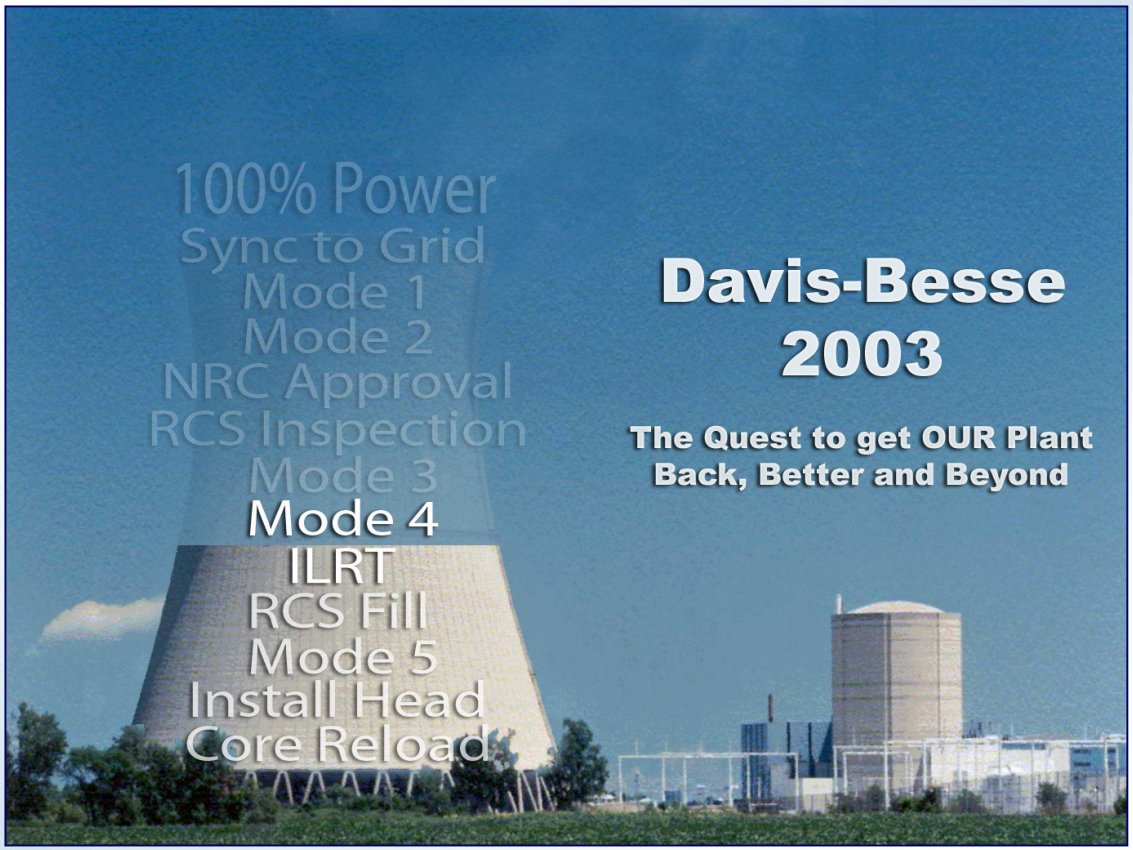
Davis-Besse Nuclear Power Station



IMC 0350 Meeting

Desired Outcome

- 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

Management Actions……..…..Lew Myers

Restart Test Plan……Mike Stevens

Challenges to Restart Test Plan and Plant Restart…...Mike Ross
- High Pressure Injection Pump Replacement…..……Framatome/George Beam
- High Pressure Injection Modification……....MPR/Bob Coward

Operations Readiness……..Mark Bezilla
- Appendix R Review

Quality Oversight Assessment……..…….Fred von Ahn

Safety Conscious Work Environment……Lew Myers

Containment Closeout……...Randy Fast

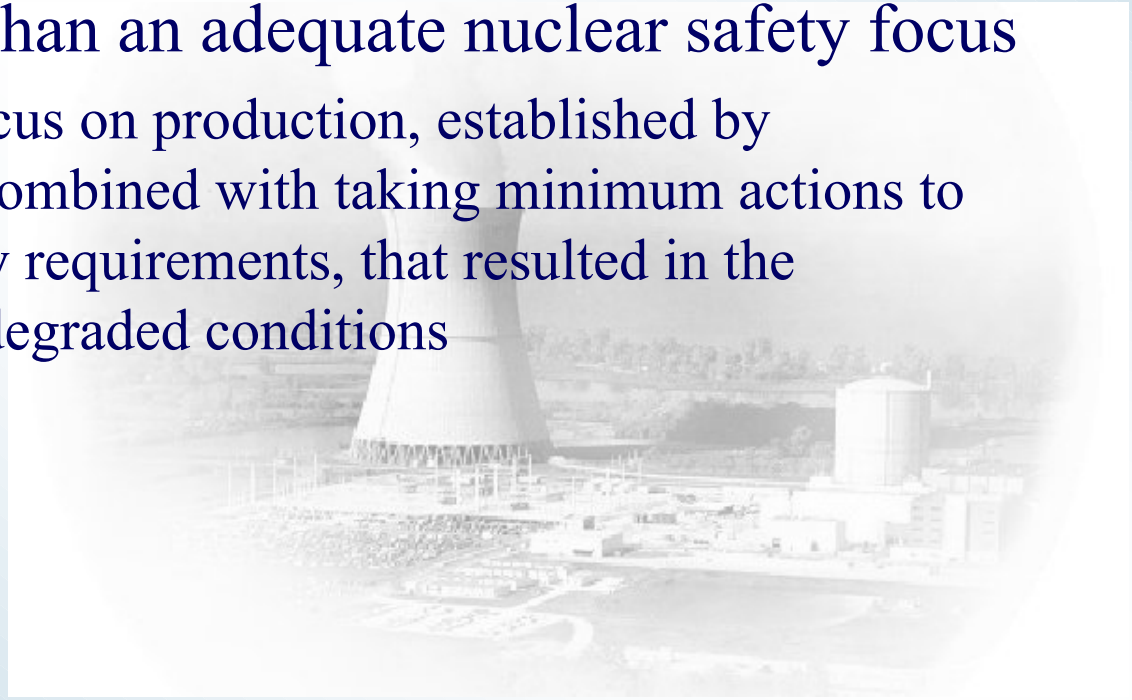
Management Actions

Lew Myers
FENOC Chief Operating Officer

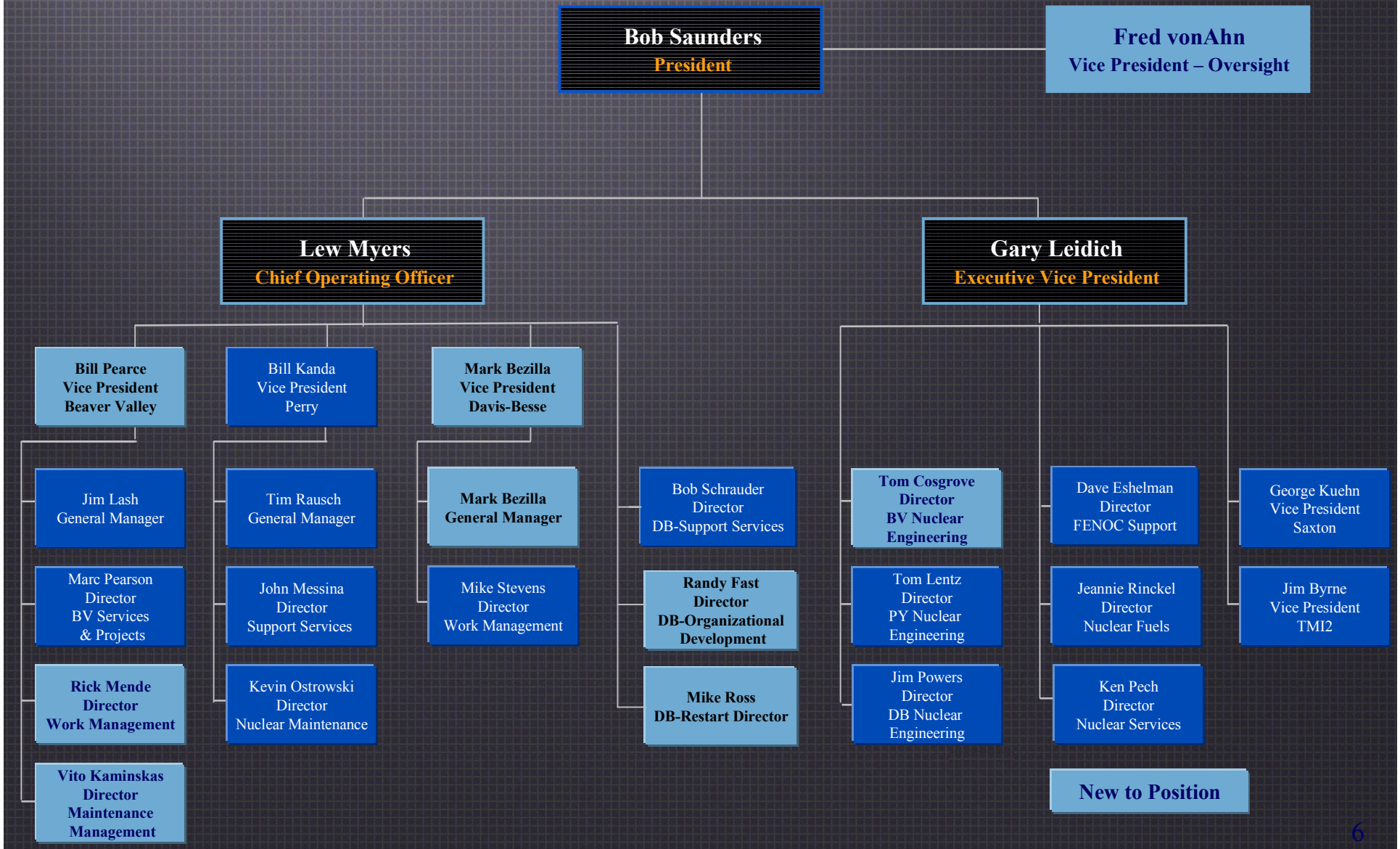
Management Actions

Management and Human Performance Root Cause Statement:

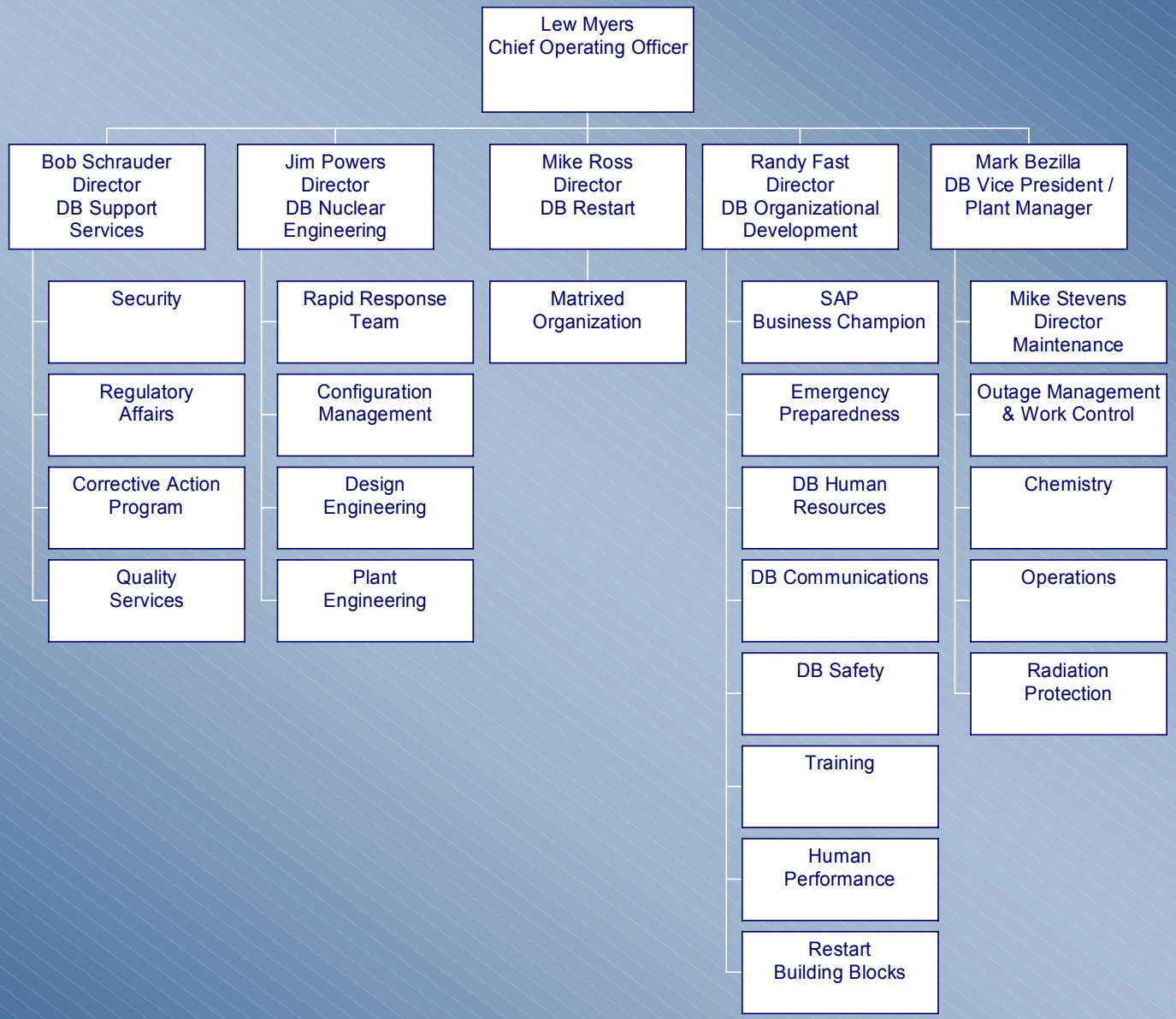
- There was less than an adequate nuclear safety focus
  - There was a focus on production, established by management, combined with taking minimum actions to meet regulatory requirements, that resulted in the acceptance of degraded conditions



Strengthening the Executive and Nuclear Site teams...



Davis-Besse Restart Organizational Chart



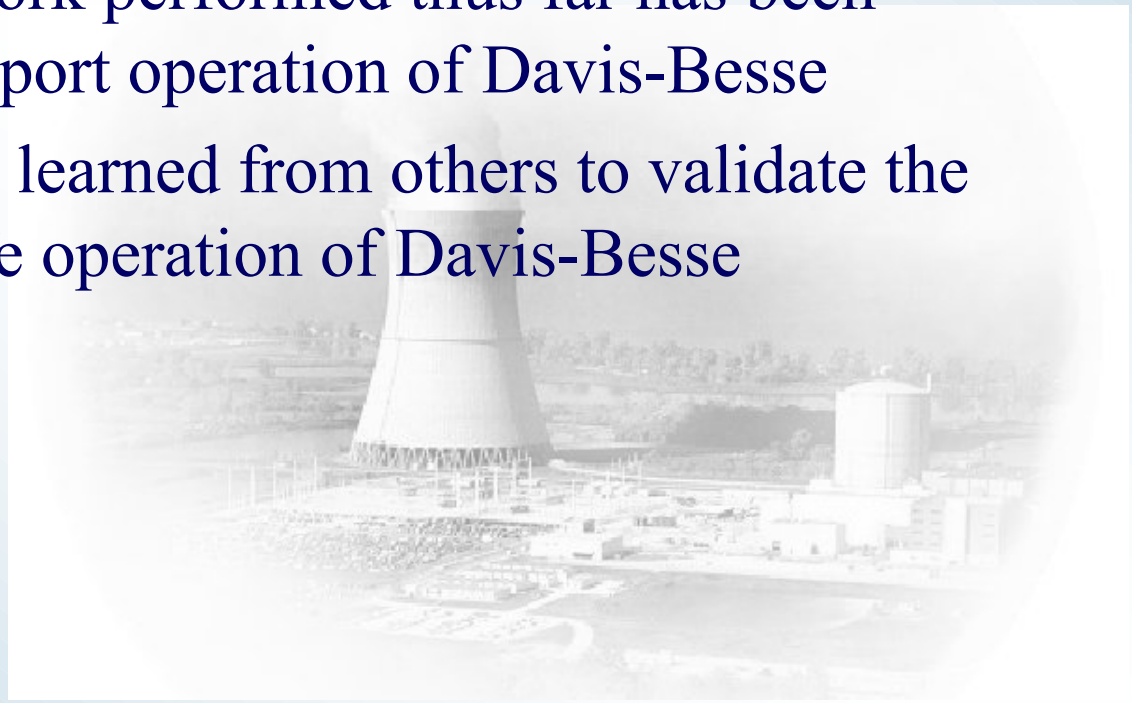
Restart Test Plan

Mike Stevens
Director - Maintenance

Restart Test Plan

Purpose

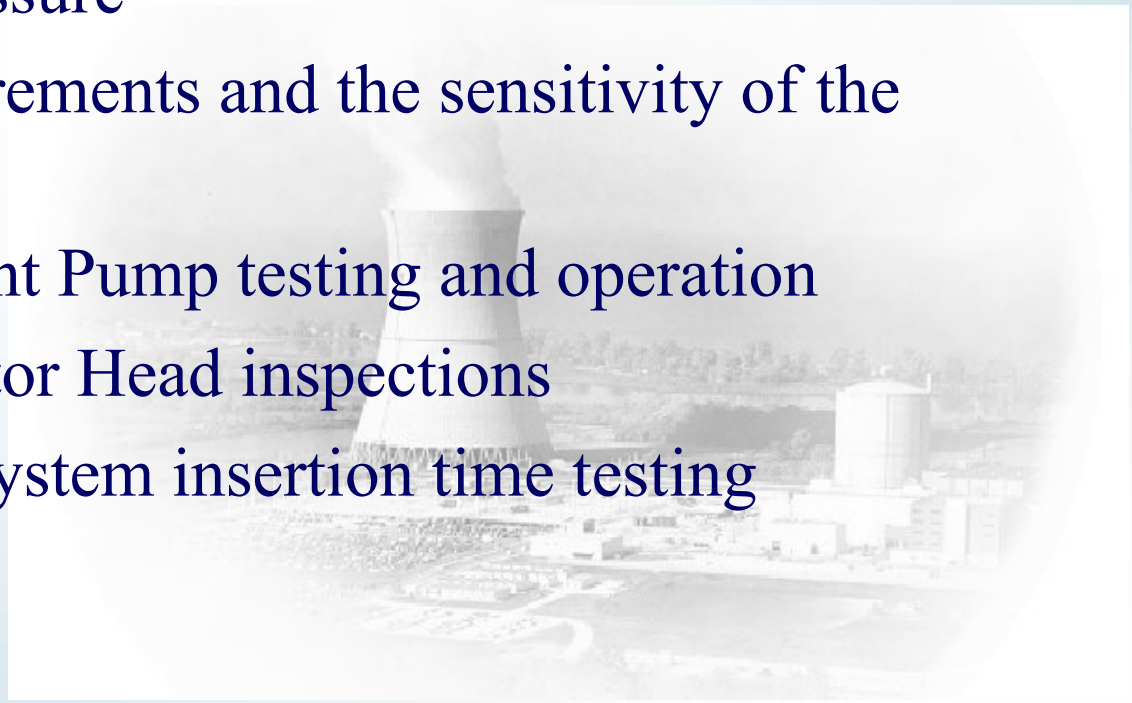
- To prove the work performed thus far has been effective to support operation of Davis-Besse
- To take lessons learned from others to validate the start up and safe operation of Davis-Besse



Restart Test Plan

Primary System Readiness

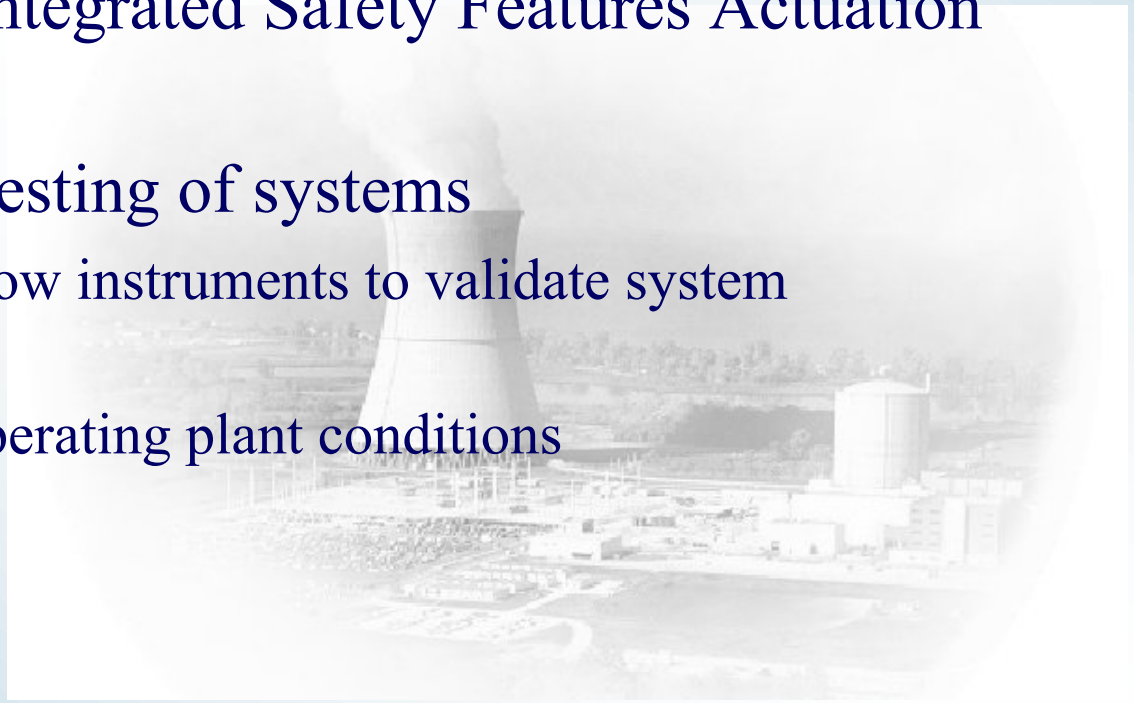
- Detailed inspection @ 50 psig, 250 psig, and 2,155 psig pressure
- Validate requirements and the sensitivity of the FLÜS system
- Reactor Coolant Pump testing and operation
- Baseline Reactor Head inspections
- Control Rod System insertion time testing



Restart Test Plan

Primary System Readiness

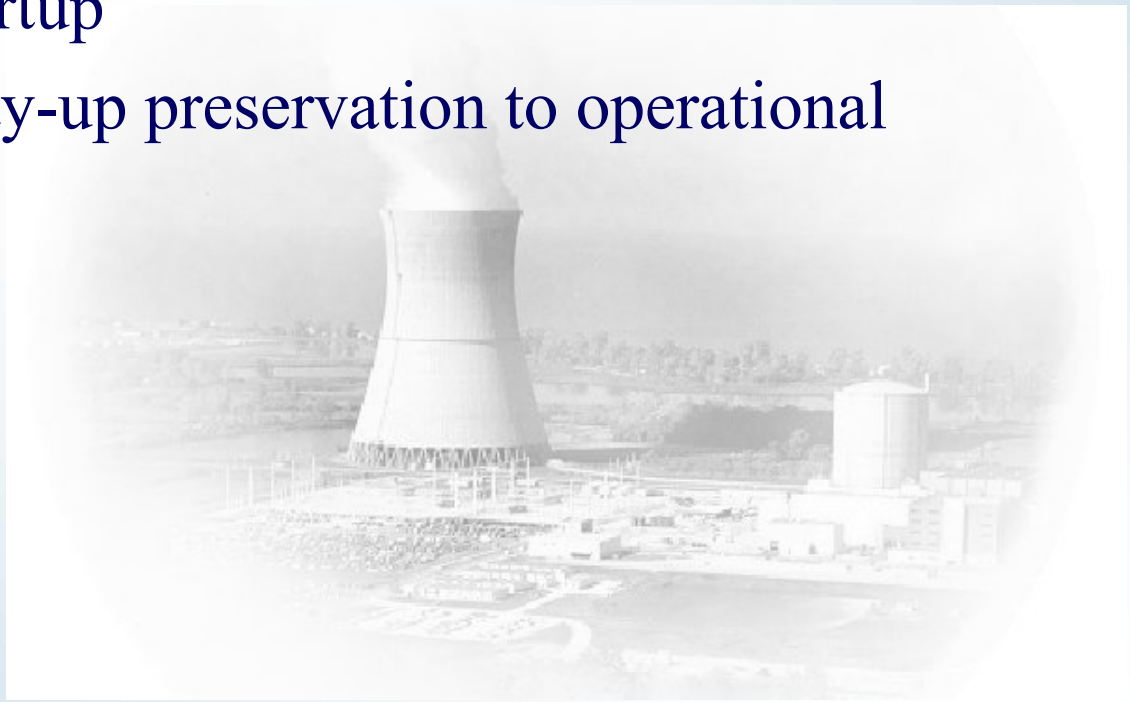
- Perform Technical Specification surveillance tests including the integrated Safety Features Actuation System Test
- Perform flow testing of systems
  - Use special flow instruments to validate system operation
  - Establishes operating plant conditions



Restart Test Plan

Secondary System Readiness

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



Restart Test Plan

Secondary Systems

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

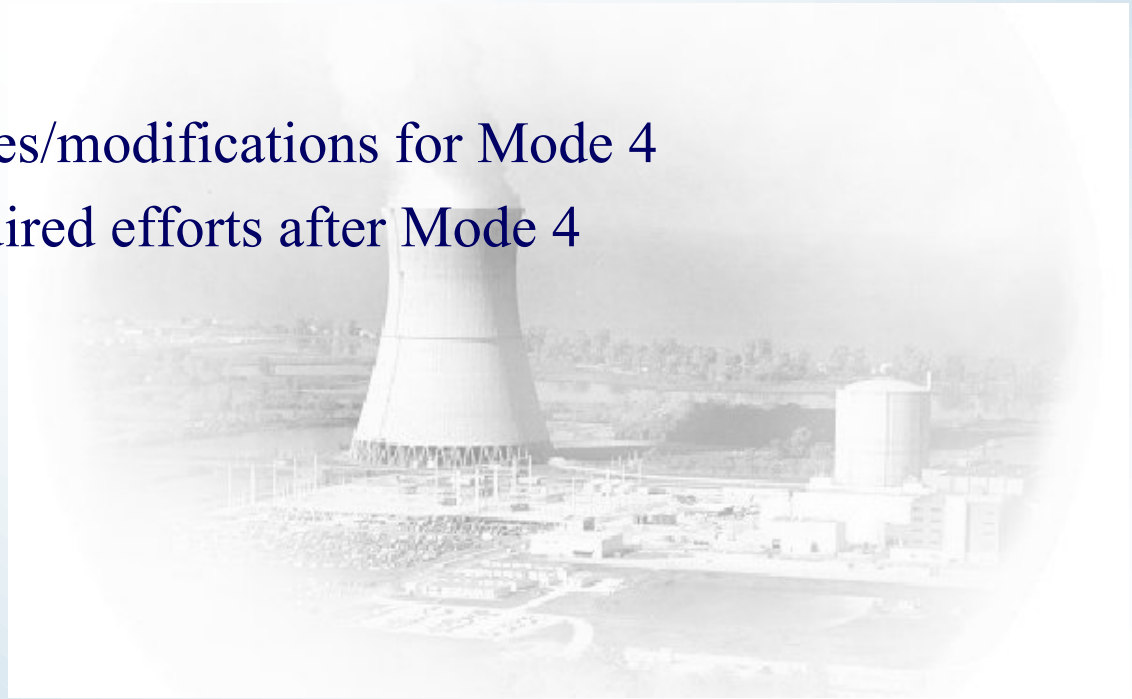
Challenges to Restart Test Plan and Plant Restart

Mike Ross
Restart Director

Mode 4/Mode 3 Status

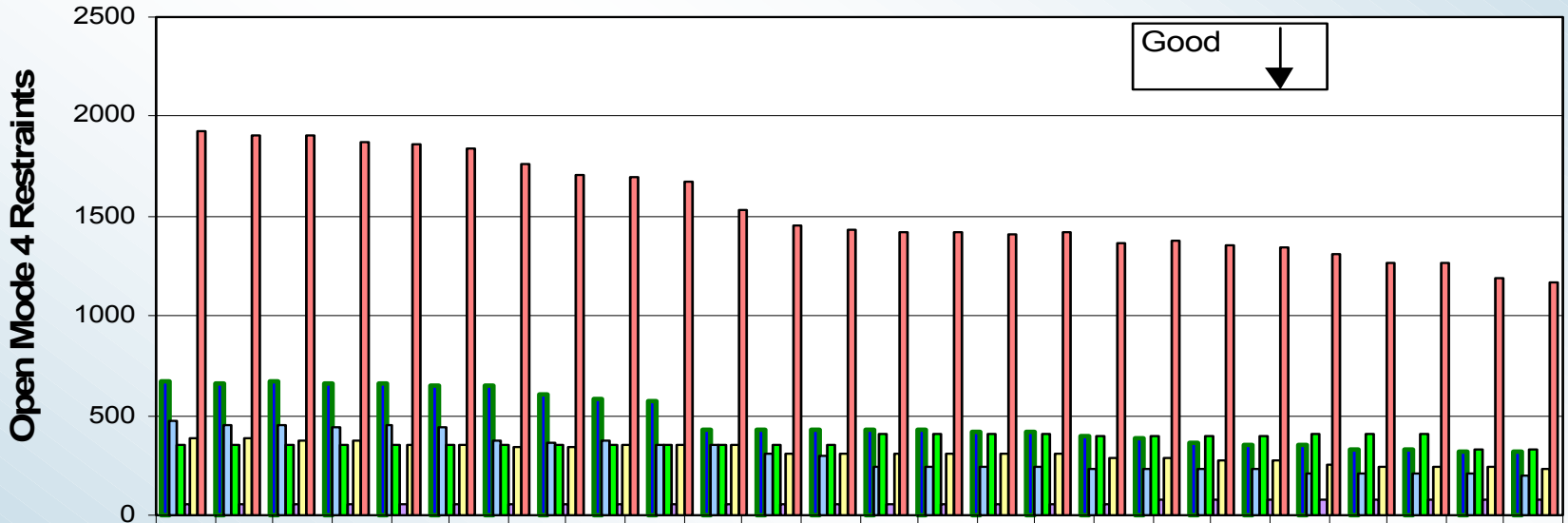
Plant Support Center

- 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

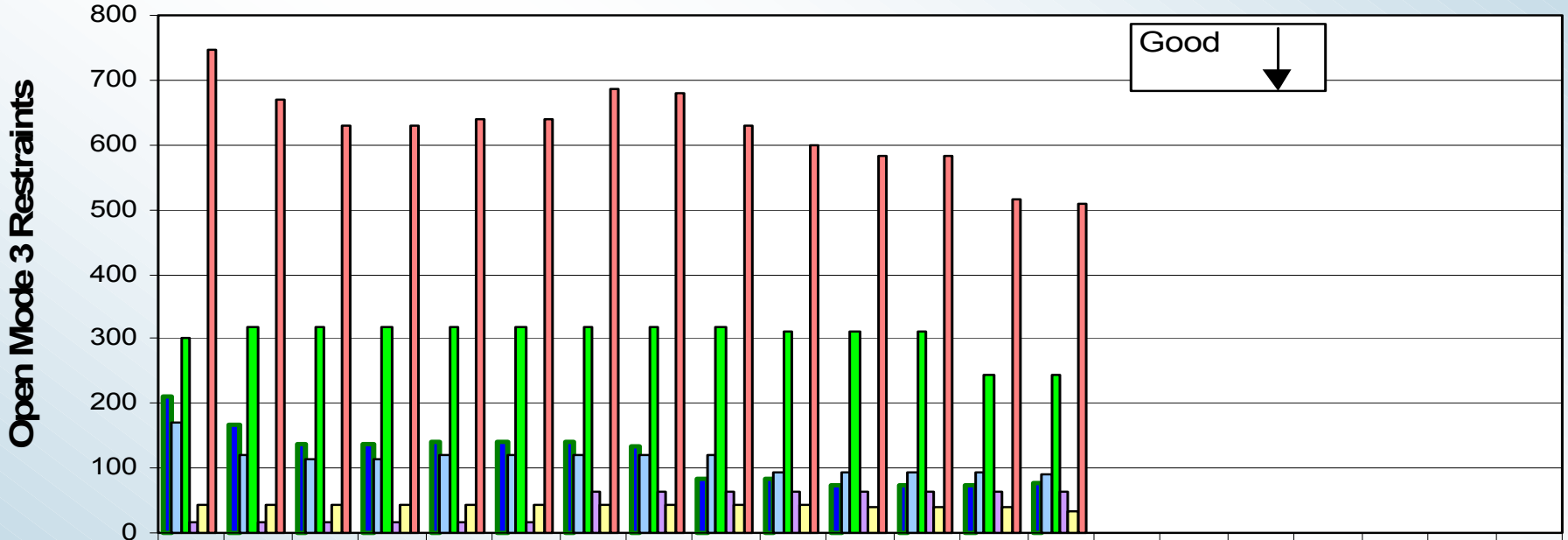
Outstanding Mode 4 Restraints



	3/30	3/31	4/1	4/2	4/3	4/4	4/8	4/9	4/10	4/14	4/15	4/16	4/17	4/18	4/21	4/22	4/23	4/24	4/28	4/29	4/30	5/1	5/2	5/5
CRs	670	658	670	656	656	650	609	580	576	432	429	426	427	426	415	418	398	380	351	357	328	327	320	323
WO	470	455	450	440	455	437	359	374	350	350	311	300	239	240	240	242	234	234	230	210	210	210	210	202
Testing	352	352	352	352	350	350	348	348	355	355	355	355	404	404	404	407	398	398	398	409	409	409	332	332
Other	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	80	80	80	80	80	80	80
RSRB	385	385	378	370	350	348	340	348	348	348	304	304	304	304	304	304	289	289	280	257	244	244	247	235
Total	1927	1900	1900	1868	1861	1835	1706	1700	1679	1535	1449	1435	1424	1424	1413	1421	1369	1381	1339	1313	1271	1270	1189	1172

Mode 4/Mode 3 Status

Outstanding Mode 3 Restraints

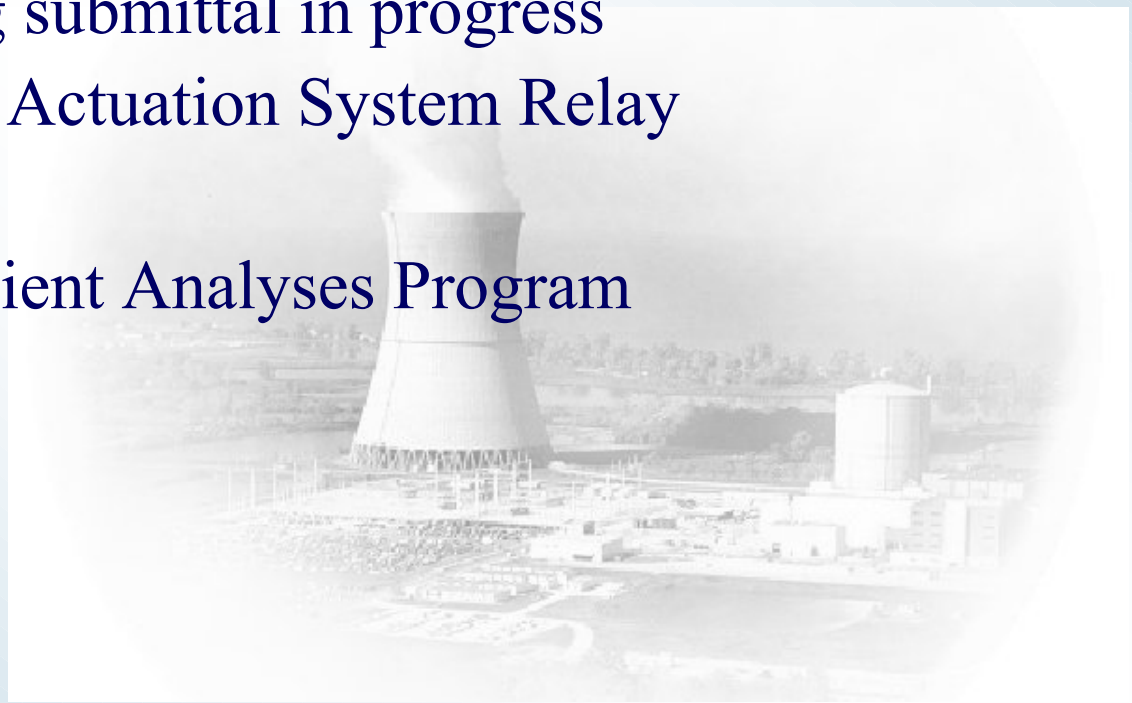


	4/16	4/17	4/18	4/21	4/22	4/23	4/24	4/25	4/28	4/29	4/30	5/1	5/2	5/5	5/6	5/7	5/8	5/9	5/12	5/13	5/14
CRs	210	169	137	137	140	140	141	135	83	84	73	74	75	76							
WO	172	121	114	114	119	119	119	119	119	94	94	94	94	89							
Testing	302	317	317	317	317	317	317	317	317	312	312	312	244	244							
Other	18	18	18	18	18	18	65	65	65	65	65	65	65	65							
RSRB	44	44	44	44	44	44	44	44	44	44	39	39	39	35							
Total	746	669	630	630	638	638	686	680	628	599	583	584	517	509	0	0	0	0	0	0	0

Mode 4/Mode 3 Status

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

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

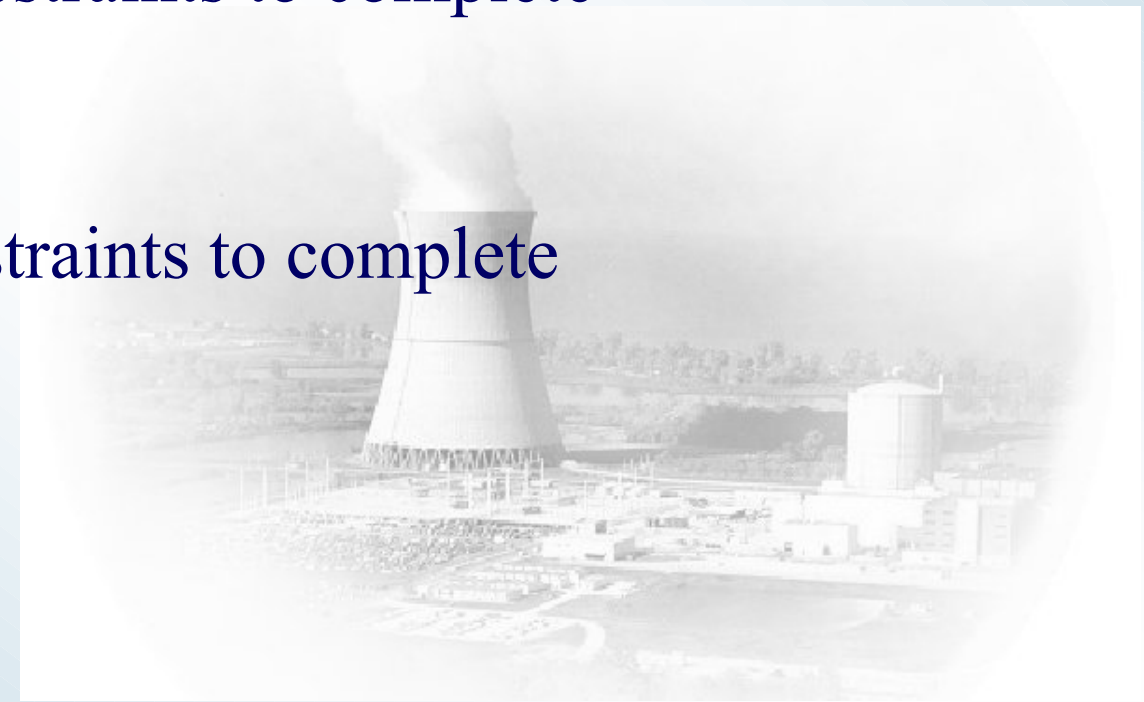
Mode 2/Mode 1 Status

Mode 2

- 396 restraints to complete

Mode 1

- 39 restraints to complete



High Pressure Injection Pump

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

Replacement Option:

- George Beam, Senior Vice President - Framatome

Modification Option:

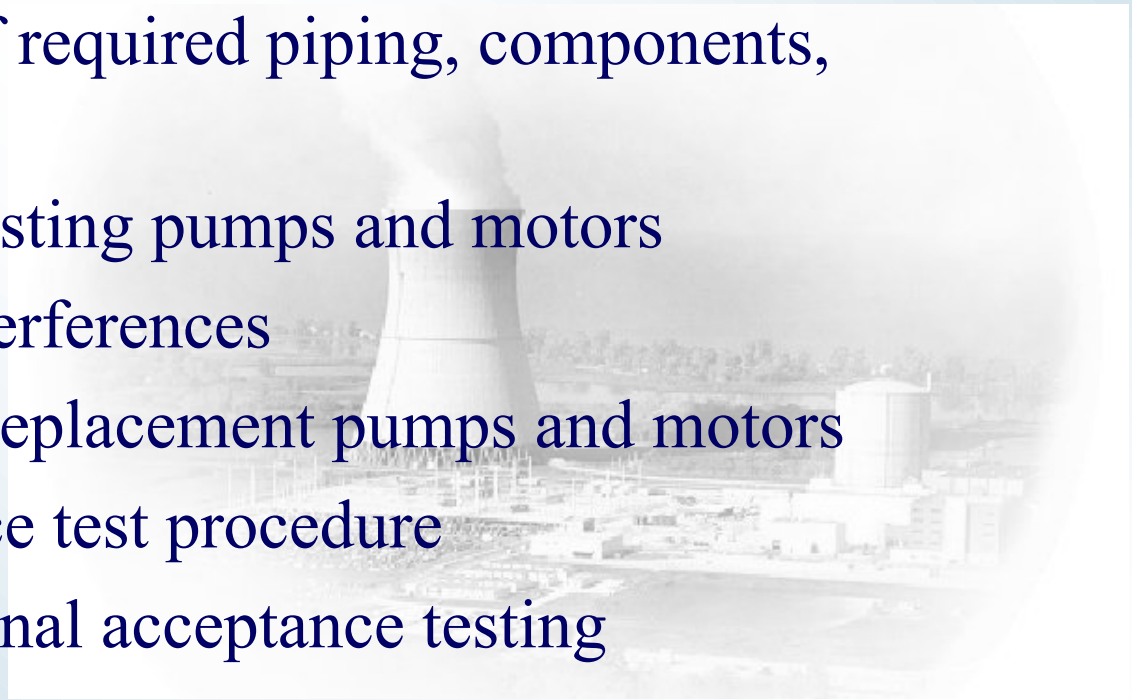
- Bob Coward, Director of Nuclear Services - MPR

Decision focus: "What is right for the plant"

High Pressure Injection Pump

Replacement Option Scope

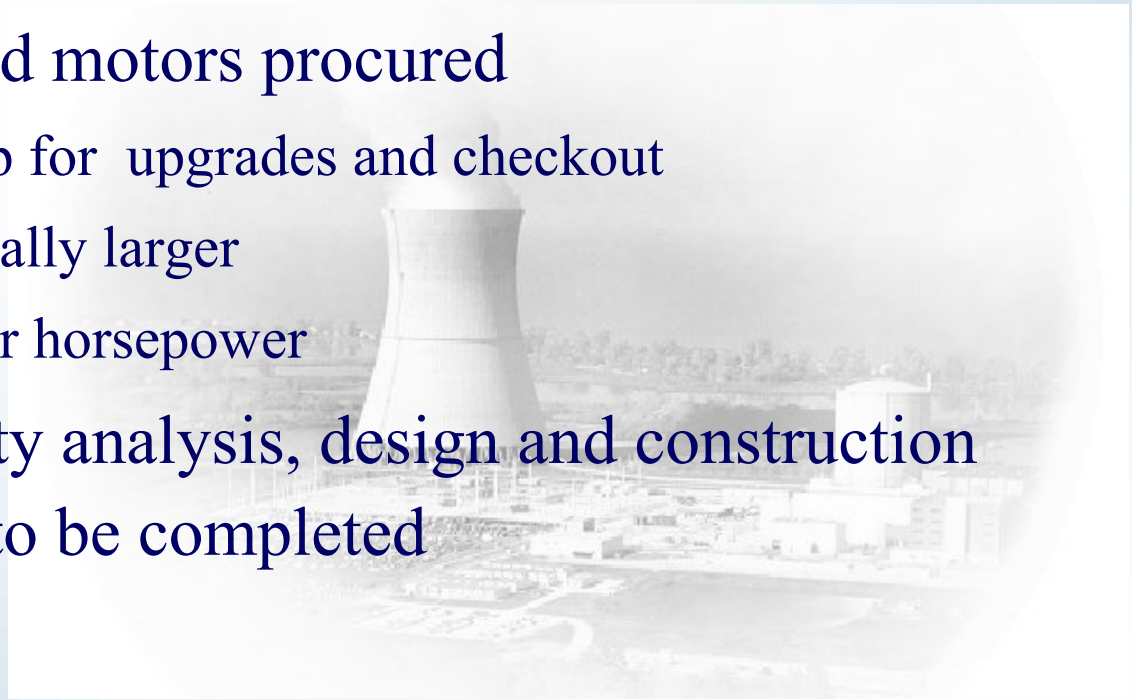
- Engineering design and analysis
- Procurement of replacement pumps and motors
- Procurement of required piping, components, fixtures
- Removal of existing pumps and motors
- Removal of interferences
- Installation of replacement pumps and motors
- Final acceptance test procedure
- Participate in final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



High Pressure Injection Pump

Current Status/Work in Progress

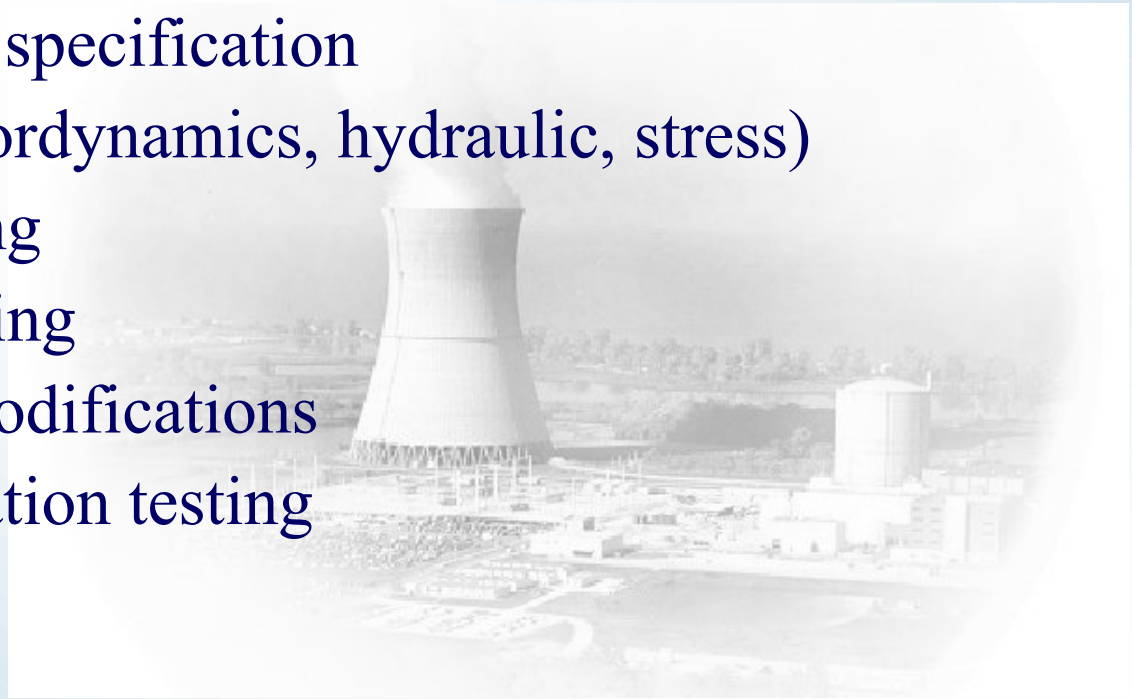
- Project approach is self-managed work team
- Two pumps and motors procured
  - In OEMs shop for upgrades and checkout
  - Pumps physically larger
  - Motors greater horsepower
- Important safety analysis, design and construction work remains to be completed



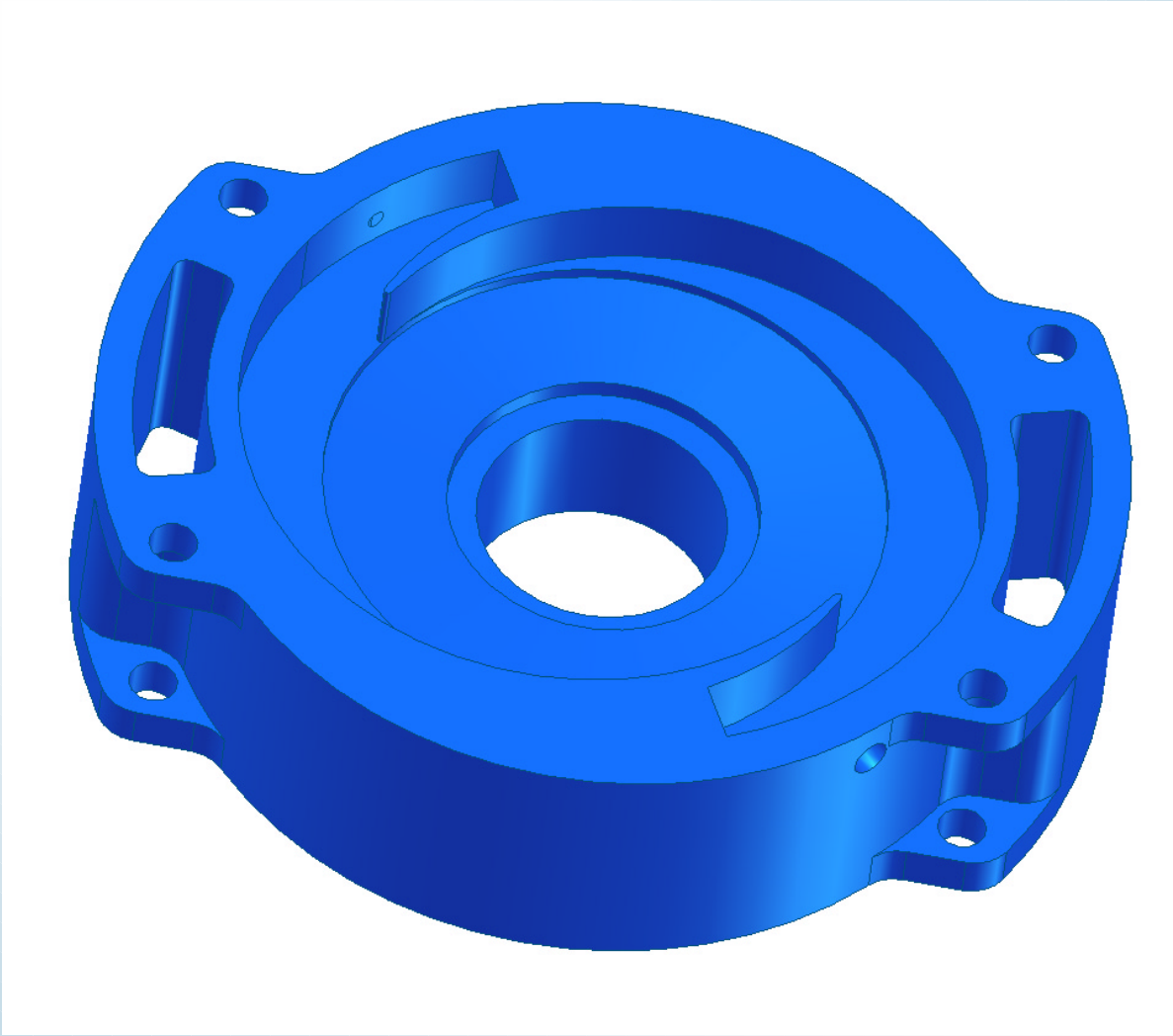
High Pressure Injection Pump

Modification Option Scope

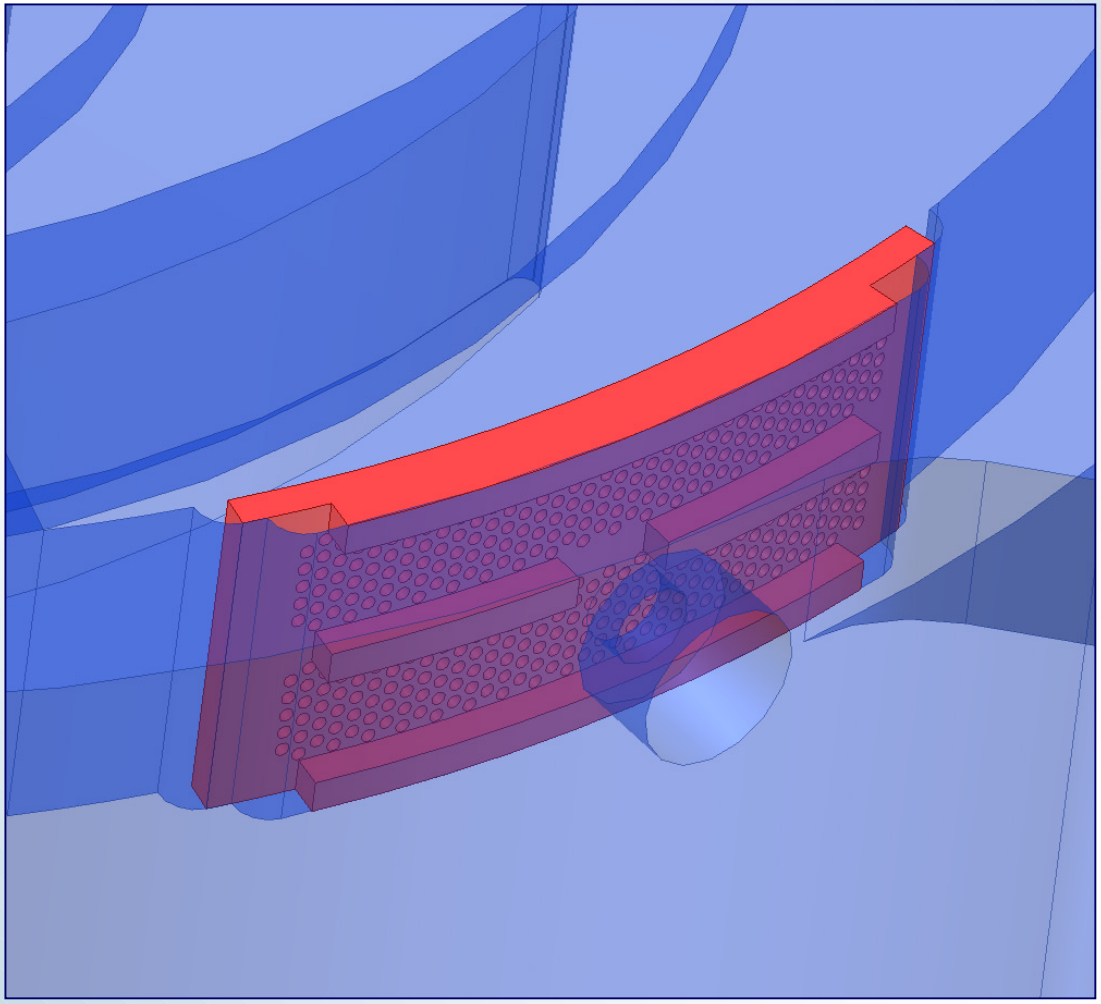
- Modification design
- Mock-up test specification
- Analysis (rotordynamics, hydraulic, stress)
- In-plant testing
- Mock-up testing
- Implement modifications
- Post modification testing



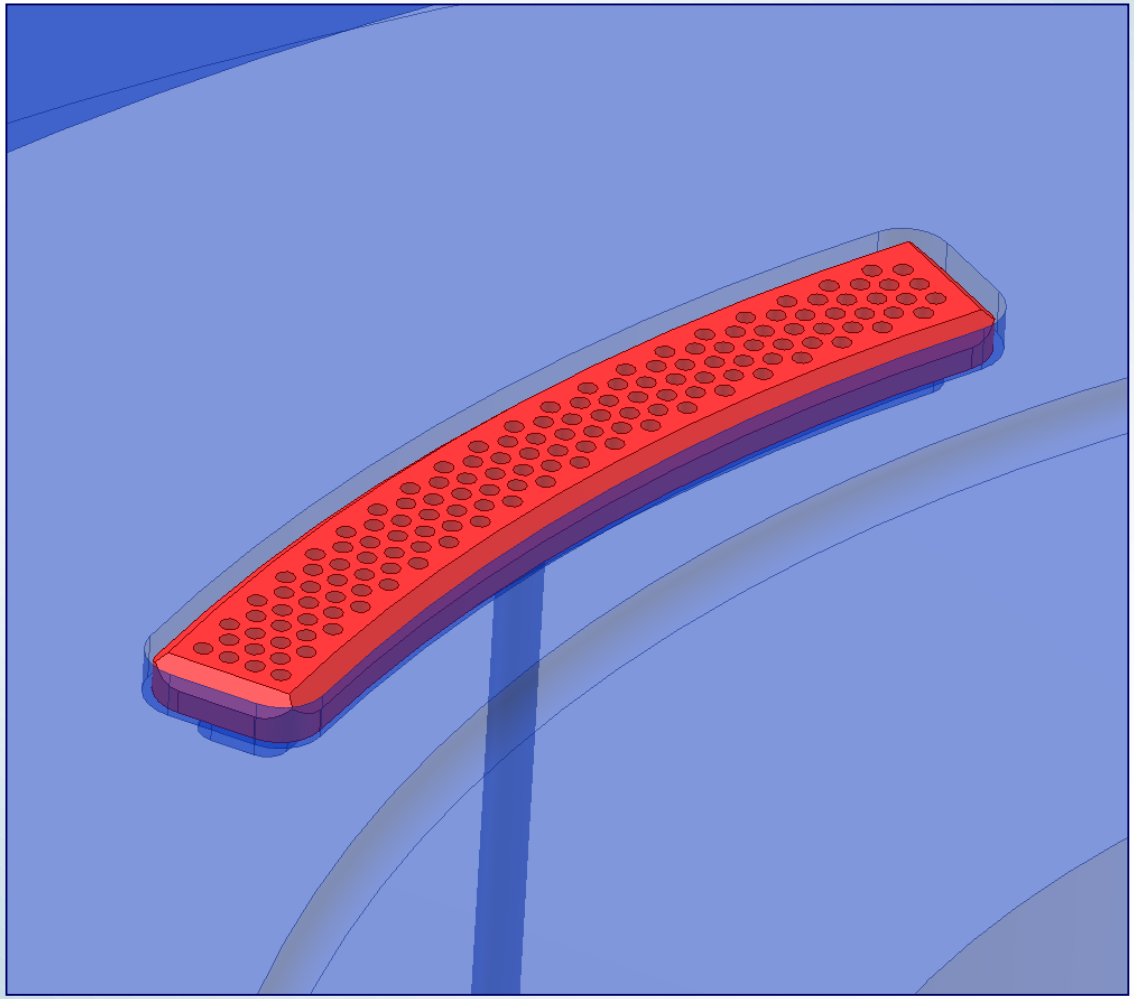
High Pressure Injection Pump Volute



High Pressure Injection Pump Volute Modification



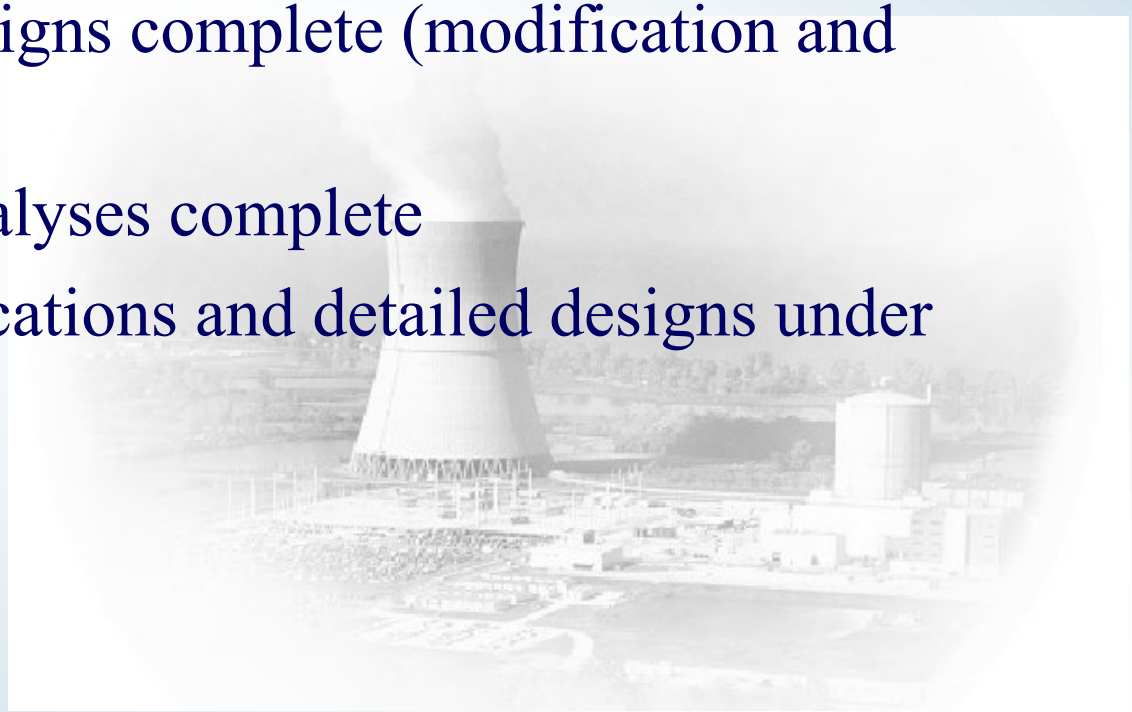
High Pressure Injection Pump Cyclone Strainer Modification



High Pressure Injection Pump

Current Status/Work In-Progress

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



Operations Readiness

Mark Bezilla
Vice President/Plant Manager

Operations Readiness

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

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

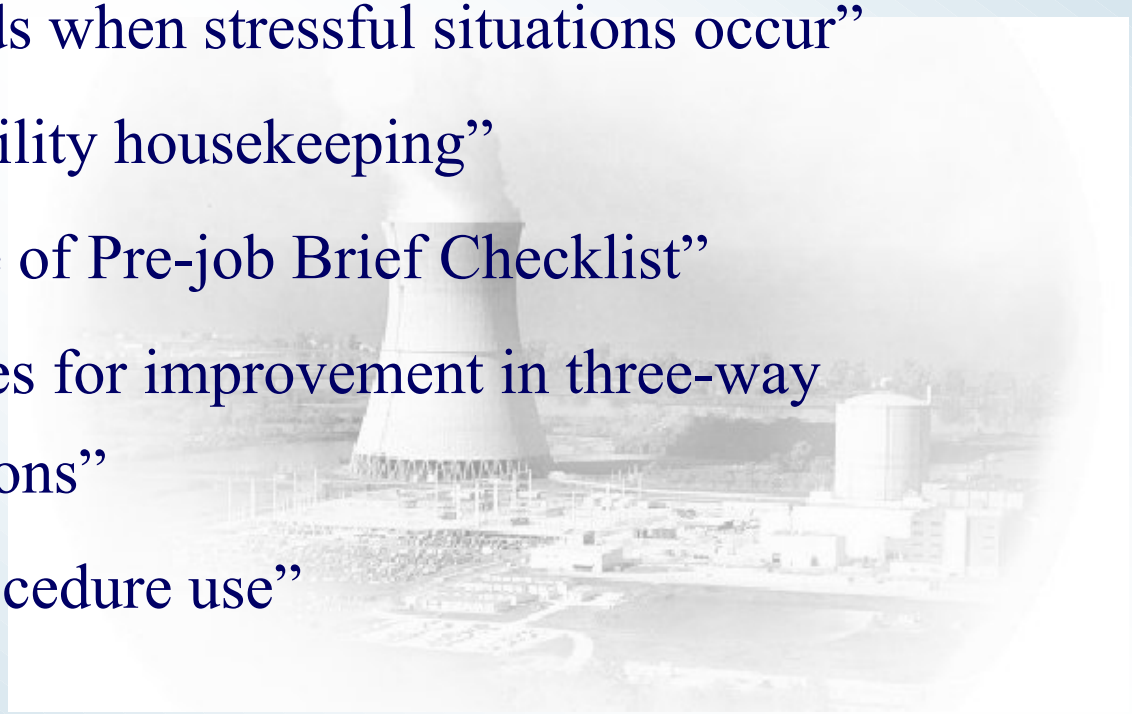
Industry Feedback:

- "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

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)

Quality Oversight Assessment

Fred von Ahn

Vice President - FENOC Oversight

Quality Assessment Overview

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

Lew Myers
FENOC Chief Operating Officer

Safety Conscious Work Environment

- 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

		2002 Survey Negative Responses			2003 Survey Negative Responses		
#	Question	ALL	FENOC	Contractor	ALL	FENOC	Contractor
	Total Number of Workers	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%

"Retaliation" Questions → 7, 25, 30

"HIRD" Questions → 35, 36

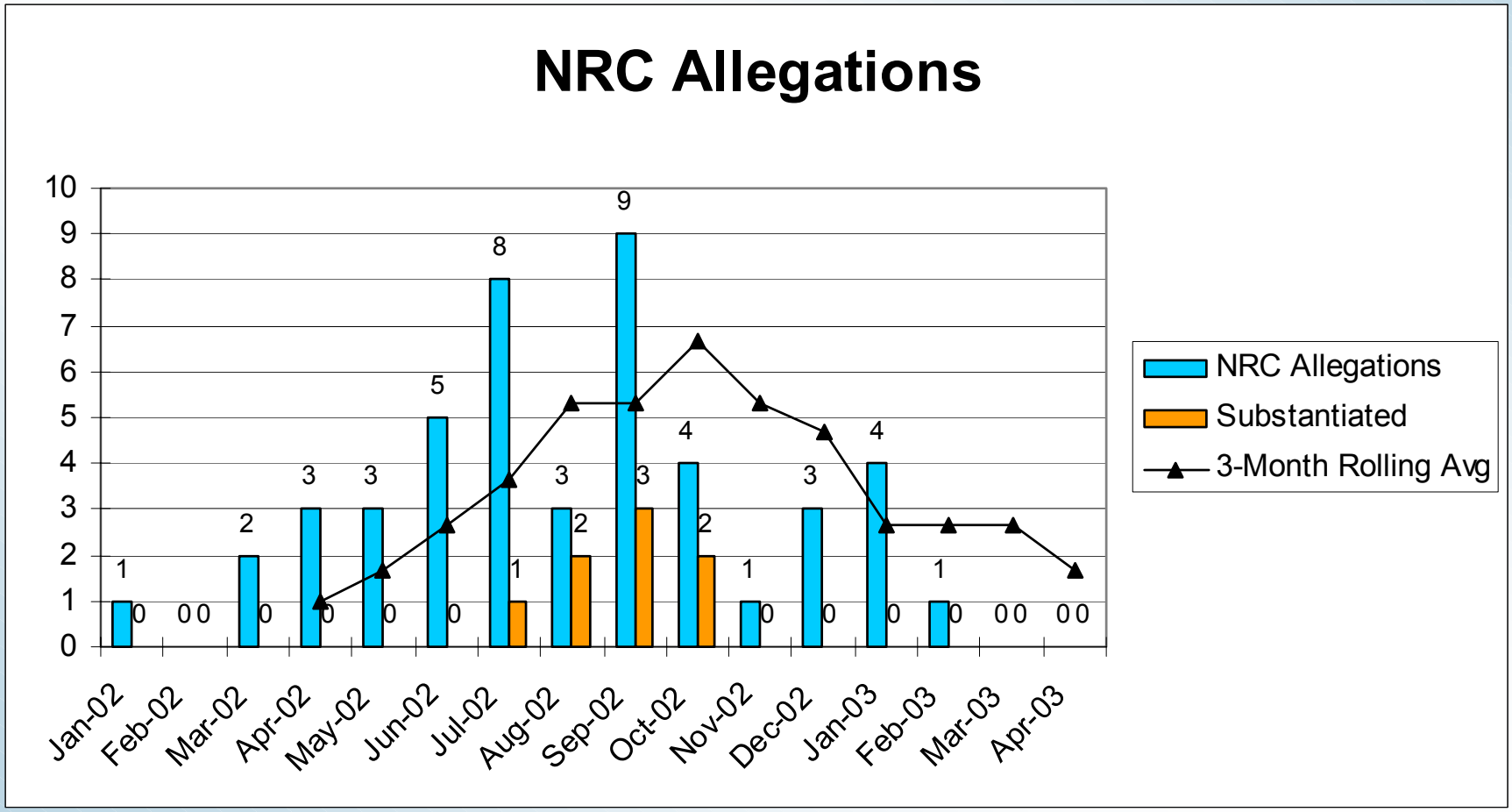
<5% Negative Response
Between 5% and 10% Negative Response
>10% Negative Response

Safety Conscious Work Environment

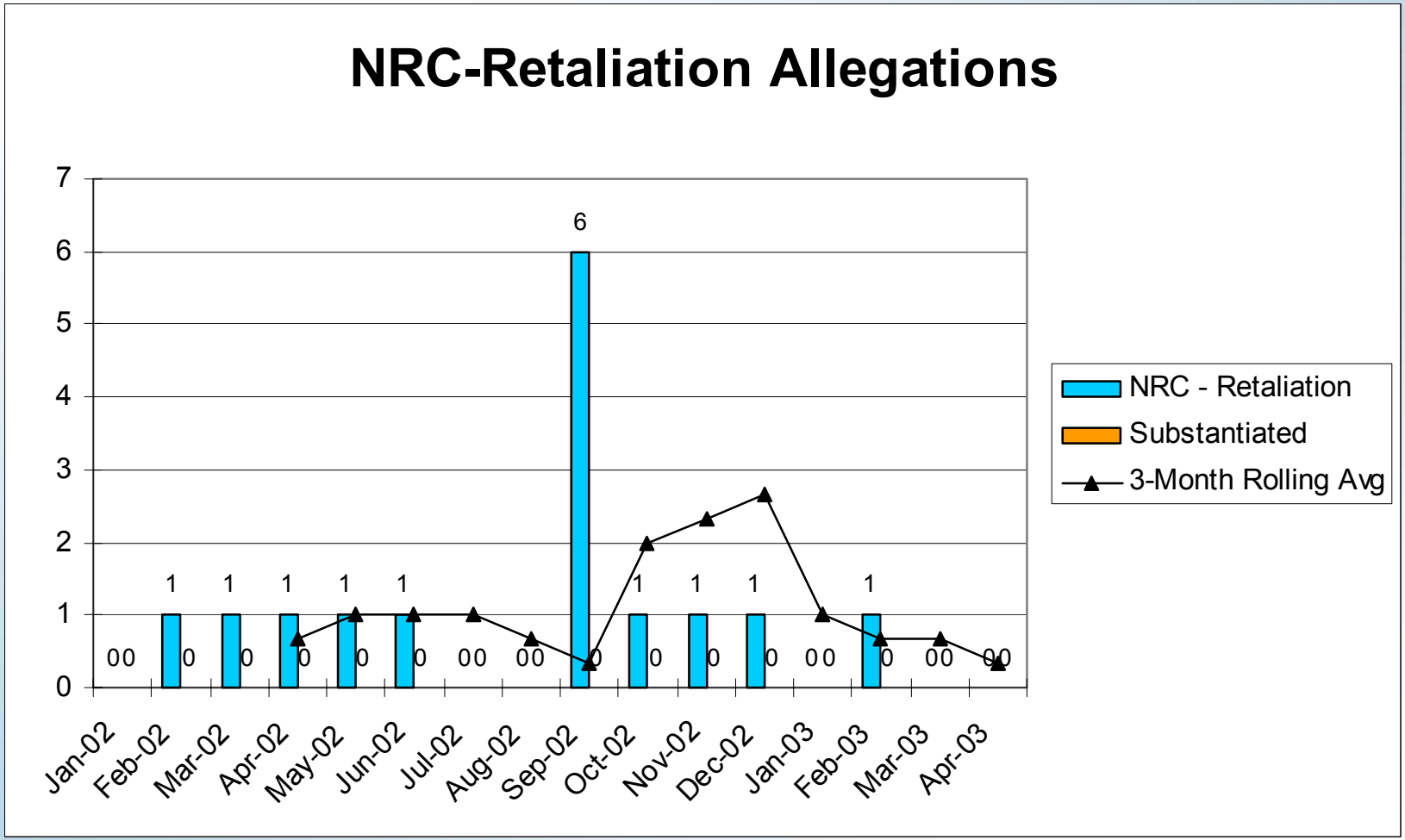
Survey Analysis

- 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

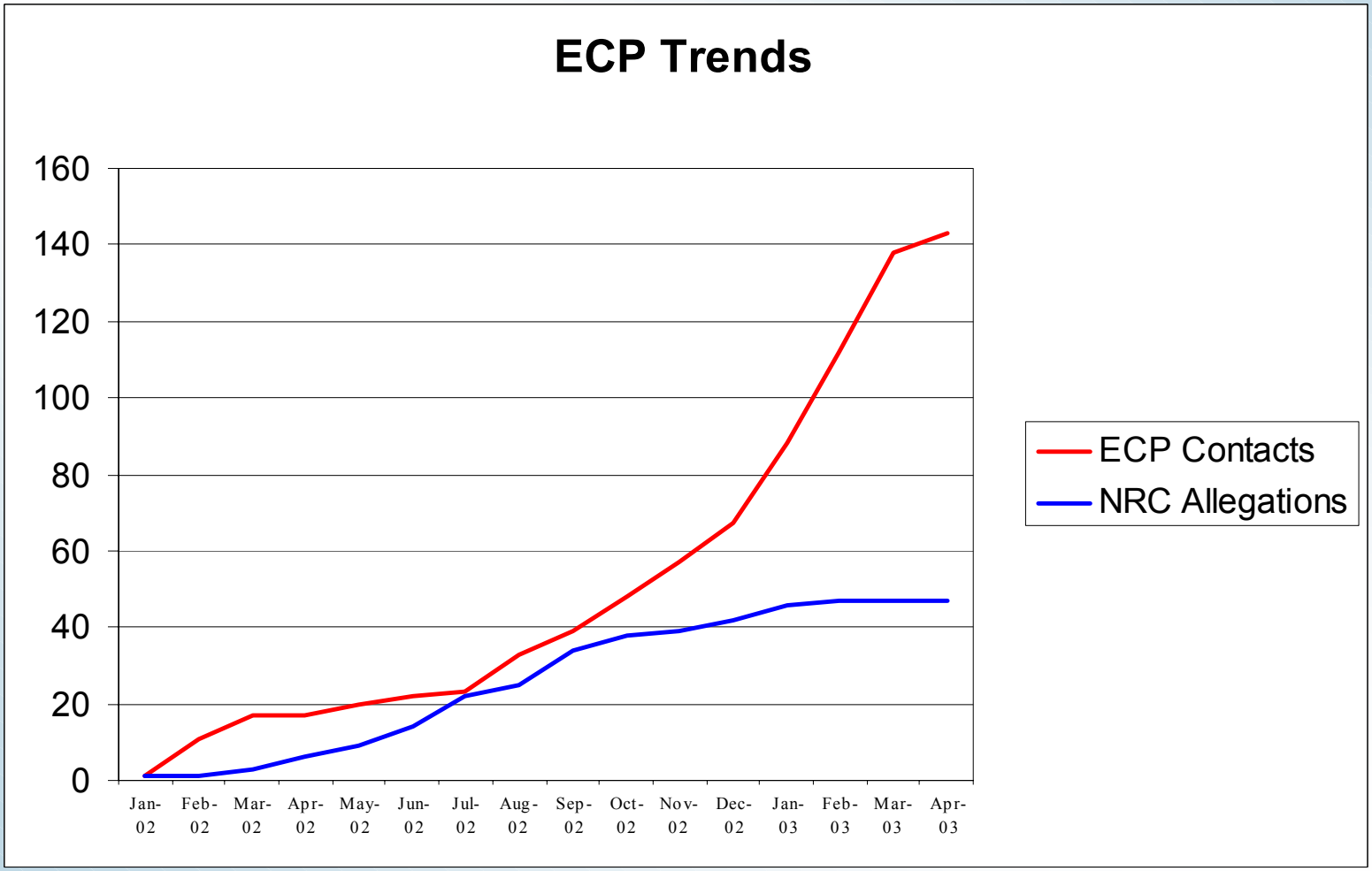
Safety Conscious Work Environment



Safety Conscious Work Environment



Safety Conscious Work Environment



Safety Conscious Work Environment

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

Randy Fast
Director - Organizational Development

Containment Closeout

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

Containment Health

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

Closing Comments

Lew Myers
Chief Operating Officer - FENOC