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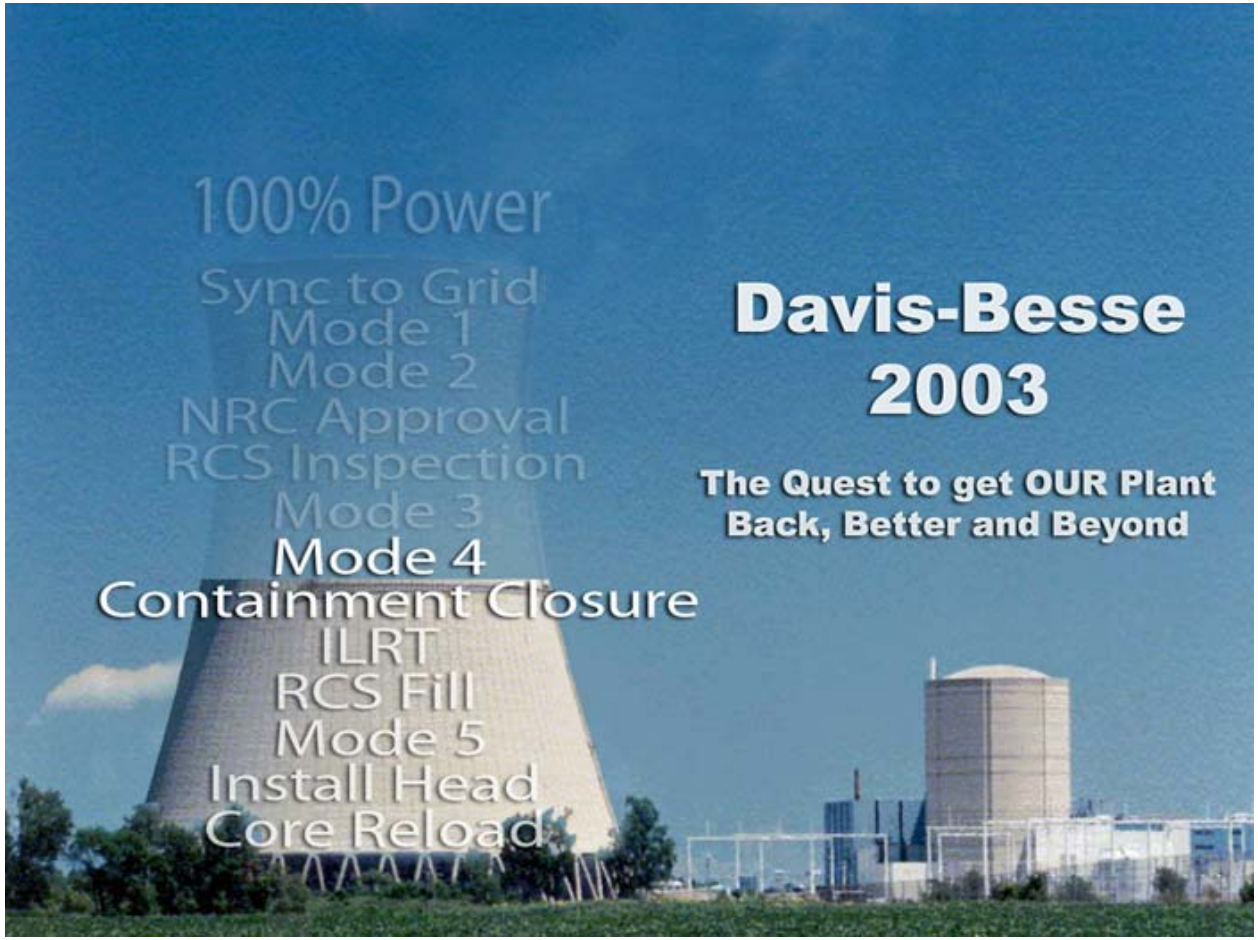
Davis-Besse Nuclear Power Station



IMC 0350 Meeting

Desired Outcomes

- Demonstrate that Davis-Besse is preparing for restart
  - Plant systems are being inspected and tested
  - Technical issues are coming to closure
  - Ongoing assessments of our people, plant and processes will ensure nuclear safety and event free operation

Lew Myers
Chief Operating Officer - FENOC

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Meeting Agenda

- Plant Response to Loss of Transmission Grid……Lew Myers
- Plant Status……..Mark Bezilla
- Closure of Technical Issues……..……Jim Powers
- Operational Readiness Assessment Plan…..……..Rick Dame
- Quality Assurance Oversight...……..……..Steve Loehlein
- Actions to Anchor Long-Term Improvement……..Lew Myers

Lew Myers

Chief Operating Officer - FENOC

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Plant Response to Loss of Transmission Grid

Lew Myers

Chief Operating Officer - FENOC

Plant Response to Loss of Transmission Grid

- Event
  - On 8/14/03, a power outage impacted electrical grid system
    - Offsite power lost shortly after 4 p.m.
    - Declared an Unusual Event at 4:21 p.m.
      - Loss of Offsite Power
      - NRC notified
    - Plant work activities stopped and Emergency Plan initiated
    - Technical Support Center manned
  - Both Emergency Diesel Generators started to provide site electricity
    - Operated EDG #2 for Safety-Related equipment
    - EDG #1 and Station Blackout Diesel was on standby
  - Perry was operating at 100% power and tripped off line
  - Beaver Valley was operating at 100% power, reduced power for a short time and later resumed full power

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Plant Response to Loss of Transmission Grid

- End of Event
  - On 8/15/2003, re-established grid stability and switched non-vital plant functions back to offsite power
  - Exited from the Unusual Event
- Observations
  - Focus was plant safety
  - Employees responded well to the event
  - Demonstrated equipment capability

Plant Status

Mark Bezilla

Vice President/Plant Manager

Desired Outcome

- Demonstrate that Davis-Besse's preparation for the Normal Operating Pressure (NOP) Test is thorough, well-planned, and comprehensive

Plant Status

- Today's Plant Status

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Plant Status

- Management preparation and focus during NOP Test
  - Nuclear Safety
    - People
    - Plant
    - Processes

Mode 4 Readiness Review Meeting

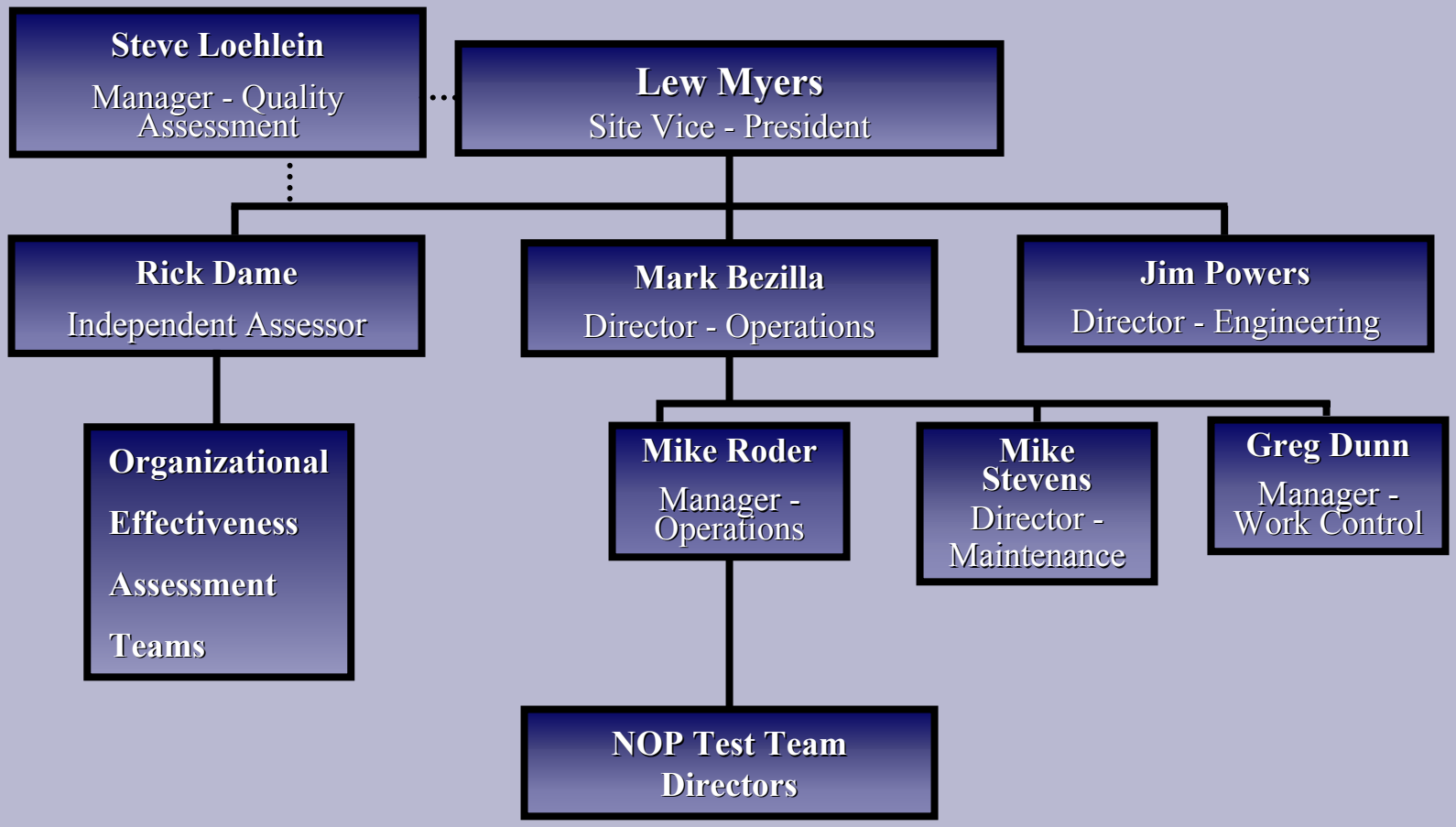
Plant Status

Control Room

- Expectations of site employees during NOP Test
  - Nuclear Safety
    - Preparation
    - Communication
    - Accountability

Plant Status

NOP Test Management Team



Plant Status

NOP Test Team

Mike Roder
Manager - Operations

NOP Test Directors - Days - Tony Stallard / Nights - Scott Wise

NOP Assistant Test Directors - Days - Randy Patrick / Nights - Craig Gillig

Boric Acid Inspection Managers
Pete Seniuk / Ron Perry

Boric Acid Inspection Assistant Managers
Tom Simonetti
John Grimm

Boric Acid Inspection Teams
Various - Inspections have been pre-assigned

RCS Sensitivity Leakage Test Manager
Days - Jerry Lee
Nights - Gary Melssen

RCS Sensitivity Leakage Test Support
Chemistry / RP

Maintenance Contingency Support Managers
Days - John Reddington
Nights - Bill Mugge

Plant Status

- Normal Operating Pressure Test
  - Heat Reactor Coolant System to ~ 532° using Reactor Coolant Pump
  - Pressurize Reactor Coolant System to ~ 2155 pounds per square inch
  - Conduct initial walkdown
    - Perform > 1,000 visual inspections of Reactor Coolant System and components
  - Conduct 2nd walkdown
    - Repeat same inspections
  - Perform post-maintenance and modification testing
  - Perform organizational effectiveness exercises

Plant Status

- Normal Operating Pressure Test being performed to demonstrate confidence in plant systems and equipment
  - Safety Equipment
    - Tested Safety Features Actuation System, Reactor Protection System, and Steam and Feedwater Line Rupture Control System
  - Primary Systems
    - Numerous inspections (Reactor Coolant System (RCS), Make Up & Purification, and Pressurizer)
    - Validate RCS Integrated Leakage Program and RCS Sensitivity Leakage Test (FLÜS Monitoring System)
  - Secondary Systems
    - Numerous inspections (Feed Water, Condensate, Circulating Water, Main Steam)

Plant Status

- Primary System Inspections include
  - Reactor Vessel flange
  - Reactor Head Control Rod Drive Mechanism (CRDM) nozzle penetrations and flanges
  - Reactor Vessel Incore Monitoring Instrumentation Nozzles
  - Steam Generator and Pressurizer manways and hand-holes
  - Reactor Coolant Pump covers and seal area
  - Pressurizer Heaters, Pressurizer Safety and Relief Valves
  - Body to bonnets on RCS Valves and packing glands
  - Bolted connections and flanges

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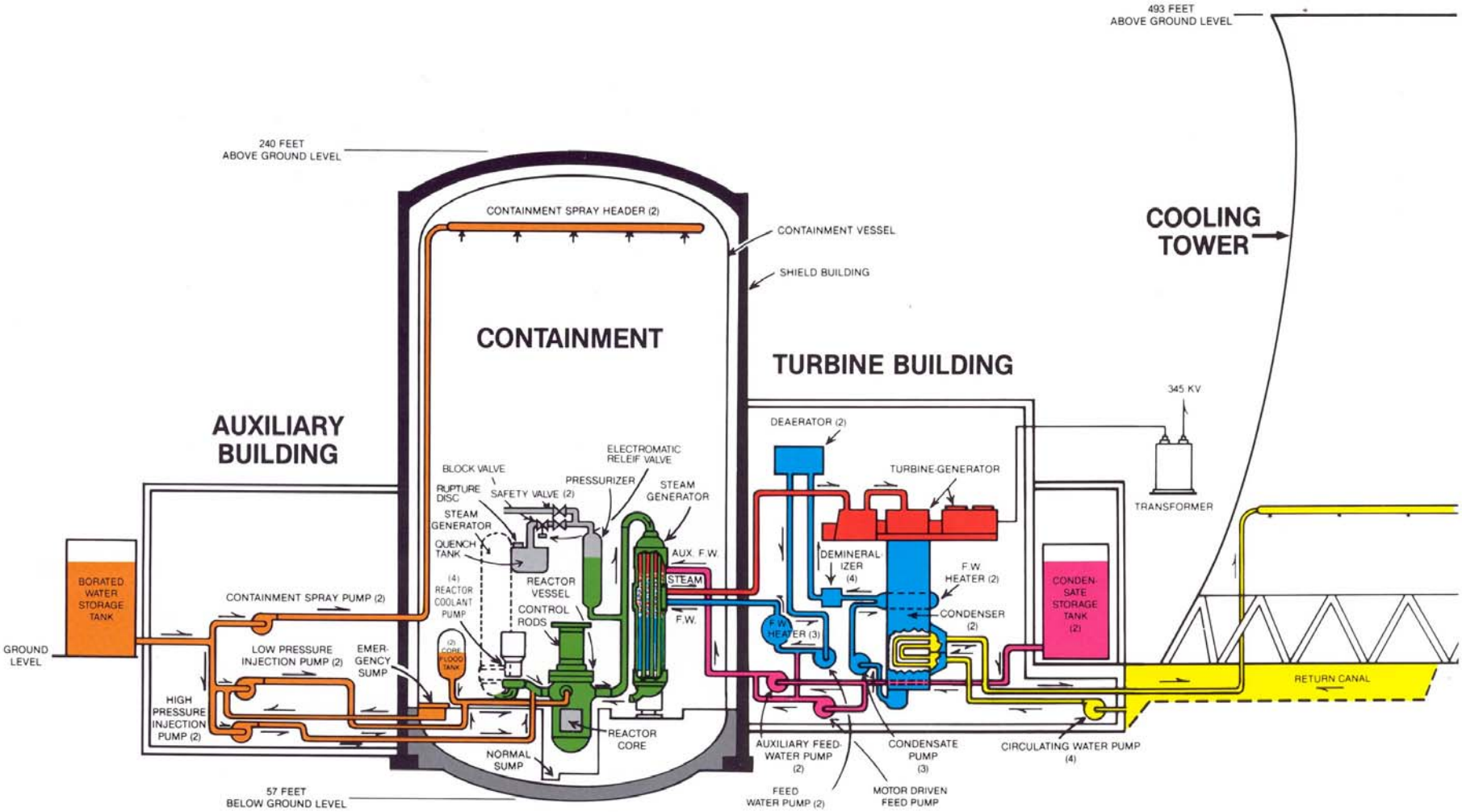

Plant Status
Accomplishments

- Replaced Reactor Pressure Vessel Head
- Improved Containment Emergency Sump
- Modified High Pressure Injection Pump Recirculation Line
- Painted the Containment Dome
- Installed FLÜS Online Leak Monitoring System
- Replaced Containment Air Coolers
- Enhanced Decay Heat Valve Enclosure
- Cleaned Reactor Vessel
- Confirmed Fuel Integrity
- Performed Boric Acid Extent of Condition Inspections, Evaluations, and Corrective Actions
- Cleaned Containment Building

Plant Status
Activities Completed

- August, 2003
  - Shipped original Reactor Pressure Vessel Head by rail to Envirocare Low-Level Radioactive Waste Facility in Utah for permanent storage

Plant Status

Actions Completed

- Items completed to date
  - ~ 100 Modifications
  - ~ 7,700 Work Orders
  - ~ 14,600 Condition Report Evaluations
  - ~ 23,800 Corrective Actions
  - ~ 15,000 Surveillance Tests
  - ~ 2,200 Preventive Maintenance Tasks
  - ~ 2,700 Procedure Changes

Plant Status
Future Activities

- Complete 7-Day Normal Operating Pressure Test of Reactor Coolant System
- Return to Mode 5 and assess results
- Remove / Modify / Re-install High Pressure Injection Pumps
- Address people, plant, and process issues identified
- Transition from Return to Service Plan practices to normal operating practices
- Request NRC permission to restart plant

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Closure of Technical Issues

Jim Powers

Director - Engineering

Desired Outcome

- Demonstrate that technical issues are coming to closure

Closure of Technical Issues

- Return to Service Plan reviewed plant systems
  - Inspections complete
  - Issues identified and documented
  - Issues are clearly understood and bounded
- Three issues remain
  - High Pressure Injection Pumps
  - Electrical Distribution System
  - Containment Air Coolers

Closure of Technical Issues
High Pressure Injection Pumps

- Status
  - Qualification testing in progress
  - Debris characterization finalized
  - Pump Guinard hydrostatic bearing design adapted and improved for Davis-Besse High Pressure Injection pumps
  - Hardfaced replacement parts ordered
  - Pump modifications to be made following Normal Operating Pressure Test

Closure of Technical Issues
Electrical Distribution System

- Status
  - Analysis complete
  - 1st Mode 4/3 modifications complete
  - 2nd Mode 4/3 modifications identified
  - Final resolution to occur prior to restart

Closure of Technical Issues
Containment Air Coolers

- Status
  - During loss of offsite power event from electrical grid disturbance on 8/14/03, Containment Air Coolers experienced a water pressure surge
  - Misalignment and expansion of piping bellows assemblies identified
  - Significant Condition Adverse to Quality created
  - Event Investigation Team/Problem-solving and Decision-making Process initiated
  - Short-term assessment/actions completed
  - Long-term actions being finalized

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Operational Readiness Assessment Plan

Rick Dame

Reliability Unit - Supervisor

Operational Readiness Assessment Plan

- Desired Outcome
  - Demonstrate the readiness of people and processes to safely and reliably operate the plant

Operational Readiness Assessment Plan

- Methodology
  - Conduct observations and assessments of organizational performance during 7-Day Reactor Coolant System (RCS) Normal Operating Pressure (NOP) Test
  - Perform exercises to ensure that standards and processes are appropriate to support safe and reliable plant operation

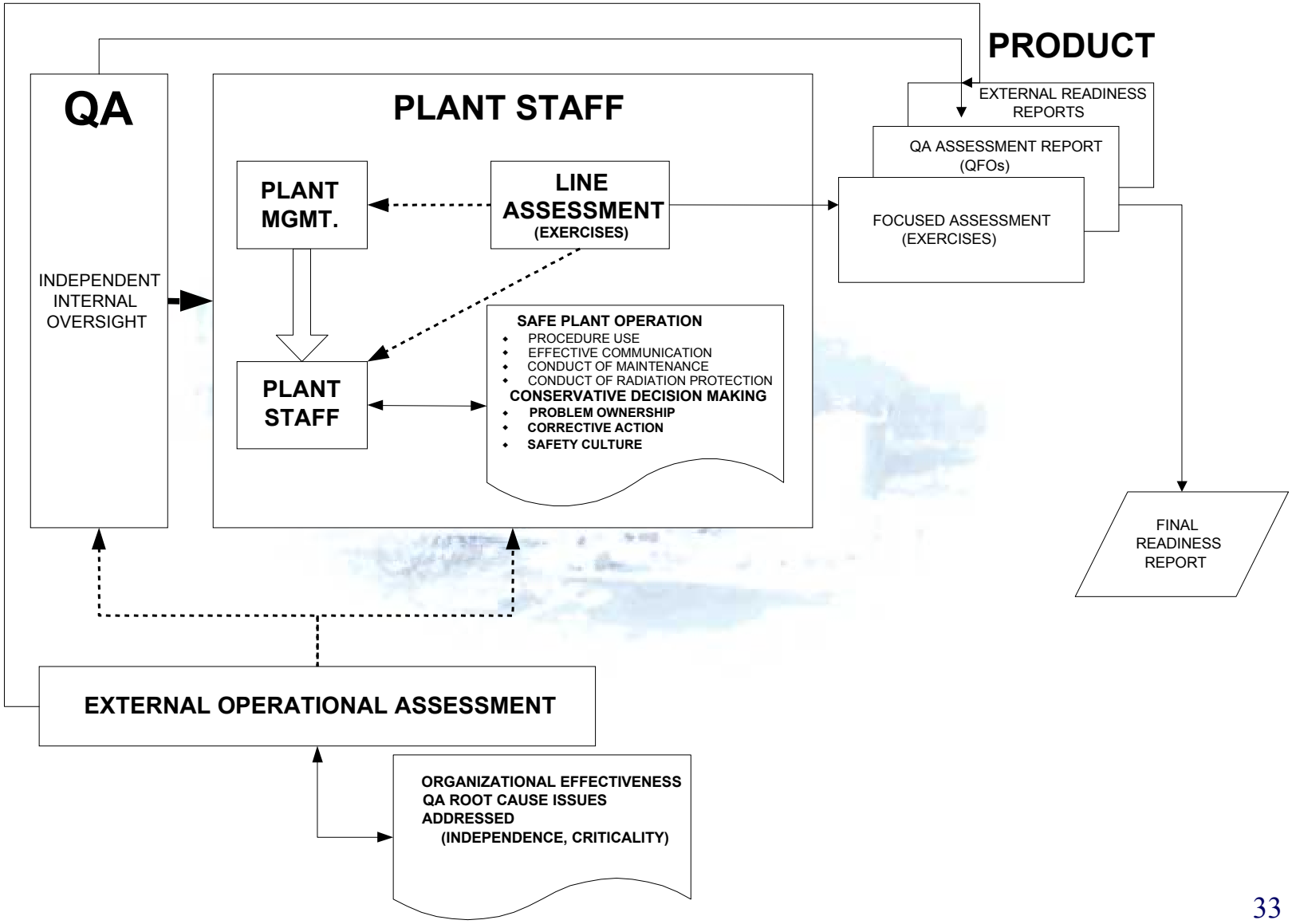
Operational Readiness Assessment Plan

- Assessment Criteria
  - Davis-Besse Operations Section "Conduct for Excellence" Handbook
  - Davis-Besse "Conduct of Operations" procedure
  - World Association of Nuclear Operators (WANO) Performance Objectives and Criteria

Operational Readiness Assessment Plan

- WANO Performance Criteria
  - Provides a consistent standard of excellence to determine station strengths and weaknesses
  - Selected WANO Performance Objectives for this assessment are "Organizational Effectiveness" and "Operations"

INTEGRATED ASSESSMENT DURING NOP TESTING



Operational Readiness Assessment Plan

- Data Gathering Opportunities
  - Operational evolutions associated with the 7-Day RCS NOP Test
  - Organizational response to actual emergent issues
  - Organizational response to emergent issue exercises

Operational Readiness Assessment Plan

- "Emergent Issue" Exercises
- Exercises will be designed to have minimal impact on Control Room crews
- Examples of exercises:
  - Operability Determination
  - Priority 200 Work Order
  - Procedure change
  - Immediate Investigation
  - Off-hour equipment challenge

Operational Readiness Assessment Plan

- 7-Day NOP Test Assessment Documentation
  - Internal Assessment Team - FENOC Focused Self-Assessment Report
  - External Assessment Team - External Readiness Reports
  - Quality Assurance (QA) Assessment Team - QA Assessment Report
- Results will be included in the final Integrated Restart Report

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Quality Assurance Oversight

Steve Loehlein

Manager – Nuclear Quality Assessment

Corrective Action Program

- Corrective Action Review
  - 5402 completed corrective actions were reviewed
  - 4980 (92%) acceptable
  - 422 (8%) inconclusive/unacceptable
    - 221 answered as of 9/7/03
    - 185 documentation errors/inadequacies (84% of the 221)
    - 36 missed items or procedure errors (16% of the 221)
  - Status
    - Continuing resolution indicates that relatively few issues were missed, and these are of low significance

Corrective Action Program

- Focus for Improvements
  - Implement effective trending
  - Increase management involvement in improving program implementation
    - Increase management involvement in Management Review Board
    - Increase management involvement in ensuring issues are appropriately evaluated

Oversight Activities for Mode 4

- Assessment of Restart Activities
  - Ongoing oversight of qualification testing at testing laboratory
  - Some of the Focus areas
    - Operations Leadership
    - Safety Culture
    - Configuration Control
    - Procedure Compliance
    - Test Control

Oversight Activities for Mode 4

- Assessment during NOP Testing Activities
  - Control Room Command and Control
  - Component/System Testing Activities
  - RCS walkdown teams
  - Organizational Response to Emergent Issues
    - Identification and prioritization of issues
    - Quality of problem resolutions

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Actions to Anchor Long-Term Improvement

Lew Myers

Chief Operating Officer - FENOC

Actions to Anchor Long-Term Improvement

- New officers and management
  - At corporate level
  - At plant level
  - New corporate-level departments for fleet-wide improvements
- Improvements in plant systems to add margin
- New vision, strategic objectives, and metrics
  - Safe Plant Operation
  - Improved Outage Performance
  - Excellent Material Condition
  - Fleet Efficiency and Effectiveness

Actions to Anchor Long-Term Improvement

- Improvements for Personnel Performance
  - Training on lessons learned
  - New training for managers and supervisors on nuclear safety focus and professionalism
  - Department level expectations
  - Improvements in communications and teamwork
  - Alignment of management and personnel
  - Improvements in personnel evaluations and development
  - Leadership development
  - Operations Leadership

Actions to Anchor Long-Term Improvement

- Improvements in Programs
  - Program reviews and benchmarking
  - Corrective Action Program
  - Employee Concerns Program
  - Operating Experience Program
  - Radiation Protection Program
  - Boric Acid Corrosion Control and Lead Detection Programs
  - Operability Determinations
  - Problem Solving and Decision-Making

Actions to Anchor Long-Term Improvement

- Improvements in Monitoring and Oversight
  - Management Observations
  - New performance indicators
  - New Safety Culture Assessments
  - New Engineering Assessment Board and improved Corrective Action Review Board
  - Augmented independence and capability of Quality Assurance
  - Improvements in Company Nuclear Review Board and Board oversight

Closing Comments

Lew Myers
Chief Operating Officer - FENOC