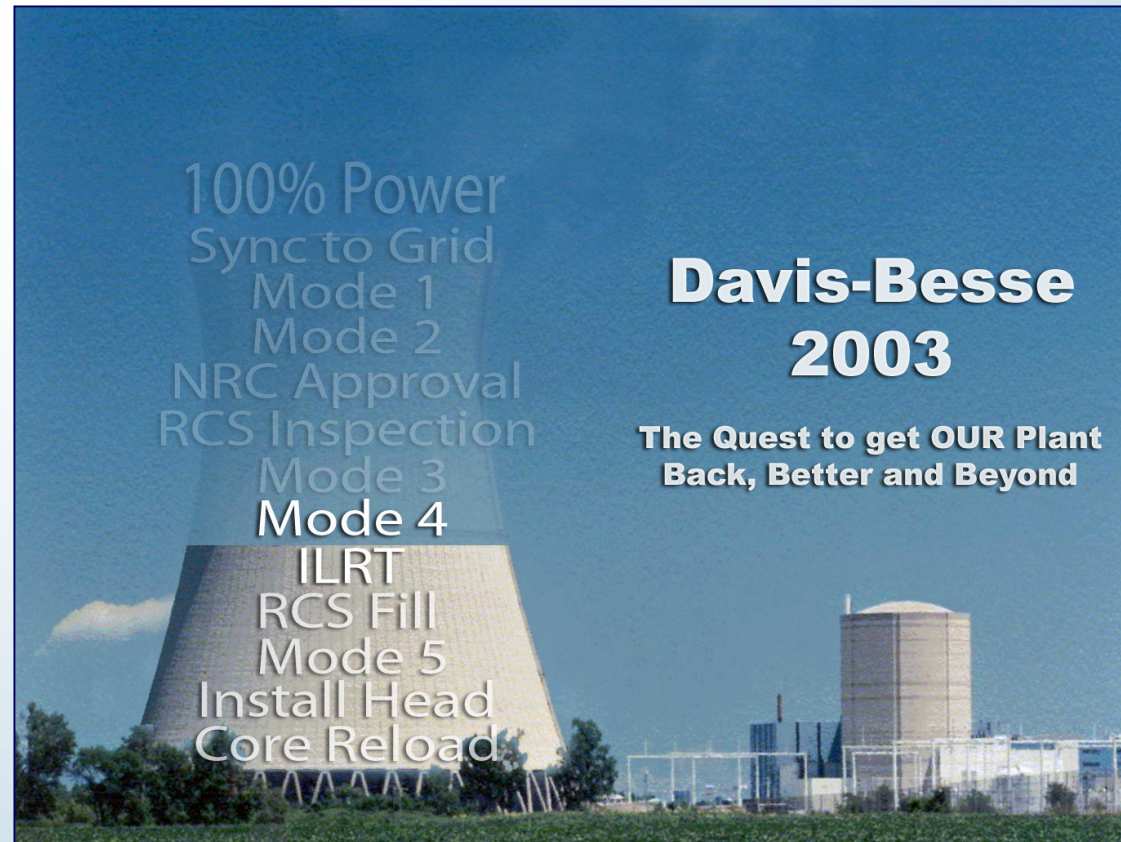


# *Davis-Besse Nuclear Power Station*

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## **IMC 0350 Meeting**

1

# Desired Outcome

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- **Discuss Recent Management Actions**
- **Review Plant Activities Completed Since Last Meeting**
- **Review Near Term Activities for Plant Testing**
- **Provide an Update of Issues and Resolutions**

**Lew Myers**  
**FENOC Chief Operating Officer**

# Meeting Agenda

<b>Management Actions</b> .....	Low Myers
<b>Restart Test Plan</b> .....	Mike Stevens
<b>Challenges to Restart Test Plan and Plant Restart</b> .....	Mike Ross
- High Pressure Injection Pump Replacement.....	Framatome/George Beam
- High Pressure Injection Modification.....	MPR/Bob Coward
<b>Operations Readiness</b> .....	Mark Bezilla
- Appendix R Review	
<b>Quality Oversight Assessment</b> .....	Fred von Ahn
<b>Safety Conscious Work Environment</b> .....	Low Myers
<b>Containment Closeout</b> .....	Randy Fast

# Management Actions

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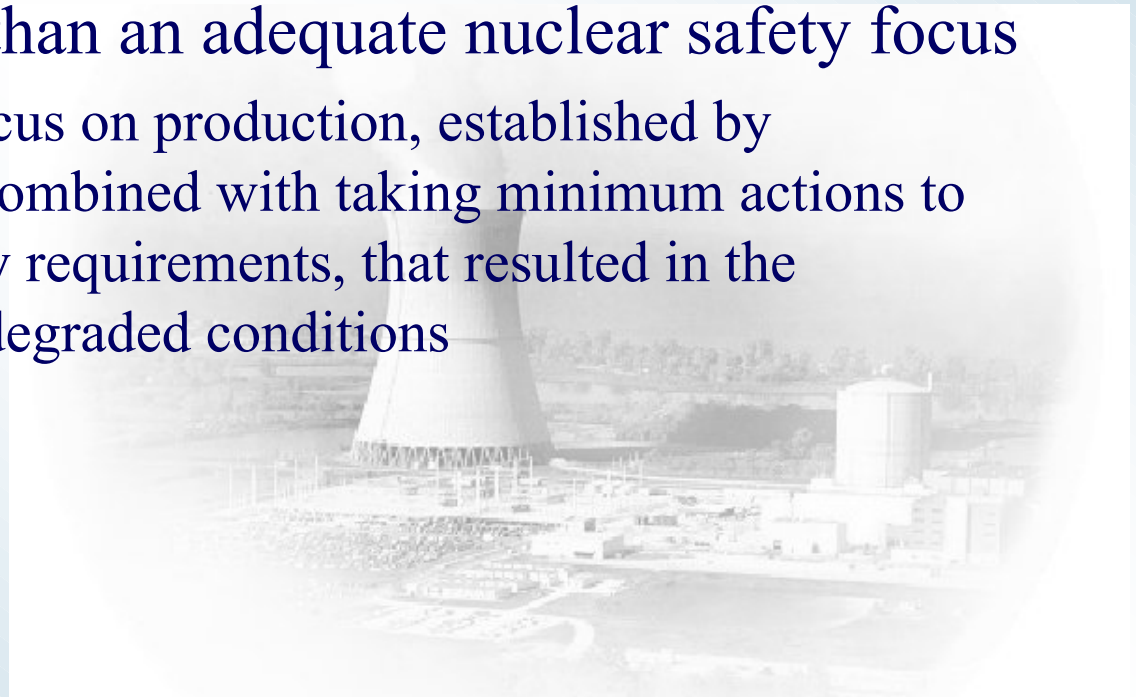
**Lew Myers**  
**FENOC Chief Operating Officer**

# Management Actions

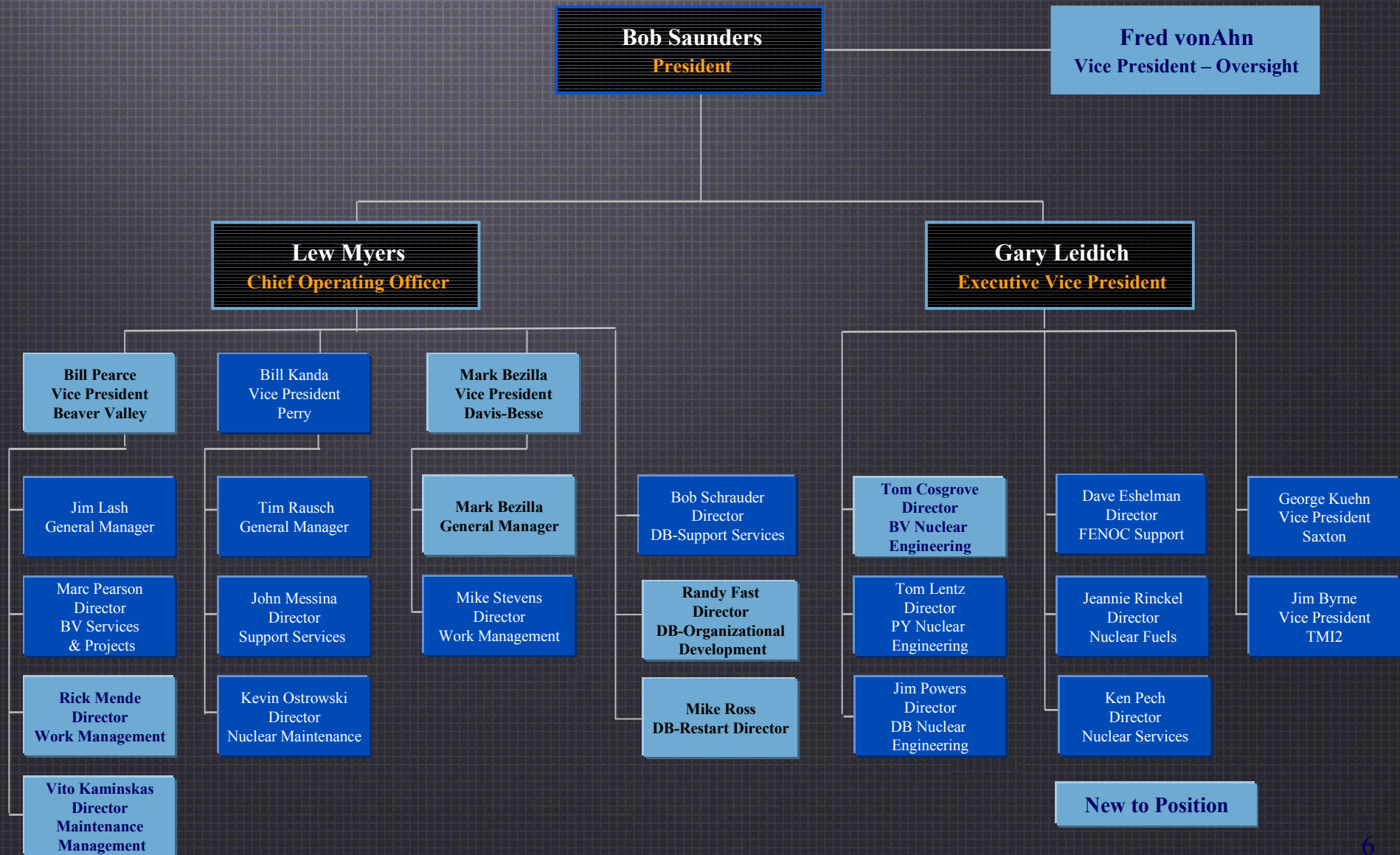
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## Management and Human Performance Root Cause Statement:

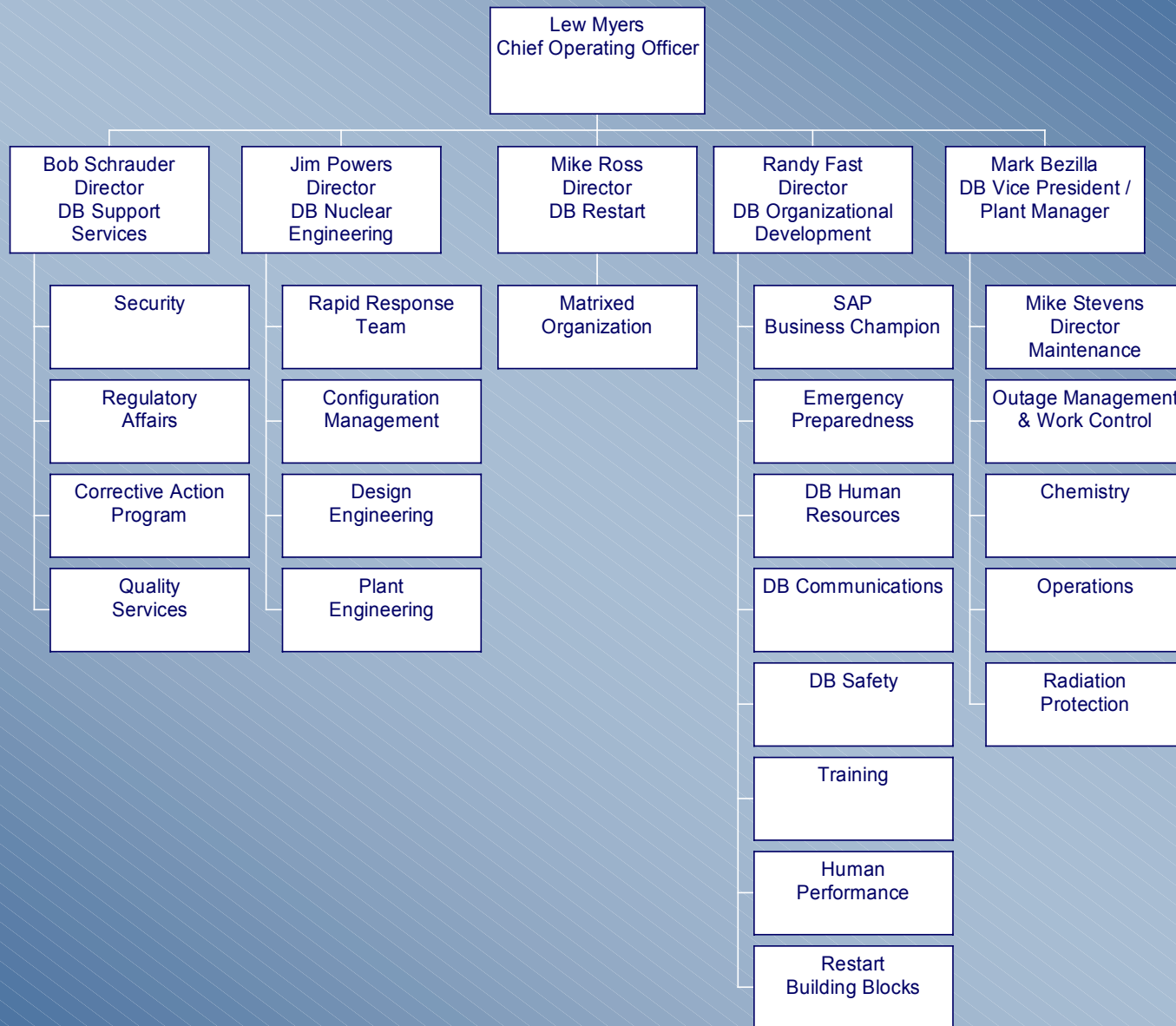
- There was less than an adequate nuclear safety focus
  - There was a focus on production, established by management, combined with taking minimum actions to meet regulatory requirements, that resulted in the acceptance of degraded conditions



# Strengthening the Executive and Nuclear Site teams...



# Davis-Besse Restart Organizational Chart



# Restart Test Plan

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**Mike Stevens**  
**Director - Maintenance**

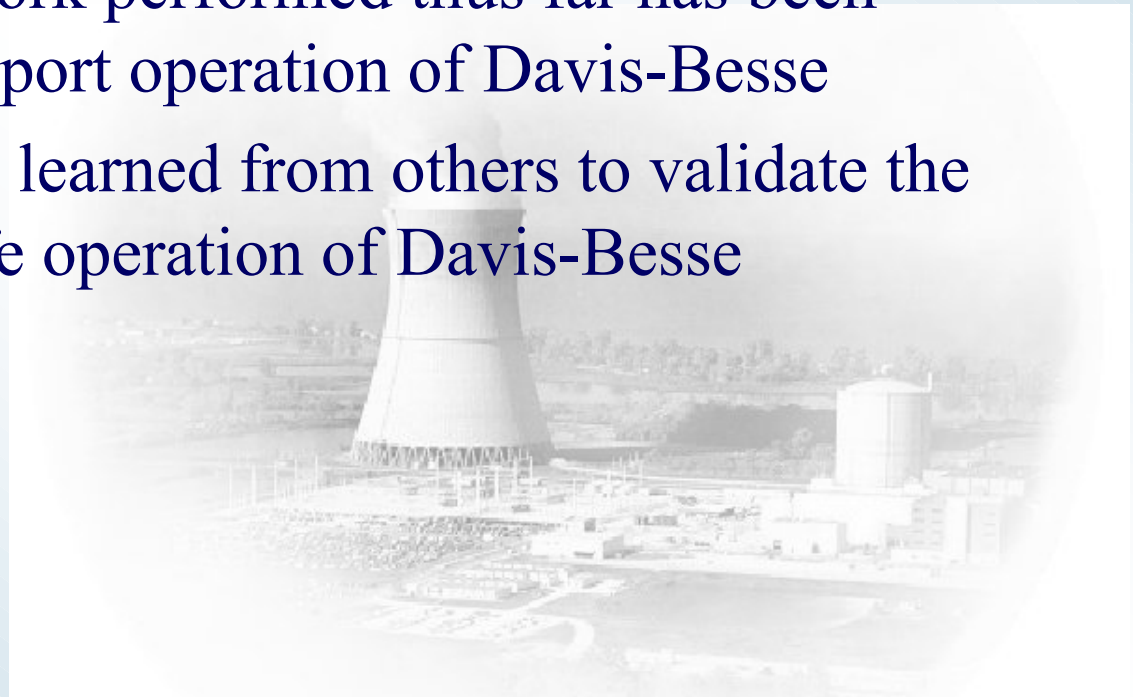


# Restart Test Plan

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## Purpose

- To prove the work performed thus far has been effective to support operation of Davis-Besse
- To take lessons learned from others to validate the start up and safe operation of Davis-Besse

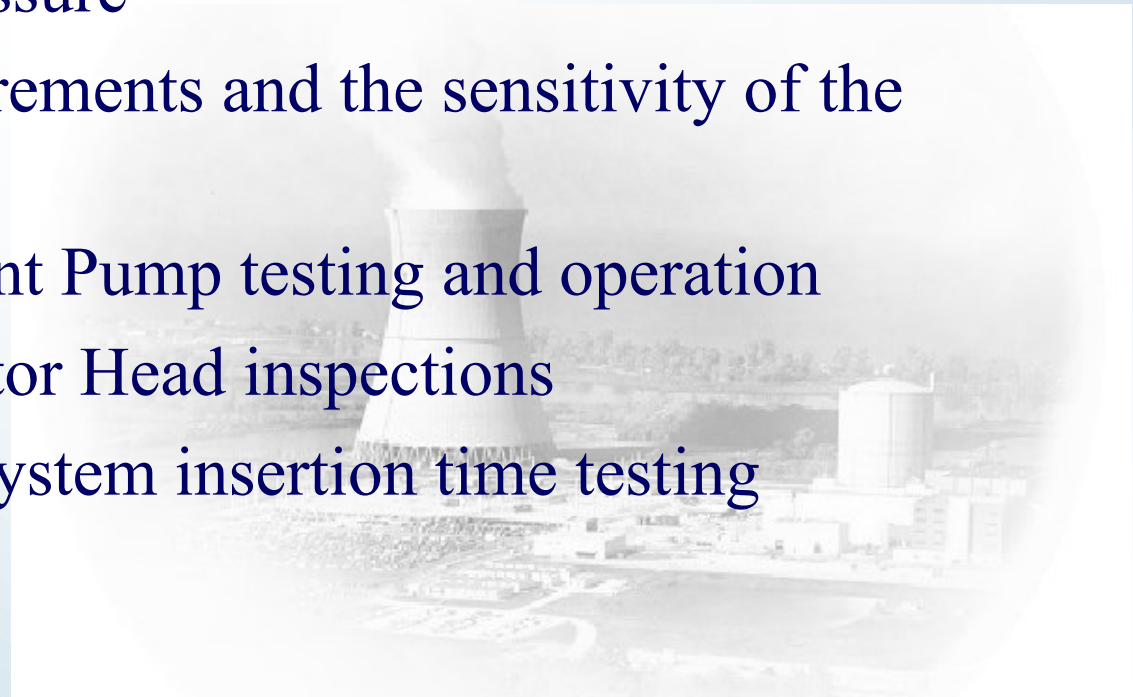


# Restart Test Plan

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## Primary System Readiness

- Detailed inspection @ 50 psig, 250 psig, and 2,155 psig pressure
- Validate requirements and the sensitivity of the FLÜS system
- Reactor Coolant Pump testing and operation
- Baseline Reactor Head inspections
- Control Rod System insertion time testing

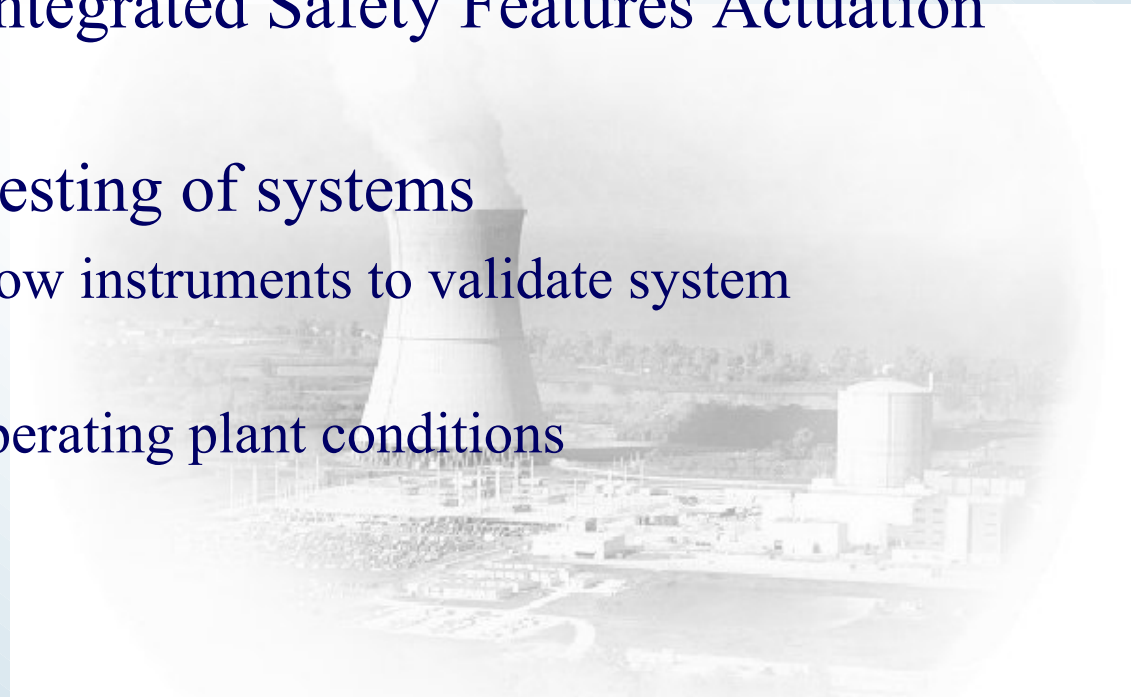


# Restart Test Plan

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## Primary System Readiness

- Perform Technical Specification surveillance tests including the integrated Safety Features Actuation System Test
- Perform flow testing of systems
  - Use special flow instruments to validate system operation
  - Establishes operating plant conditions

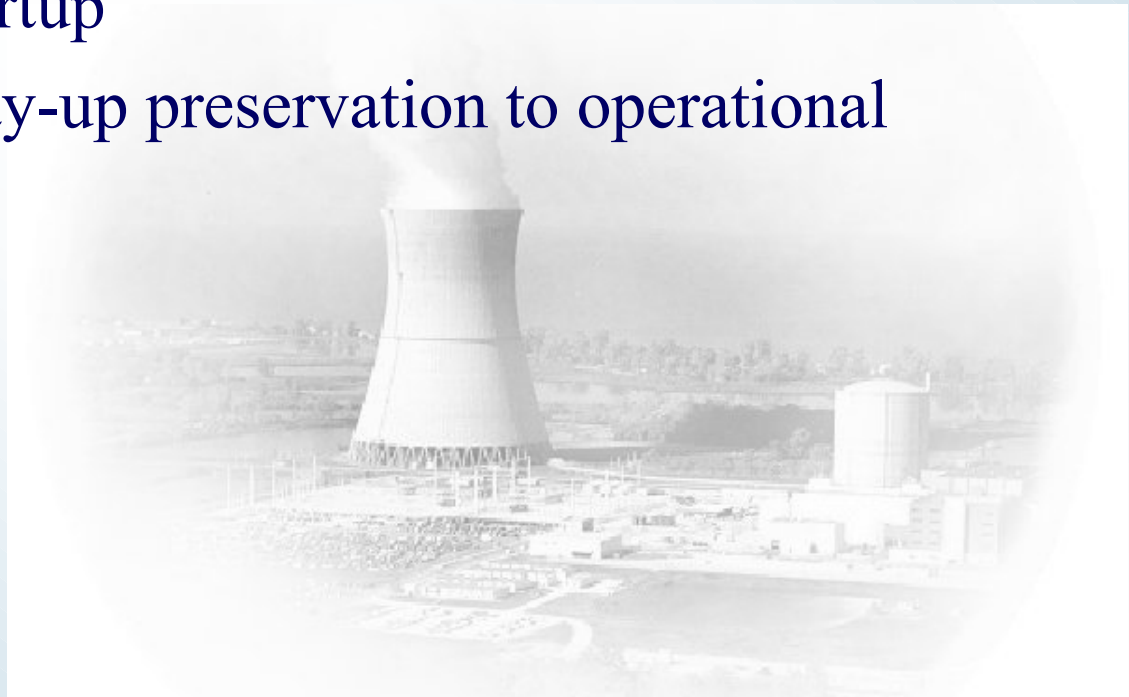


# Restart Test Plan

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## Secondary System Readiness

- Places secondary plant components in service as required for startup
- Restore from lay-up preservation to operational readiness



# Restart Test Plan

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## Secondary Systems

- Main Steam
- Main Condenser
- Condensate
- Circulating Water
- Feedwater
- Auxiliary Feedwater
- Feedwater Heating



# Challenges to Restart Test Plan and Plant Restart

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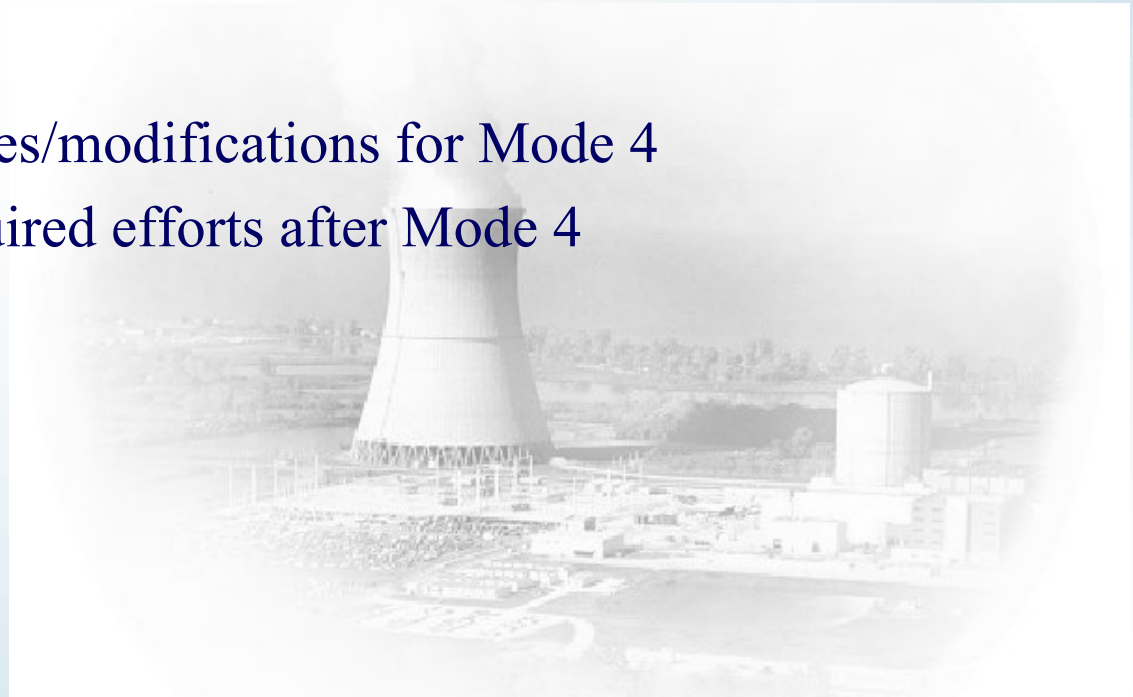
**Mike Ross**  
Restart Director

# Mode 4/Mode 3 Status

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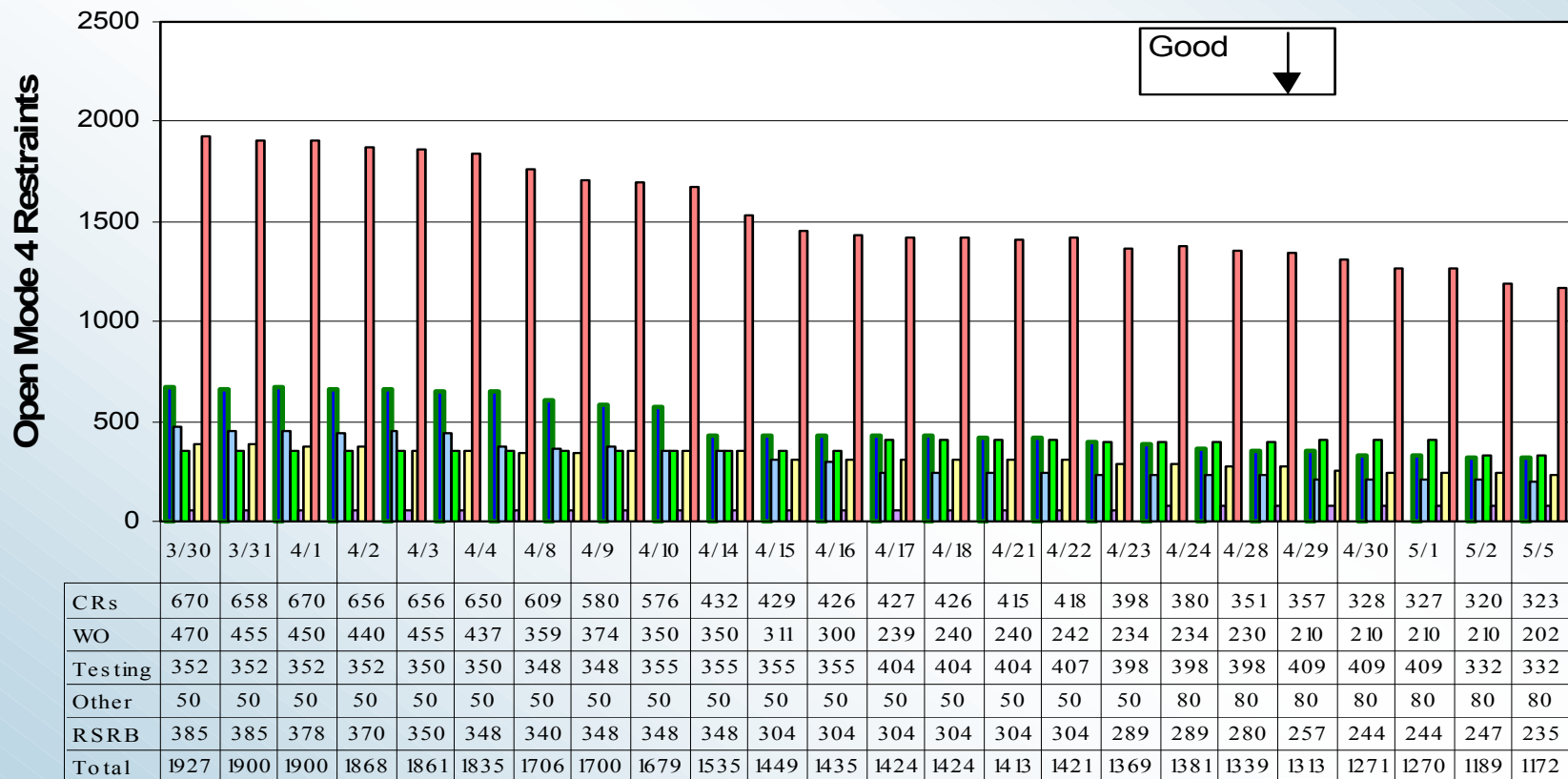
## Plant Support Center

- New Center Established to Address Restart Issues
- Purpose:
  - Focus on issues/modifications for Mode 4
  - Focus on required efforts after Mode 4



# Mode 4/Mode 3 Status

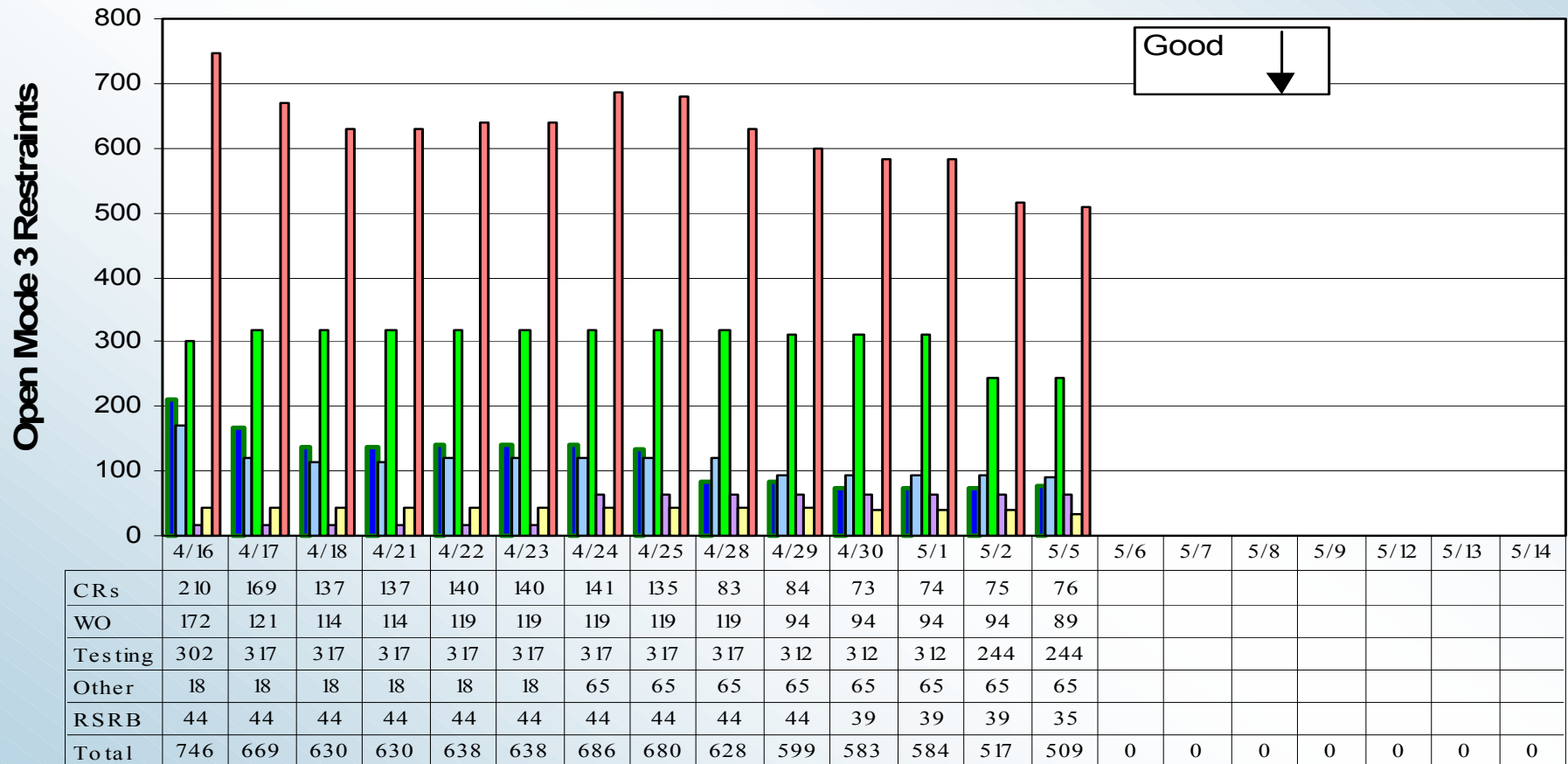
## Outstanding Mode 4 Restraints





# Mode 4/Mode 3 Status

## Outstanding Mode 3 Restraints

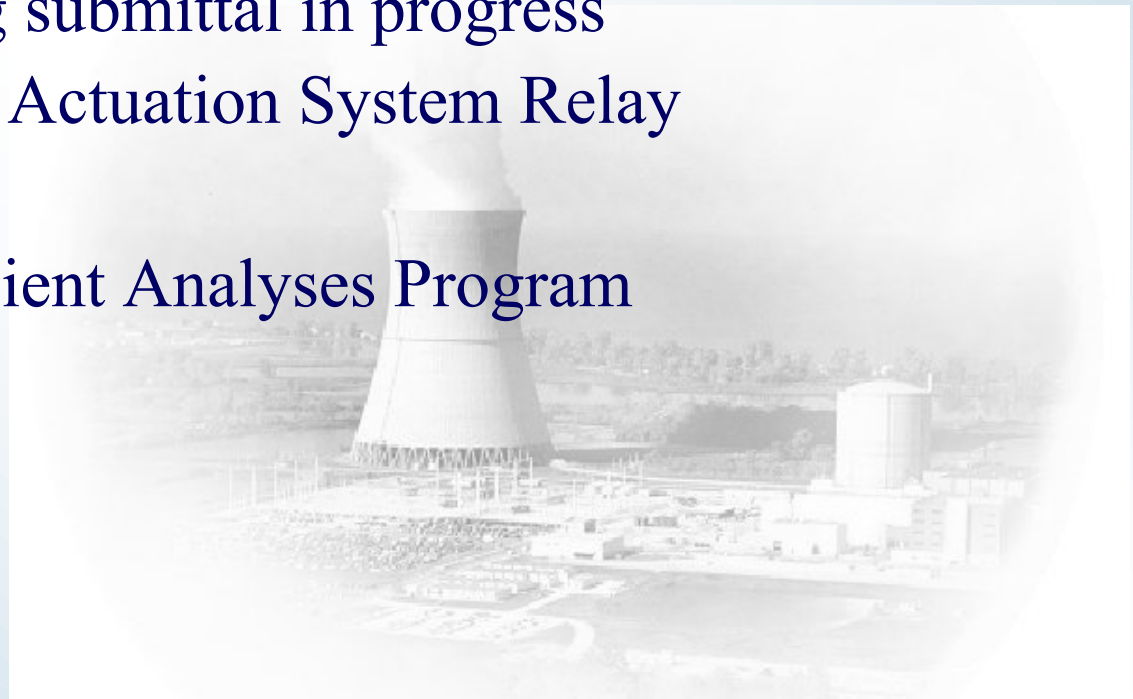


# Mode 4/Mode 3 Status

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## Challenges to Mode 4/Mode 3

- High Pressure Injection pump hydrostatic bearing issue - licensing submittal in progress
- Safety Features Actuation System Relay Replacement
- Electrical Transient Analyses Program



# Mode 4/Mode 3 Status

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## Challenges to Mode 4/Mode 3 (Continued)

- Low Pressure Injection Pump Cyclone Separators
- 4160V Undervoltage relays
- Air Operated Valve Program
- Makeup Pump Over-current Relay Setpoint
- Emergency Diesel Generator Room Temperature



# Mode 2/Mode 1 Status

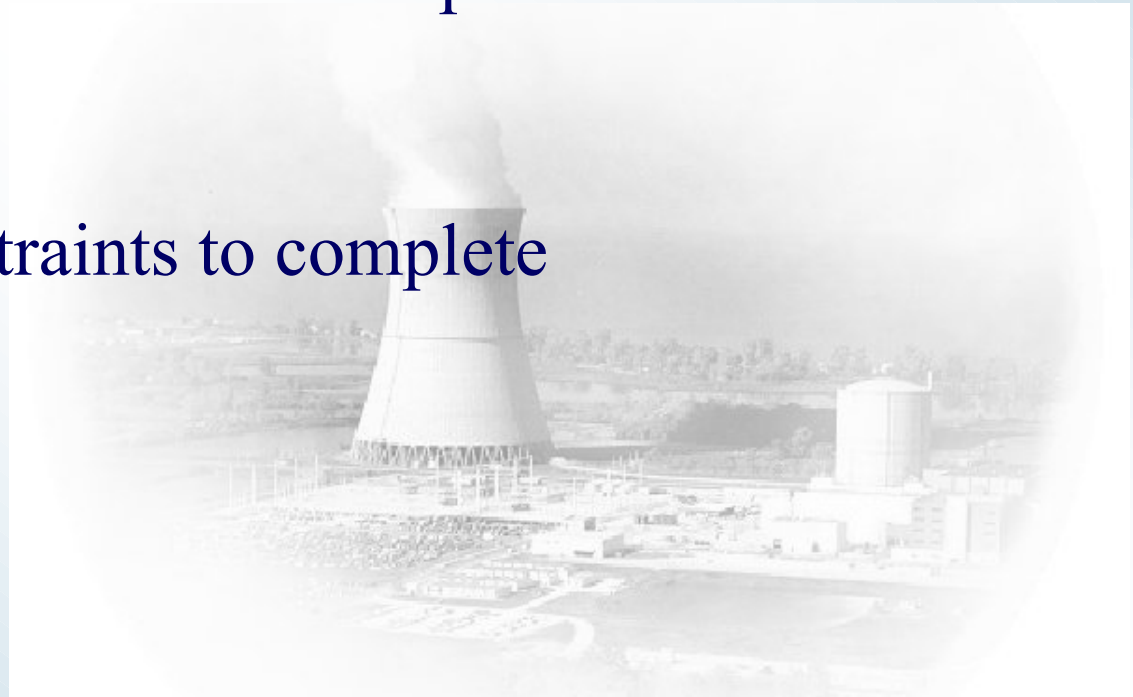
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## Mode 2

- 396 restraints to complete

## Mode 1

- 39 restraints to complete



# High Pressure Injection Pump

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## Background

- Identified an issue between potential debris and the existing internal pump clearances
  - Pumps hydrostatic bearing clearances are less than Containment Emergency Sump strainer mesh
  - Debris in water from the containment emergency sump could potentially block the ports that provide lubrication to the hydrostatic bearings resulting in pump failure
- Options to address issue include:
  - Replacement with HPI pumps that are not susceptible to this degradation mechanism
  - Modify existing pumps to add internal strainer to prevent debris from entering bearing

# Technical Discussion of HPI Options

## The Technical Merits of Each

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### Replacement Option:

- George Beam, Senior Vice President - Framatome

### Modification Option:

- Bob Coward, Director of Nuclear Services - MPR

**Decision focus:** “What is right for the plant”

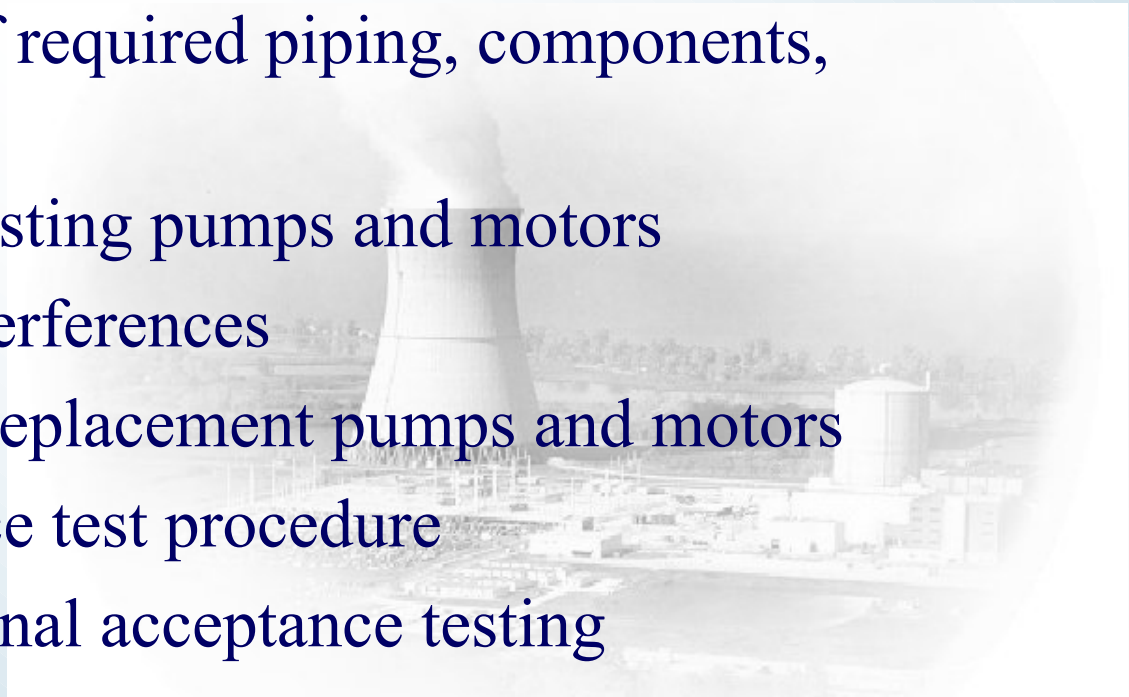


# High Pressure Injection Pump

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## Replacement Option Scope

- Engineering design and analysis
- Procurement of replacement pumps and motors
- Procurement of required piping, components, fixtures
- Removal of existing pumps and motors
- Removal of interferences
- Installation of replacement pumps and motors
- Final acceptance test procedure
- Participate in final acceptance testing

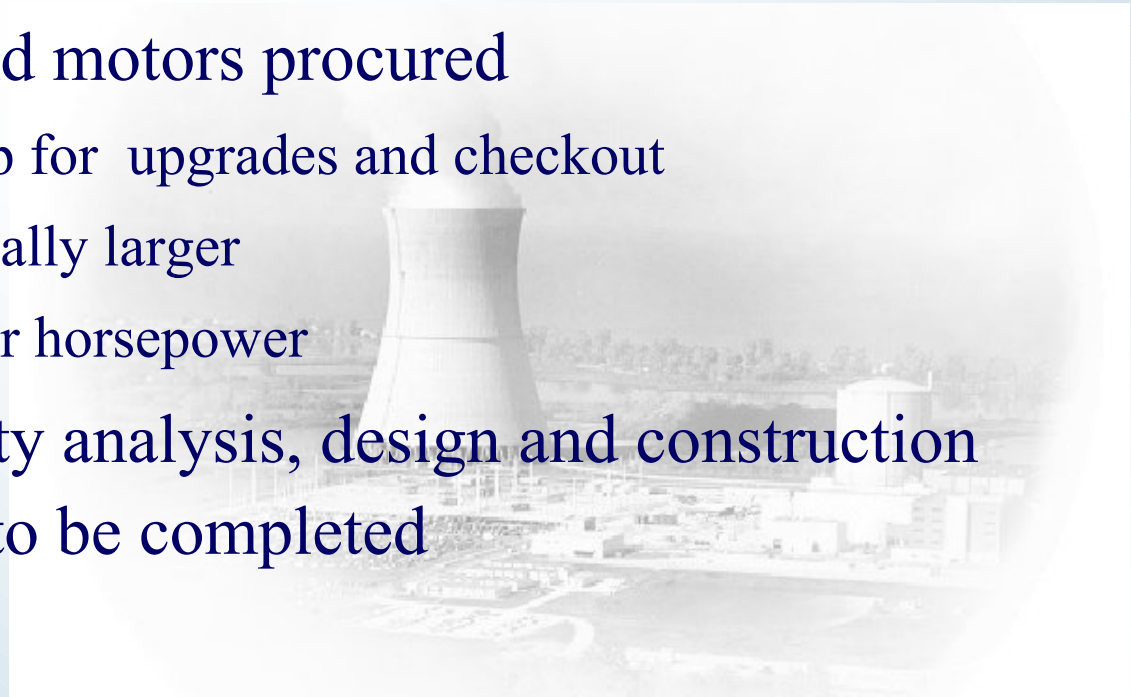


# High Pressure Injection Pump

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## Current Status/Work in Progress

- Project approach is self-managed work team
- Two pumps and motors procured
  - In OEMs shop for upgrades and checkout
  - Pumps physically larger
  - Motors greater horsepower
- Important safety analysis, design and construction work remains to be completed



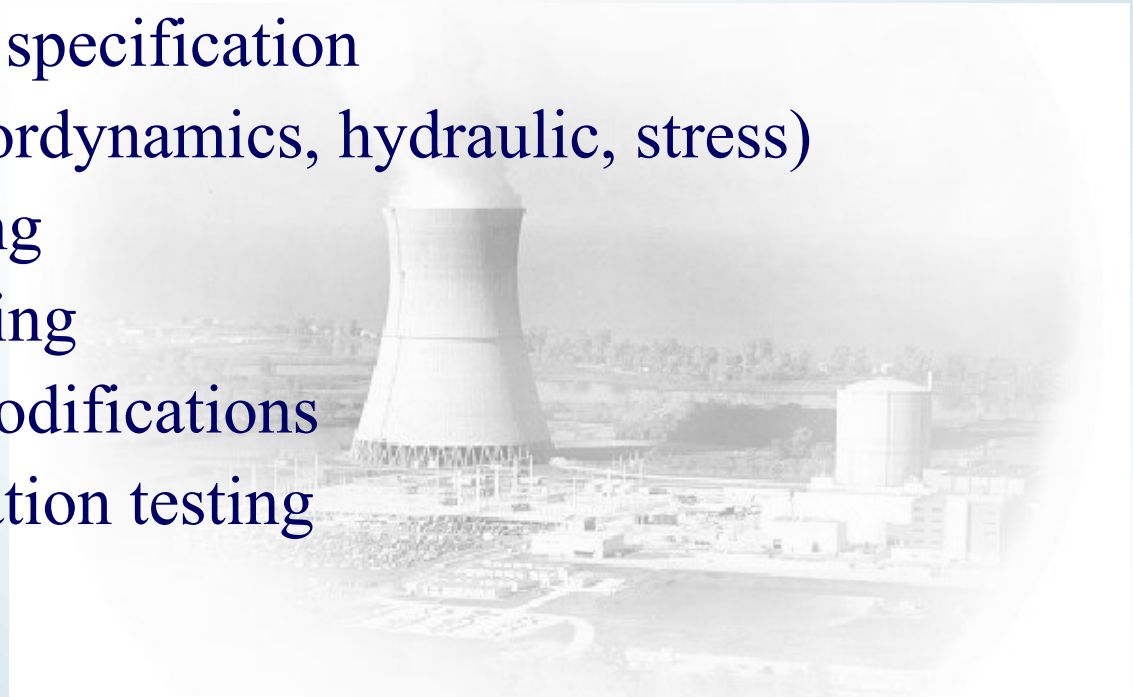


# High Pressure Injection Pump

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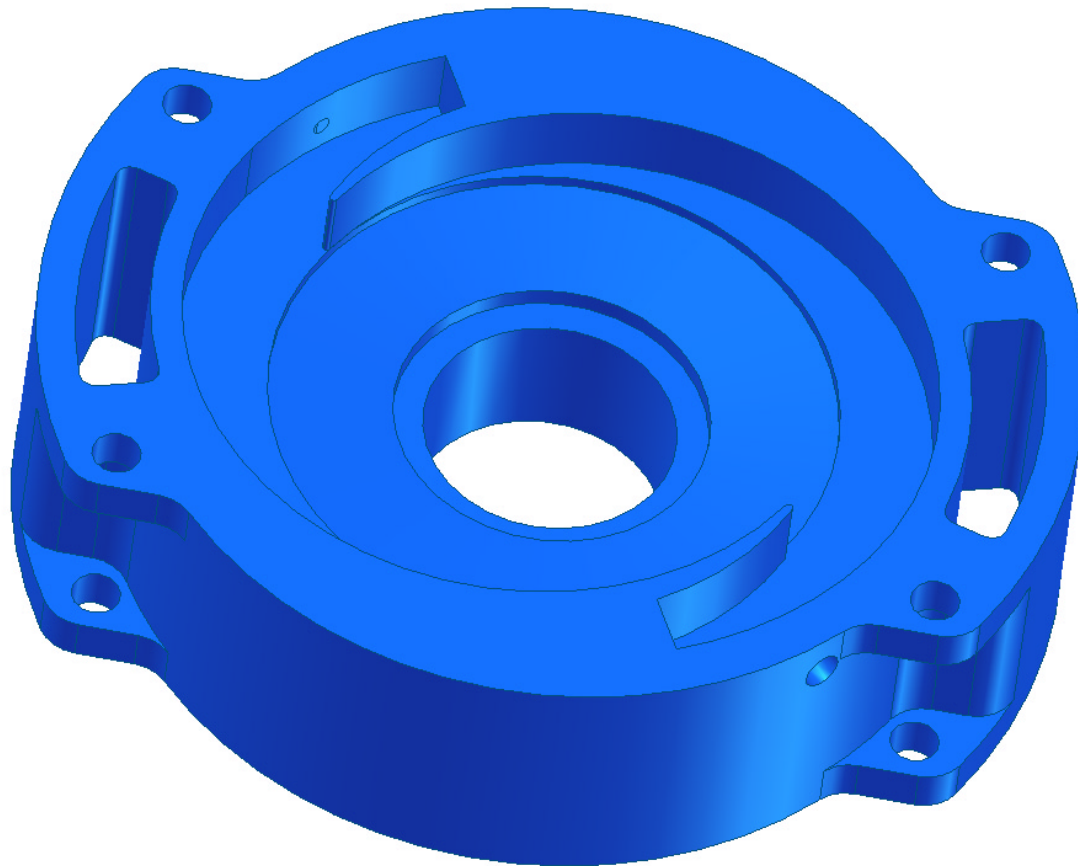
## Modification Option Scope

- Modification design
- Mock-up test specification
- Analysis (rotordynamics, hydraulic, stress)
- In-plant testing
- Mock-up testing
- Implement modifications
- Post modification testing



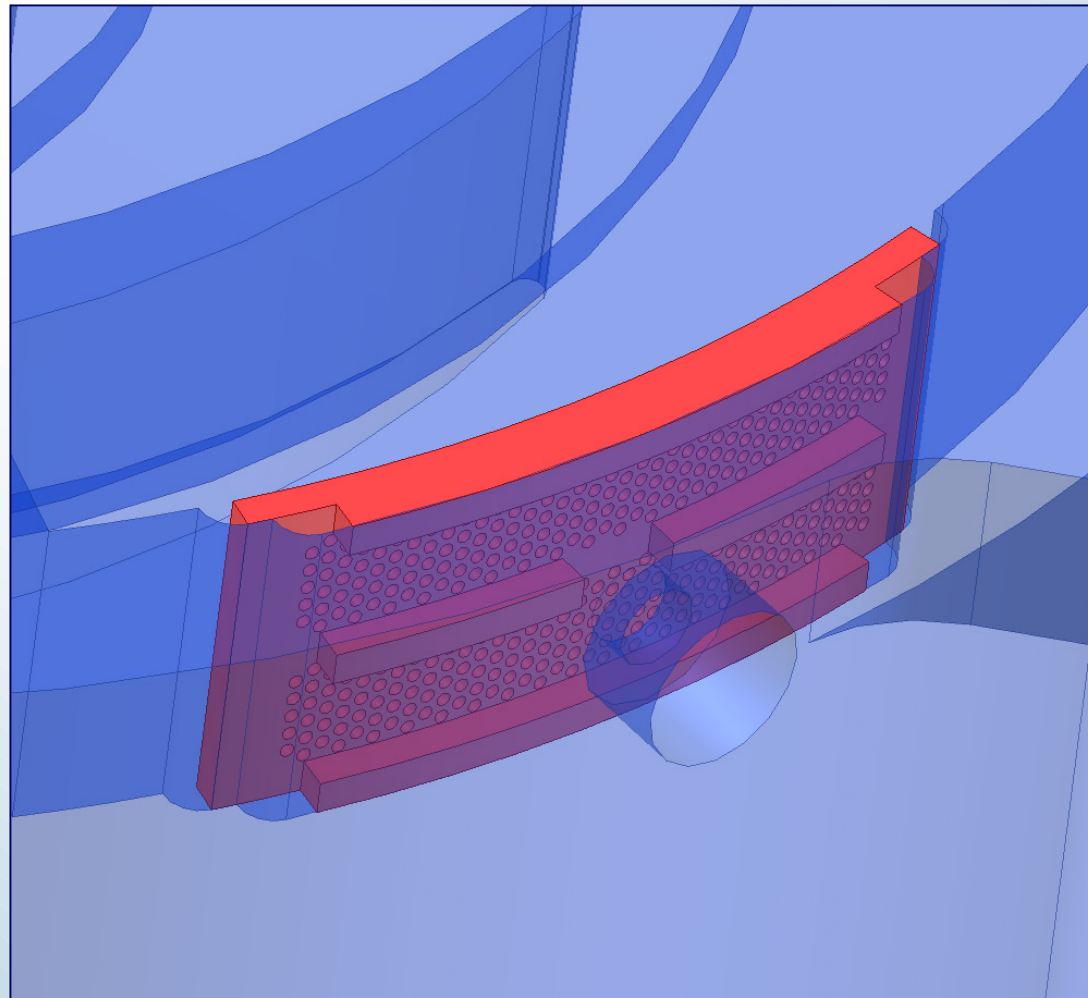
# High Pressure Injection Pump Volute

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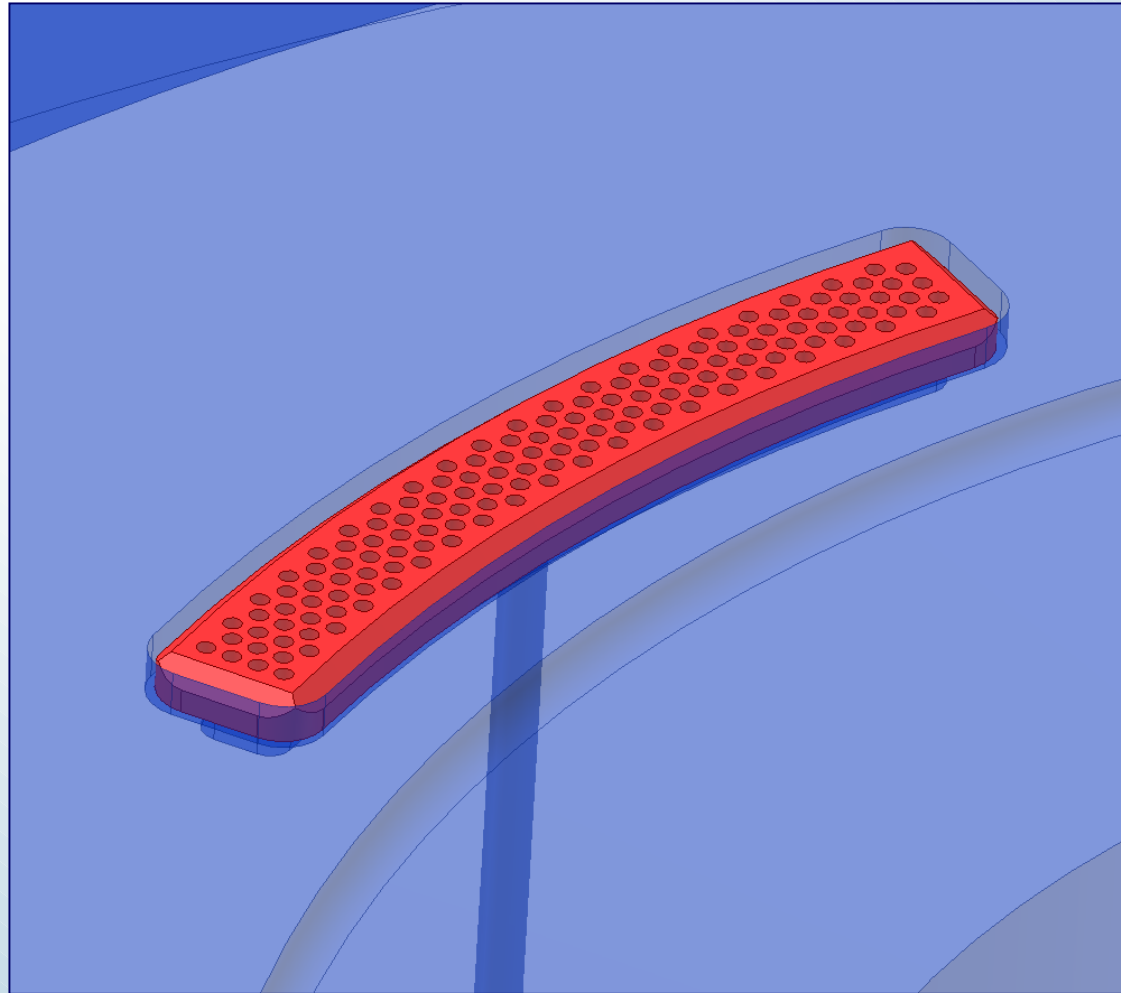
# High Pressure Injection Pump Volute Modification

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# High Pressure Injection Pump Cyclone Strainer Modification

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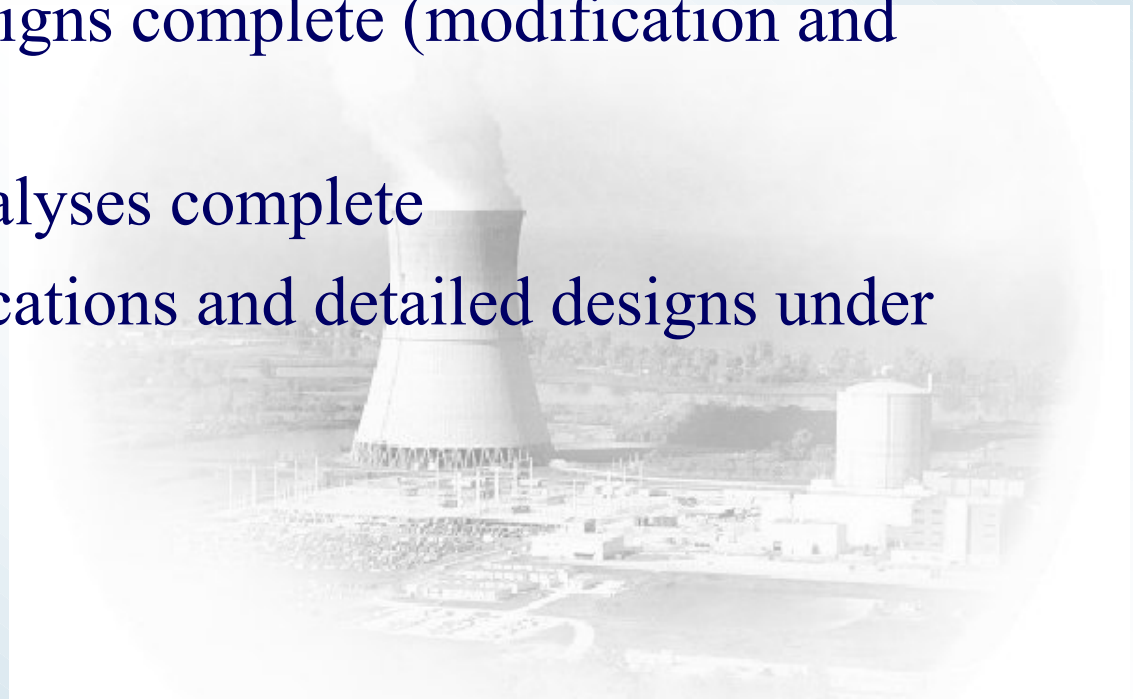


# High Pressure Injection Pump

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## Current Status/Work In-Progress

- Conceptual designs complete (modification and mock-ups)
- Preliminary analyses complete
- Testing specifications and detailed designs under development



# Operations Readiness

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**Mark Bezilla**  
**Vice President/Plant Manager**

# Operations Readiness

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## Accomplishments

- Developed and Implemented Operations Leadership Plan
- Implemented Comprehensive Expectations and Standards for Operators
- Issued Operation's Leadership Statement
- Expanded Operator Observation Program
- Performed Appendix "R" Fire Inspection
- Completed Significant Training Accomplishments
- Operations Led Significant Major Evolutions

# Operations Readiness

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## Industry Feedback

- INPO has made three Assist Visits to review Operations Readiness:
  - December of 2002
  - March of 2003
  - INPO Team Assessment, April of 2003
- Seven Operations Assessments by Management Personnel from other Nuclear Plants:
  - Oconee Nuclear Station, Arkansas Nuclear One, Tennessee Valley Authority, DC Cook, Waterford, Perry, North Anna
- Company Nuclear Review Board Assessment
  - April, 2003



# Operations Readiness

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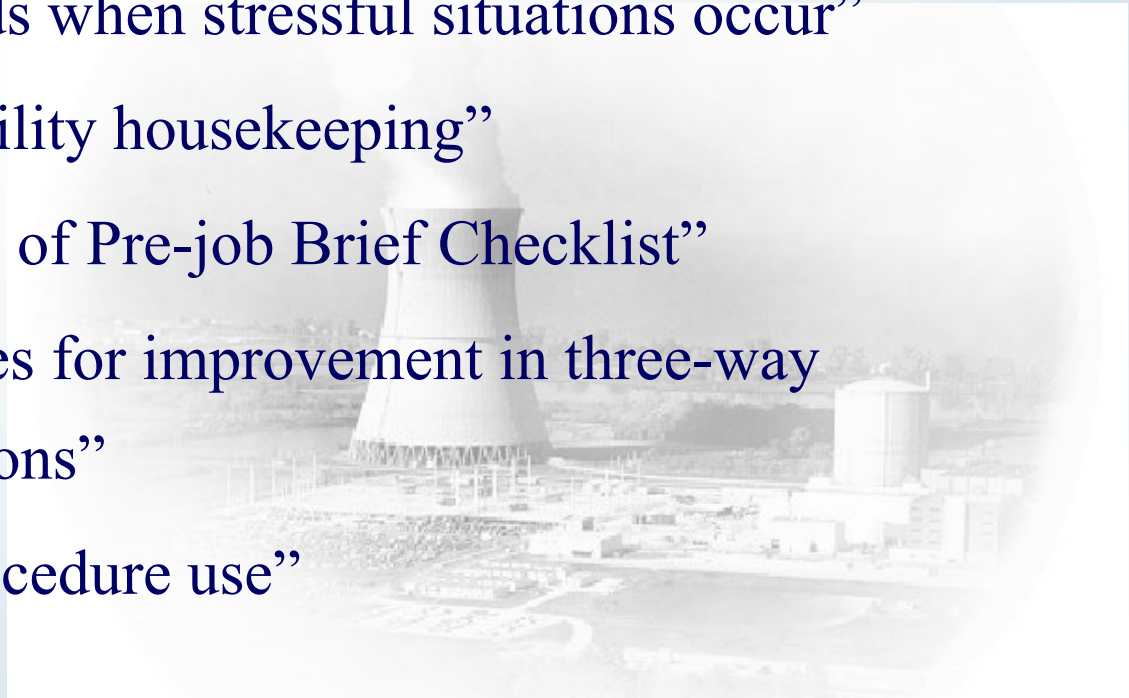
## Industry Feedback:

- “Shift Managers are stepping up to their new leadership roles”
- “Standards are equal to or above industry norms”
- “Operations is recognized as the Lead Organization”
- “Ownership of equipment in plant is improved”
- “Vertical alignment in Operations is very good”
- “Every interviewee complimented the greatly improved management attitude toward, and expectation to identify problems”

# Operations Readiness

## Industry Feedback

- Opportunities:
  - “Establish consistent implementation of Expectations and Standards when stressful situations occur”
  - “Improve facility housekeeping”
  - “Improve use of Pre-job Brief Checklist”
  - “Opportunities for improvement in three-way communications”
  - “Improve procedure use”



# Operations Readiness

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## Continuing Improvement Plans

- Continue “Just-In-Time” Simulator Training
- Complete assigned actions from Operation’s Section 2003 Business Plan
- Continue emphasis on Safety Culture and Safety Conscious Work Environment
- Continue to coach Operators in establishing their ownership role
- Review the Secondary Plant Startup Plan and Identify any Additional Training Requirements
- Recommence the Initial SRO and RO License Classes (scheduled for June, 2003)

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# Quality Oversight Assessment

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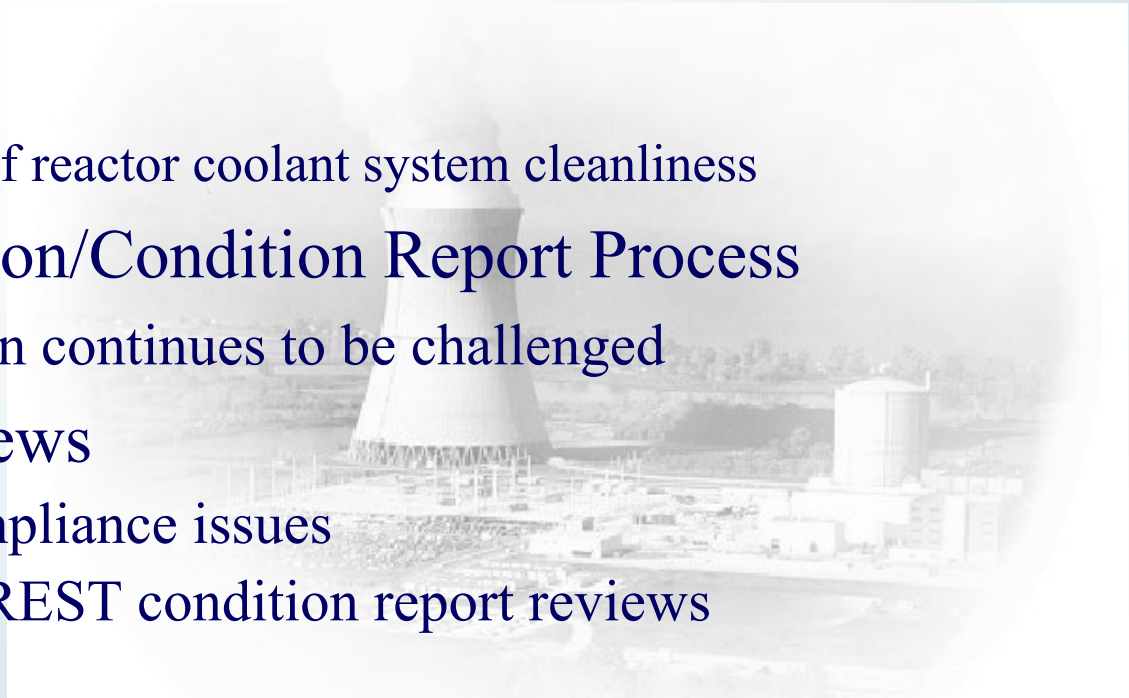
**Fred von Ahn**  
**Vice President - FENOC Oversight**

# Quality Assessment Overview

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## Recent Assessment Activities

- Operations Leadership
  - Noteworthy improvements:
    - leadership
    - safety focus
    - ownership of reactor coolant system cleanliness
- Corrective Action/Condition Report Process
  - Implementation continues to be challenged
- Quarterly Reviews
  - Procedure compliance issues
  - Subsequent CREST condition report reviews



# Safety Conscious Work Environment

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**Lew Myers**  
**FENOC Chief Operating Officer**

# Safety Conscious Work Environment

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- March SCWE Survey Demonstrated Good Improvement
- Two areas required further review (questions #35 & #36)
- Several actions have been taken to evaluate results
  - Response analysis - by questions and groups
  - Comparison to other programs
    - Employee Concerns Program
    - Quality Assurance Program
    - NRC Allegations Program
  - Personnel interview and feedback

# Response Analysis

## 2002 / 2003 Comparison

“Retaliation”  
Questions →

“HIRD”  
Questions →

		2002 Survey			2003 Survey		
		Negative Responses			Negative Responses		
#	Question	ALL	FENOC	Contractor	ALL	FENOC	Contractor
	<b>Total Number of Workers</b>	386	280	84	1139	666	377
7	I can raise nuclear safety or quality concern without fear of retaliation	18.5%	22.1%	5.6%	7.1%	4.2%	9.9%
25	I feel free to raise nuclear safety or quality issues on CRs without fear of reprisal	16.1%	18.4%	8.5%	5.6%	3.0%	8.5%
30	I can use ECP without fear of retaliation	14.6%	18.1%	4.0%	5.1%	3.2%	7.0%
35	I have been subjected to HIRD within the last 6 months	7.1%	8.9%	1.2%	8.1%	5.1%	10.9%
36	I am aware of others who have been subjected to HIRD within the last 6 months	12.4%	14.6%	4.8%	15.3%	10.2%	22.3%

<5% Negative Response
Between 5% and 10% Negative Response
>10% Negative Response

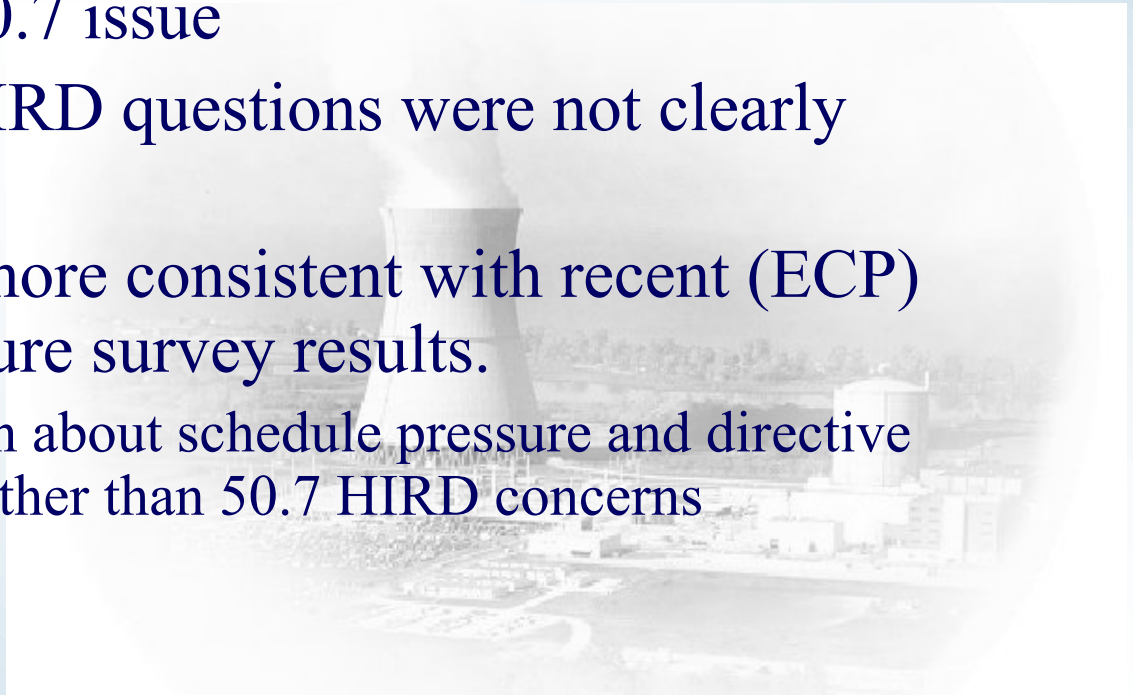


# Safety Conscious Work Environment

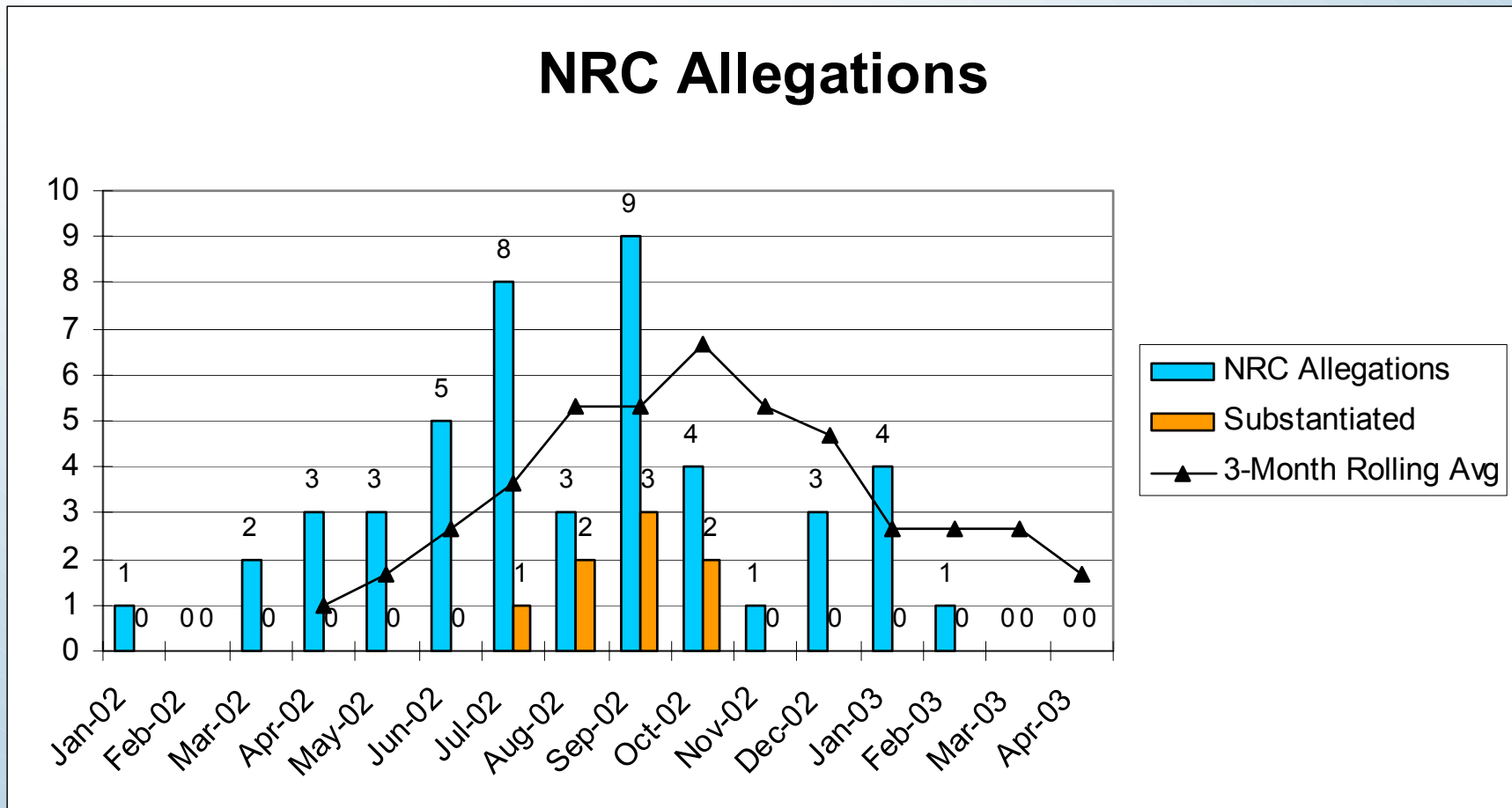
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## Survey Analysis

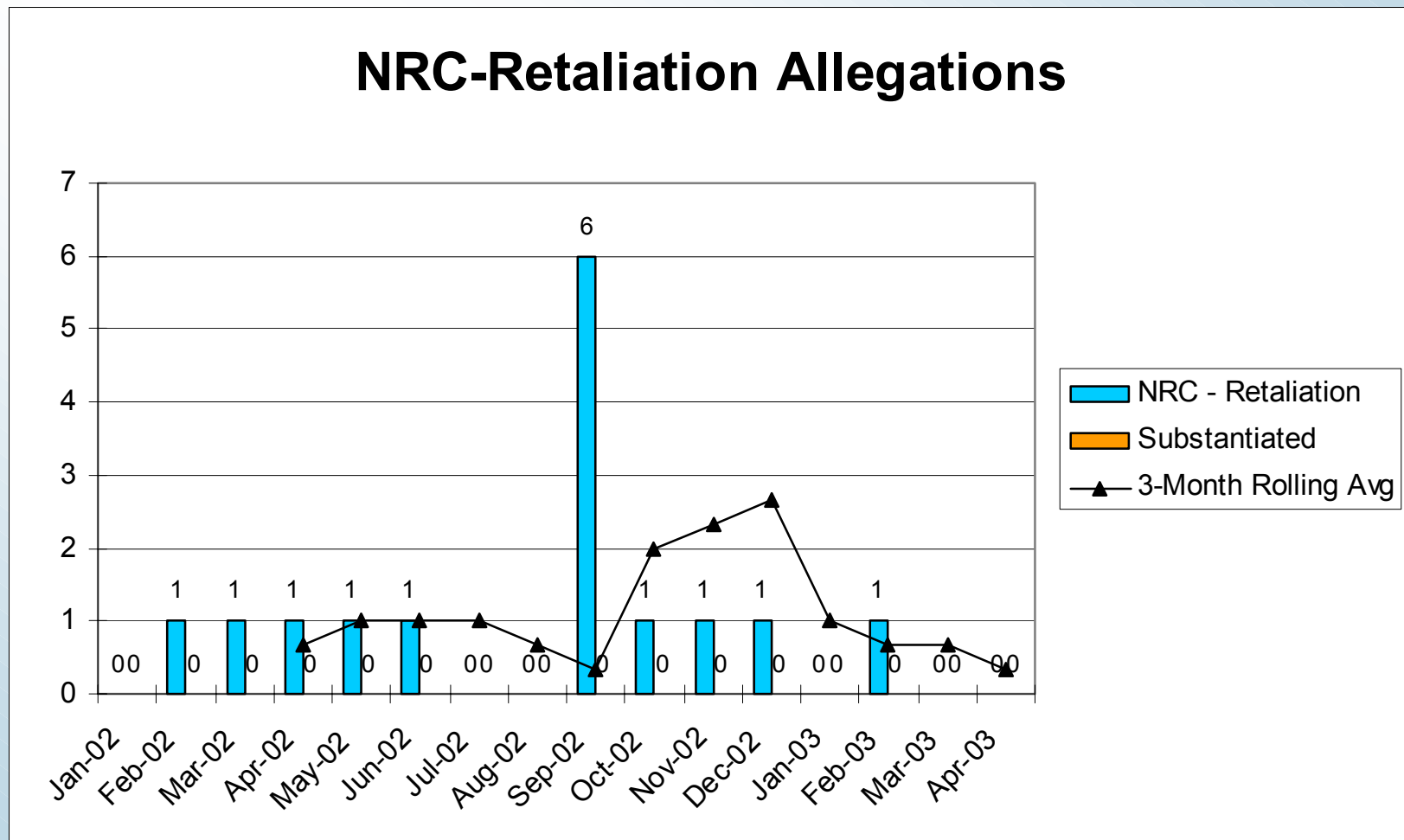
- Survey questions on Harassment, Intimidation, Retaliation and Discrimination (HIRD) lacked clear focus to 50.7 issue
- Responses to HIRD questions were not clearly stated
- Responses are more consistent with recent (ECP) and Safety Culture survey results.
  - Worker concern about schedule pressure and directive management rather than 50.7 HIRD concerns



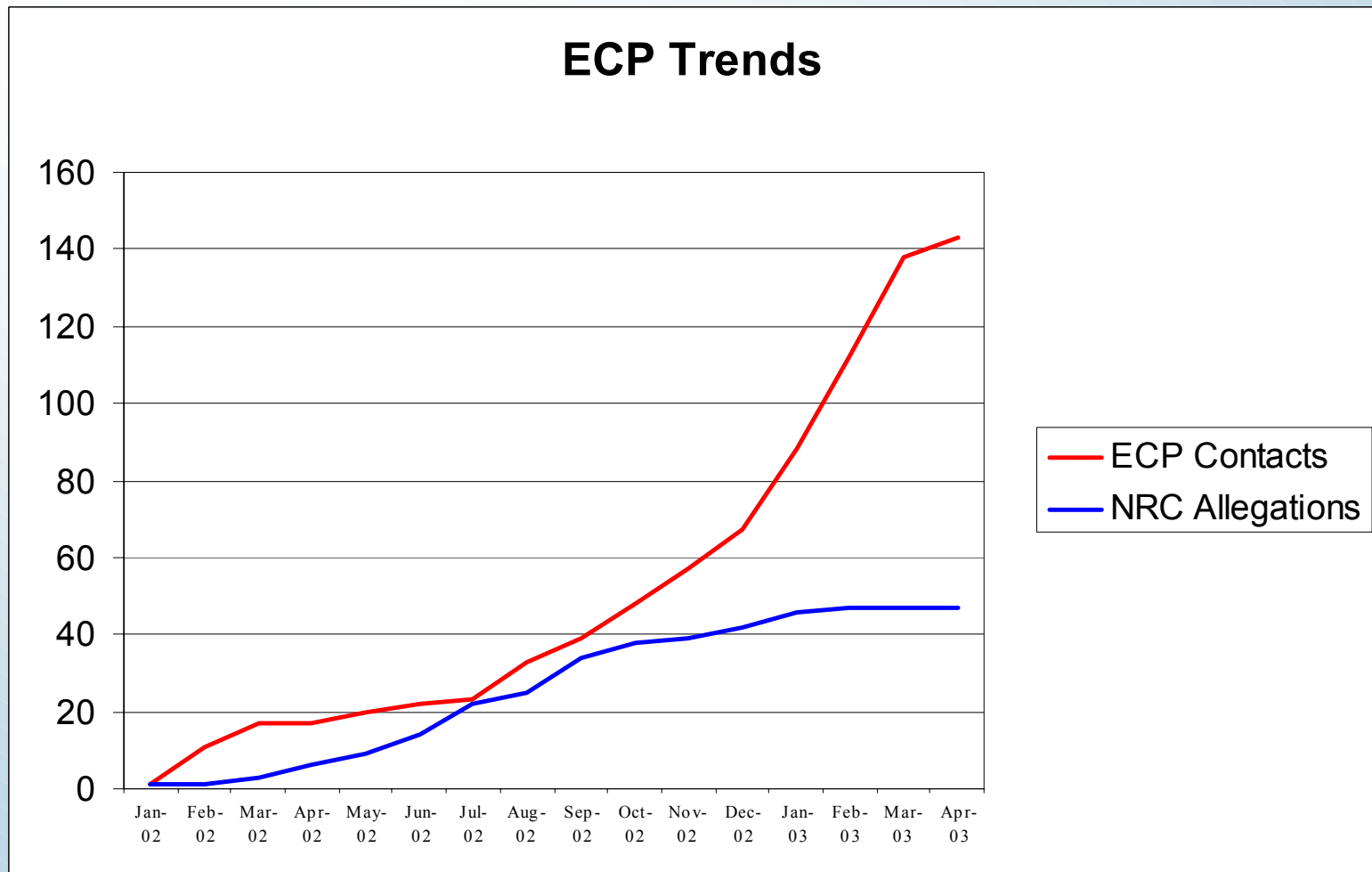
# Safety Conscious Work Environment



# Safety Conscious Work Environment



# Safety Conscious Work Environment



# Safety Conscious Work Environment

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## Overall Survey Conclusions

- Workers recognize responsibility to raise nuclear safety and quality issues
- Workers feel free to raise nuclear safety and quality concerns without fear of retaliation through their chain of command, through the Condition Report process, and through the Employee Concerns Program
- Pockets of negative perceptions in RP/Chemistry, Maintenance and Engineering departments
- Contractors have a more negative overall perception than FENOC employees
- Additional senior management attention to SCWE RP/Chemistry and Maintenance is required

# Containment Closeout

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**Randy Fast**  
**Director - Organizational Development**

# Containment Closeout

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## Project Scope

- Emergency Sump
- Containment Coatings
- Fuel Integrity
- Environmentally Qualified Equipment
- FLUS
- Boric Acid Inspections
- Decay Heat Valve Tank
- Containment Air Coolers
- Refueling Transfer Canal
- Containment Pressure Vessel
- Corrective Action Evaluations/Corrective Actions

# Containment Closeout

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## Containment Health

- Physical work and paper closeout in support of Containment Health is in the final closure phase





# Closing Comments

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**Lew Myers**  
**Chief Operating Officer - FENOC**