Davis-Besse Nuclear Power Station

Return to Service Plan Update

January 14, 2003

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Introduction

Lew Myers
FENOC Chief Operating Officer

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Desired Outcomes

- **Demonstrate that we continue to make progress to support restart**
  - Restart Preparations . . . . . Randy Fast
  - 0350 Restart Status . . . . . Clark Price
  - Corrective Action Program . . . . . Dave Gudger
  - Reactor Coolant System Integrity Management Program . . . . . Jerry Lee
- **Demonstrate that we will be ready for Fuel Reload**
  - Fuel Reload Readiness . . . . . Mike Roder
  - Fuel Reliability . . . . . Dan Kelley
  - Integrity Assurance . . . . . .Greg Dunn
- **Discuss the progress in our human performance, safety culture, and Safety Conscious Work Environment**
  - Safety Culture . . . . . .Lew Myers
  - Safety Conscious Work Environment . . . . . .Bill Pearce
- **Provide a schedule update**
  - Integrated Schedule Progress . . . . . Mike Stevens

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Davis-Besse Modes of Operation

Mode 6	Reactor Core loaded with fuel
Mode 5	Reactor Vessel Head on vessel and tensioned
Mode 4	Start Heatup on Reactor Coolant Pumps
Mode 3	Reactor Coolant System at full temperature and pressure
Mode 2	Reactor Startup
Mode 1	Reactor Power > 5%

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Restart Preparations

Randy Fast

Plant Manager

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Restart Preparations

Activities:

- Containment Emergency Sump
- Reactor Cavity Seal Plate
- Reactor Coolant Pump

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Emergency Sump


Emergency Sump


ACCEPT
Seal Plate Membrane
JAN 7 2003


Seal Fit-Up with Gage
JAN 7 2003


Hook Clamp Installation
JAN 4 2003


Hooks and Wall Painted
JAN 7 2003

Reactor Coolant Pump Rotating Assembly

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Reactor Coolant Pump Impeller

Reactor Coolant Pump Motor

0350 Restart Status

Clark Price

Owner - Restart Action Plan

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0350 Restart Checklist Status

Completed Items:

- Containment Health Discovery Plans
- Program Compliance Building Block Phase 2 Program Reviews
- Boric Acid System Inspections Outside Containment
- System Health Readiness Reviews
- System Health Latent Issues Reviews

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Restart Progress

Discovery

Condition Reports

- Restart - 0350
- Restart - Site Criteria
- Non-Restart

Evaluations

Corrective Actions

- Restart - 0350
- Restart - Site Criteria
- Non-Restart

Implementation Priority

- Technical Mode Restraints
- Administrative Mode Restraints
- Logic & Schedule Preference

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DAVIS-BESSE 0350 RESTART PROGRESS REPORT

January 13, 2003

Item No.		0350 Item Description	Discovery	Implementation	Restart Ready
1		**Adequacy of Root Cause**			
	a	Penetration cracking and reactor pressure vessel corrosion	Technical Root Cause 02-0891		Yes
	b	Organizational, programmatic and human performance issues	95		
2		**Adequacy of Safety Significant Structures, Systems and Components**			
	a	Reactor Pressure Vessel Head Replacement		97	
	b	Containment Vessel Restoration following RPV Head Resplacement		90	
	c	Structures, Systems and Components Inside Containment	100	60	
	c.1	Containment Emergency Sump	100	55	
	d	Systems Outside of Containment	100	30	
3		**Adequacy of Safety Significant Programs**			
	a	Corrective Action Program	100	75	
	b	Operating Experience Program	100	50	
	c.1	Quality Audits	90	10	
	c.2	Self-Assessments of Programs		75	
	d	Boric Acid Corrosion Management Program	100	60	
	e	Reactor Coolant System Unidentified Leakage Monitoring Program		70	
	f	In-Service Inspection Program	100	60	
	g	Modification Program	100	30	
	h	Radiation Protection Program	100	25	
4	a-b	**Adequacy of Organizational Effectiveness and Human Performance**		75	
5		**Readiness for Restart**			
	a	Review of Licensee's Restart Action Plan			
	b	Systems Readiness for Restart	100	Restart Readiness Reviews	
	b.1	Design Calculation Resolution	25		
	c	Operations Readiness for Restart		Restart Readiness Reviews	
	d	Test Program Development and Implementation		55	
6	a-f	**Licensing Issue Resolution**		95	
7	a	**Confirmatory Action Letter Resolution**		CAL Resolution & Restart Report	

Field Complete In Progress N/A - Not Applicable

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Corrective Action Program

Dave Gudger

Manager - Performance Improvement

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Corrective Action Program

Introduction

- **Status and progress of Corrective Action Program**
- **Assessment of program**
  - Mechanics of the program are acceptable
  - Improvement of program implementation needed
- **Action Plan drives improvement for restart**

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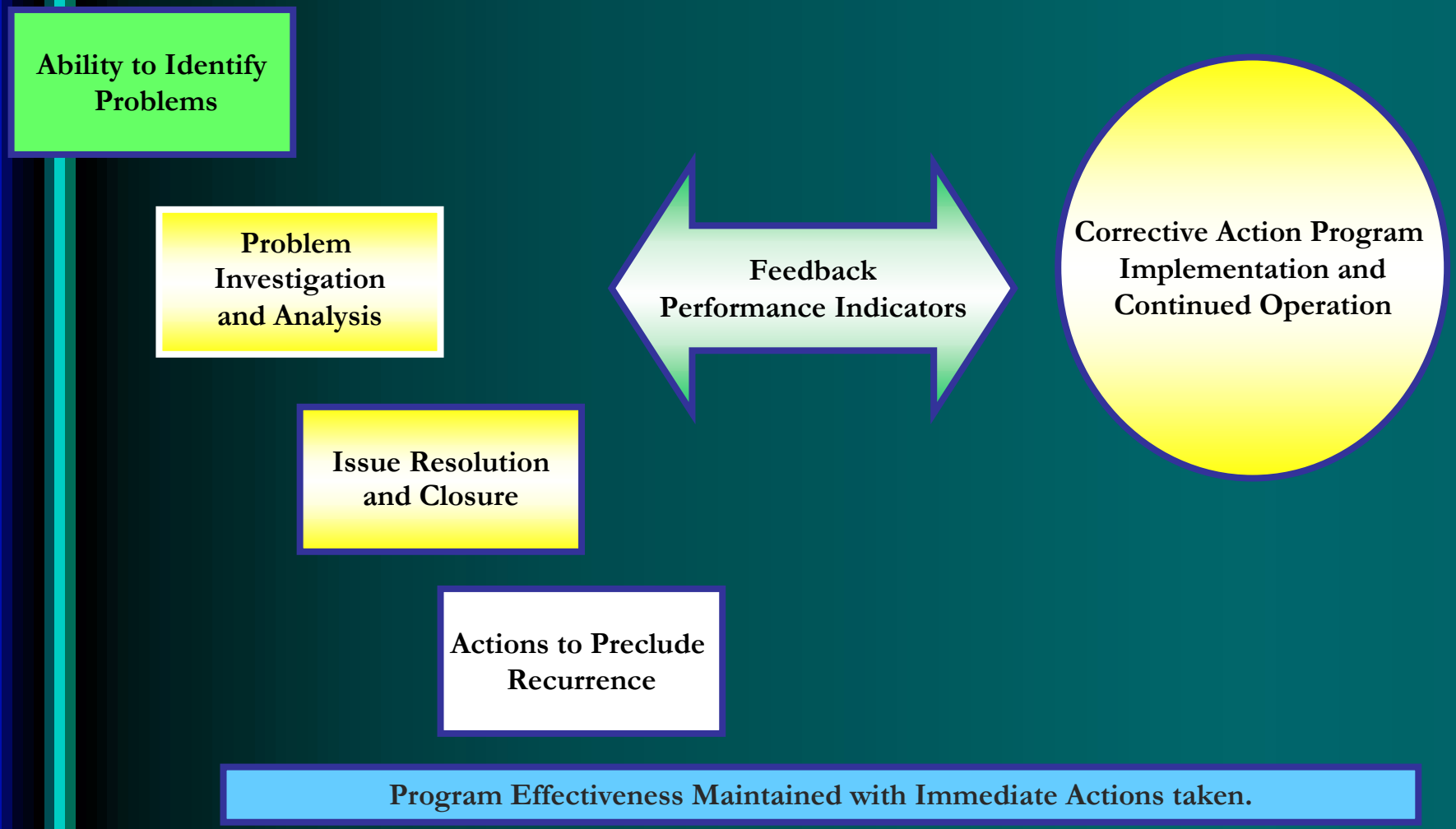
Corrective Action Program



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Corrective Action Program

Actions Taken

- Evaluation feedback to personnel reporting problems
- Enhanced performance indicators/ performance monitoring
- Supervisor awareness training of leadership behavior expectations
- Operations enhanced Senior Reactor Operator review standards
- Independent validation reviews of completed Condition Reports

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Corrective Action Program

Improvement Actions for Restart

- **Process changes**
  - Communications
  - Database user aides
  - Performance Appraisals
- **Procedure enhancements**
  - Reformatting
  - Responsibilities section
  - Effectiveness and collective significance reviews
- **Oversight changes**
  - Corrective Action Review Board Charter
  - Root Cause approval levels raised
  - Section level involvement
- **Training needs**
  - Root Cause and Evaluator training
  - Annual site training
  - Refresher evaluator requirements

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Corrective Action Program
Top Level Performance Indicators

Operational Readiness	Restart Goal	Status 1/5
• CR SRO Reviews	95% ≤ 2 days	100%
• CR Evaluations	↓ trend	↓ 3,381
• CA Resolution	↓ trend	↑ 7,598
Organizational Readiness	**Restart Goal**	**Status 1/5**
• Root Cause Quality	↑ trend	↑ (83%)
• CR Category Accuracy	↑ trend	↔ (90%)
• Individual Error Rates	< 0.5 / 10K hours	0.34
• Program and Process Error Rate	< 0.7 / 10K hours	0.17
• Basic Cause Quality	> 90%	↔ (92%)

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Corrective Action Program

Status

- Approved Action Plan in place
- Schedule implementation date: February 2003

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Reactor Coolant System Integrity Management Program

Jerry Lee

Program Owner

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Reactor Coolant System Integrity Management Program

Basis of Program

- **Founded on a strong safety focus of Reactor Coolant System inventory balance**
- **Designed to:**
  - Provide additional assurance of zero pressure boundary leakage
  - Provide early detection and resolution of low level leakage
  - Set industry standards
- **Increase sensitivity to indicators of changes in Reactor Coolant System leakage**

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Reactor Coolant System Integrity Management Program

Program Features

- Action triggers based upon adverse trends of unidentified and indirect leakage indicators
- Documented evaluations of leakage impact
- Integration of Boric Acid Corrosion Control and In-Service Inspection programs
- Improvements in leak rate calculation algorithm
- Improvements to the Reactor Coolant System Inventory Balance

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Reactor Coolant System Integrity Management Program

Program Features

- Three different types of Reactor Coolant System Leakage evaluation trends
  - Cumulative
  - Rate of Change
  - Step Change
- Trigger values based upon Davis-Besse Reactor Coolant System leakage values from 1996 - 2002

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Reactor Coolant System Integrity Management Program

Action Levels

- **Each leakage evaluation trend type has 3 Action Levels:**
  - Action Level I
    - Increased management oversight
    - Increased monitoring of indirect indicators for leakage
    - Walkdowns of accessible areas
  - Action Level II
    - Actions from Action Level I
    - Additional walkdowns and monitoring
    - Containment inspections added to forced outage scope
  - Action Level III
    - Actions from Action Level I and Action Level II
    - Evaluate/schedule plant shutdown to repair leakage

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Fuel Reload Readiness

Mike Roder

Manager - Plant Operations

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Fuel Reload Readiness

Introduction

- Personnel Readiness
- Restart Station Review Board
- Departmental reviews
- Independent Operations Review
- Final Multi-discipline review

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Fuel Reload Readiness

Personnel Readiness:

- **Standards/Expectations**
  - Revised
  - Discussed daily
  - Observations
- **Operations leadership in decision making roles**
  - Fix-It-Now Team
  - Containment Health
  - Radiation Protection
- **Senior Reactor Operator's Role**
  - My affirmation
  - NRC comments
- **Ownership**

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Fuel Reload Readiness

Restart Station Review Board

- **NG-VP-00100**
  - Quorum
    - Operations
    - Maintenance
    - Engineering
  - Conduct Review
    - All Condition Reports
    - All Corrective Actions
    - All Work Orders
    - All Modifications
  - Categorize as
    - Required for Restart
    - Post-Restart

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Fuel Reload Readiness

Departmental Reviews

- Used Restart Station Review Board Restart List
- Categorized Condition Reports and Corrective Actions by Mode

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Fuel Reload Readiness

Independent Operations Review

- **DB-OP-06911**
  - Established Mode Restraint Manager
  - Established a team to review Mode 6 related items
    - Condition Reports/Corrective Actions
    - Work Activities
    - Surveillance Tests
    - Plant Configuration documents
- **Conducting Plant Walkdowns**
  - Configuration Control
  - Equipment readiness
  - Assure housekeeping

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Fuel Reload Readiness

Final Multi-Discipline Review:

- **Panel**
  - Design Engineering Manager
  - Outage Director
  - Maintenance Manager
  - Operations Manager
  - Mode Restraint Manager
- **Plant Engineer presented each Mode 6 restraint**
- **This team and review panel will be in place throughout the safe start-up of Davis-Besse**

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Fuel Reload Readiness
Fuel Reliability

Dan Kelley

Supervisor - Reactor Engineering

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Fuel Reload Readiness
Fuel Reliability

Background

- Inspected all Cycle 13 fuel for fuel rod integrity
- Fuel removed from the reactor to support reactor vessel head replacement
- Preemptively reconstituted three fuel assemblies
- Performed 100 percent inspections of Cycle 14 fuel to enhance fuel reliability

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Fuel Reload Readiness
Fuel Reliability

Status

- Fuel Inspections completed in December
- Noted minor spacer grid damage on a few fuel assemblies
- One fresh assembly returned to manufacturer for rebuild
- Identified foreign material that could challenge fuel reliability was removed
- Fuel is ready for a reliable Cycle 14 performance

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Fuel Assembly

Fuel Reload Readiness

Greg Dunn

Manager - Outage Management and Work Control

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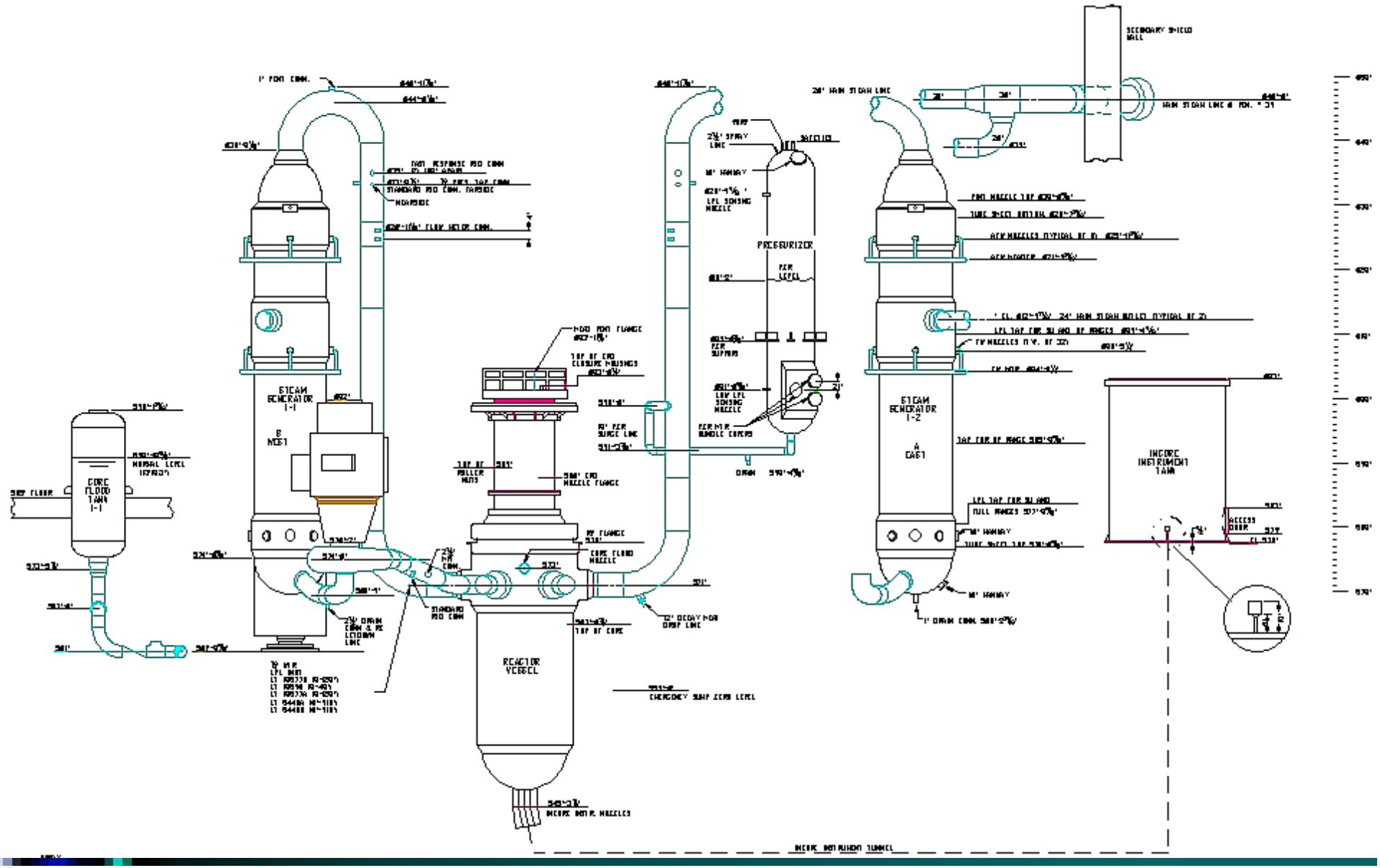
Reactor Coolant System Elevation Profile



Fuel Reload Readiness
Integrity Assurance

- Deep Drain valve maintenance
- High Pressure Injection Thermal Sleeves
- Installation of Cold Leg Thermowells
- Reactor Coolant Pump maintenance
- Setting Reactor Vessel Head
- Reactor Vessel Permanent Seal Plate

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Reactor Head Fit

Safety Culture and Safety Conscious Work Environment

Lew Myers
COO

Bill Pearce
VP Oversight

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Safety Culture

Desired Outcomes

- Discuss Safety Culture
- Discuss Safety Conscious Work Environment
- Actions taken to-date
- Public Meeting January 30, 2003 for detailed discussion

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Safety Culture

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."
- Safety Conscious Work Environment: "that part of a Safety Culture addressing employee willingness to raise issues and management's response to these issues."

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Safety Culture

New Methodology

- **Performance Safety and Health Associates contracted to implement new Safety Methodology**
  - Sonja B. Haber, Ph.D. will be our Project Manager
- **Independent report will be provided through Human Resources**

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Safety Culture

Multiple Methods (Convergent Validity)

- Functional Analysis
- Structured Interviews and Focus Groups
- Behavior Anchored Rating Scales
- Behavior Observations
- Organizational and Safety Culture Survey

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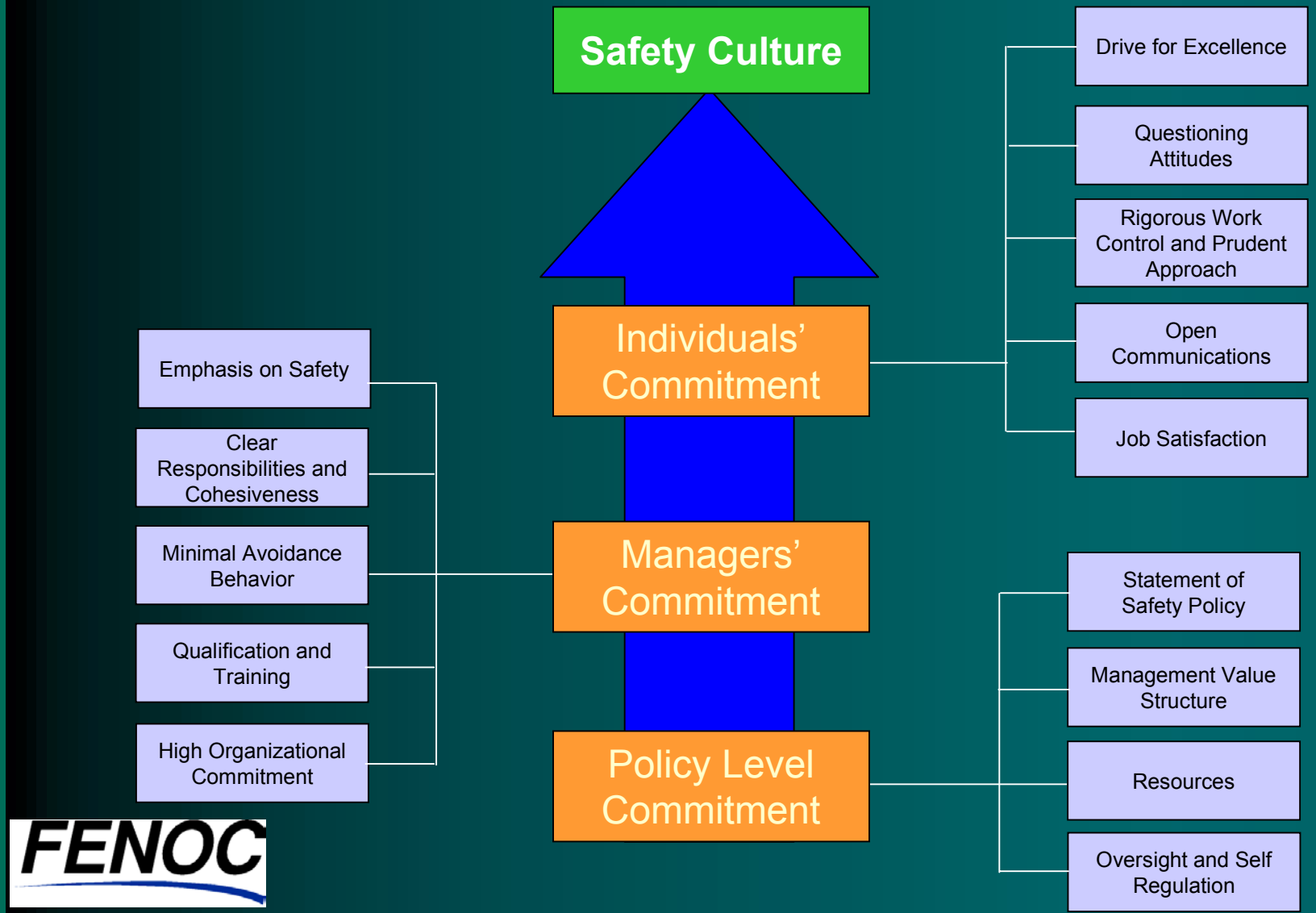
Safety Culture -- FENOC Model



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Safety Culture

Completed Actions

- **Policy Level Commitment**
  - Policy on Safety Culture
  - FENOC Values, Mission, and Vision
  - Business Plan Focus Areas
  - Reviewed Incentive Programs
  - FENOC Corporate Organizational structure changes
  - CEO of FirstEnergy established safety commitment

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Safety Culture

Completed Actions

- **Managers' Commitment**
  - Management Technical Competence
  - Strong Manager involvement in restart activities
  - Set new standards for management ownership
  - Management Observation Program

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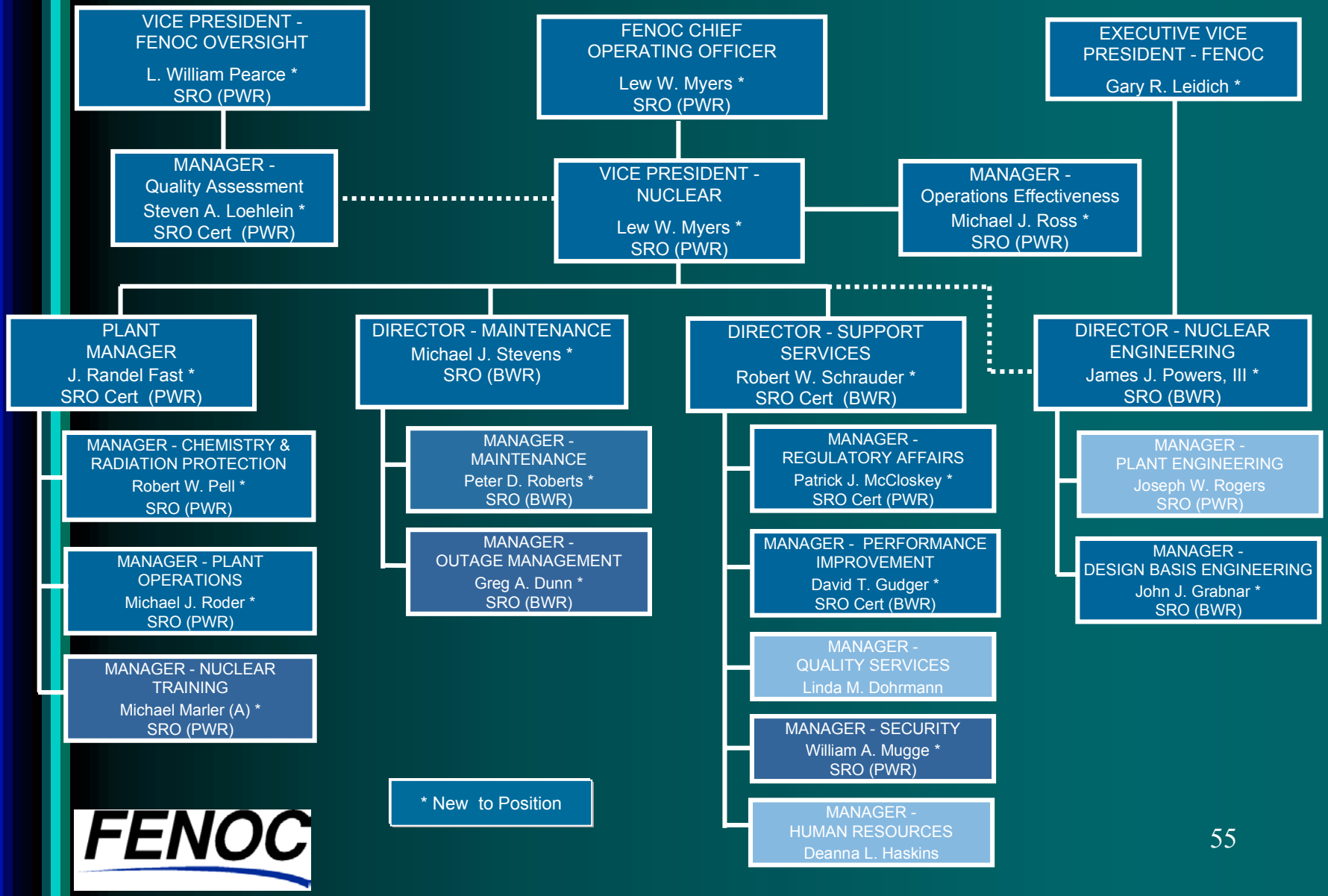
Technical Competence



Safety Culture

Completed Actions

- **Individuals' Commitment**
  - Supervisor Evaluations
  - New Safety Competencies in employee appraisal process
  - Town Hall and 4-C meetings with employees
  - Monthly All-Hands meetings
  - Strengthened Questioning Attitude
    - Improved Pre-Job Briefings
    - Improved Operator ownership
    - Demonstrated willingness to drive work activities to high industry standards

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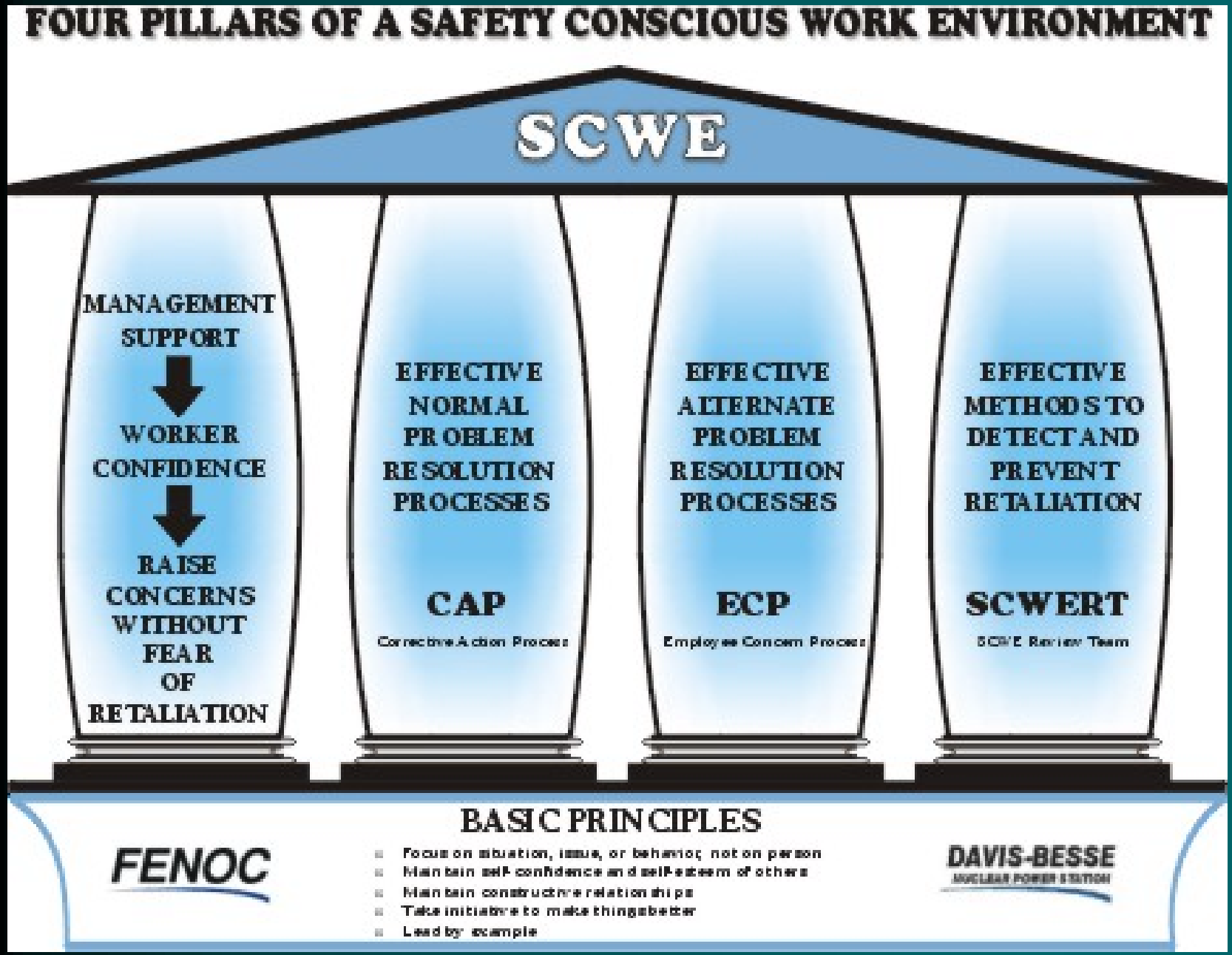
FOUR PILLARS OF A SAFETY CONSCIOUS WORK ENVIRONMENT
SCWE
MANAGEMENT SUPPORT
WORKER CONFIDENCE
RAISE CONCERNS WITHOUT FEAR OF RETALIATION
EFFECTIVE NORMAL PROBLEM RESOLUTION PROCESSES
CAP
Corrective Action Process
EFFECTIVE ALTERNATE PROBLEM RESOLUTION PROCESSES
ECP
Employee Concern Process
EFFECTIVE METHODS TO DETECT AND PREVENT RETALIATION
SCWERT
SCWE Review Team
BASIC PRINCIPLES
FENOC
Focus on situation, issue, or behavior; not on person
Maintain self-confidence and self-esteem of others
Maintain constructive relationships
Take initiative to make things better
Lead by example
DAVIS-BESSE

Safety Conscious Work Environment

Management Support / Worker Confidence

- Issued FENOC Policy on Safety Conscious Work Environment
- Site Vice President has met with 400 employees in groups of about 15 to reinforce management support
- Trained all Managers and Supervisors on Safety Conscious Work Environment
- Trained Operators on Safety Conscious Work Environment

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Safety Conscious Work Environment

Corrective Action Process

- Important to have problems identified and effectively resolved
- Important that employees feel the problems they are identifying will be resolved

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Safety Conscious Work Environment

Employee Concerns Program

- Program became effective early this year
- New experienced manager
- Reports directly to the Vice President of Oversight
  - Independent of Site Management
- Protection of confidentiality
- Four full-time independent investigators

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Safety Conscious Work Environment

Review Team

- Chartered to review pending action dealing with people
- Team made up of top-level managers, Human Resources and Legal
- Team oversaw contractor reduction effort
- Team actively looks for issues which may even give the perception of discrimination

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Safety Culture and Safety Conscious Work Environment

Conclusions

- Improved performance seen
- Additional employee meetings and management oversight to achieve further improvement
- Continued management assessments of performance
- Continued independent assessments

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Integrated Schedule Progress

Mike Stevens
Director - Work Management

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Integrated Schedule Progress

Critical Path Milestones for Fuel Reload

- Fill the Reactor Cavity
- Inspect the reactor
- Return Train 1 to operable status
- Complete readiness review for fuel re-load
- Plant equipment ready for fuel re-load activities January 17, 2003
- Core reload

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Integrated Schedule Progress

Critical Path Milestones for Containment Testing

- Install and bolt the reactor head
- Complete Emergency Sump Strainer
- Complete Decay Heat Valve Pit
- Fill and vent the Reactor Coolant System
  - First opportunity to perform a thorough examination of Reactor Coolant System integrity
- Perform Integrated Leak Rate Test on Containment

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Integrated Schedule Progress

Critical Path Milestones for Reactor Coolant System Testing

- Complete readiness review for Normal Operating Pressure and Normal Operating Temperature
- Pressurize reactor to < 250 pounds per square inch and perform Reactor Coolant System inspection
- Non-nuclear heat-up
  - Operate for 7 days at Normal Operating Pressure and Normal Operating Temperature
- Conduct Reactor Coolant System Inspection
- Cool down and inspect under vessel nozzles

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Closing Remarks

Lew Myers
FENOC Chief Operating Officer

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