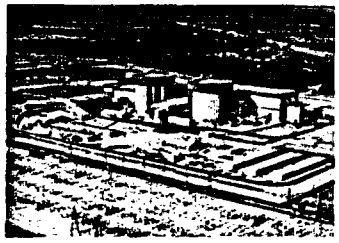
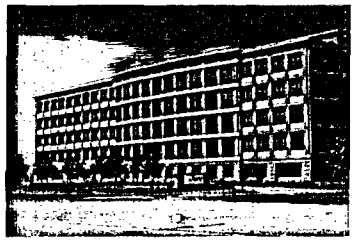
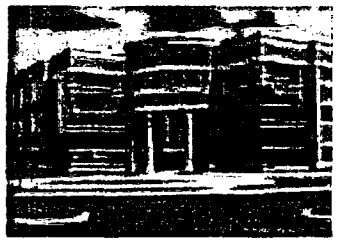
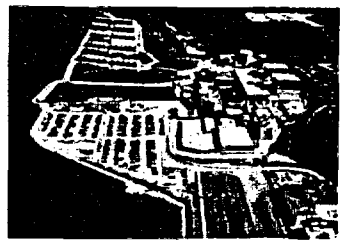
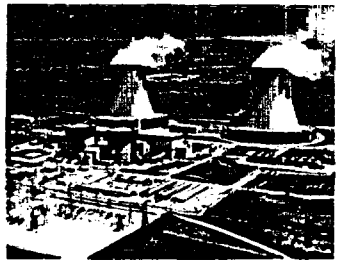
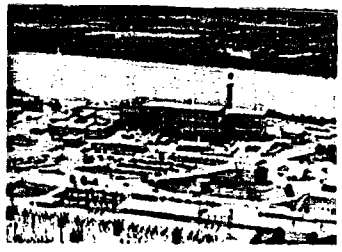
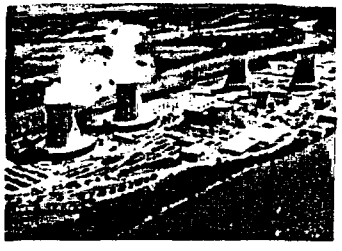
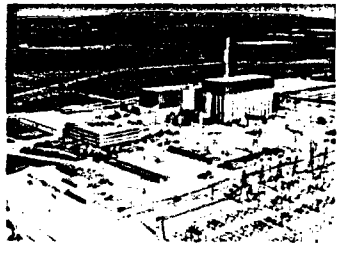
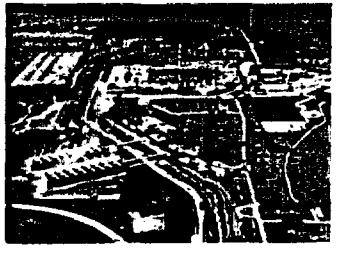
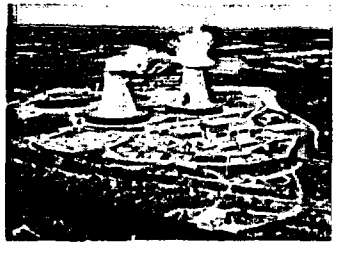







Exelon Nuclear State of the Fleet Presentation

July 30, 2003


Enclosure 2

State of the Fleet Presentation

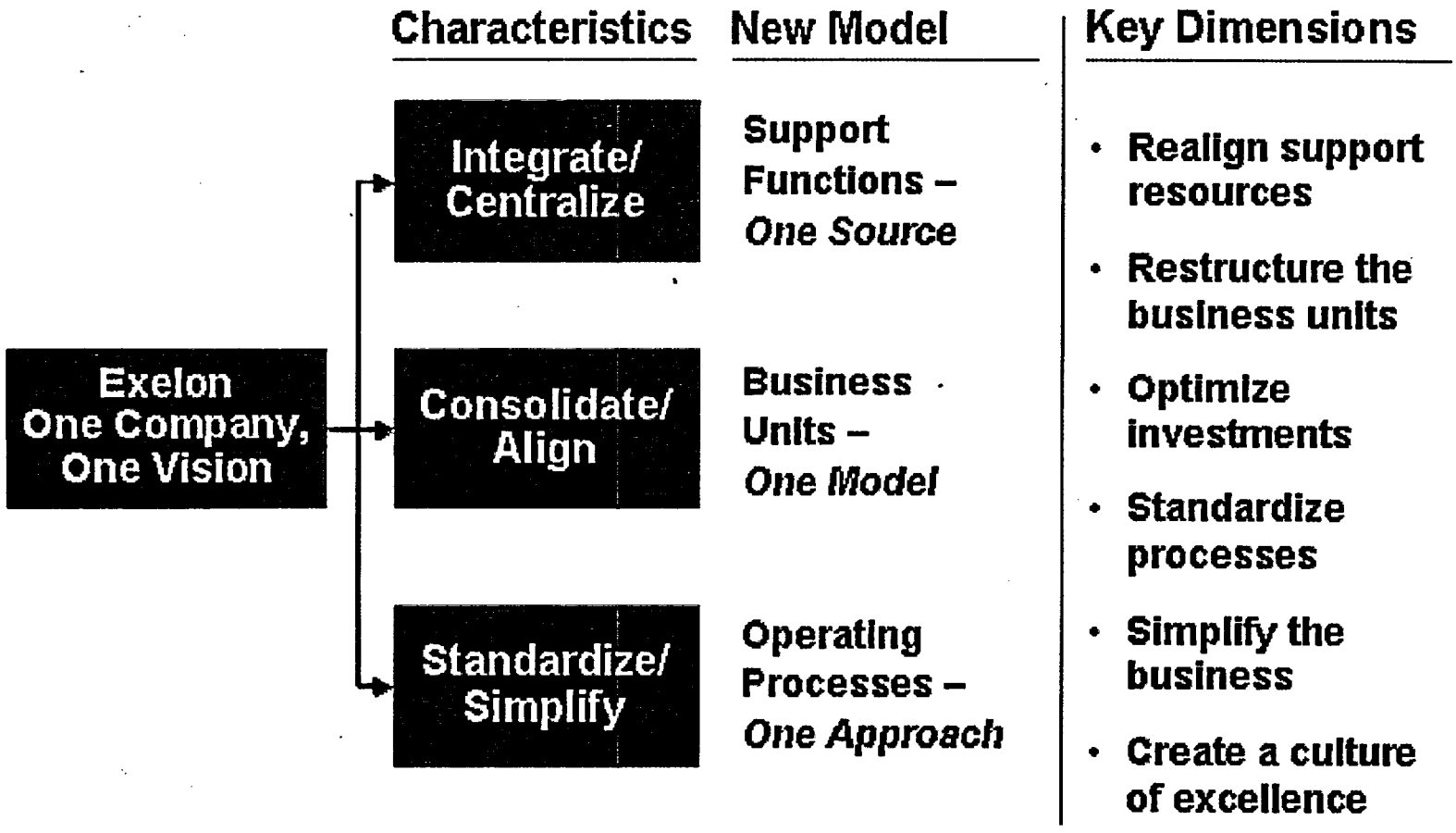
Introductions and Opening Remarks	Jack Skolds
The Exelon Way Initiative	Jack Skolds
Fleet Performance Summary	Chip Pardee
Equipment Reliability	Bill Bohlke
Fuel Reliability	Bill Bohlke
Oyster Creek Update	Bill Levis
Regulatory Performance	Jeff Benjamin
Nuclear Oversight Perspectives	Bob Braun
Closing Remarks	Jack Skolds

The Exelon Way Initiative

Jack Skolds

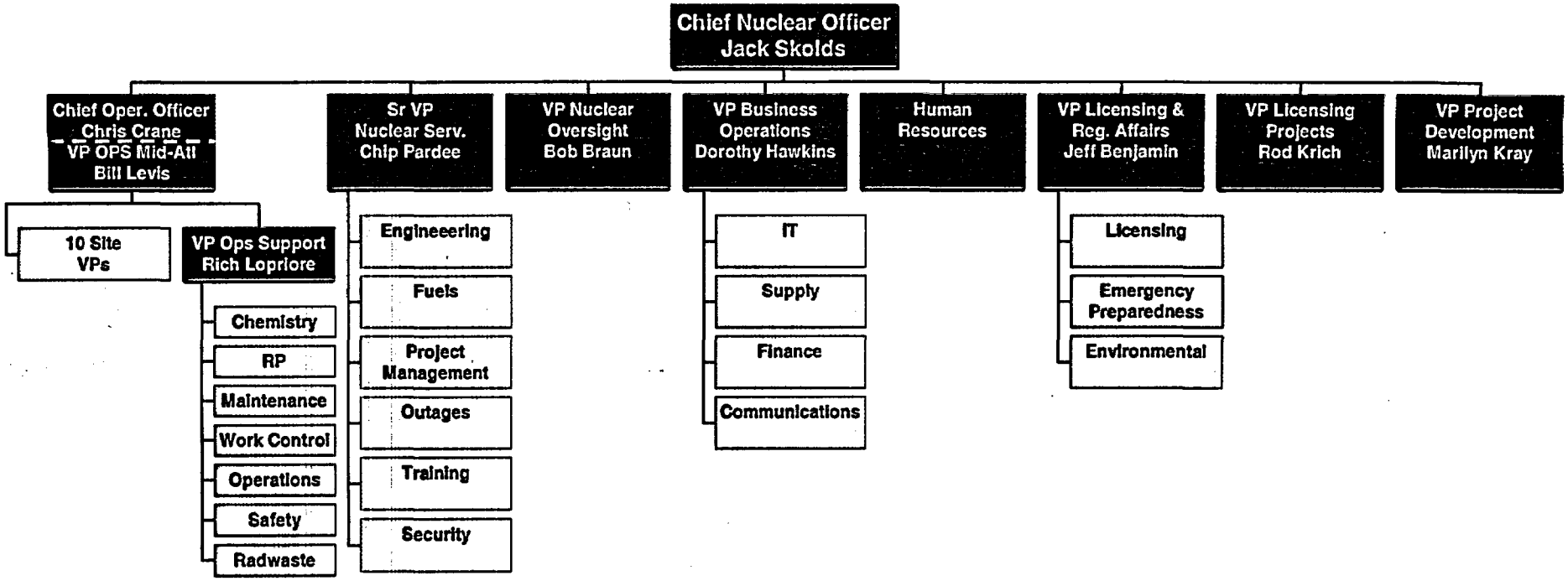
Chief Nuclear Officer

Exelon Way Model



Exelon Nuclear High-Level Organization

Effective By Aug. 1, 2003



Exelon Nuclear Focus Areas

- Operational Execution and Safety
- Equipment Reliability
- Fuel Reliability

Fleet Performance Summary

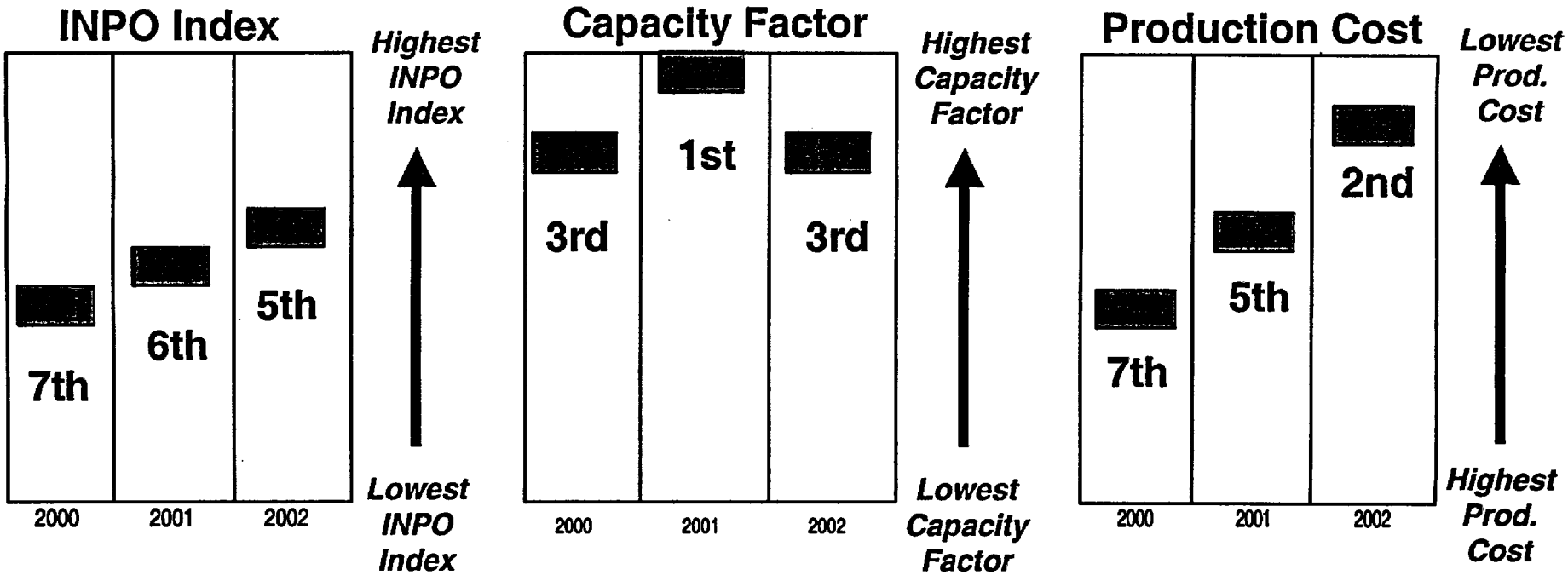
Chip Pardee
Senior Vice President
Nuclear Services

Exelon Nuclear Performance Overview

- **Continued Solid Performance**
- **Key Accomplishments**
  - Integration of Operational Fundamentals
  - Implementation of Management Model
  - Talent Management
- **Continuing Areas of Focus**
  - Operational Execution and Safety
  - Change Management
  - Collective Radiation Exposure
  - Technical Issue Resolution
  - Equipment Reliability
  - Fuel Reliability
  - Oyster Creek
  - Emergency Preparedness

Opportunity for Improvement – Exelon Nuclear

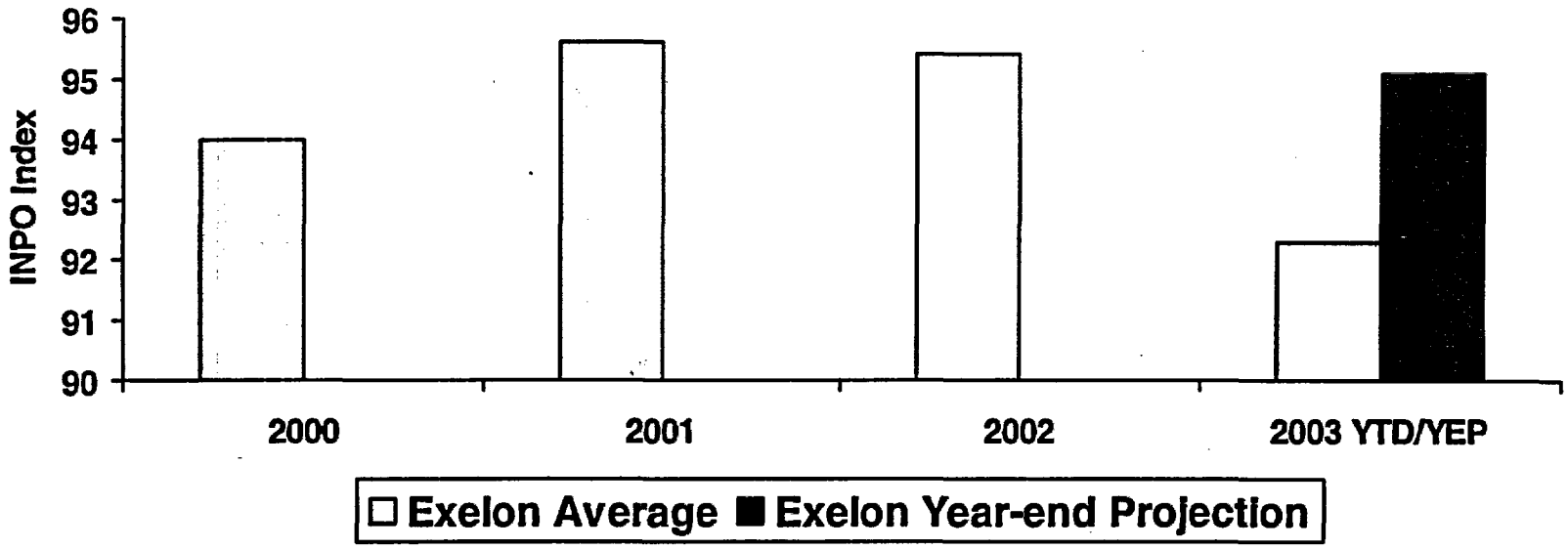
Of the 11 large nuclear fleet operators, Exelon Nuclear was



Continued focus on operational excellence, equipment reliability, refueling outages, and forced loss rate

Operational Execution and Safety

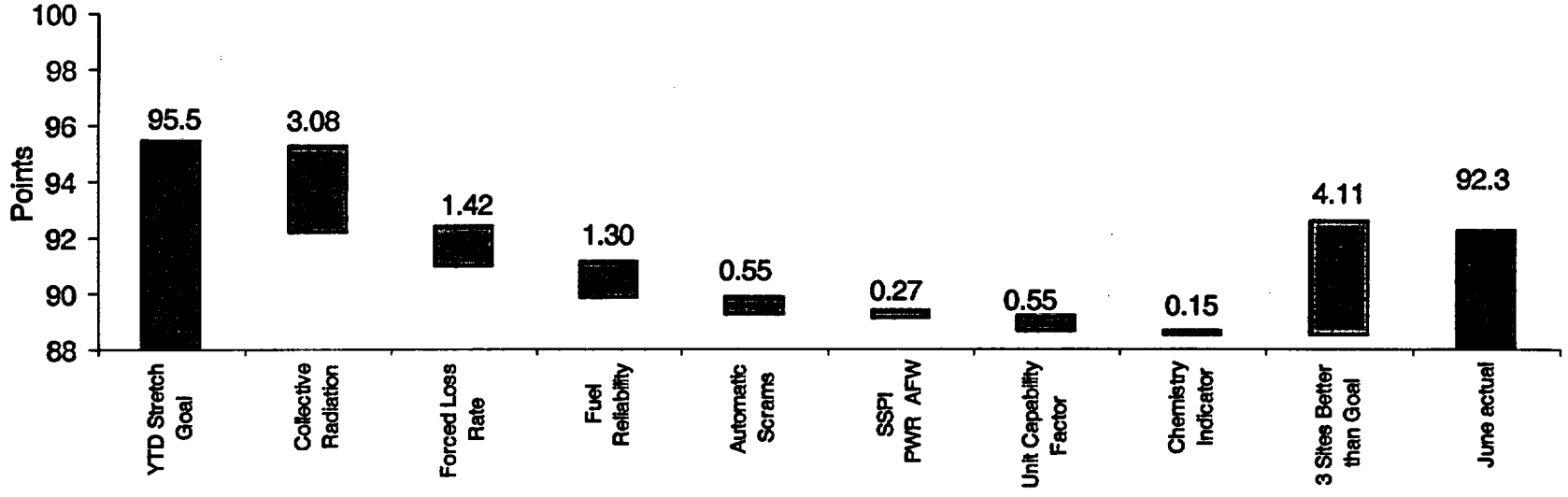
INPO Performance Index



	Quartile Values	Exelon Plants
1st Quartile	99.1	BW-2, LGS-1, LGS-2, BY-2, LA-1
2nd Quartile	95.7	BY-1, PB-3, BW-1, OC-1, DR-2
3rd Quartile	87.7	PB-2, LA-2, CL, TMI-1, DR-3
4th Quartile	<87.7	QC-2, QC-1

Operational Execution and Safety

INPO Performance Index



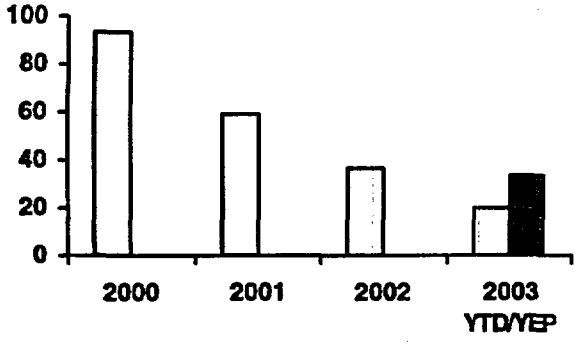
Adverse trend is primarily due to:

- Collective radiation exposure
- Fuel Defects
- Forced Loss Rate and Capability Factor

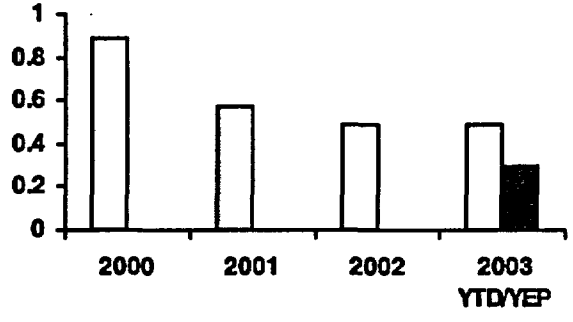
- **Actions to Address Negative Trend**
- Collective Radiation Exposure Initiative
- Actions to address Forced Loss Rate, and Capability Factor performance issues
- Resolving fuel integrity issues

Operational Execution and Safety
Human Performance

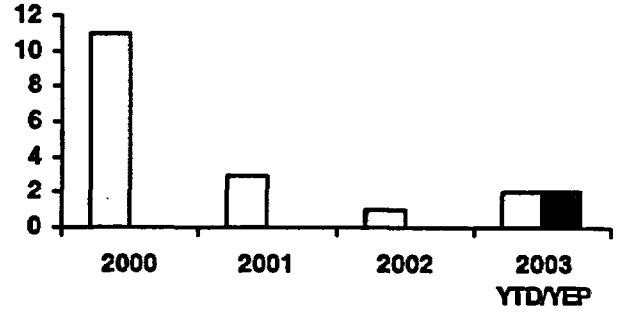
Station Event Clock Resets



OSHA Recordable Accident Rate
Per 200,000 person-hours



Human Error Scrams



Build on Performance Gains

Reinforce the Fundamentals of Safe Nuclear Operation

Observation Program Aligned With Fundamentals

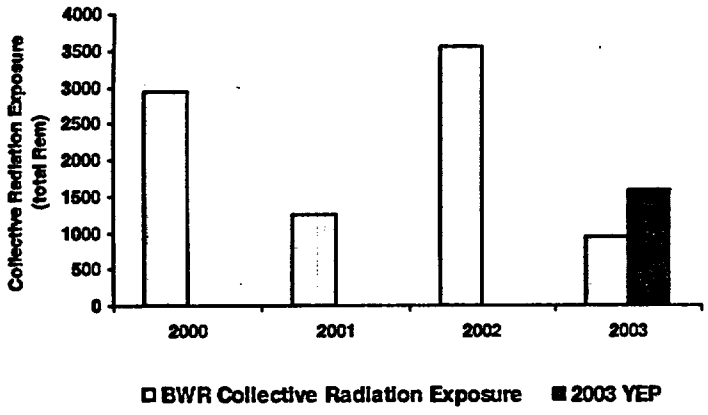
Implemented Corrective Action Program Fundamentals Trending

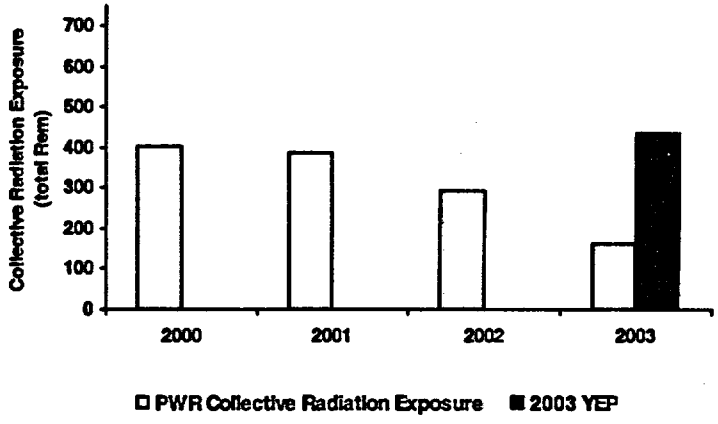
Conducting Supervisory Training Modules

Revised Operating Experience Process

Operational Execution and Safety

Collective Radiation Exposure



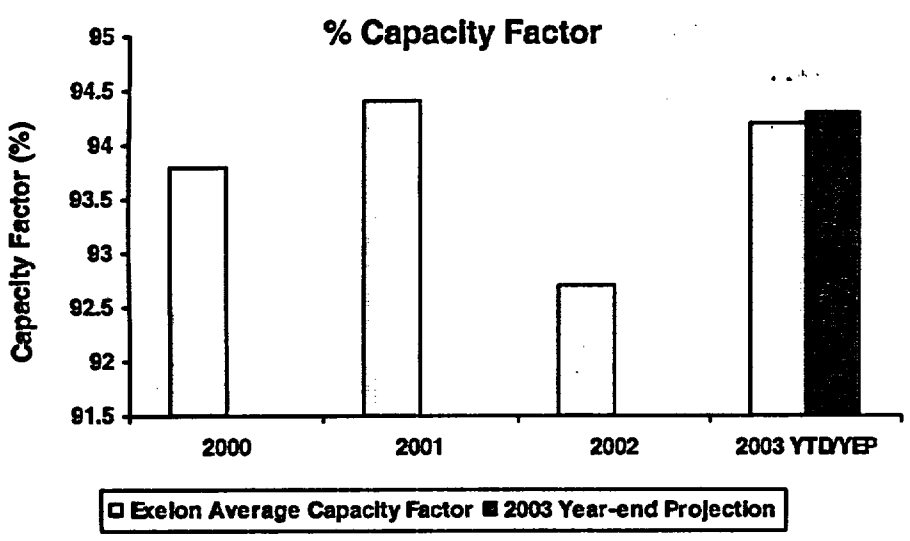


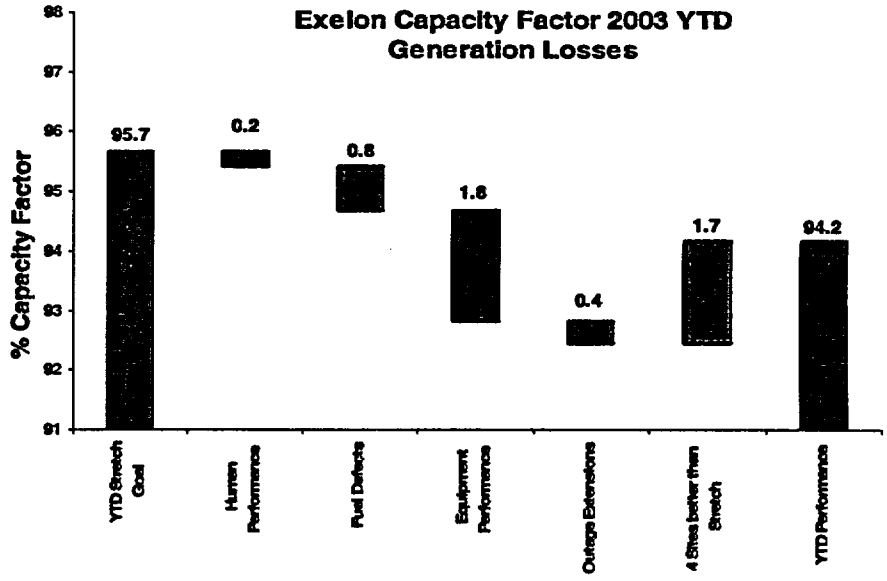
Radiation Dose Reduction Initiative

- Permanent Shielding
- Hydrolaze Taps
- Remote Monitoring Technology Pilot at Dresden
- Accelerated Cobalt Source Term Reduction for Quad Cities
- Chemical Decon for Quad Cities
- Strategy for NMC Re-application Following Chemical Decon
- PWR Zinc Injection
- BWR Ultrasonic Fuel Cleaning Technology

Generation Commitment

Capacity Factor





Gaps:

- Forced Outages and Downpowers Due to Equipment Reliability Issues
- Fuel Integrity Issues
- Quad Cities Steam Dryer
- Dresden Hydrogen Leak

Actions to Address Negative Trend:

- Validating Actions in Equipment Reliability Program to Ensure Adequacy
- Resolving Fuel Integrity Issues

Technical Issue Resolution

- **Issues**
  - Limerick-2 Safety Relief Valves
  - Dresden-3 High Pressure Coolant Injection
  - Braidwood-1 Aux Feed Pump
  - Quad Cities-2 PORV
  - Quad Cities-2 Dryer
- **Lessons Learned / Insights**
  - Enhancing Technical Basis for Critical Decision Making
  - More Aggressive / Complete Use of Technical Experts
  - More Effective Coordination at Senior Team Level on Critical Decisions
  - Sharpen Focus on Plant Events
  - Licensing / Engineering Alignment on Emerging Regulatory Issues
  - More Structured Communication with NRC

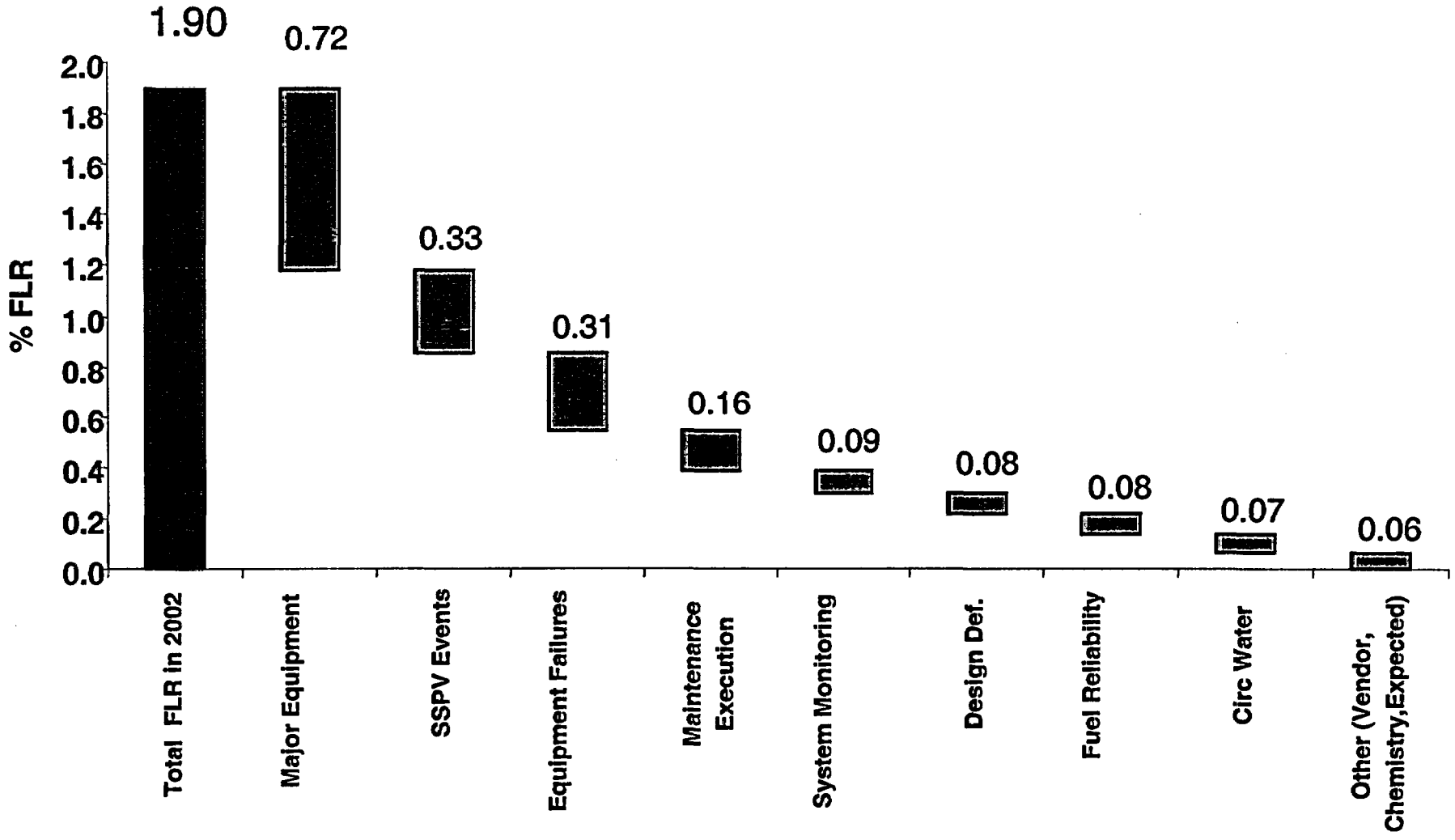
Equipment Reliability

Bill Bohlke

Senior Vice President

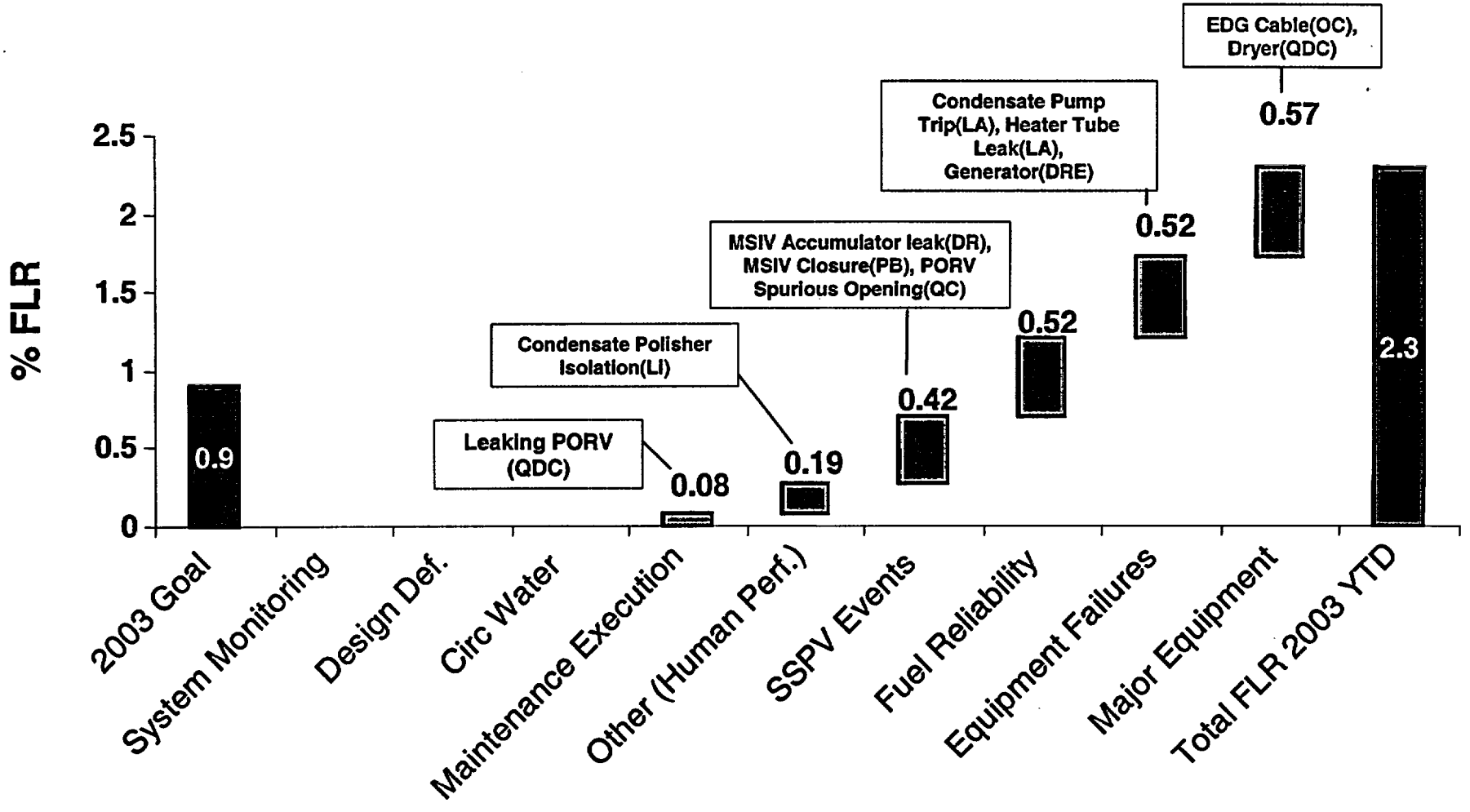
Equipment Reliability

2002 Forced Loss Rate Contributors



Equipment Reliability

2003 Forced Loss Rate Contributors Through June



Equipment Reliability Challenges

- Equipment Reliability Process
  - o What has been completed?
  - o How are we doing?
  - o What lies ahead? 2004 - 2006
- Long Term Planning and Assessment Management Strategies
- Fuel Integrity Issues
- Summary of Challenges

Equipment Reliability

- **What Has Been Completed So Far**
  - System Single Point Vulnerability Reviews
  - Scram Derate Challenge Reviews
  - System Performance Monitoring Plans (Complete Except Oyster Creek, Due 8/30/03)
  - 154 PCM Templates in Production
  - Obsolescence Program Developed to Implement INPO AP-913 Process
  - Long Term Asset Management (LTAM) Strategies Issued for 20 Major Components
  - Process Developed to Track Unexpected Corrective Maintenance (CM-U)

Equipment Reliability
Improvements Completed in 2002

- Switchyard / Main Power
  - BYR - Main Power Transformer Replacement
  - CLN - Main Power Transformer Sudden Pressure Relay
- Turbine / Generator
  - BWD - Generator Stator Replacement
  - CLN - Extraction Steam Bellows Replacement
  - CLN – Generator Rewind
  - DRE/LAS – Hydrogen Cooler Replacement
  - LIM/QDC - EHC Isolation Valves
- Circulating Water/ Condensate
  - LAS/DRE – Condenser Chemical Cleaning
  - LIM – Cooling Tower Wind Vanes
  - PBM - Condensate Pump Motor Replacement
  - TMI - Chem Addition for CW
- Reactor Recirculation/Feed Water
  - LAS - Digital Recirc & Feedwater
  - PBM - Feed Water Heater Replacement
- Dose Reduction
  - LIM/PBM/OYC - Drywell Permanent Shielding
  - PBM - Zinc Injection
- Additional Improvements
  - Various - Circuit Card Replacement
  - OYC - Replaced Main Steam Line Low Pressure Sensors With Analog Trip System
  - OYC – Noble Metal Chemistry
  - OYC - Process Computer Upgrade
  - QDC – 250 VDC Cable Replacement

Equipment Reliability – How are we doing?

- **Performance Driven by Latent Failures – Process-driven Improvements Noted**
- **Fleet Capacity Factor**
  - 2002 actual 92.7%
  - 2003 goal 95.3% (currently @ 94.6% after 2nd Qtr)
  - Top Industry quartile 93.5%
- **Forced Loss Rate Performance**
  - 2002 actual 1.9%
  - 2003 goal 1.1% (currently @ 2.3% after 2nd Qtr)
  - Top Industry quartile 0.9%
- **Exelon's Equipment Reliability Indicator Trend Has Flattened in 2nd Quarter After Improved 1st Quarter**

Equipment Reliability – what lies ahead

- Complete Latent Failure Reviews
- Complete SDC/SSPV Actions Resulting From Site Reviews
- Continue to Implement System Performance Monitoring Plans
- Pursuing Automation of Advanced "Early Detection" Technologies to Identify Degrading Systems & Components
- Identification & Confirmation of Critical Spares
- Continue to Improve PCM Templates Using Learnings From Events (Internal and External) and CR Trending

Equipment Reliability – what lies ahead

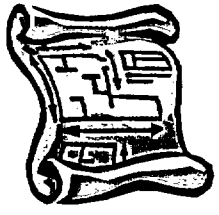
- Implement Long Term System and Component Plans Into PHC/MCIP Process
- Work LTAM Strategies Into MCIP Process
- Review of SDC Results to Address Recent Passive Equipment Failures That Lead to Significant MW Losses (Inst. Tubing)
- Drive Unplanned Corrective Maintenance (CM-U) to Zero
- Continued Refinement of On-line Maintenance Techniques
- Related Activity: Further Improvements in Maintenance Optimization

Equipment Reliability
Improvements Planned for 2003 -2006

- Switchyard / Main Power
  - All sites - MPT Sudden Pressure Relays
  - DRE/QDC - MPT Replacement
- Turbine / Generator
  - BWD - Extraction Steam Bellows Replacement
  - BYR – DEHC Replacement
  - LAS - EHC Filtration Upgrade
  - LAS - Generator Overhaul
  - LIM - Turbine Thrust Bearing Wear Detector
  - PBM - Moisture Separator Upgrade
  - QDC – EHC Control Replacement
- Emergency Diesel Generator
  - DRE - Generator Refurbishment
  - LIM – Replace Cylinder Liners
- Reactor Vessel & Internals
  - CLN – Shroud Repair
  - DRE - Jet Pump Beam Replacement
  - DRE - Jet Pump riser Brace
  - QDC – Jet Pump Sensing Line
- Circulating Water / Condensate
  - BWD - CO2 Injection Into Circ. Water
  - BYR - Replace Condenser Expansion Joint
- Additional Improvements
  - Various - PMCEI Card Replacement
  - BYR/DRE - Air Compressor Replacement
  - CLN – Replace DC Ground Detector
  - DRE - Re-Tube LPCI Heat Exchanger
  - LAS - Plant Process Computer Replacement
  - LAS - Main Control Room Digital Recorders
  - OYC – Noble Metal Chem. Addition
  - QDC – Recirc. Control System
  - TMI - Breaker Replacement
  - TMI - Strip Chart Recorder Replacement

Long Term Asset Management Strategy

Outage Length Strategy



LTAM Strategies

O&M/Capital Projections

When to Rebuild or Replace Asset

MCIP

Fuel Reliability

Bill Bohlke

Senior Vice President

Fuel Integrity

- **Issue**
  - 30 Percent of U.S. Units Report Operating With Fuel Defects
  - Exelon Has Seven Units With Fuel Defects
- **Initiative - Fuel Reliability Improvements**
  - Nuclear Design Improvements
  - Mechanical Design Improvements
  - Manufacturing and Material Improvements
  - Operational Reviews
  - Fuel Handling/FME Controls Improvements
  - Water Chemistry Improvements
  - Additional Fuel Inspections
  - Vendor Oversight Improvements

Oyster Creek

Bill Levis

Vice President, MidAtlantic Operations

Oyster Creek Update

- Strike Commenced May 22, 2003
- Contingency Plan Implemented Quickly and Successfully
- Plant Is Being Safely Operated
- Staffed by Non-represented OC and Other Exelon Employees
- Critical Work Is Being Performed
- Contract Negotiations Are Proceeding

Oyster Creek Update
Deferred / Rescheduled Work

- Focused Area Self-assessments by the Line
- Continuing Training
- Modifications
- Support Activities
  - Corrective action program backlog
  - Engineering Quality Review Team on hold
  - Scorecards
  - Procedure enhancements

Oyster Creek Update
Focus Areas

- Event-free Operations
- Workforce qualification and fatigue
- Enhanced Oversight
- Development of robust Reintegration Plan

Regulatory Performance

Jeff Benjamin
Vice President
Licensing and Regulatory Services

NRC Performance Indicators

		Mid-West ROG											Mid-Atlantic ROG					
	INDICATOR TITLE	BRW		BYR		CPS	DRE		LAS		QDC		LGS		OCK	PB		TMI
		U-1	U-2	U-1	U-2	U-1	U-2	U-3	U-1	U-2	U-1	U-2	U-1	U-2	U-1	U-2	U-3	U-1
REACTOR SAFETY	**Initiating Events Cornerstone**																	
	Unplanned Scrams per 7,000 Critical Hours																	
	Unplanned Scrams with Loss of Normal Heat Removal																	
	Unplanned Power Changes per 7,000 Critical Hours																	
	Mitigating Systems Cornerstone																	
	Safety System Unavailability	HPSI		HPSI		HPCS	HPCI		HPCS		HPCI		HPCI		None Req'd	HPCI		HPI
		AFW		AFW		RCIC	None Required		RCIC		RCIC		RCIC		None Req'd	RCIC		EFW
		RHR		RHR		RHR	RHR		RHR		RHR		RHR		RHR	RHR		RHR
		EDG		EDG		EDG	EDG		EDG		EDG		EDG		EDG	EDG		EDG
	Safety System Functional Failures																	
	Barrier Integrity Cornerstone																	
	Reactor Coolant System Specific Activity																	
	Reactor Coolant System Leakage																	
	Emergency Preparedness Cornerstone																	
	Drill, Exercise and Actual Event Performance																	
	Emergency Response Organization Drill Participation																	
	Alert and Notification System Reliability																	
RADIATION SAFETY	**Public Radiation Safety Cornerstone**																	
	RETS/ODCM Radiological Effluent Occurrence[1]																	
	Occupational Radiation Safety Cornerstone																	
	Occupational Exposure Control Effectiveness																	
SAFEGUARDS	**Physical Protection Cornerstone**																	
	Protected Area Security Equipment Performance Index																	
	Personnel Screening Program Performance																	
	Fitness-for-Duty / Personnel Reliability Program Performance																	

NRC Inspection Findings

	Mid-West ROG											Mid-Atlantic ROG					
Inspection Area	BRW		BYR		CPS	DRE		LAS		QDC		LGS		OCK	PB		TMI
	U-1	U-2	U-1	U-2	U-1	U-2	U-3	U-1	U-2	U-1	U-2	U-1	U-2	U-1	U-2	U-3	U-1
Initiating Events Cornerstone																	
2Q/2003						G	G				G						
1Q/2003						NCV	NCV			G	G	G	G	G			
4Q/2002	G	G									G		G		G	G	
3Q/2002	G				G	G	G	G	G	G	G	G	G				
Mitigating Systems Cornerstone																	
2Q/2003				G		G	W			G	G	G	G		G	G	
1Q/2003			G	G		G	G			G	G			G	G	G	G
4Q/2002	G	G	G	G	G	G	G	G	G	G	G			G	G	G	G
3Q/2002	W	G	NCV	NCV	G	G	G	G	G	G	G	G	G	G	G	G	
Emergency Preparedness Cornerstone																	
2Q/2003																	
1Q/2003												G	G				
4Q/2002						G	G								W	W	
3Q/2002																	
Barrier Integrity Cornerstone																	
2Q/2003			G	G	G		G				G	G	G	G			
1Q/2003			G							G				G	G		
4Q/2002			G		G									G			G
3Q/2002			G		G			G	G								
Occupational Radiation Safety Cornerstone																	
2Q/2003								G	G								
1Q/2003					G									G			G
4Q/2002																	
3Q/2002					G												G
Public Radiation Safety Cornerstone																	
2Q/2003																	
1Q/2003																	
4Q/2002																	
3Q/2002								G	G								
Physical Protection Cornerstone																	
2Q/2003																	
1Q/2003																	
4Q/2002																	
3Q/2002						G	G										

Regulatory Performance

- **Security**
  - Implementing NRC Orders
  - Assessing Necessary Changes for Revised Design Basis Threat
- **Emergency Preparedness Focus Areas**
  - Improving Kennett Square Performance
  - Maintaining Effective Offsite Interfaces
  - Maintaining ERO Performance / Proficiency
  - Completing Siren Upgrades
- **Continued Emphasis on Communication With Regions and Headquarters**

Nuclear Oversight

Bob Braun

Vice President

Nuclear Oversight

Nuclear Oversight

- NOS Organizational Realignment
- Exelon Way
  - o NOS Impact
  - o NOS Oversight of Implementation
- NOS Fleet-Wide Focus Areas
- Employee Concerns Program

Employee Concerns Program

- **Routinely Monitor All Areas of Workforce Concern**
  - Grievances
  - FFD Results
  - Employee Concerns Program (ECP)
  - NRC Allegations
  - EEO Charges
  - DOL Charges
- **Overall Program Health Improving**
  - SCWE Assessment Completed
  - ECP Contacts Increasing
  - External Contacts Decreasing
  - 9/02 Assessment Noted Strength in Widespread Program Knowledge
  - FASA Scheduled for 3Q03

Closing Remarks

Jack Skolds
Chief Nuclear Officer