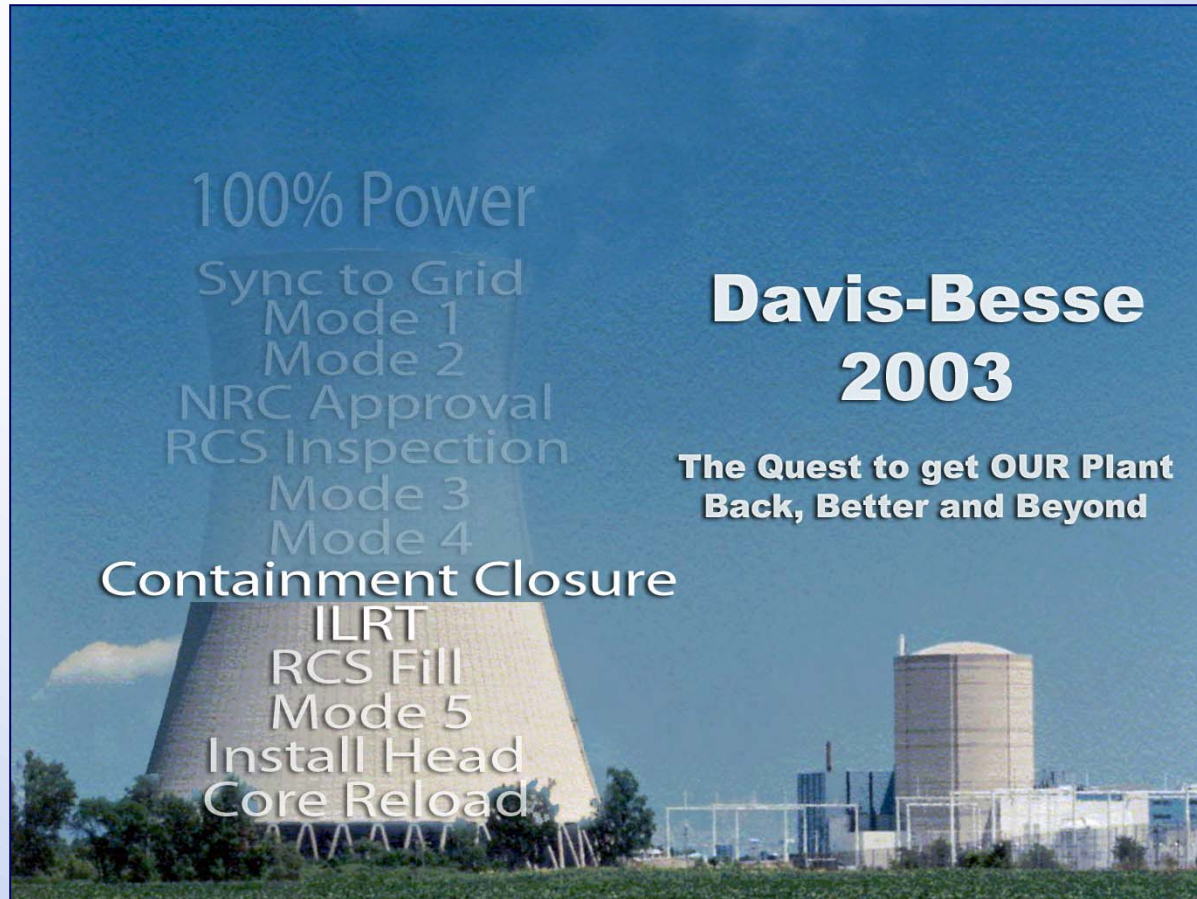


# *Davis-Besse Nuclear Power Station*

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## **IMC 0350 Meeting**

# Desired Outcome

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- Provide an Update on Plant Performance and Management & Human Performance Progress Since the Last Meeting
- Provide Information Concerning Decision on the High Pressure Injection Pump
- Provide an Update on the Quality Oversight Perspective
- Provide Status on Several Engineering Design Issues
- Status our Overall Schedule and Performance Indicators

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

# Meeting Agenda

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<b>Pressure Test Results; Containment Closure.....</b>	<b>Mark Bezilla</b>
<b>Management &amp; Human Performance Plan Update.....</b>	<b>Lew Myers</b>
<b>Electrical Distribution; SFAS Relays.....</b>	<b>Jim Powers</b>
<b>HPI Pump Modification; Corrective Action Program Performance.....</b>	<b>Bob Schrauder</b>
<b>Quality Assessment Activity.....</b>	<b>Steve Loehlein</b>
<b>Remaining Issues Focus.....</b>	<b>Mike Ross</b>
<b>Schedule Milestones.....</b>	<b>Mike Stevens</b>
<b>Restart Action Performance.....</b>	<b>Clark Price</b>

# Reactor Coolant System Pressure Tests and Containment Closure

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**Mark Bezilla**  
Vice President/Plant Manager



# Reactor Coolant System Pressure Tests and Containment Closure

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## Desired Outcome

- Demonstrate increased confidence in the Reactor Coolant System and Support System
- Provide an update on Containment Activities



# Reactor Coolant System Pressure Tests

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- Completed 50 psig Leak Test - May 6, 2003
- Completed 250 psig Leak Test - May 25, 2003
- Accomplishments:
  - Determined that we could only “heat up” the Reactor Coolant System (RCS) due to decay heat, to <140 degrees
  - Placed Makeup and Purification System in service
  - Verified Pressurizer Heaters and spray functions
  - Ran each Reactor Coolant Pump
  - Gained confidence in the performance of the RCS and support systems

# Containment Closure

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- Containment Health Actions
- Containment Work
- Containment Closure
- Containment Ownership Turnover from Containment Health to Operations



# Management & Human Performance Plan Update

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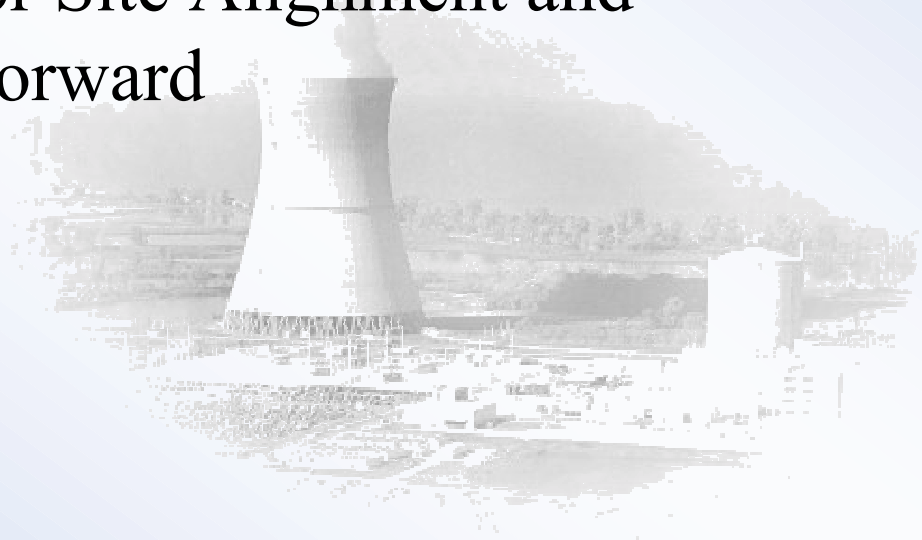
**Lew Myers**  
**FENOC Chief Operating Officer**

# Management & Human Performance Plan Update

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## Desired Outcome

- Demonstrate Strong Actions Taken to Date to Address Management and Human Performance
- Demonstrate Plan for Site Alignment and Leadership Going Forward





# Management & Human Performance Plan Update

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## Actions to Date

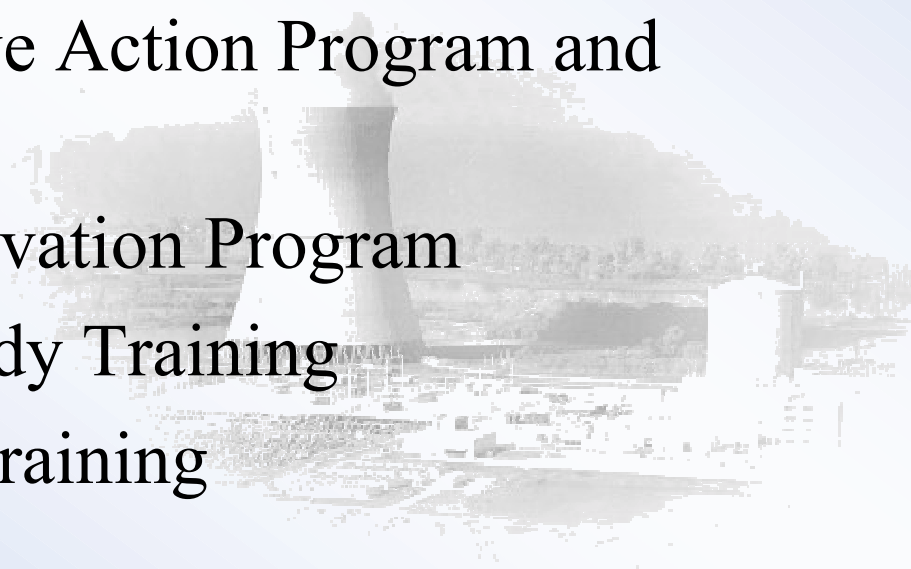
- FENOC Corporate Organization Changes
- Davis-Besse Management Changes
- Independent Quality Assessment Organization
- Established and Communicated Standards
- Added/Enhanced Internal Oversight Groups
  - Engineering Assessment Board
  - Project Review Committee
  - Corrective Action Review Board
  - Management Review Board

# Management & Human Performance Plan Update

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## **Actions to Date** (continued)

- Added/Enhanced External Oversight Groups
  - Restart Overview Panel, Company Nuclear Review Board
- Improved Corrective Action Program and Oversight
- Management Observation Program
- All-hands Case Study Training
- Leadership Team Training



# Management & Human Performance Plan Update

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## Actions to Date (continued)

- Employee Concerns Program Improvements
- Increased Technical Rigor
  - Calculation Program
  - FENOC Problem Solving and Decision Making Nuclear Operating Procedure
  - Operability Evaluations



# Management & Human Performance Plan Update

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## Actions to Date (continued)

- Initiated Several Employee Communication Mechanisms
  - 4-Cs, Town Hall & All-hands meetings
- Section Specific Improvement Initiatives
- Developed Performance Indicators for Monitoring Performance




# Management & Human Performance Plan Update

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## FENOC Definition Safety Culture

**“That assembly of characteristics and attitudes in organizations and individuals which establishes an overriding priority towards nuclear safety activities and that these issues receive the attention warranted by their significance.”**



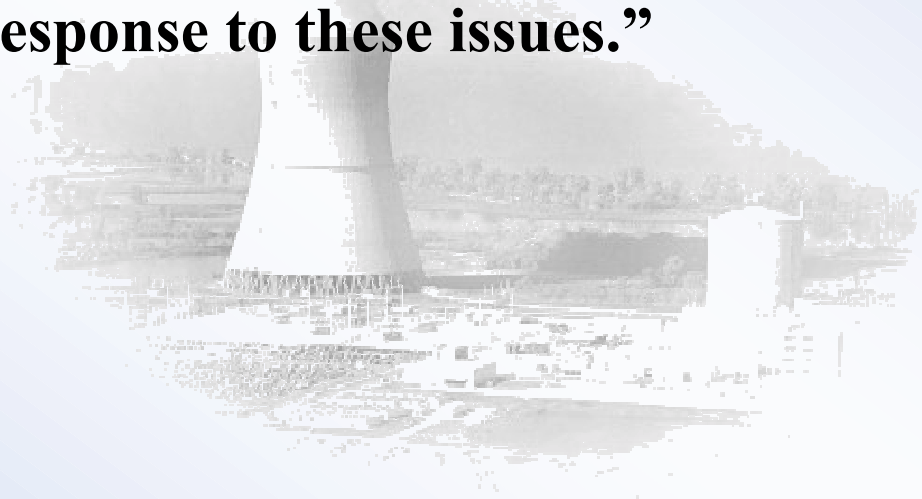


# Management & Human Performance Plan Update

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## **FENOC Definition** **Safety Conscious Work Environment**

**“That part of a Safety Culture addressing employee willingness to raise issues and management’s response to these issues.”**



# Management & Human Performance Plan Update

## Site Integration Plan: May-December 2003

Timeline	Site Alignment and Leadership Development Interventions			
<b>May – July</b>	<p>Response to Haber Report</p> <p>Interviews with SMT members and Managers</p> <p>Transition / Restart Plan</p> <p>Work Management Safety-Focus Process</p>	<p>Development Plans for Directors and Managers -- completed and approved</p> <p>Exelon Benchmark</p> <p>Management Observation Prog. Improvement Rollout</p> <p>Focus on Safety as a Leadership Team</p>	<p>3–Day SMT Intervention (Haber Report Review)</p> <p>3–Day Intervention w/Mgrs</p> <p>360° Feedback (SMT and Mgrs)</p> <p>Fill Open Supv. Positions</p> <p>Form Design Team for Cross-functional 1-day all-site trg</p>	<p>One-on-One Coaching Starts with SMT Members and Managers</p> <p>Facilitative Leadership Training?</p> <p>SCWE Training</p> <p>Cross-functional 1 day all-site training day</p>
<b>August – September</b>	<p>1-2 Day Intervention with both SMT and Managers</p> <p>All-Leadership Session - Supvs. ↑ Bi-monthly</p> <p>FENOC internal Safety Culture Tool -- format to use post restart</p>	<p>Assessment Process for internalizing capabilities to assess supervisors</p> <p>Form Cross-Functional Design Team for 2-Day All-Site Large Scale Meeting</p>	<p>1 – Day SMT Follow Up Intervention</p> <p>1 – Day Managers Follow Up Intervention</p> <p>Reinstate MRM, Business Plan, Performance Indicators</p>	<p>2 – Day All Site Large Scale Meeting (Vision Map?)</p> <p>Leadership Academy for SMT and Managers (Pilot?)</p> <p>Long-term Safety Culture Improvement Plan</p>
<b>October - December</b>	<p>1 – Day SMT Follow Up Intervention</p> <p>1–Day Managers Follow Up Intervention</p>	<p>SCWE – 6 month follow-up survey</p> <p>QA focused-assessment of safety Culture</p>	<p>All Leadership Session – Supvs. ↑ Bi-monthly</p> <p>Form Cross-Functional Design Team for 1-Day All-Site Large Scale Meeting</p>	<p>1–Day All Site Large Scale Meeting</p>

# Management & Human Performance Plan Update

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## Upcoming Safety Culture Actions

- Improve the Work Management Safety Oversight Process
- Facilitated Site Alignment Activities
  - Leadership development and coaching
  - Department/section activities
  - All-site meetings
- Site Safety Conscious Work Environment Training
  - Prior to Mode 2 - during all-site training day

# Management & Human Performance Plan Update

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## Upcoming Safety Culture Actions (continued)

- Focused Organizational Development Activities
  - Engineering
  - Maintenance
- Continued Employee Communications
  - Reinstate weekly manager's meeting
  - Initiate monthly department/section meetings
  - Continue monthly site meetings
  - Conduct weekly Senior Management Team strategy meetings

# Management & Human Performance Plan Update

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## Safety Culture Monitoring

- Safety Conscious Work Environment Surveys
  - 3rd quarter 2003, then annually for 2 years
- Internal Quality Assurance Assessments
  - 4th quarter 2003, then annually for 2 years
- FENOC Internal Safety Culture Assessment
  - Prior to Mode 4 (Restart Readiness)
  - Prior to Mode 2 (Restart Readiness)
  - Prior to restart from subsequent outages
  - FENOC going-forward process

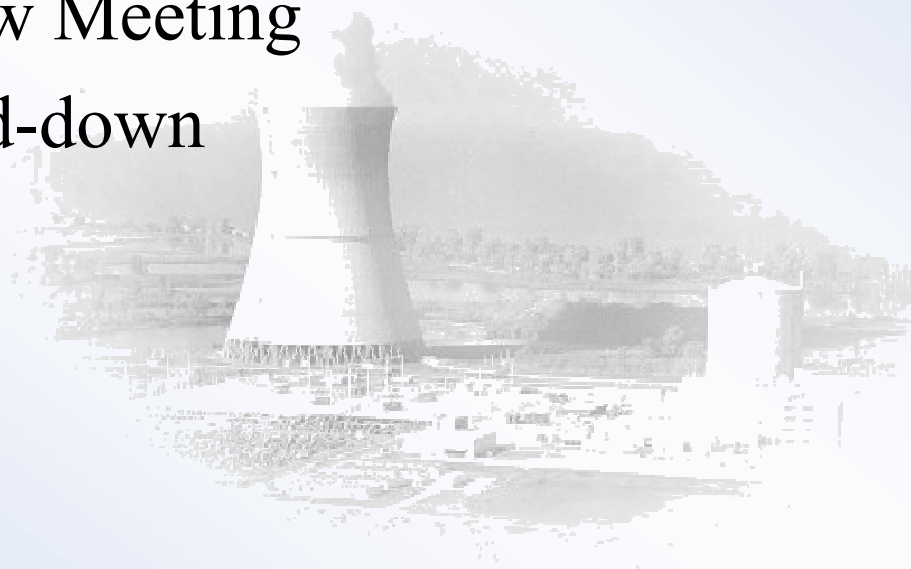


# Management & Human Performance Plan Update

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## Other Activities

- Create a New Vision Map
- Align Station Business Plan Activities/Incorporate into Monthly Review Meeting
- “Future State” Stand-down



# Electrical Distribution and Safety Features Actuation System Relays

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**Jim Powers**  
**Director - Engineering**

# Electrical Distribution

## Emergency Diesel Generator (EDG) Issues/Resolution

- Completed
  - Operations accepted Operability Evaluation on May 15
  - EDGs operable for all Modes
- Plant Start-up
  - Revise EDG Steady State Loading Calculation
  - Revise EDG Transient Loading Calculation
  - Prepare and issue USAR change; in draft
  - Define acceptance criteria for EDG voltage and frequency response
- Post-restart
  - Evaluate actions to improve EDG voltage and frequency response during Safety Features Actuation System load sequencing

# Electrical Distribution

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## AC System Issues/Resolution

- First Mode 4
  - Prepare Electrical Transient Analysis Program (ETAP) calculation
  - Complete Evaluation Impacts of plant equipment
  - Complete independent industry team review of ETAP analysis
  - Evaluate conditions with unusual lineups to determine actions necessary going forward

# Safety Features Actuation System Relays

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- Originally Characterized as an Obsolescence Issue
  - Supplier stopped manufacturing replacements
- Reviews Found the Predominant Reason for Replacement was Coil Related
  - Replacements were random with respect to age
- Testing of Installed Relays has been Conducted
  - Outliers were removed and will be replaced
  - Relay population will gain improved reliability
- Action Plan has been approved
  - Obtain replacement relays from another utility



# Safety Features Actuation System Relays

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- Technical Evaluation (TE) is in Progress
  - Industry experts are reviewing maintenance history
    - Average replacement rate has been at relatively the same level of 2% per year for about the last 20 years
  - Temperature related aging does not appear to be an issue; further tests are under way to confirm
  - Relay material condition is being assessed to further confirm suitability to function for another fuel cycle
  - Independent review of TE will be conducted
- Conclusion
  - Operability evaluation will contain technical evaluation and confirm operability
    - Confirm that relays are acceptable for operation through the next operating cycle

# High Pressure Injection Pump Modification and Corrective Action Program Performance

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**Bob Schrauder**  
**Director -Support Services**

# High Pressure Injection Pump Modification

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- Background
  - Identified an issue that fine debris could impact the existing internal pump clearances
- Selected Approach
  - Modify the existing pump to add internal strainer to prevent debris from entering hydrostatic bearing
  - This will allow the pumps to perform all design functions without replacement
- Project Milestones
  - Strainer design and testing
  - Pump performance validation
  - Field implementation



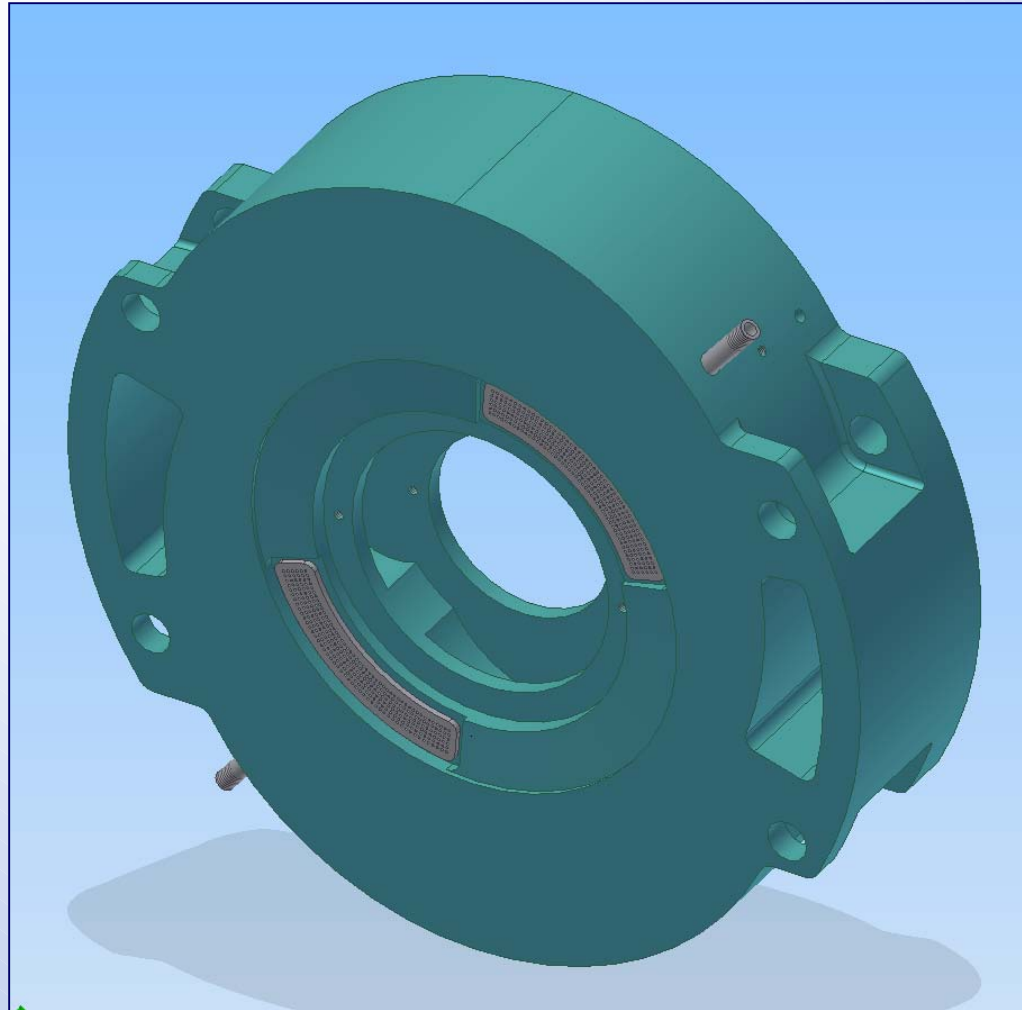
# High Pressure Injection Pump Modification

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- Strainer Design and Testing
  - Strainer allows water to pass through and supply the hydrostatic bearing and seal
    - flushes strainer surface
  - Relocate ports that supply water to the hydrostatic bearing
    - supported by testing performed by pump manufacturer, Pump Guinard of France
    - reduce debris concentration at strainer
  - MPR Associates performing design work
    - mock-up testing at Wyle Labs to verify performance

# High Pressure Injection Pump Modification

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# High Pressure Injection Pump Modification

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- Pump Performance Validation
  - Rotordynamics analysis performed to predict satisfactory pump operation
    - includes worn condition after debris service
  - In-plant testing is being performed to validate rotordynamics model
  - Post-modification testing will be performed prior to returning the pumps to service

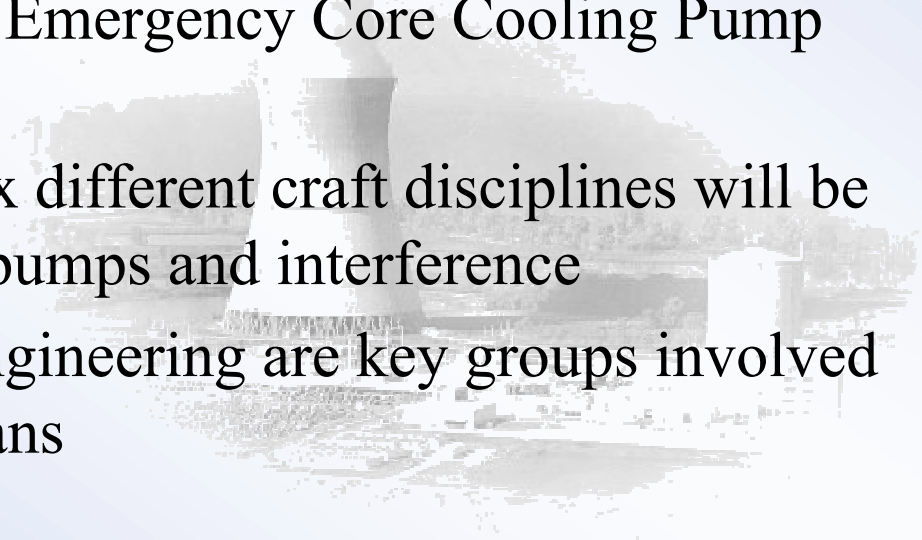




# High Pressure Injection Pump Modification

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- Field Implementation
  - Both pumps must be removed; each weighs 6,000 pounds
  - Removal of HPI pump 2 requires detailed planning due to its location in the Emergency Core Cooling Pump Room
  - A team involving six different craft disciplines will be used to remove the pumps and interference
  - Design and Plant Engineering are key groups involved with the removal plans



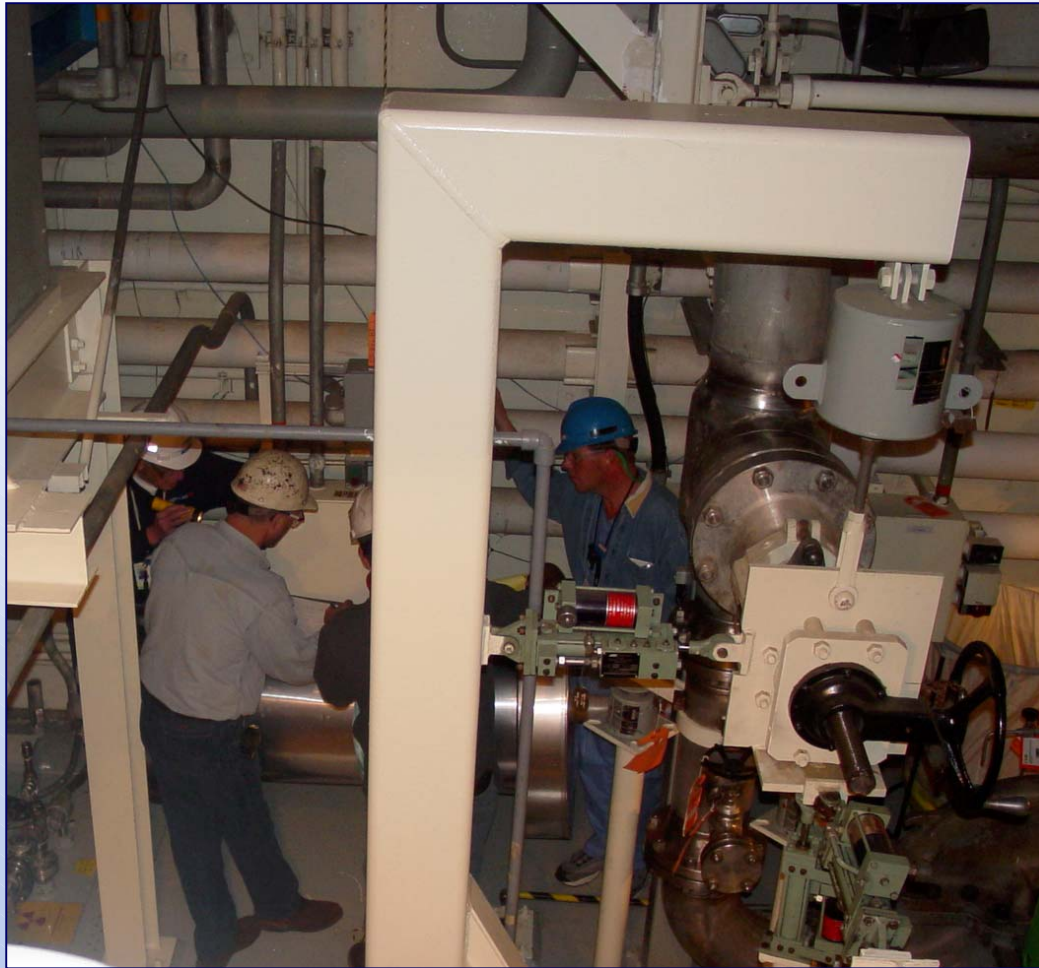
# High Pressure Injection Pump Modification

A full scale pump mock-up was used to determine rigging needs and pathway



32

# High Pressure Injection Pump Modification



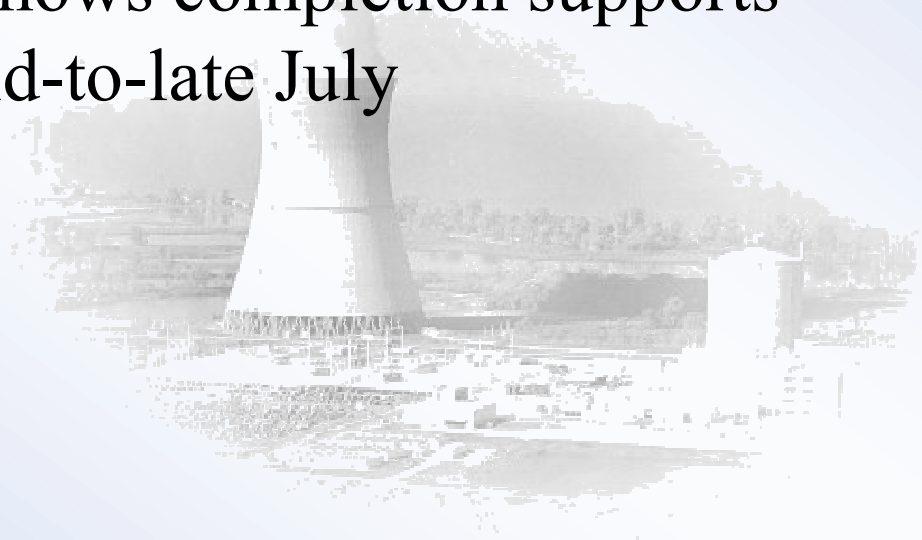
Rigging needs determined through the use of a full scale HPI pump mock-up

# High Pressure Injection Pump Modification

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## Summary

- Implementation of this Modification will Resolve the Debris Issue
- Current Schedule shows completion supports Pressure Test in mid-to-late July

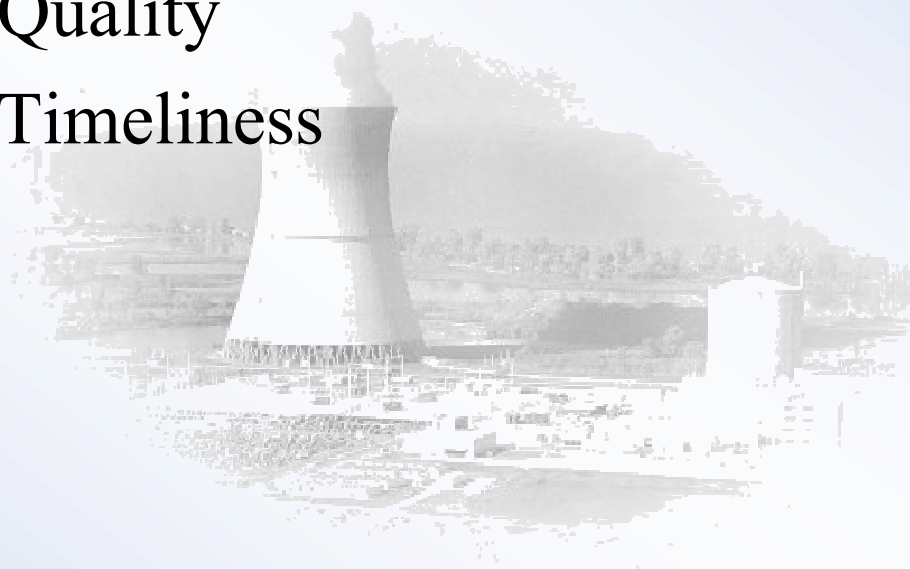


# Corrective Action Program

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## Corrective Action Program Review Items

- Corrective Action Categorization
- Corrective Action Quality
- Corrective Action Timeliness
- Rollover Process





# Corrective Action Program

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## Categorization

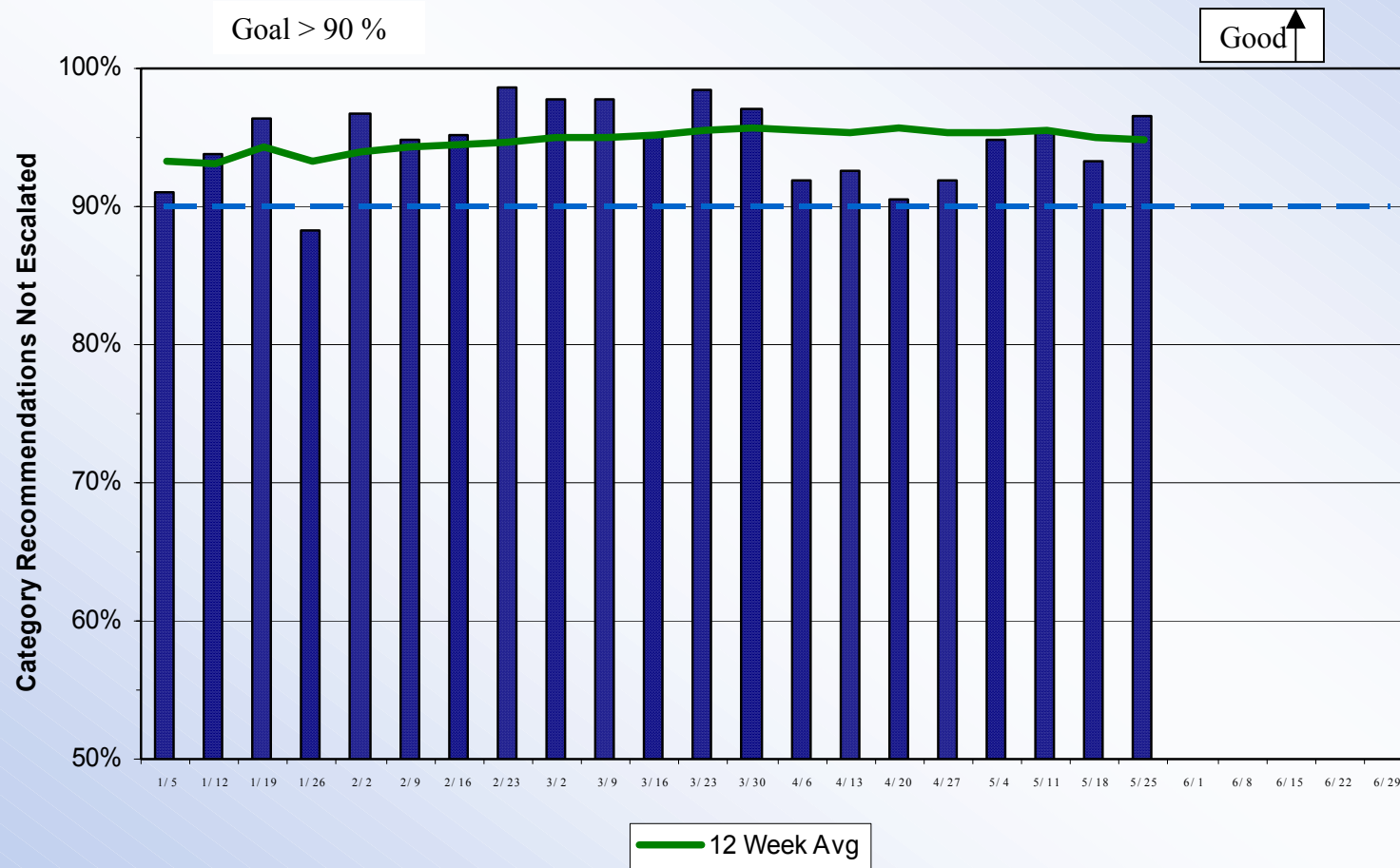
- New Process Effective March 1, 2003
  - Issued revision to NOP-LP-2001, ‘Condition Report Process’
  - New Condition Reports issued since ~ 2,500
- Restart Goal is to Maintain a 12-Week Rolling Average Level of 90% or Better
- Management Review Board Upgrades
  - Category changed to a higher level ~5%





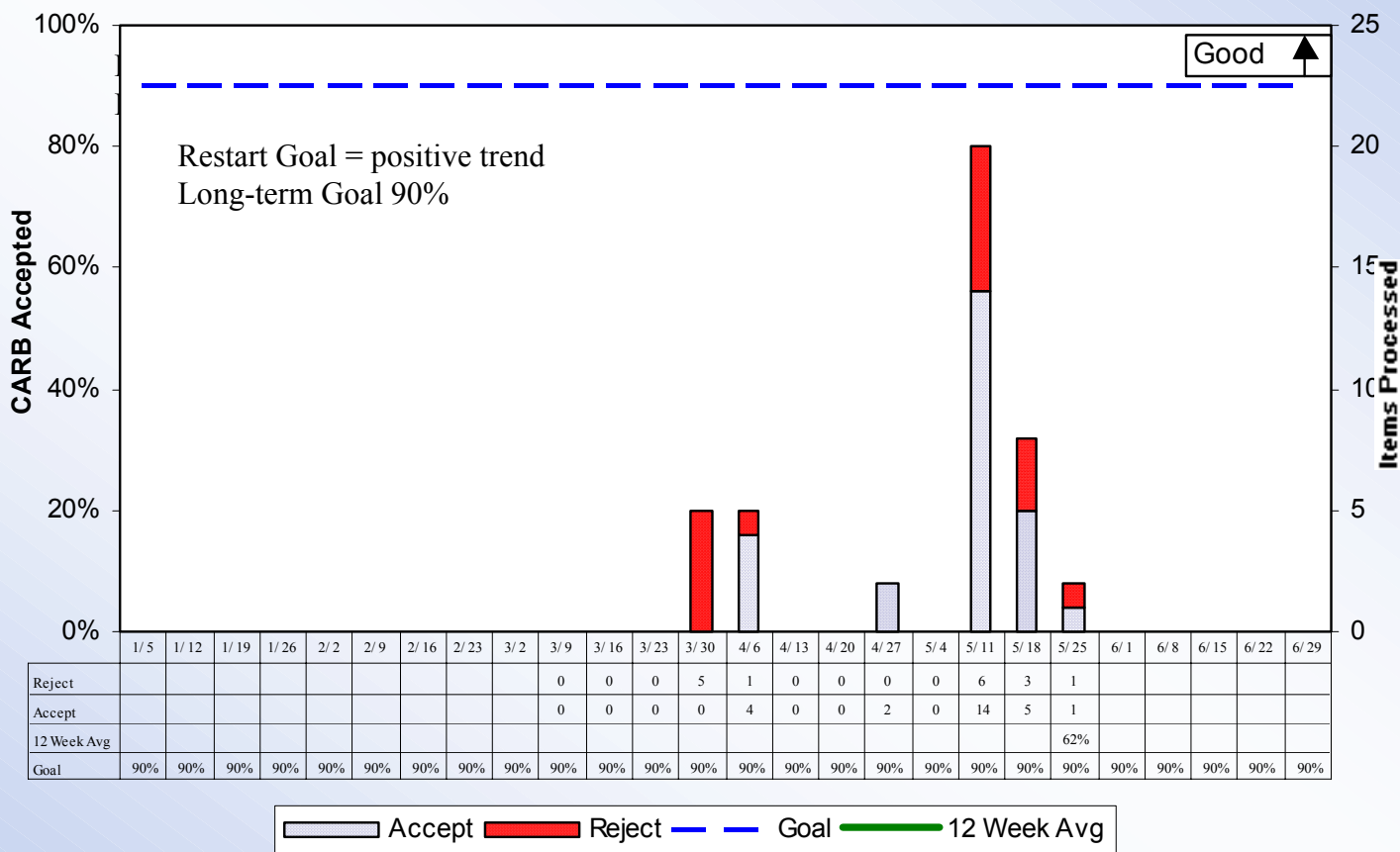
# Corrective Action Program Categorization

## CONDITION REPORT CATEGORY ACCURACY



# Corrective Action Program

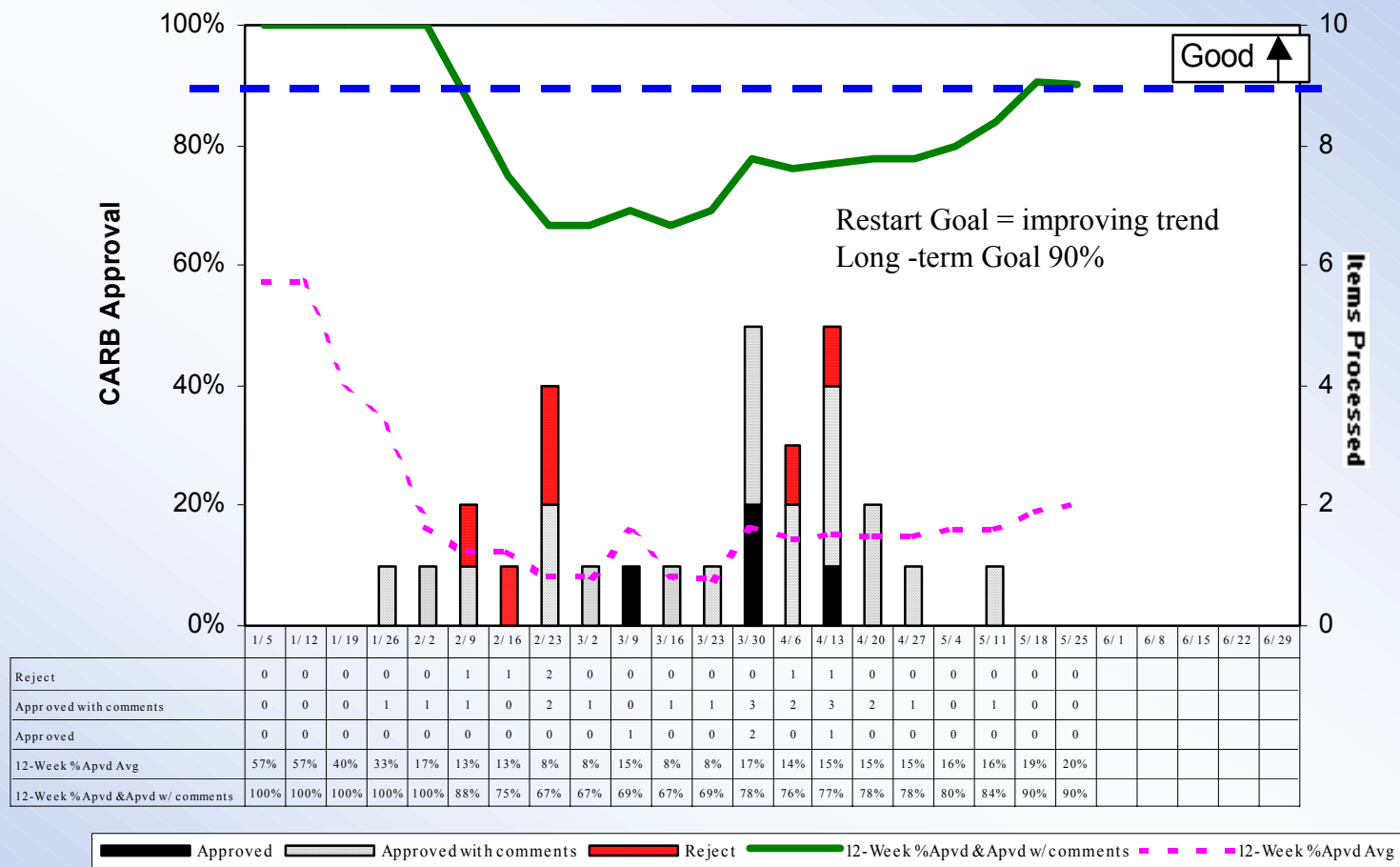
## Corrective Action Review Board



- Apparent Cause - CARB Acceptable Rate ~ 62%

# Corrective Action Program

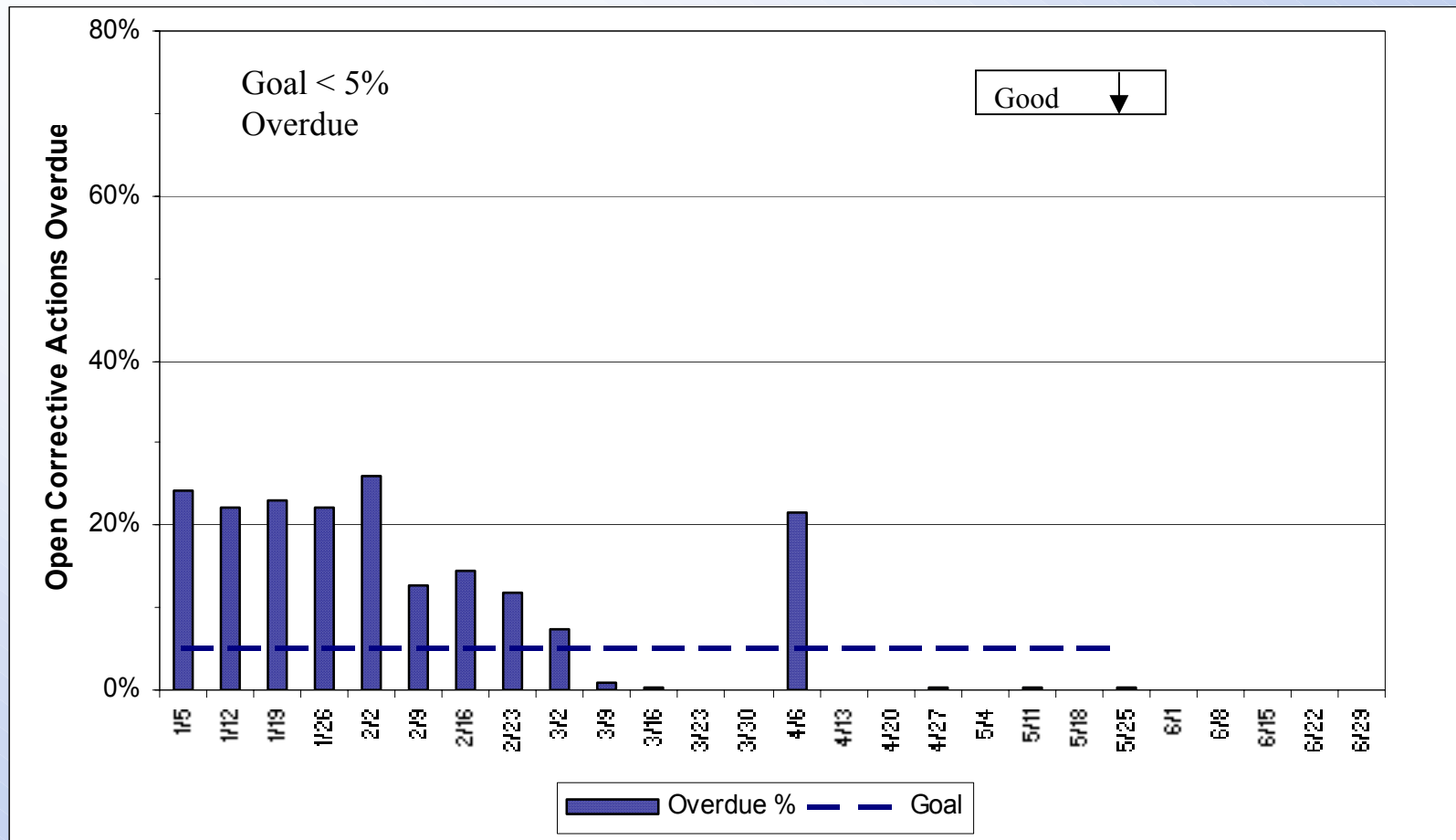
## Corrective Action Review Board



- Root Causes - CARB Acceptable Rate ~ 90%

# Corrective Action Program

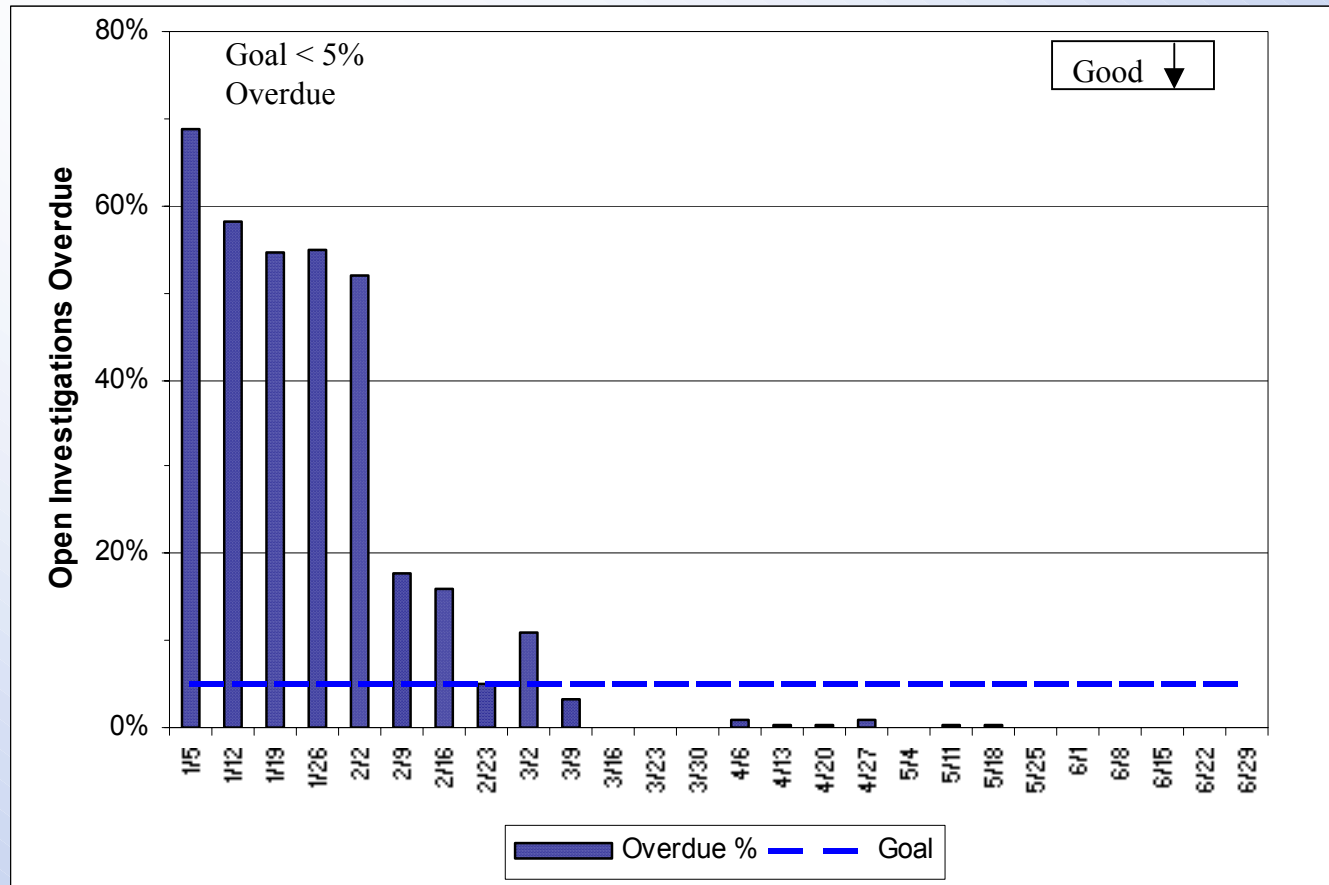
## Timeliness



- Goal: < 5% overdue corrective actions

# Corrective Action Program

## Investigation Timeliness

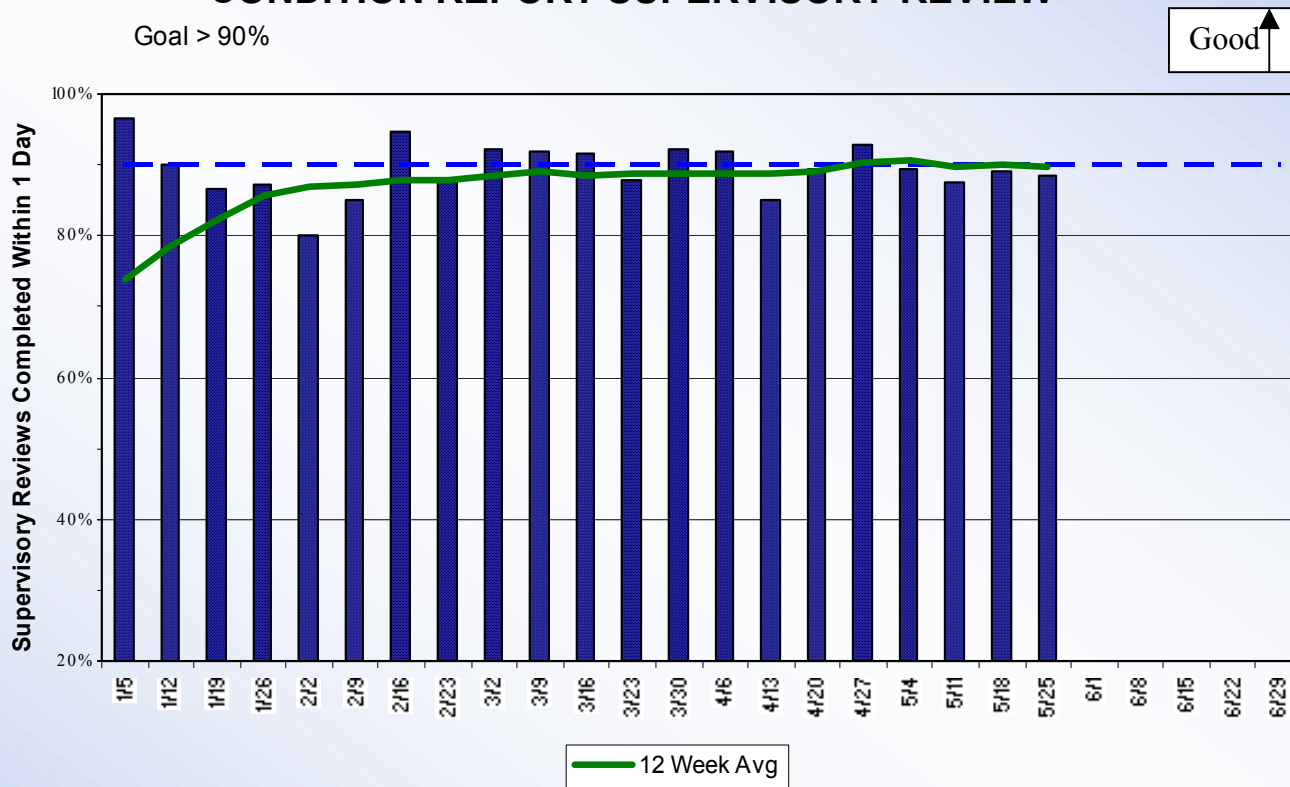


- Goal: < 5% overdue corrective action investigation

# Corrective Action Program

## Supervisor Review Timeliness

### CONDITION REPORT SUPERVISORY REVIEW



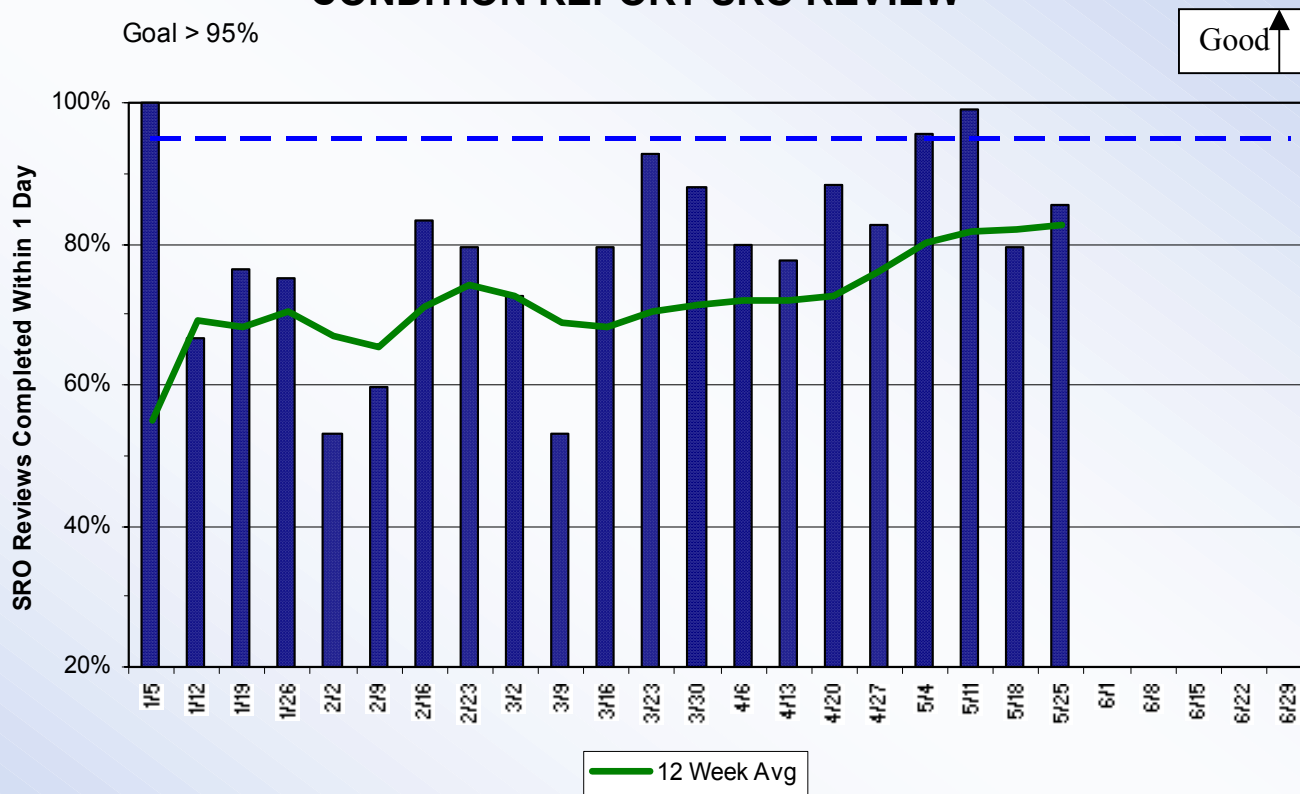
- Goal: 90 % or more supervisor reviews completed one day or less
  - 89% completed within one day or less



# Corrective Action Program

## SRO Review Timeliness

### CONDITION REPORT SRO REVIEW



- Restart goal: > 95% of the SRO reviews to be completed within one day
  - 86% of SRO completed within one day

# Corrective Action Program

## Rollover Process

- Rollover Definition
  - The method of transferring the evaluation (complete or partial) of issues(s) addressed in one Condition Report (CR) to another, more encompassing CR
- Difficulties Identified
  - Paper trail is hard to follow at times
  - Exacerbated by the large number being processed
  - Generally concentrated in specific areas
  - Few isolated cases actually have not been effectively resolved
- Recommended Improvements
  - Perform independent assessment
  - Recently revised NOP-LP-2001, Condition Report Process, has rollover criteria
  - Strengthened rollover criteria in future Nuclear Operating Procedure revision based on lessons-learned

# Quality Assessment Update

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**Steve Loehlein**  
**Manager - Quality Assessment**

# Quality Assessment Update

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## Independent Review of Condition Reports

- Led by Nuclear Quality Assessment
- Team Members from other Departments and other FENOC Sites
- Scope Includes all 0350 Restart Condition Reports/Corrective Actions

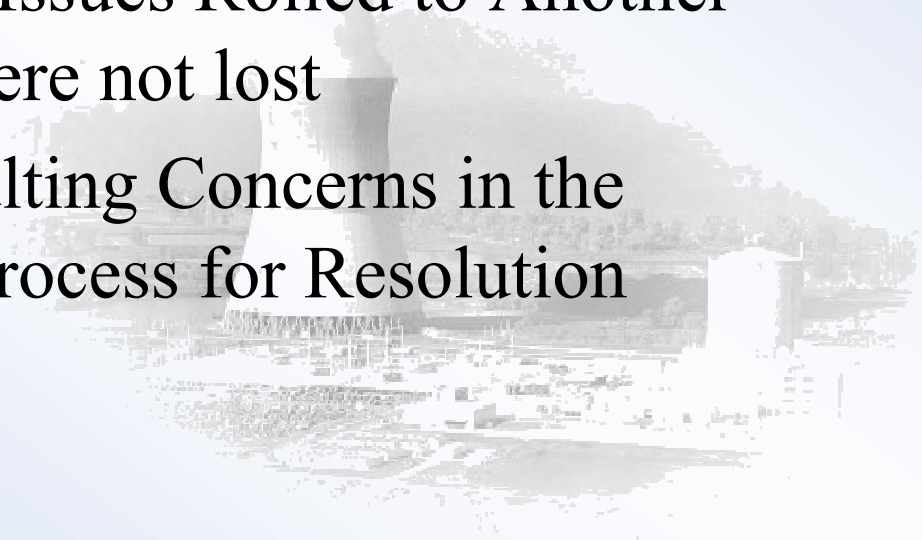


# Quality Assessment Update

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## Objectives

- Confirm that Initially Identified Condition has been Evaluated
- Track/Confirm that Issues Rolled to Another Condition Report were not lost
- Document any Resulting Concerns in the Corrective Action Process for Resolution

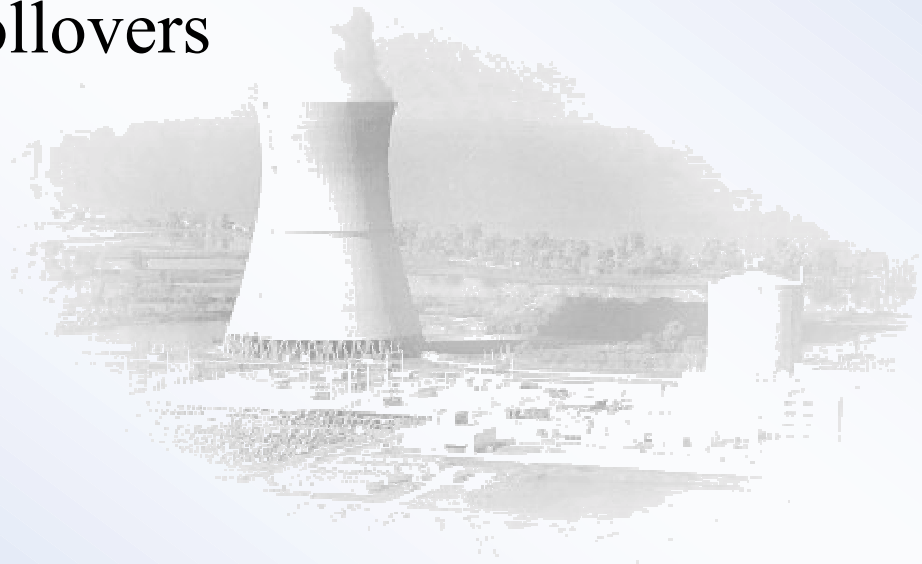


# Quality Assessment Update

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## Status of Review (as of May 27)

- 1783 - 0350 Restart Condition Reports (CRs)
- 7700 Associated Corrective Actions (CAs )
- 510 Associated Rollovers





# Quality Assessment Update

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## Reviews Completed to date (as of May 27)

- 5057 CAs reviewed (includes Rollover CAs)
  - 4379 CAs found to be acceptable (87% of those reviewed)
  - 678 CAs continue in review (13% of those reviewed)
- 510 Rollover CAs (100%)
  - 415 Rollover CAs found to be acceptable (81%)
  - 95 Rollover CAs continue in review (19%)

# Quality Assessment Update

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## Identified Concerns

- Weaknesses in Documenting Resolution of the Identified Concern
- Evaluations that do not address Full Scope of Identified Issue
- Two Isolated Examples of incorrect Actions
- Concerns have been Identified with the involved Department and reported on Condition Reports

# Quality Assessment Update

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## Recent Key Activities

- Assessment of Activities for 50 psig and 250 psig Reactor Coolant System leakage Walkdowns
- Assessment of Emergency Preparedness Dry Run Exercise
- Observations of Technical Issues Resolution
- Quality Control Oversight of Vendor Activities

# Quality Assessment Update

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## Current Activities

- Focused Assessment of Corrective Action Program
- Continue Emergency Preparedness
  - Training drills, controller briefs, actual exercises
- Management Decision-Making, Safety Culture, Radiation Protection, and Regulation Driven Changes to the Security Program

# Remaining Issues/Focus

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**Mike Ross**  
**Restart Director**

# Remaining Issues/Focus

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## Plant Support Center

- In Full Operation
- Issue List Developed
- Action Item Database
- Issues Needing Decision brought to Senior Management Team in Timely Fashion
- Developed Issue Resolutions with Fragnet Transferred to Outage Control
- Director, Nuclear Supply Chain on Site and Part of Plant Support Center Meeting to expedite Supply Requests
- Listing of Modifications

# Remaining Issues/Focus

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## Focus

- Early Identification of Emergent Issues
- Review of Plant Issues to ensure Proper Prioritization and Resolution
- Issue Receiving Extra Focus
  - HPI Modification
  - Electrical Transient Analysis Program (ETAP)
  - Safety Features Actuation System Relays
  - Air-Operated Valve Program
  - Plant Block Walls Seismic & Tornado Loading
  - Thermal Overload Bypass of Safety Related Motors
- Recent additions to Modification List
  - Containment Spray Cyclone Separator
  - Boron Precipitation Modification



# Schedule Milestones

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

# Upcoming Activities

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## Schedule Milestones

- Complete Electrical Transient Analysis Program for Mode 4
- Refill Main Condenser & Feedwater
- Perform Testing on HPI 1 & 2
- Refill Circulating Water and draw Condenser Vacuum
- Conduct Mode 4 Restart Readiness Review
- Enter Mode 4/Mode 3
- Complete Train 2 work, followed by Train 1 work
- Conduct Startup Readiness Review Meeting
- Startup

# Restart Action Performance

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## Clark Price Owner - Restart Action Plan

# Restart Action Performance

Item No.	0350 Checklist Item Description	Discovery	Implementation
1	Adequacy of Root Cause		
a	Penetration cracking and Reactor Pressure Vessel corrosion	Technical Root Cause 02-0891	
b	Organizational, Programmatic and Human Performance Issues	100	
2	Adequacy of Safety Significant Structures, Systems and Components		
a	Reactor Pressure Vessel Head Replacement		97
b	Containment Vessel Restoration following RPV Head Replacement		99
c	Structures, Systems and Components Inside Containment	100	94
c.1	Containment Emergency Sump	100	100
d	EOC of Boric Acid in Systems Outside of Containment	100	97

	Field Complete		In Progress		Hold - Plant Conditions		N/A - Not Applicable
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# Restart Action Performance

Item No.	0350 Checklist Item Description	Discovery	Implementation
3	Adequacy of Safety Significant Programs		
a	Corrective Action Program	100	100
b	Operating Experience Program	100	100
c.1	Quality Audits	100	100
c.2	Self-Assessments of Programs		100
d	Boric Acid Corrosion Management Program	100	100
e	Reactor Coolant System Unidentified Leakage Monitoring Program		100
f	In-Service Inspection Program	100	100
g	Modification Program	100	100
h	Radiation Protection Program	100	97
i	Completeness & Accuracy of Required Records & Submittals to NRC		60

 Field Complete	 In Progress	 Hold - Plant Conditions	 N/A - Not Applicable
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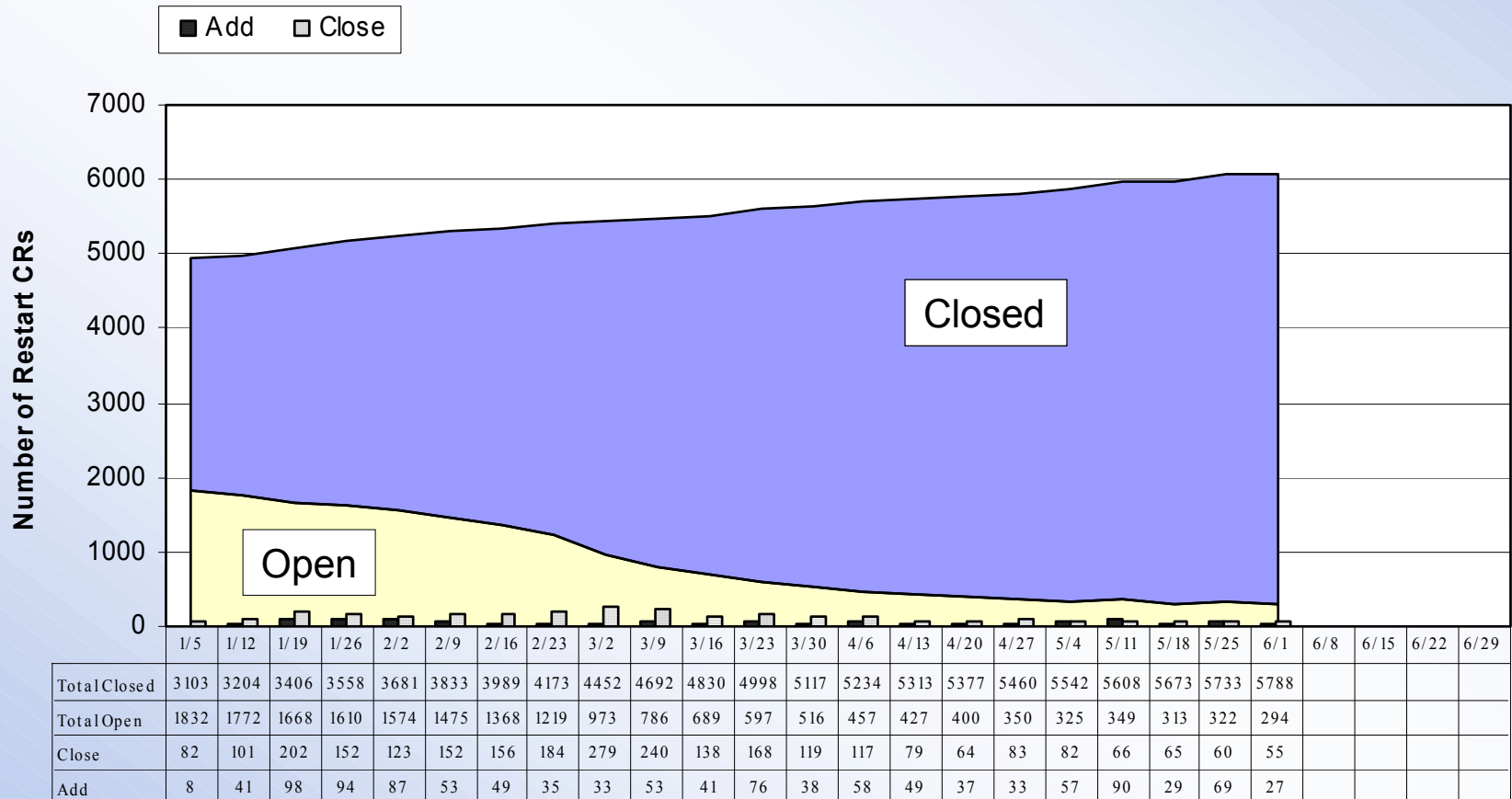
# Restart Action Performance

Item No.	0350 Checklist Item Description	Discovery	Implementation
4 a-b	Adequacy of Organizational Effectiveness & Human Performance		90
5	Readiness for Restart		
a	Review of Licensee's Restart Action Plan		
b	Systems Readiness for Restart	100	91
b.1	Design Calculation Resolution	100	Included with 5 b
c	Operations Readiness for Restart		Restart Readiness Reviews
d	Test Program Development and Implementation		72
6 a-f	Licensing Issue Resolution		100
7 a	Confirmatory Action Letter Resolution		CAL Resolution & Restart Report

	Field Complete		In Progress		Hold - Plant Conditions		N/A - Not Applicable
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# Restart Action Performance

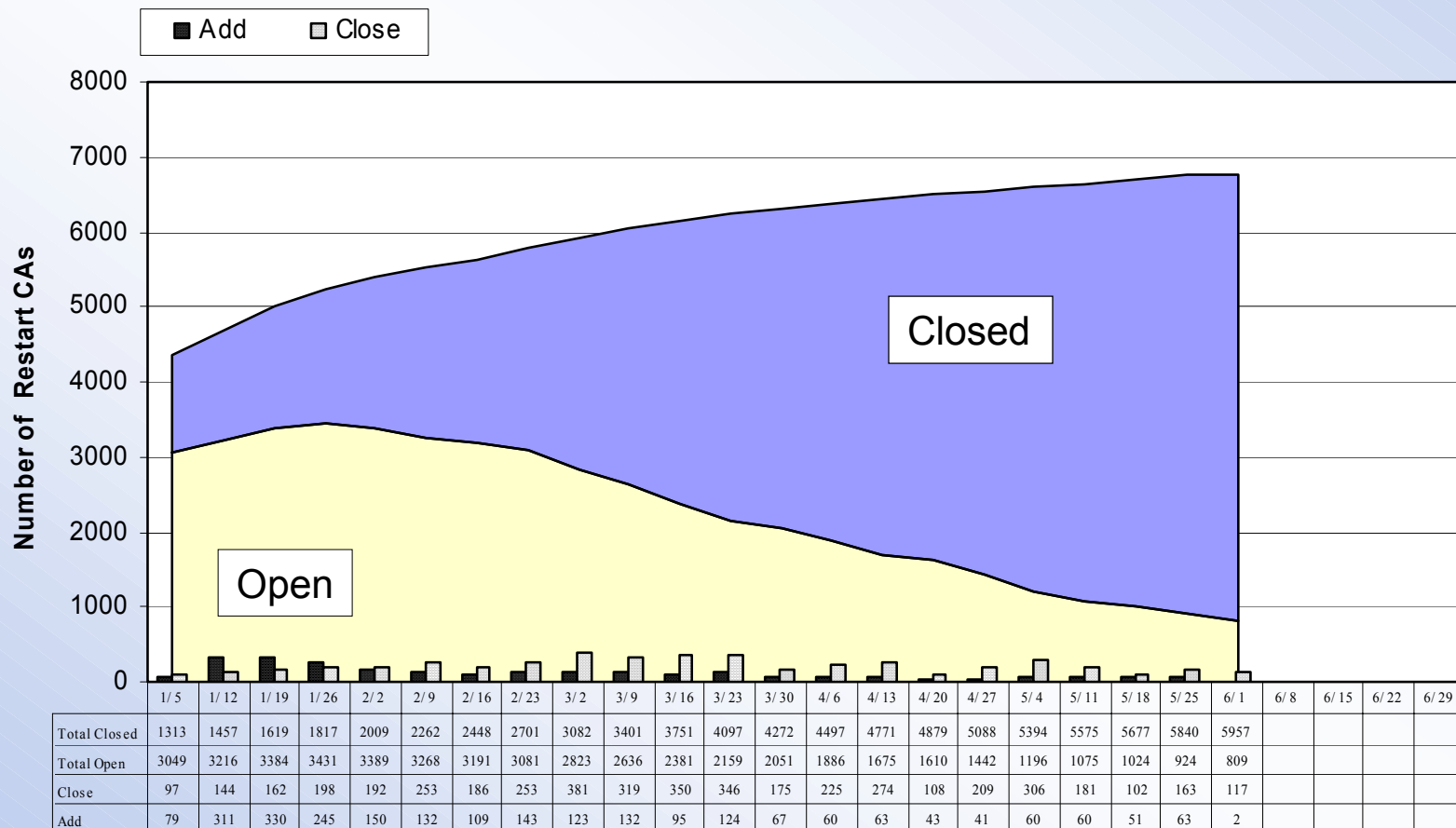
## TOTAL RESTART CONDITION REPORT EVALUATIONS





# Restart Action Performance

## TOTAL RESTART CORRECTIVE ACTIONS



# Closing Comments

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