Davis-Besse Nuclear Power Station

Return to Service Plan Update

August 20, 2002

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Introduction

Lew Myers
FENOC Chief Operating Officer

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Desired Outcomes

- Demonstrate the Integrated Schedule of activities is underway
- Introduce actions to achieve and ensure sustained Management and Human Performance Excellence
- Provide indicators that demonstrate our progress
- Demonstrate increased standards by the Quality Oversight organization
- Provide status of several Building Blocks

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Basic Building Blocks

Management Root Cause Results

Raising Standards

- **Restart Overview Panel has provided over 80 recommendations**
  - Expand the scope of the Containment Health Assurance Building Block
  - Develop procedures to institutionalize standards and quality
  - Place independent oversight on internal review boards and committees
  - Benchmark specific plants for management practices and standards
  - Strengthen Safety Conscious Work Environment
  - Extend Root Cause to consider fleet-wide implications

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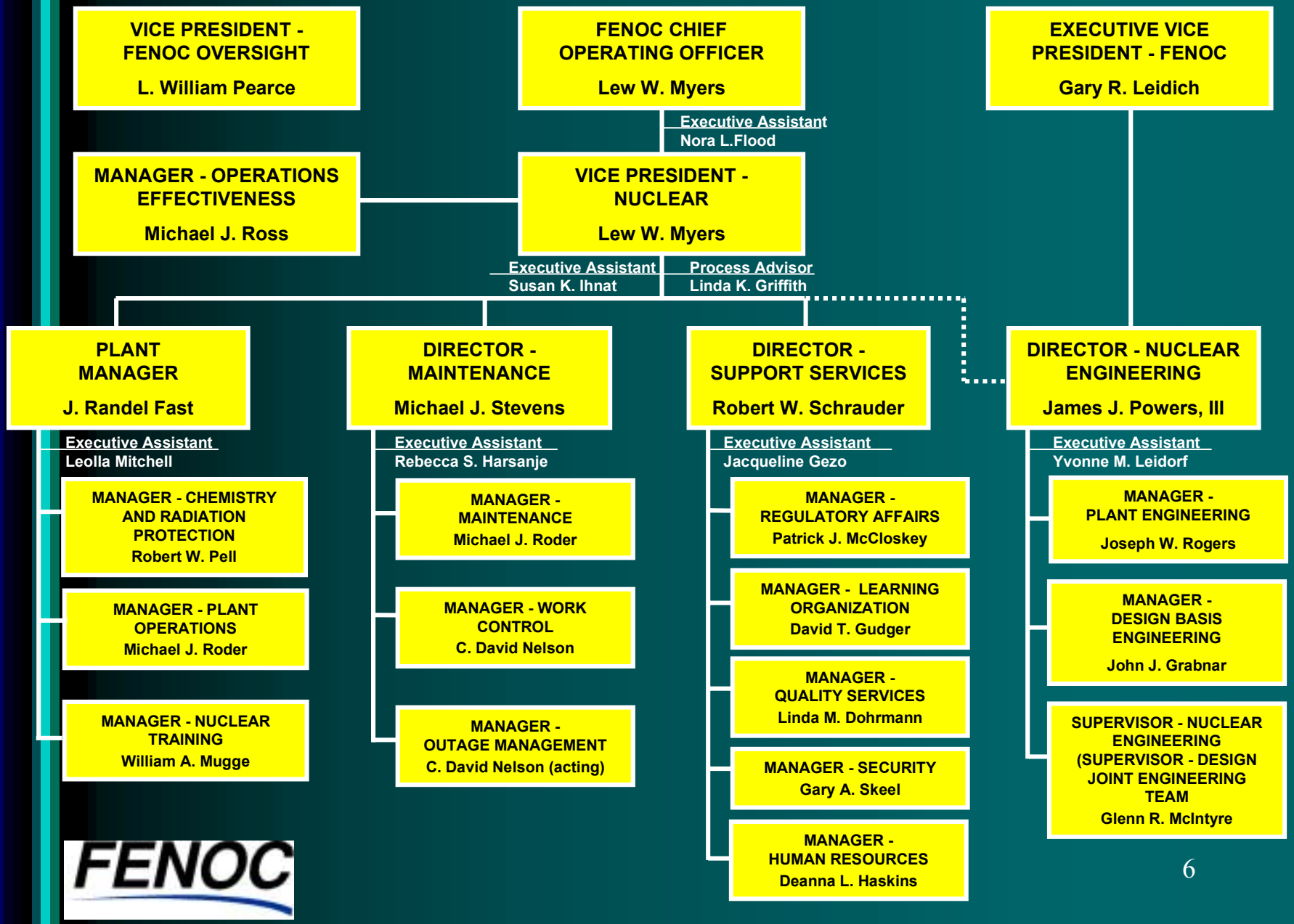
DAVIS-BESSE SITE ORGANIZATION



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Management Root Cause

Lew Myers

Chief Operating Officer

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Management Root Cause Results

Introduction

- Earlier Root Cause investigation and the NRC Augmented Inspection Team report both concluded that management had ineffectively implemented processes, and thus failed to detect and address plant problems as opportunities arose
- The Root Cause Analysis Team was chartered to understand WHY, over a period of time, Davis-Besse personnel failed to identify corrosion of the Reactor Pressure Vessel Head

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Management Root Cause Results

Root Causes

- Less than adequate nuclear safety focus
  - Focus on production, combined with minimum actions to meet regulatory requirements, resulted in the acceptance of degraded conditions
- Inadequate implementation of the Corrective Action Program
- Failure to integrate and apply key industry information and site knowledge/experience; and to compare new information to baseline knowledge
- Some steps in the Boric Acid Corrosion Control procedure were not followed

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Management Root Cause
Contributing Causes

Contributing Causes

- Some decisions were made without considering the need for safety analysis
- Corrective Action Program was not state-of-the-art

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Management Root Cause Corrective Actions

Extent of Condition

- **Building Blocks designed to find and fix problems**
  - System Health Assurance Plan provides for rigorous system reviews
  - Program Compliance Plan ensures programs meet industry high standards of performance
  - Management and Human Performance Excellence Plan will ensure a strong and sustained safety focus

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Management Root Cause
Nuclear Safety Focus Corrective Actions

- New FENOC Executive Team with high standards in place
- New Senior Management Team with high standards in place at Davis-Besse
- New Management Observation Program
- Scheduled observations of plant activities
- Case study training and re-baselining of standards
- Reinforce Safety Conscious Work Environment

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Management Root Cause

Nuclear Safety Focus Corrective Actions

- Staffed Organizational Effectiveness Experts
- Four C's Employee Meetings
  - Compliments
  - Communications
  - Concerns
  - Changes
- Ownership for Excellence Review of all Managers and Directors
- Competency Assessment of all Key Supervisors

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Management Root Cause

Corrective Action Program Corrective Actions

- Latent Issues Review by outside expert in progress
- Criteria for categorizations is now effectively implemented
- Existing, long-standing conditions are being reviewed as SCAQs
- Corrective Action Review Board has been strengthened

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Management Root Cause

Corrective Action Program Corrective Actions

- Routinely perform assessments of categorization
- Repeat conditions are to be evaluated as SCAQ
- Require the use of formal cause determination techniques for root and basic cause evaluations to ensure analytical rigor is applied
- Define and implement training for cause evaluations
- Improve guidance on reviews of the effectiveness of corrective actions
- Implement an effective site-wide equipment trending program

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Management Root Cause
Technical Rigor Corrective Actions

- Established FENOC hierarchy of documents for consistent standards for analysis of safety issues
- Established Engineering Assessment Board to reinforce standards
- Established a periodic system walkdown program
- Established a periodic Engineering Program Review process
- Re-baseline standards and expectations in each FENOC group

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Management Root Cause
Procedure Compliance Corrective Actions

- Established training to applicable Boric Acid inspectors
- Reinforce standards and expectations for procedure compliance and the need for work-practice rigor

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Management Root Cause
Procedure Compliance Corrective Actions

- Implement Management Observation Program with weekly schedules
  (used at Beaver Valley and Perry)
- Perform independent assessments of procedure compliance
- Discuss procedure compliance regularly at morning meeting

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Management Root Cause
Contributing Causes Corrective Actions

- Establish the FENOC decision-making process at Davis-Besse, including hazard analysis
- Perform corrective action procedure benchmarking

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Management Root Cause
Corrective Actions

Other Relevant Improvements

- Realign Incentive Program to increase Focus on Safety
- Establish policies to support safety
  - Operations involvement
  - Management presence in the field

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Management Root Cause Summary

FirstEnergy's CEO has set the standard of returning Davis-Besse to service in a safe and reliable manner, and doing the job right the first time.

We are committed to meeting this challenge.

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Restart Progress

Clark Price

Manager -- Business Services

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Restart Progress

Our focus is to ensure the plant and our people are meeting new high standards for restart and sustained, safe operations.

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Restart Progress

Restart Action Milestones

- System Walkdowns complete
- Containment Inspections near complete
- Containment Shield Building cutting complete
- Containment painting preparations underway
- Containment Polar Crane modification complete this week
- Containment Air Cooler Coil removal complete
- Management Root Cause report complete

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Restart Progress

System Walkdown Overview

- Approximately 80 separate walkdowns conducted
- 31 System Health Readiness Review Systems
- 5 Latent Issue Review Systems
- Configuration Verification walkdowns for selected systems will occur later
- > 3,500 manhours were expended
  - Members of all 36 System Readiness and Latent Issues Walkdown Teams
  - Management Oversight participation

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Reactor Coolant System

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Containment Air Cooler

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Management Oversight Participation

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Examples of Containment Debris

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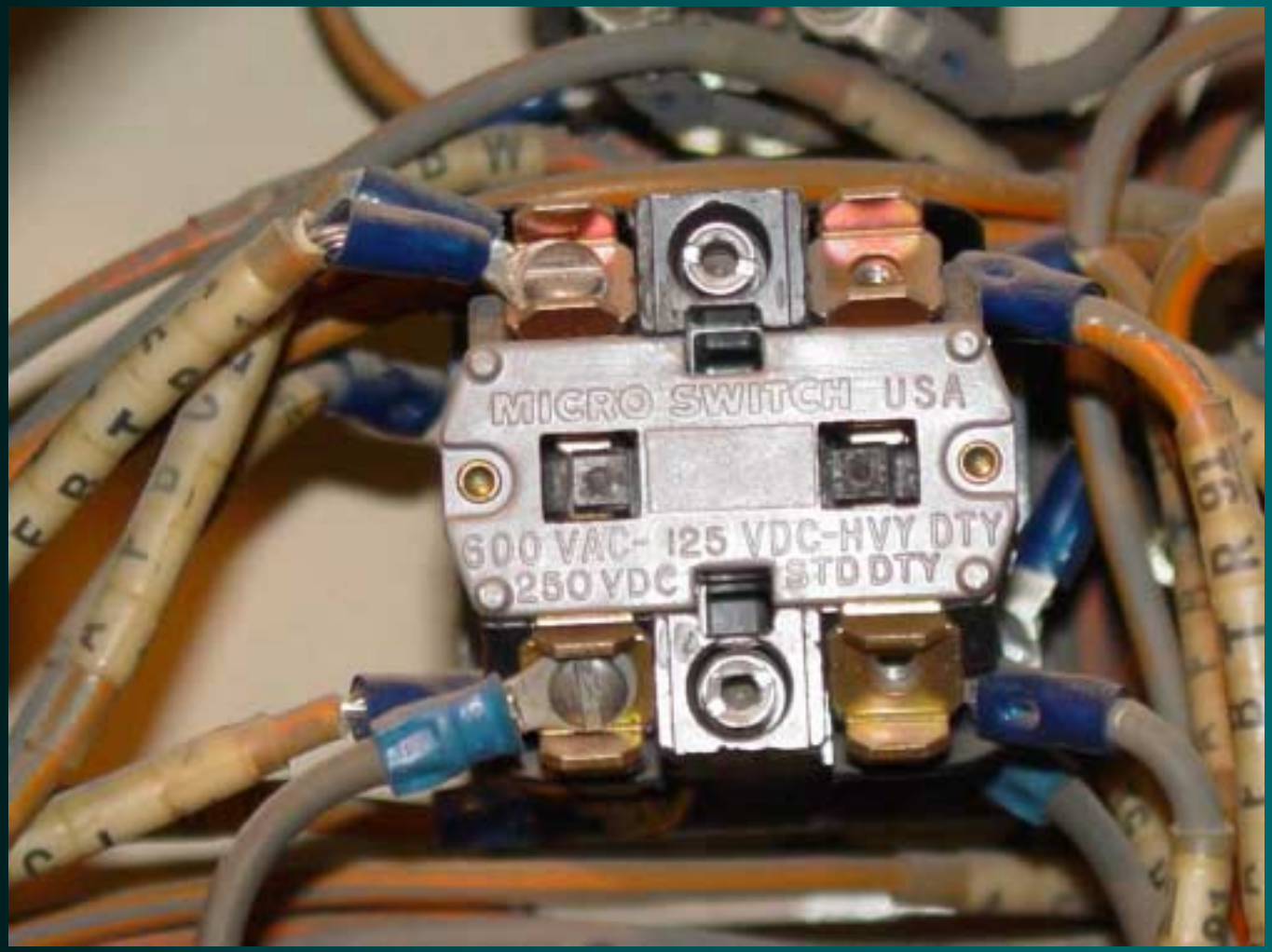
Safety Features Actuation System Cabinet Wiring



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125Volt DC Power Panel Connection

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Restart Progress

System Walkdowns - Generic Issues

- Numerous small valve leaks
- Need to improve cleanliness and proper housekeeping in less-accessed areas
- Thread Engagement - packing followers, valve studs, etc.
- Loose conduit and tubing
- Crushed tubing/bent sensing lines

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Restart Progress

System Walkdowns - Significant Findings

- Substantial debris in Containment
- Substantial dust in Control Room panels
- Pressurizer manway stud thread engagement
- Potential MOV lubrication degradation
- SFAS Control Room cabinets contain multiple examples of poor workmanship that may challenge long-term functionality
- Potential non-compliance with EQ requirements for MOVs (electrical terminations, t-drains, etc.)

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Restart Progress

System Walkdowns - Significant Findings

- EDG HVAC Exhaust Hydramotor damper arm loose
- EDG Exhaust Silencer Tornado Missile Shield structural attachment to roof parapet degraded
- Over 200 CRs initiated to-date
- More CRs are being written to complete the walkdown findings

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Restart Progress

System Walkdowns - Cumulative Impact

- Status of systems to support safe and reliable operation is being evaluated
- Number of valve packing leaks may require substantial effort to fix prior to restart
- Lack of proper thread engagement issue requires broader investigation
- Investigation to Extent of Condition of potential EQ issues may lead to additional work

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Restart Progress

Measuring Progress

- Established Indicators to track:
  - Progress on Building Block Plans
  - Progress on NRC Inspection Manual Chapter 0350 Restart Checklist
  - Progress towards meeting new standards for restart and sustained operational excellence

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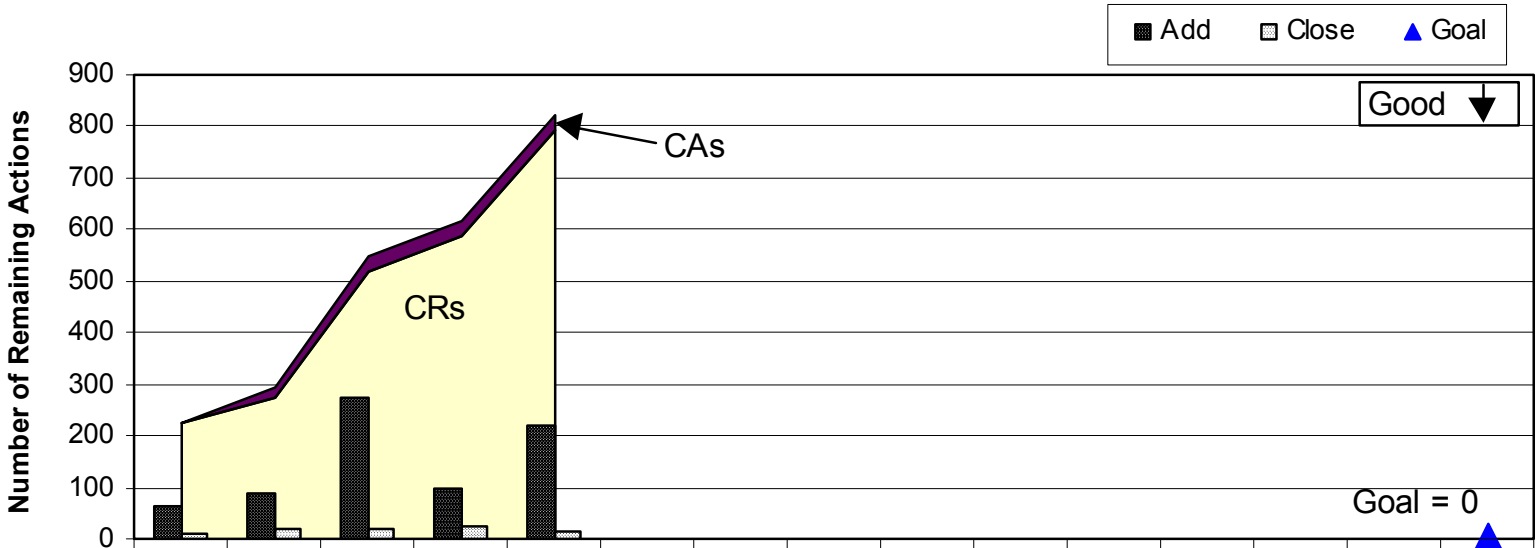
Restart Progress

RESTART ACTIONS



	7/21	7/28	8/4	8/11	8/18	8/25	9/1	9/8	9/15	9/22	9/29	10/6	10/13	10/20	10/27
CAs	0	20	29	30	27										
CRs	225	273	517	587	793										
Close	10	18	19	25	16										
Add	62	86	272	96	219										
Goal															0

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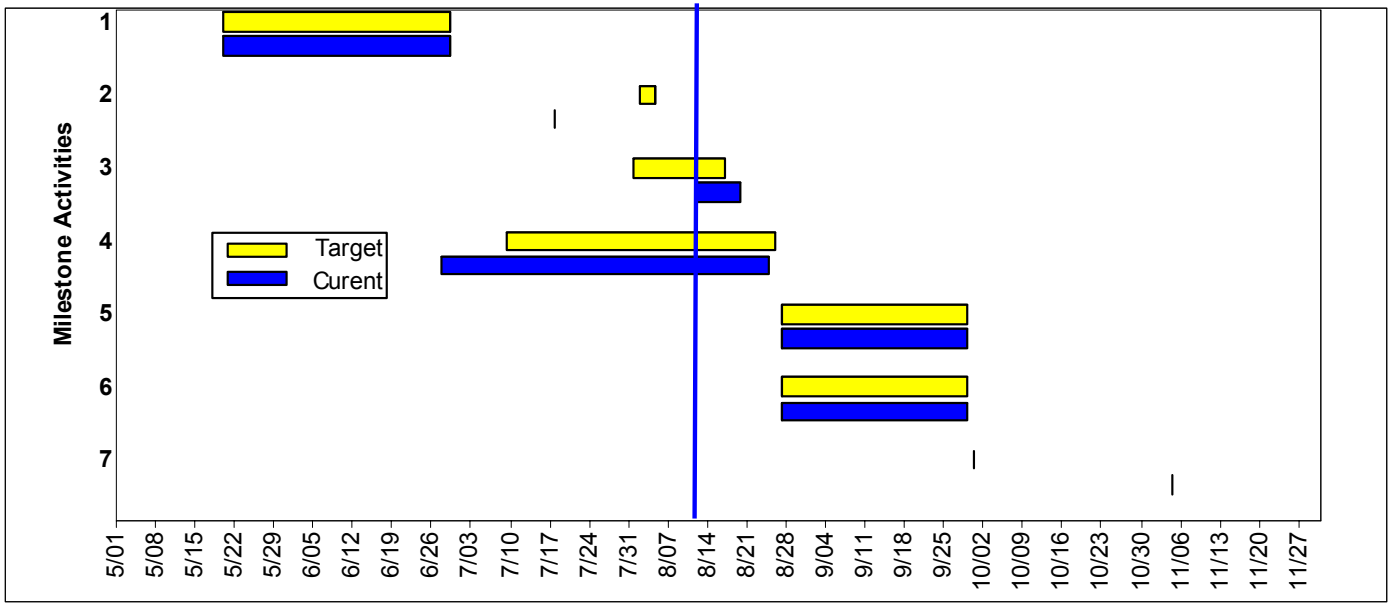
Restart Progress

REACTOR VESSEL HEAD REPLACEMENT PROJECT



PROGRESS MEASURE

	MILESTONE ACTIVITIES	TARGET START	TARGET END	CURRENT START	CURRENT END	ACTUAL % COMPL
1	MOBILIZE	05/20/02	06/29/02	05/20/02	06/29/02	100%
2	REPLACEMENT HEAD TRANSPORTED MIDLAND TO DB	08/01/02	08/04/02	07/17/02	07/18/02	100%
3	CONTAINMENT SHIELD BUILDING CONCRETE REMOVAL	07/31/02	08/16/02	08/12/02	08/19/02	100%
4	OLD DB REACTOR HEAD READY FOR REMOVAL	07/09/02	08/25/02	06/27/02	08/24/02	95%
5	REPLACEMENT HEAD INSTALLATION AT DB	08/26/02	09/28/02	08/26/02	09/28/02	
6	CONTAINMENT DESIGN RESTORATION AT DB	08/26/02	09/28/02	08/26/02	09/28/02	
7	MODE 5 (REACTOR HEAD ON THE VESSEL)	09/29/02	09/29/02	11/04/02	11/04/02	

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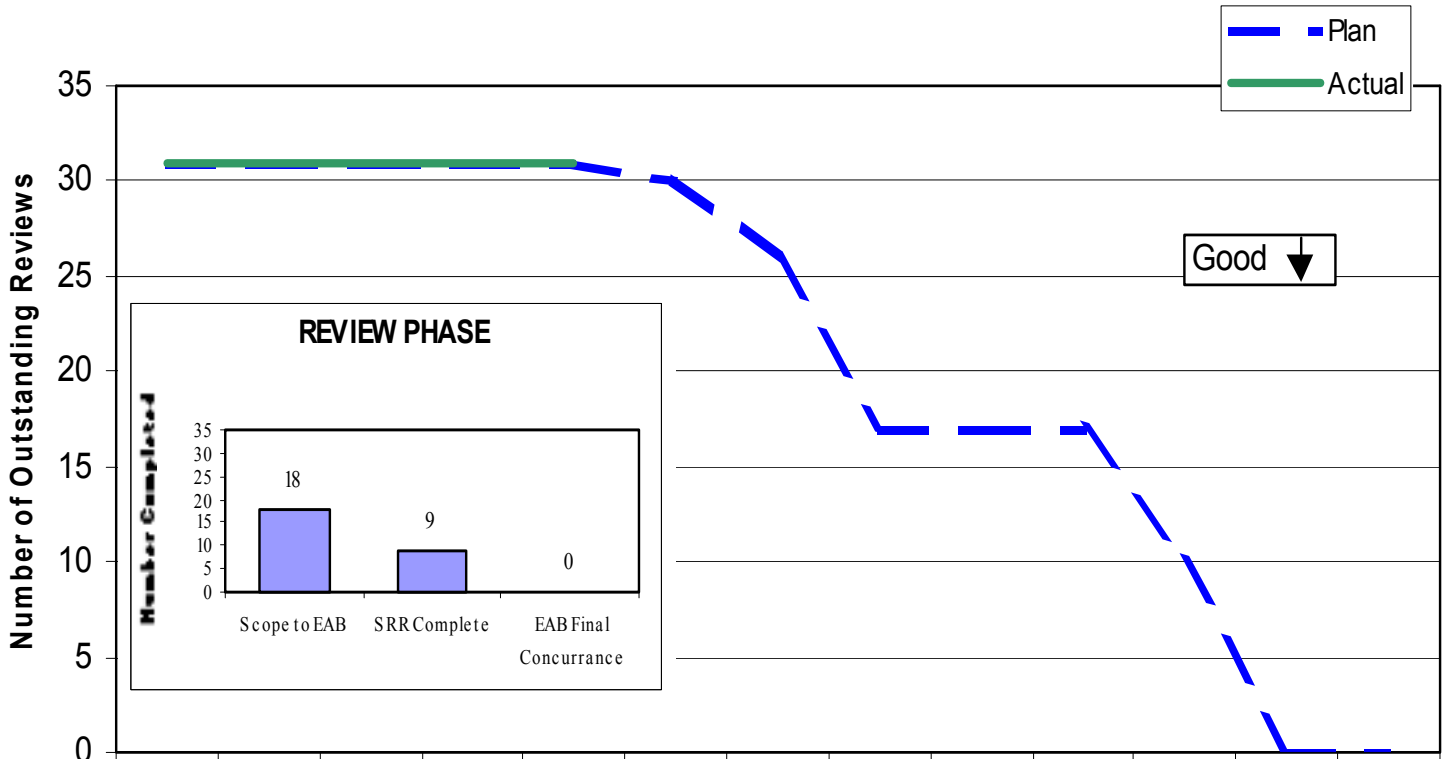
Restart Progress

SYSTEM READINESS REVIEWS



	7/21	7/28	8/4	8/11	8/18	8/25	9/1	9/8	9/15	9/22	9/29	10/6	10/13
Plan	31	31	31	31	31	30	26	17	17	17	10	0	0
Actual	31	31	31	31	31								

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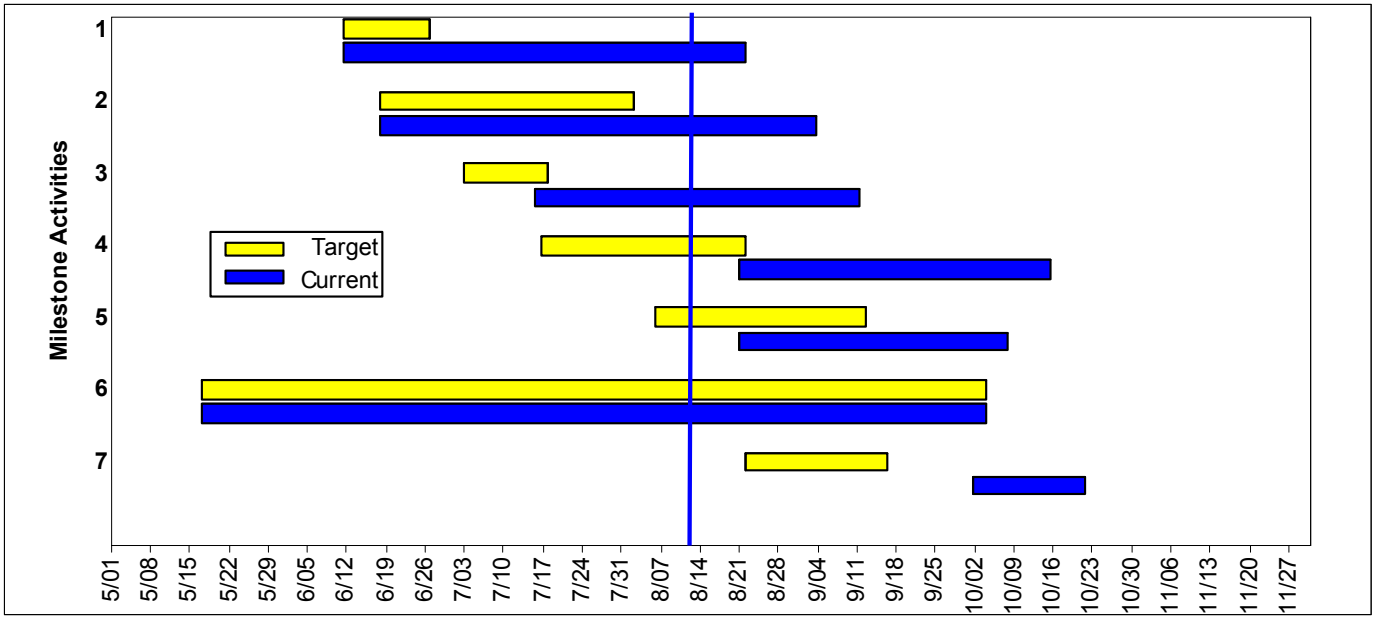
Restart Progress

PHASE 2 PROGRAM REVIEWS



PROGRESS MEASURE

	MILESTONE ACTIVITIES	TARGET START	TARGET END	CURRENT START	CURRENT END	ACTUAL % COMPL
1	BORIC ACID CORROSION CONTROL PROGRAM	06/11/02	06/26/02	06/11/02	08/21/02	93%
2	CORRECTIVE ACTION PROGRAM	06/17/02	08/02/02	06/17/02	09/03/02	74%
3	INSERVICE INSPECTION (ISI) PROGRAM	07/02/02	07/17/02	07/15/02	09/10/02	45%
4	ENGINEERING CHANGE/PLANT MODIFICATION PROGRAM	07/16/02	08/21/02	08/20/02	10/14/02	
5	OPERATING EXPERIENCE PROGRAM	08/05/02	09/12/02	08/20/02	10/07/02	
6	PSA PROGRAM PHASE 2 (PILOT)	05/17/02	10/03/02	05/17/02	10/03/02	58%
7	REACTOR COOLING SYS UNIDENTIFIED LEAKAGE PROGRAM	08/21/02	09/16/02	10/01/02	10/21/02	

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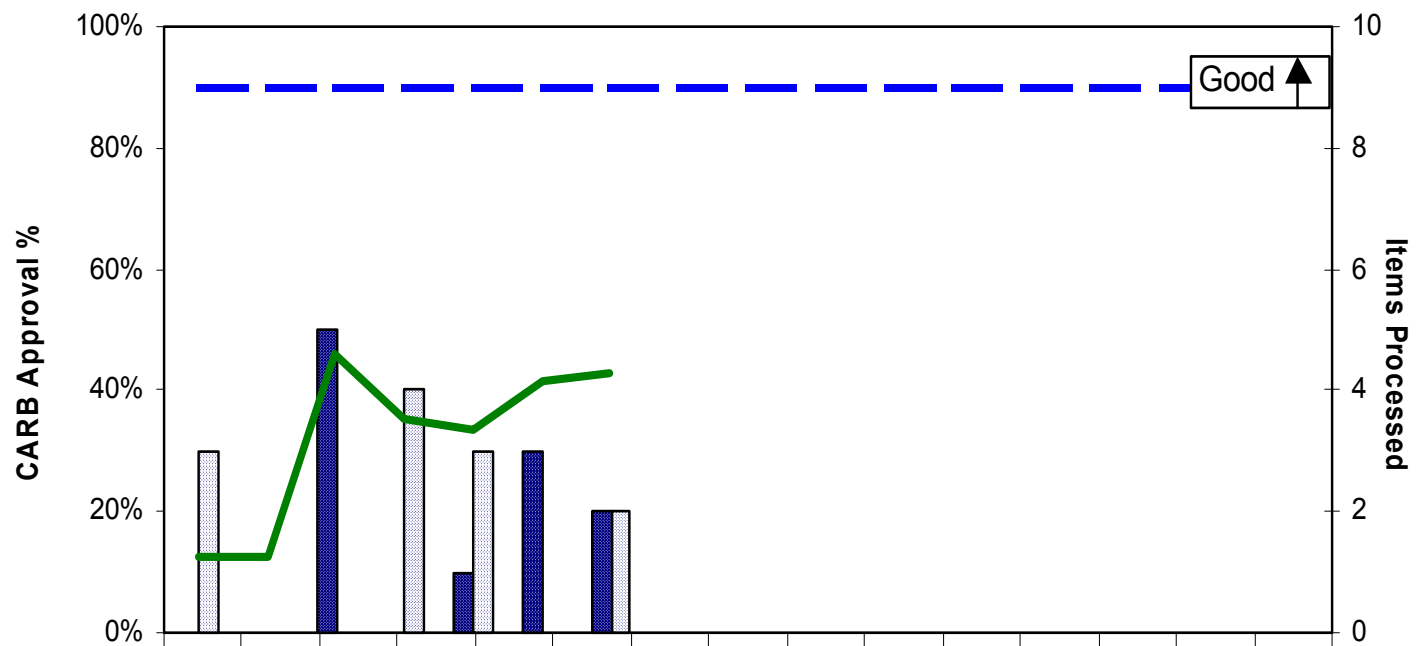
Restart Progress



	7/7	7/14	7/21	7/28	8/11	8/18	8/25	9/1	9/8	9/15	9/22	9/29	10/13	10/20	10/27
Approved	0	0	5	0	3	2									
Rework	3	0	0	4	0	2									
Goal	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Cum Actual	13%	13%	46%	35%	42%	43%									

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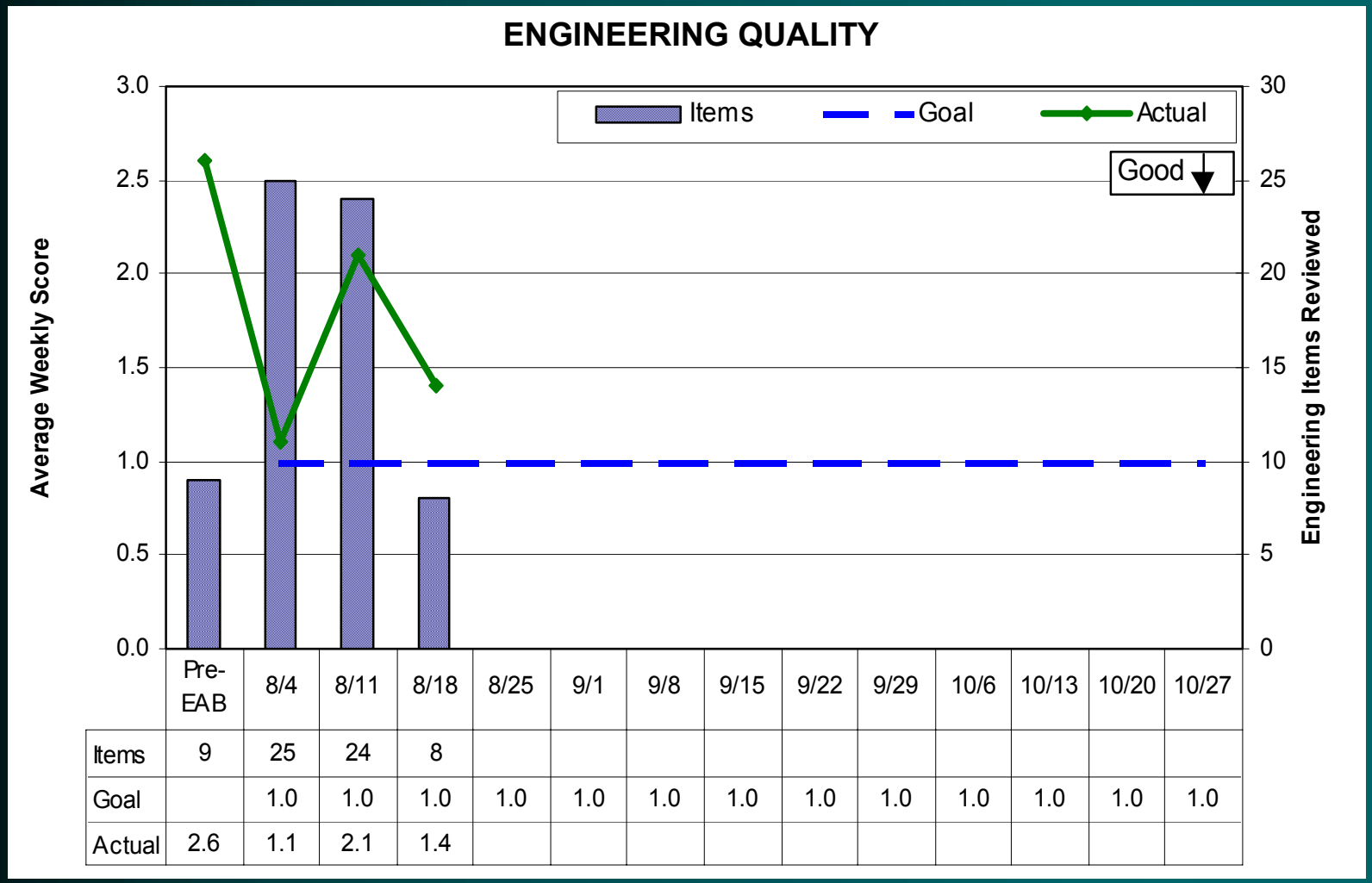
Restart Progress



	Pre-EAB	8/4	8/11	8/18	8/25	9/1	9/8	9/15	9/22	9/29	10/6	10/13	10/20	10/27
Items	9	25	24	8										
Goal		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Actual	2.6	1.1	2.1	1.4										

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Nuclear Quality Assessment
Quality Standards

Bill Pearce

Vice President -- Oversight

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Nuclear Quality Assessment
Root Cause Evaluation

- Evaluation performed by recognized outside team leader
- Team also consisted of Perry and Beaver Valley employees
- Independent root cause of missed opportunities
- Corrective actions being implemented

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Nuclear Quality Assessment
Preliminary Conclusions

Root Cause

- FENOC nuclear safety values, behaviors and expectations were inadequate to enable oversight to effect needed positive change in station operations

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Nuclear Quality Assessment
Preliminary Conclusions

Contributing Causes

- Ineffective Training for previous event
- Process for providing oversight of the oversight function was less than adequate
- For a period of time, the management of the audit/evaluation process was not independent from the management of the corrective action process

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Nuclear Quality Assessment
Preliminary Conclusions

Actions

- Elevate standards
- Hold line organization accountable to higher standards
- Increased intrusiveness
- Raise tough issues
- Escalate unresolved issues to higher management

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Nuclear Quality Assessment
Quality Standards

Assessment of Key Activities

- Review board meetings
- In-depth technical review of engineering products
- Field verification of actual conditions
- Independent parallel reviews

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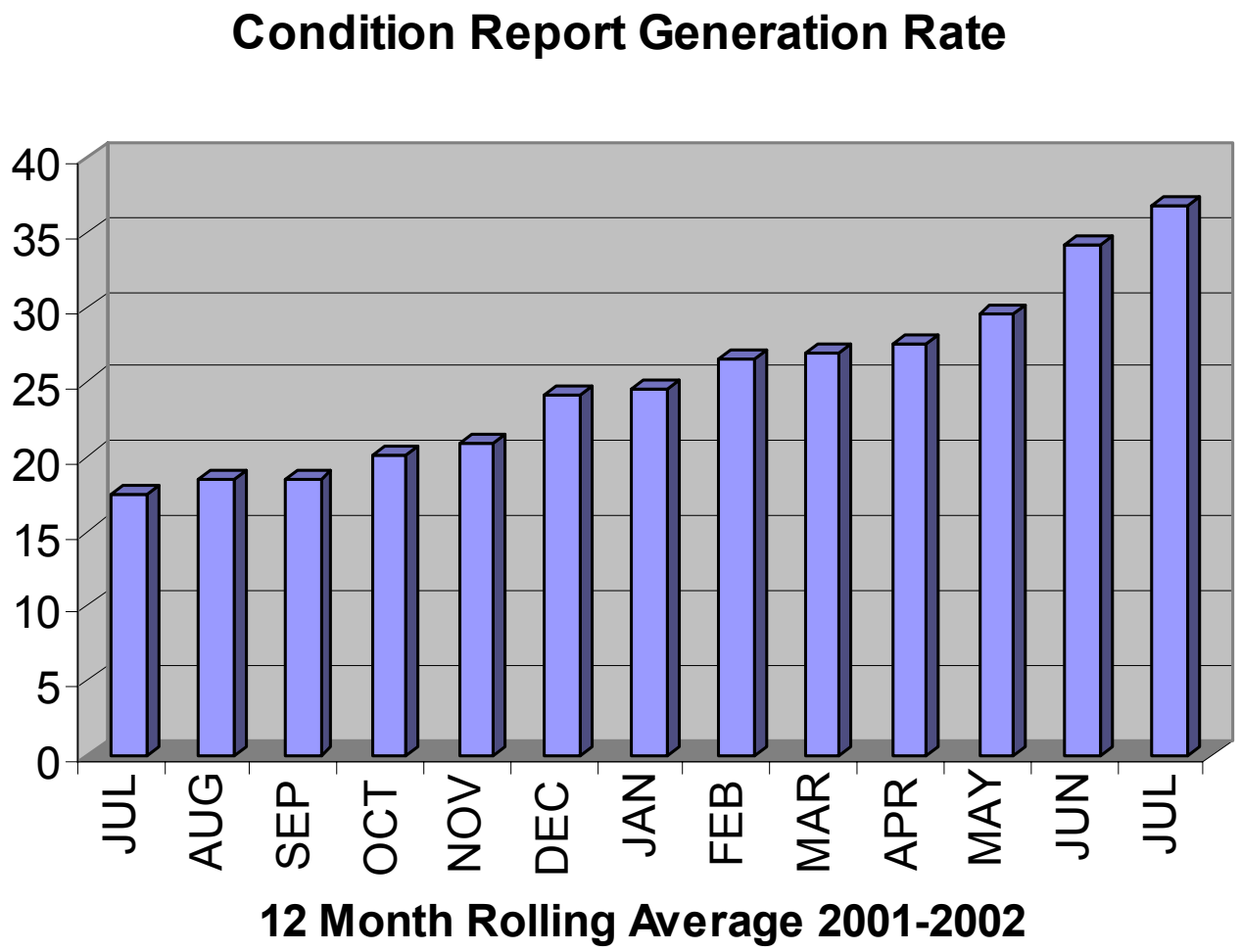
Nuclear Quality Assessment
Quality Standards



Nuclear Quality Assessment
Examples of Results

Increased Intrusiveness

- Most recent assessment identified 77 issues
- Real-time assessment of activities in process
- Ensuring product quality upon activity completion

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Nuclear Quality Assessment
Examples of Results

Real-Time Issues Identified

- Operations failure to request Engineering rigor for operability determinations
- Failure to recognize Containment painting as a design change

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Nuclear Quality Assessment
Examples of Results

Ensuring Product Quality

- Vendor errors with implementation of feedwater flow modification
- Failure to comply with quality program requirements during overhaul of decay heat pump

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Nuclear Quality Assessment
Examples of Results

Elevating Standards

- Posting and protection of Protected Train equipment
- Documentation standards for unit log keeping
- Potential corrosion of Containment Vessel
- Untimely corrective actions for previously identified Corrective Action Program weaknesses

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Nuclear Quality Assessment
Examples of Results

2nd Quarter Assessment Results

- Marginal performance for 5 of 11 areas in second quarter
- Two unacceptable performance issues

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Nuclear Quality Assessment

Conclusion

QA is already improving our standards. We are not yet where we need to be, but we have identified our weaknesses and are formulating an improvement plan.

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Reactor Head Resolution Plan

Bob Schrauder

Director -- Support Services

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Reactor Head Resolution Plan

Progress

- Replacement Head activities continue to support safe and reliable plant return to service during Fourth Quarter 2002.

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Reactor Head Resolution Plan

Replacement Head Activities

- New head arrived at Davis-Besse on July 18, 2002
- All activities at Midland are complete
- Code Data Package compiled
- Code reconciliation compiled
- Design reconciliation compiled

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New Head and Cover Placed on Trailer

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New Head Arrives at Davis-Besse

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Reactor Head Resolution Plan

Davis-Besse Activities

- Reactor Head prepared for removal
- Service Structure preparations complete
- Shield Building opening complete

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Davis-Besse Head Ready for Removal

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Shield Building Marked for Cutting

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Protection for the Start-Up Transformer

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Ready to Remove Concrete

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Backing Plate

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First Layer of Rebar Exposed

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Shield Building Opening

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Mock-Up for Containment Cutting

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Containment Health Plan

Randy Fast

Plant Manager

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Containment Health Plan
Inspections

- Containment Air Coolers
  - Complete refurbishment
  - Replace plenum and turning vanes with stainless steel
  - Replace 2 motors; refurbish 1

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Removing Containment Air Cooler Coils

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Containment Health Plan Inspections

- Under Vessel Inspections
  - Temporary modification for incores installed
  - Seal plate removed
  - Insulation removed
  - Hot Leg/Cold Leg/Core Flood Tank Nozzle Completed

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Containment Health Plan Inspections

- Independent Inspections
  - Training
  - Inspection status
  - Findings

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Containment Health Plan

- **Decay Heat Valve Pit**
  - **Evaluating options**

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Containment Health Plan

- Containment Pressure Vessel
  - MIC
  - Corrosion
- Equipment Qualification
  - Walkdowns in progress

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Containment Health Plan

- Containment Emergency Sump
  - Improve margin

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Containment Health Plan

- Containment Coatings
  - Dome coating in progress

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Containment Dome Painting

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Containment Painting

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Containment Painting

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Program Compliance Plan

Jim Powers

Director - Technical Services

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Program Compliance Plan

Phase 1 Reviews

- 14 programs reviewed
  - 6 programs rated as satisfactory
    - Fire Protection Protection
    - Snubbers Program
    - Ventilation Filter Test Program
    - Corrosion and Erosion Analysis Program
    - Safety Tagging Program
    - Meteorological Monitoring

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Program Compliance Plan

Phase 1 Reviews

- 8 programs require additional actions
  - Air Operated Valve Program
  - 10CFR50.59 Program
  - Foreign Material Exclusion Program
  - Software Control Program
  - Temporary Leak Seal Program
  - Severe Accident Management Program
  - Inservice Test Program
  - Appendix J Program

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Program Compliance Plan

Phase 2 Reviews

- Boric Acid Corrosion Control
  - Walkdown Condition Reports to be effectively resolved
  - Ownership
  - Forward-Looking Program Linkages
  - Management Involvement
  - Organizational Interfaces

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Program Review Board

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Program Compliance Plan

Phase 2 -- Program Review Board

- Corrective Action Program (August 29)
- Inservice Inspection (September 6)
- Probabilistic Safety Assessment (October 3)

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System Health Assurance Plan

Jim Powers

Director -- Technical Services

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System Health Assurance Plan

System Readiness Reviews

- Discovery walkdowns on 31 systems completed
- Team included representatives from:
  - Maintenance
  - Operations
  - Engineering
  - Management

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System Health Assurance Plan

Latent Issues

- 5 teams scheduled to present scope definition to Engineering Assessment Board
- Schedules and performance indicators developed
- Discovery walkdowns completed
- Teams relocated to Wellness Center

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System Health Assurance Plan

Latent Issues

- Developing permanent plant procedures for walkdowns and Latent Issue Reviews to be used FENOC-wide
- 120v DC to be included in Latent Issue Review going forward

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Closing Remarks

Lew Myers
FENOC Chief Operating Officer

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Conclusions

We have confidence in our employees. This plant is their livelihood. They are well educated, technically sound, hard working, and proud members of this community.

Our people continue to be committed to a comprehensive approach to ensure Davis-Besse is ready for safe and reliable operation and sustainable performance.

FENOC