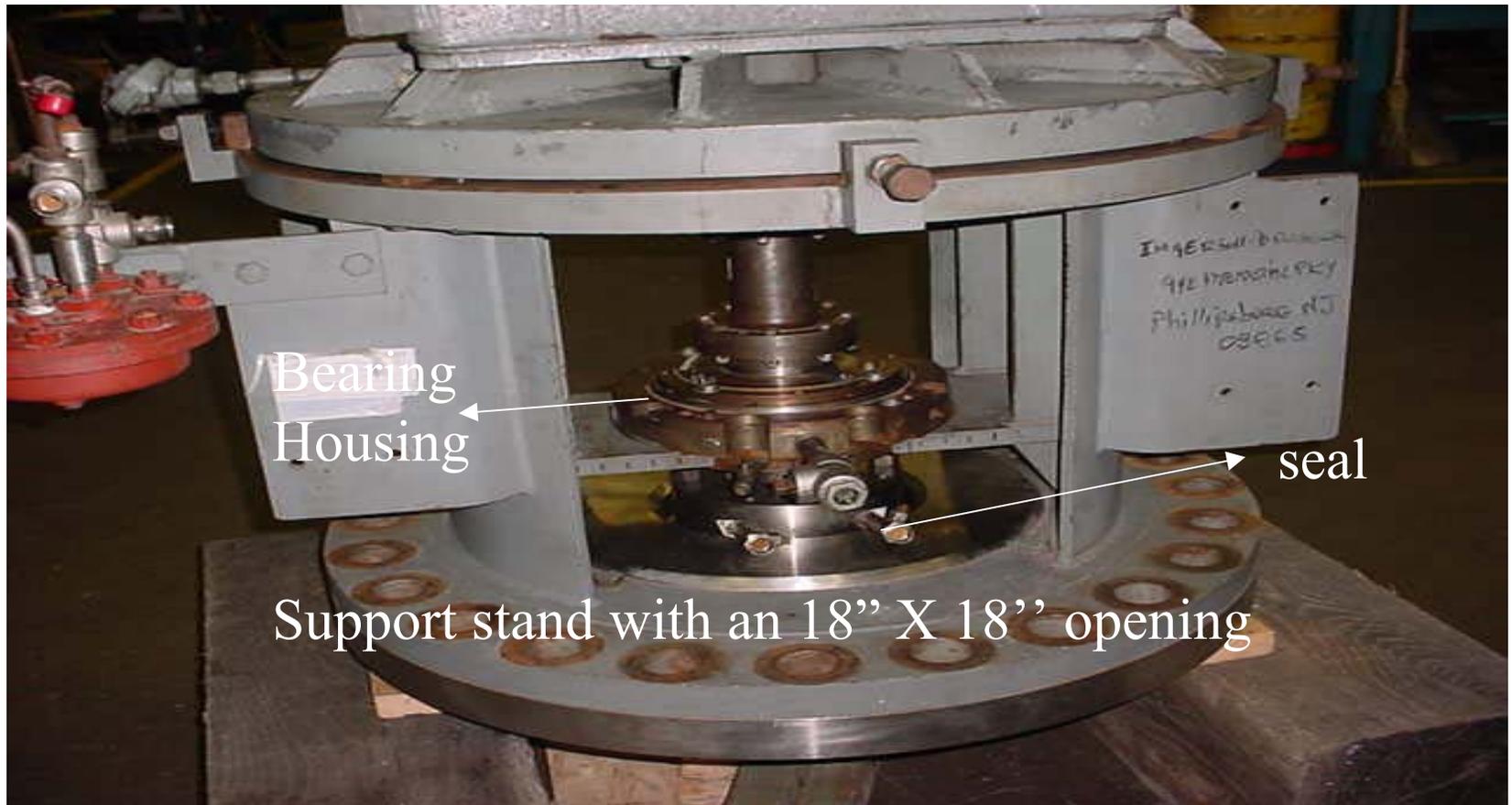




# Spare Model 8X20 WD/WDF



# Modified 8X20 WD/WDF



# The Spacer Coupling



# Polycarbonate Dome



# Suction Ring / Wear Ring



# Questions?

