

Harris Nuclear Plant

Nuclear Regulatory Commission - Region II Presentation

September 23, 2003



Introductory Comments

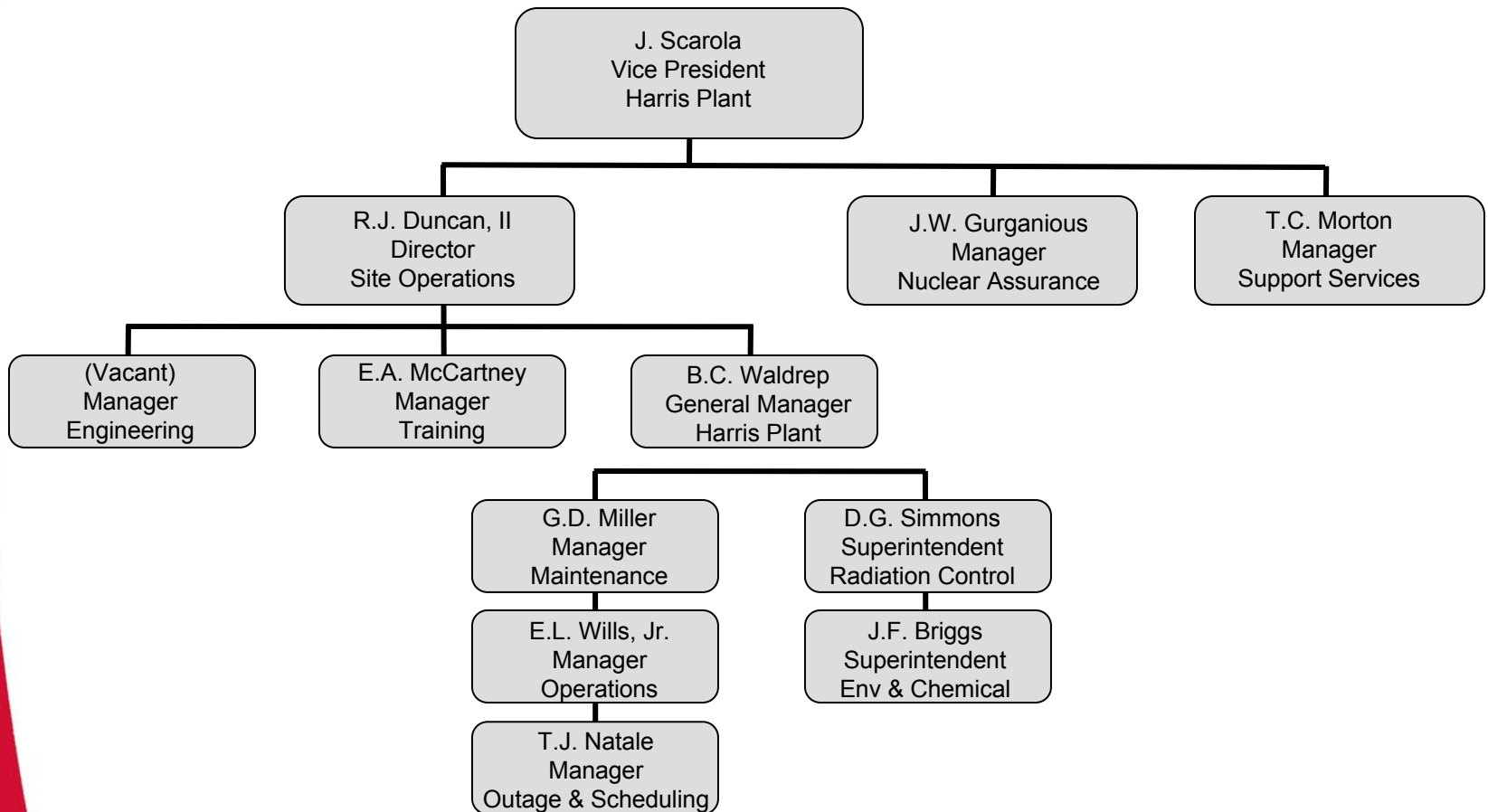
Jim Scarola



Agenda

- Plant Overview – Bob Duncan
- Reliability Improvement Initiative – John Dills
- Equipment Related Improvements – Garry Miller
- Performance/People and Risk-Related Improvements – Ed Wills
- Self Evaluation Program – Terry Morton
- Looking Ahead

Harris Organization



Harris Plant Overview

Bob Duncan



Harris

- 1999 Improvement Program
- “Above the Rim”
- Aggressive Goals Established
- Focus:
 - Human Performance
 - Equipment Reliability
 - Self Evaluation

Harris Plant Self-Evaluation

- Program Components:
 - Self-Assessment
 - Corrective Action
 - Operating Experience
 - Benchmarking
- Integrated Via Corrective Action Program
- Foundation For Continuous Improvement
- Led by Line Organizations



Commitments Realized

- Improve Nuclear Safety
- Industrial Safety
- Human Performance
- Plant Material Condition
- ZTEF Program
- ALARA
- Chemistry
- Security
- Spent Fuel Shipping
- Outage Planning/Execution

Commitments Realized

- Operational Focus
- OSI/PI
- Employee Development
- Operator Pipeline
- Diversity

Risk Reduction Programs

- Secondary Chemistry Improvements
- Zero Tolerance For Equipment Failure
- Fire Protection
- ALARA
- Emergency Planning
- Reactor Head Inspection
- Self Evaluation
 - Foreign Material Discovery
- Plant Security

Harris Plant Security

- NRC “Interim Compensatory Measures Order” (February 25, 2002)
- Facility Modifications
- Plant Equipment Upgrade
- Process/Procedure Changes
- Security Staffing & Training
- Plant Access Controls
- Coordination & Liaison With Federal, State & Local Agencies
- October 21-25, 2002, Tabletop Drills

Fire Protection

- Safe Shutdown Analysis Reconstitution
- Plant Modifications in Development
- Harris Team Communicating With Region II Inspectors
- In Touch With Industry Actions for Associated Circuits

Harris Nuclear Plant Performance Summary 2Q03

Strategic
Performance
Areas

Reactor
Safety

Radiation
Safety

Safeguards

Cornerstones

Initiating
Events

Mitigating
Systems

Barrier
Integrity

Emergency
Preparedness

Occupational
Radiation Safety

Public Radiation
Safety

Physical
Protection

Performance Indicators

Unplanned Scrams	Emergency AC Power System Unavailability	Reactor Coolant System Specific Activity	Drill / Exercise Performance	Occupational Exposure Control Effectiveness	RETS/ODCM Radiological Effluents	Protected Area Equipment
Scrams With Loss of Normal Heat Removal	High Pressure Injection System Unavailability	Reactor Coolant System Leakage	ERO Drill Participation			Personnel Screening Program
Unplanned Power Changes	Emergency System Unavailability		Alert and Notification System			FFD / Personnel Reliability Program
	Residual Heat Removal System Unavailability					
	Safety System Functional Failure					

Significant Inspection Findings

2Q/2003	LTA Procedure AFW Actuation	Loss of CCW LTA 50.59	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	FFD – Failure to withhold access
1Q/2003	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter
4Q/2002	No Findings this Quarter	Fire Protection 9 URIs	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter
3Q/2002	No Findings this Quarter	RWST L/T Flooding	No Findings this Quarter	No Findings this Quarter	No Findings this Quarter	Air Monitors Inst. Calibration	No Findings this Quarter

HNP NRC Commitments

Inspections With No Findings

2002:

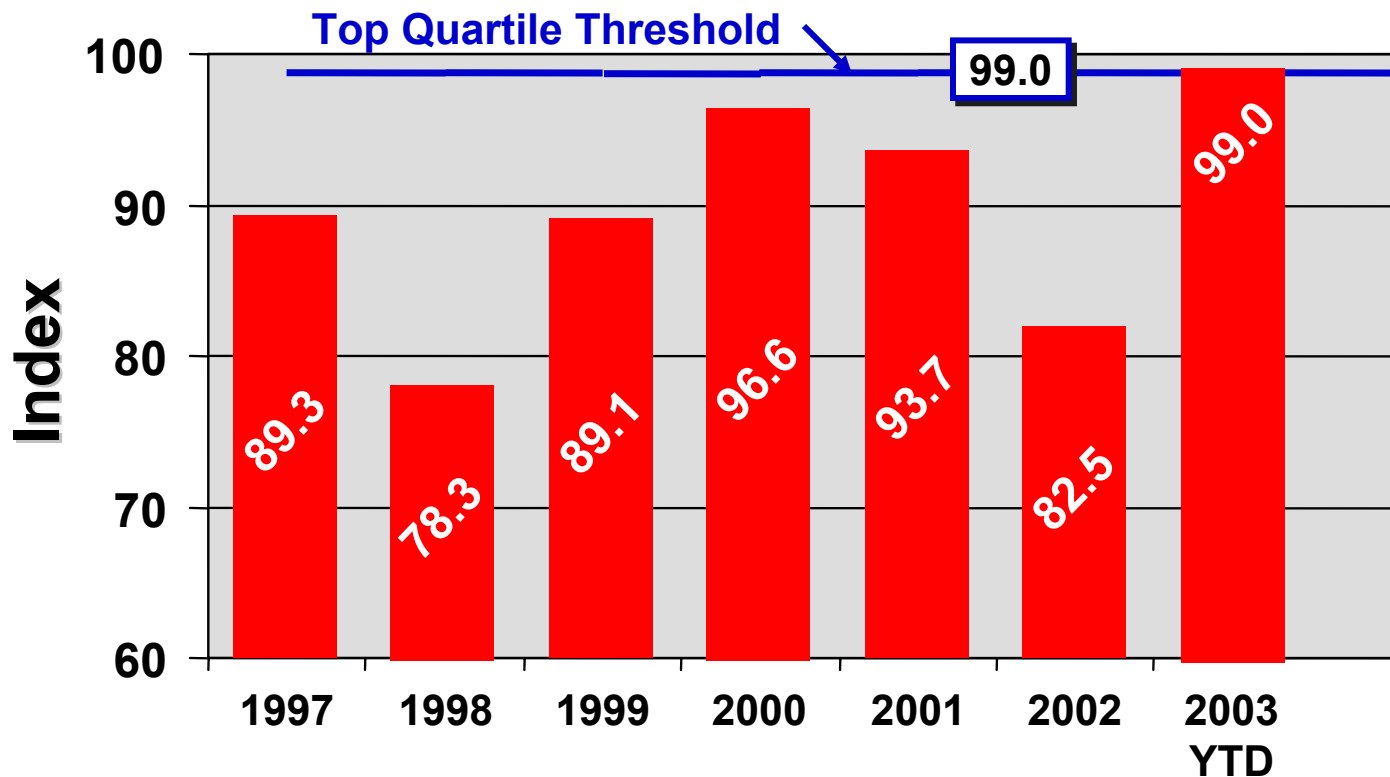
- SSDI
- EP
- Modifications/50.59
- Maintenance Rule
- Operator Training

2003:

- PI&R
- Heat Sink
- Security – ICM Implementation
- Outage – RP
- Outage - ISI
- Outage – Vessel Head / Boric Acid Control
- Simulator

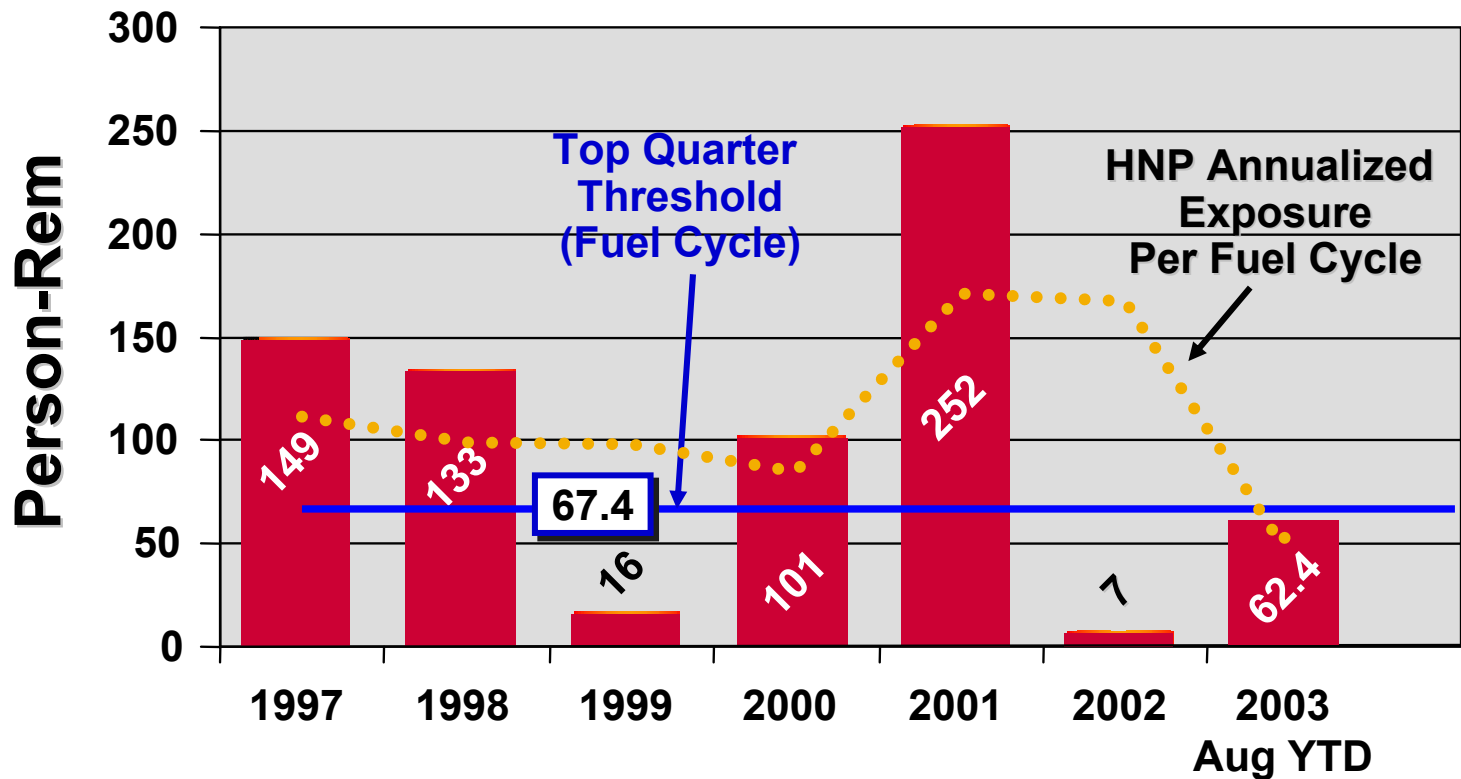
Key Performance Indicators

INPO Index



Key Performance Indicators

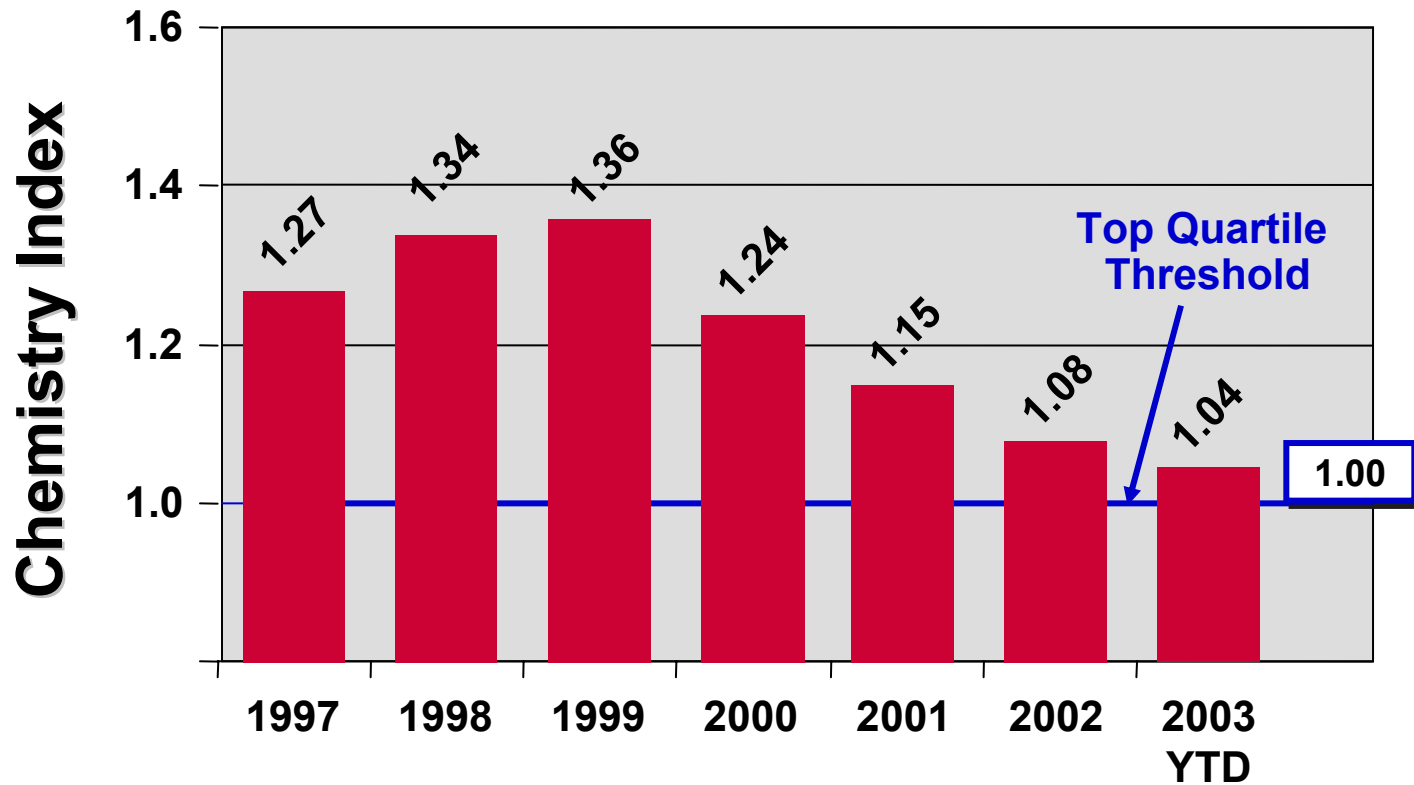
Radiation Exposure (Person-Rem)



18 Month Actual is Currently 46.1 Rem

Key Performance Indicators

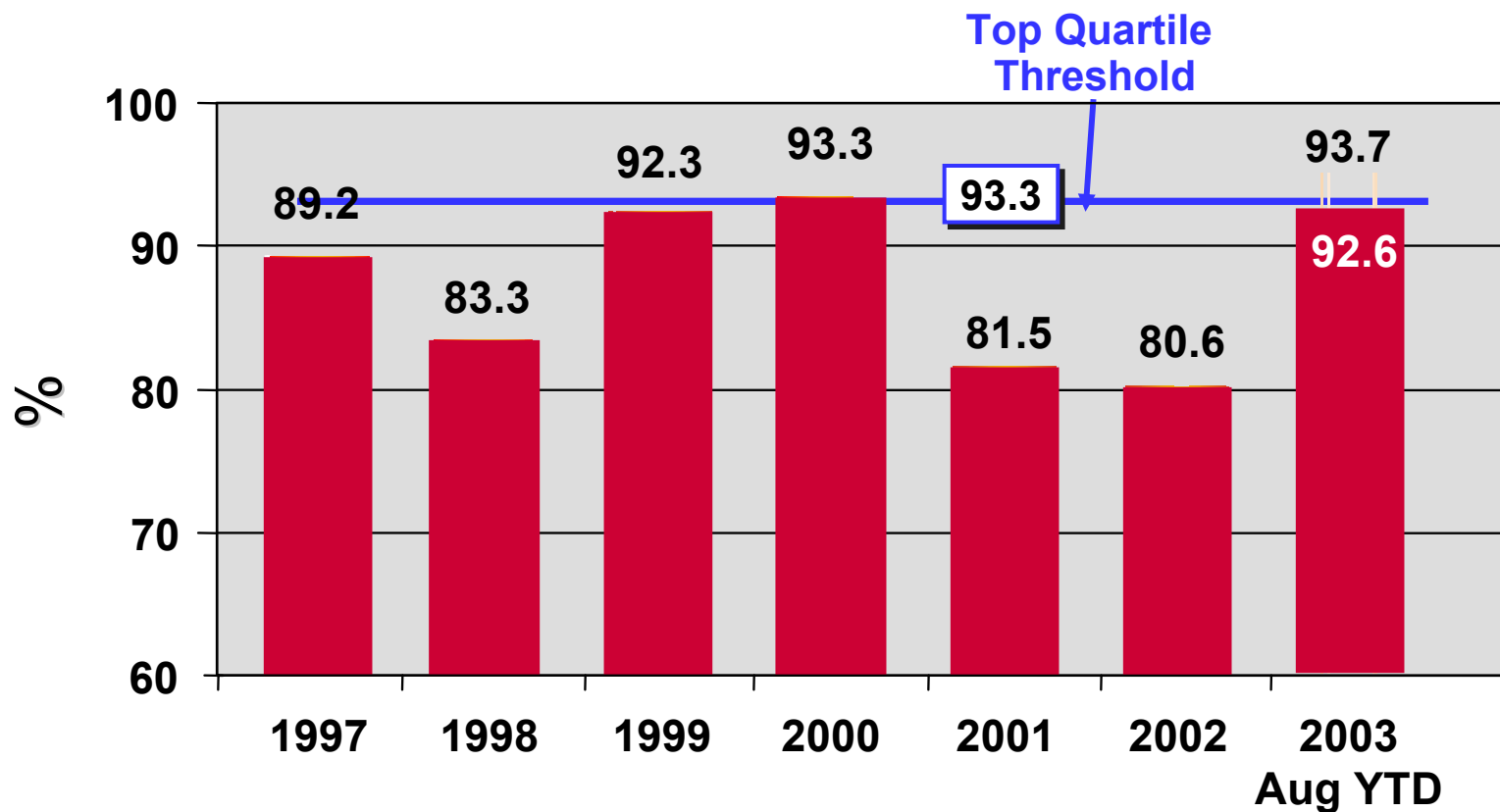
Chemistry Index (Fuel Cycle)



2003 YTD Actual is Currently 1.00

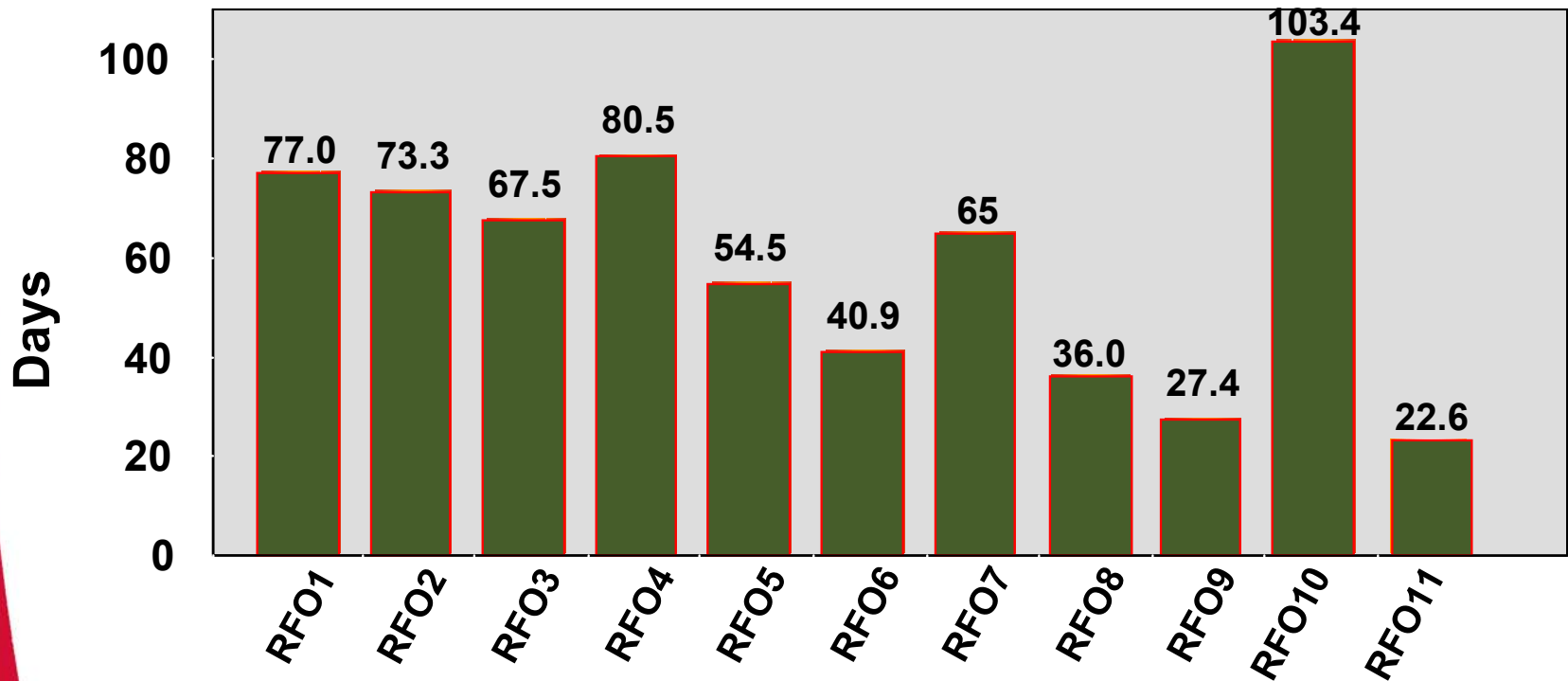
Key Performance Indicators

Capability Factor (Fuel Cycle - 18 Mo. Avg.)



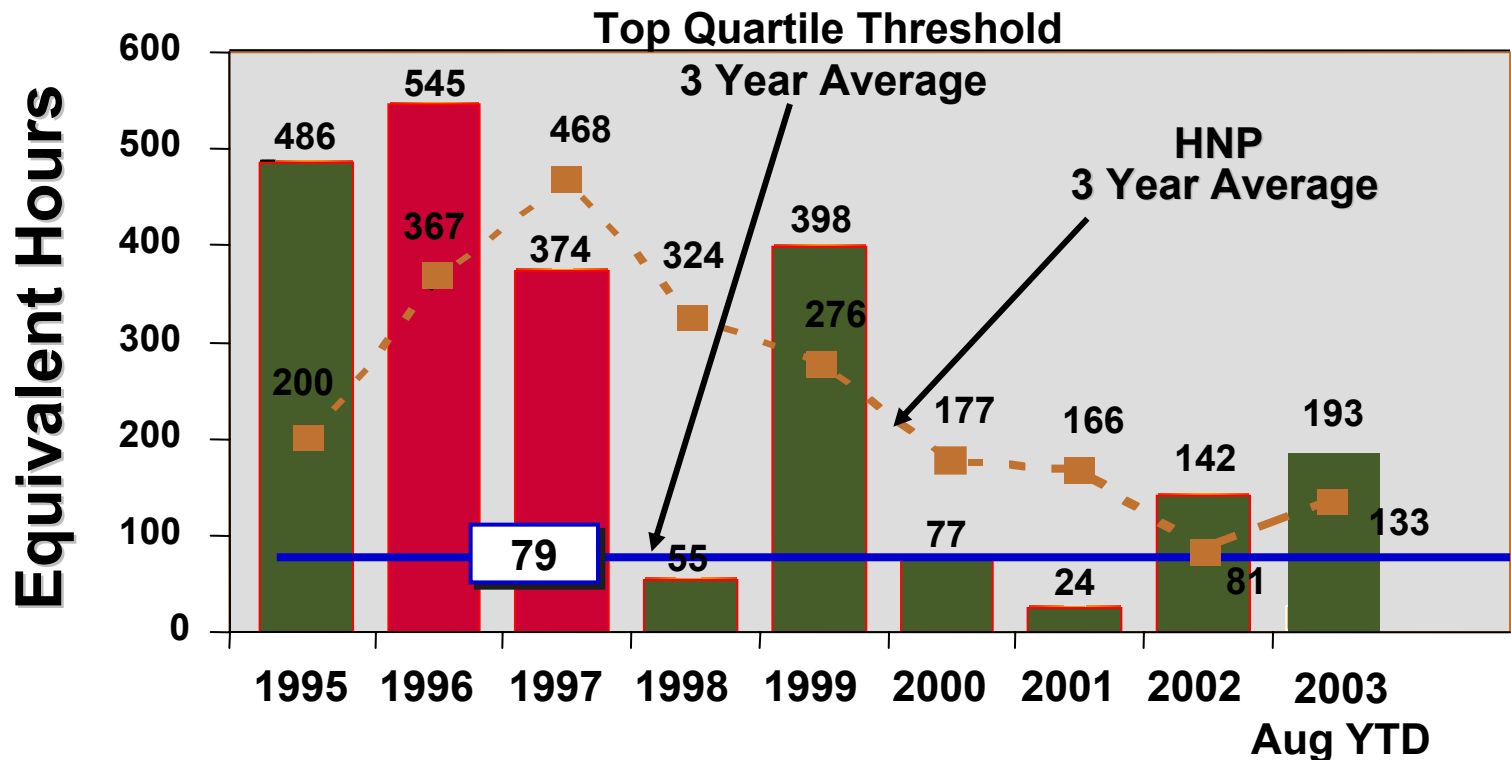
Key Performance Indicators

Refueling Duration (Days)



Key Performance Indicators

Forced Outage Hours (Full & Partial)



Current HNP 3-Year Forced Loss Rate is 1.3%

HNP Improvement Plan Status Trip Reduction Initiative

John Dills



HNP Improvement Plan Status

Trip Reduction Initiative

Strategy – The Three “R’s”

- Reliability
 - PMs
 - Monitoring
- Redundancy
 - Eliminate Single-Point Vulnerability
 - ECRs
- Resiliency
 - Survive Ability

Equipment Related Improvements

Garry Miller



ZTEF

Zero Tolerance for Equipment Failures

- Culture of Intolerance for Unplanned Equipment Failures
- Focused on Critical Components
- 3-Phase Implementation
 - Instill ZTEF Culture and Vision
 - Identify Critical Components
 - Develop Integrated Management Strategy

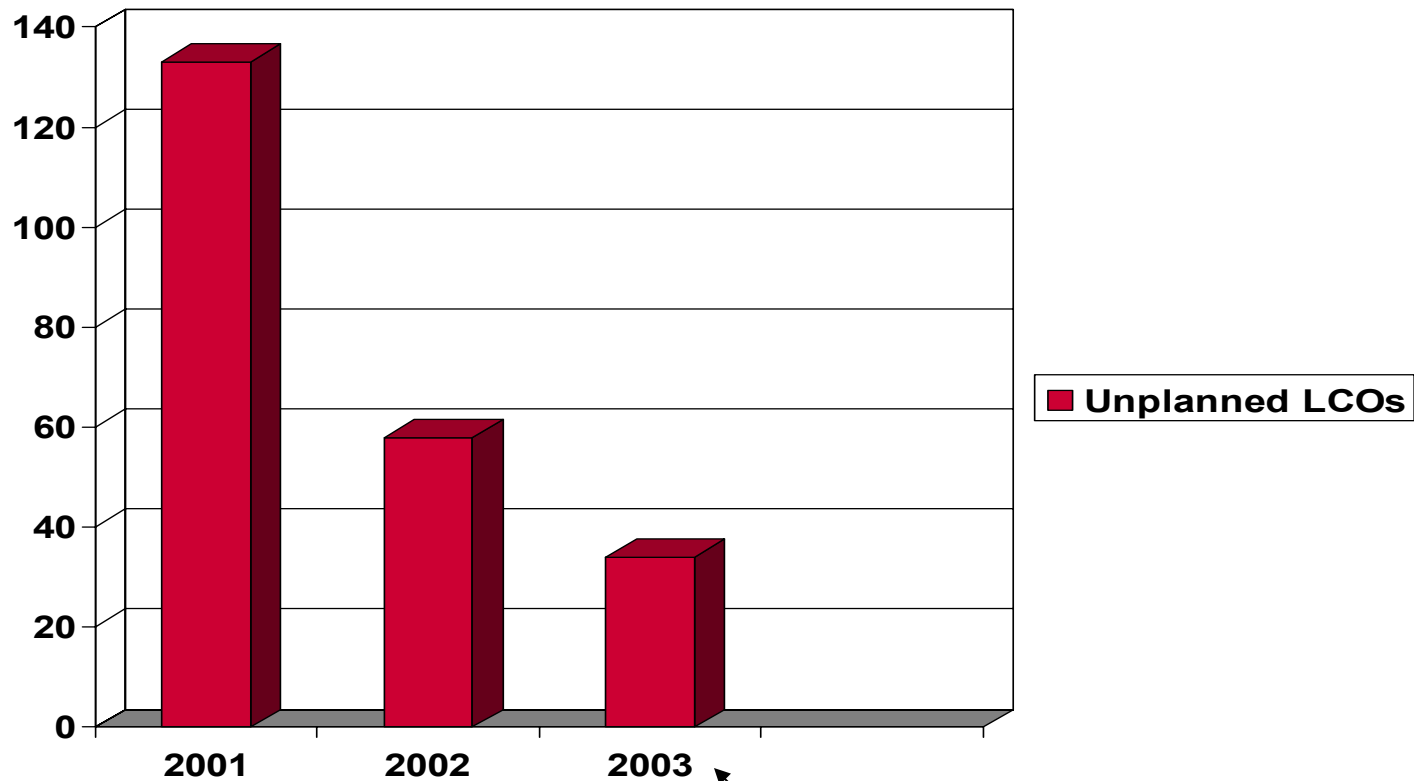
ZTEF

Phase 3 Current Status

- Pilot on 5 Systems Completed
 - Maint and failure history
 - OE, EPIX, EPRI
 - PM Basis Documents
- Lesson Learned to Remaining Systems
- Phase 3 Complete by End of 2004

ZTEF

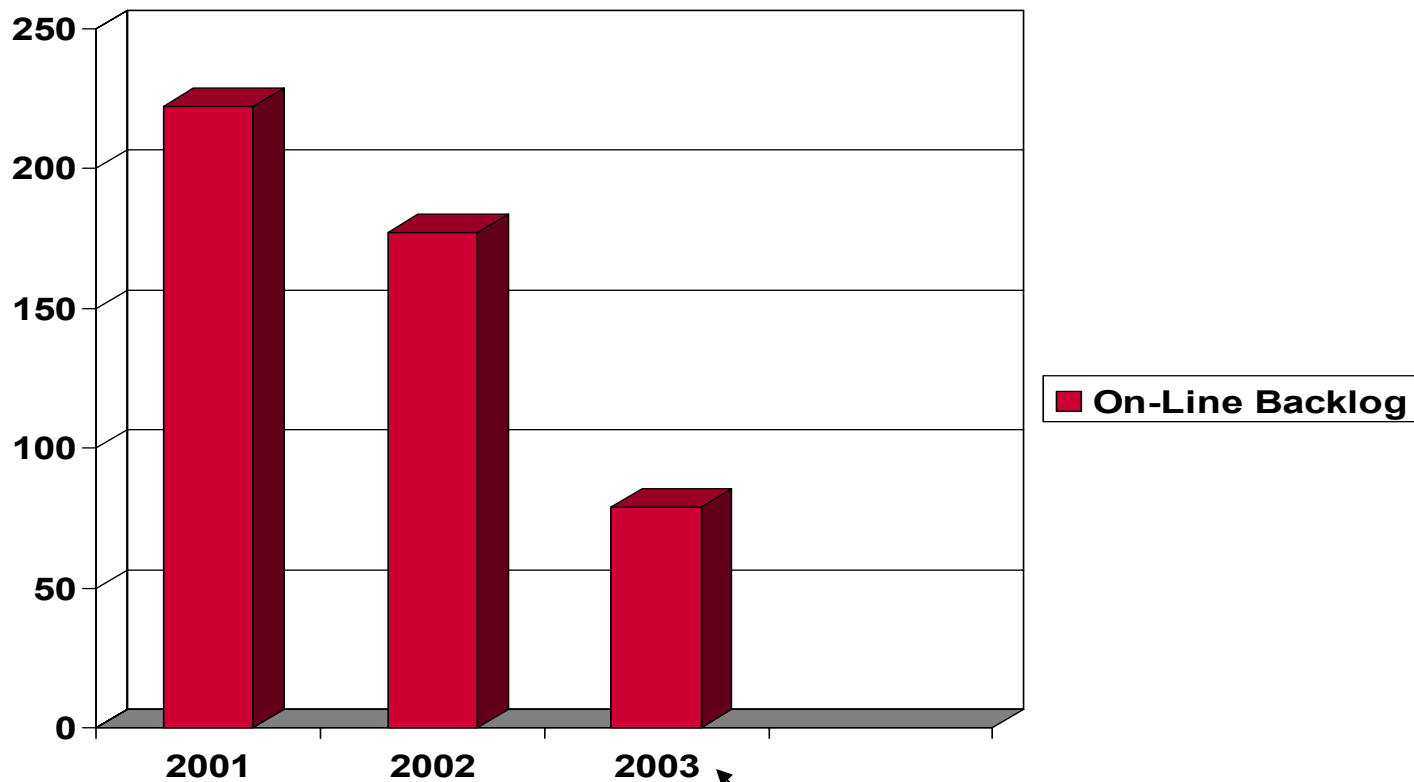
Unplanned Action Statement Entries



YTD as of 8/30/03

ZTEF

On-Line Corrective Maintenance Backlog



Actual as of 8/30/03

R-11 Outage - *1A Bus Repairs*

- UAT feed to 1A Non-safety Bus
- Bus Bar Insulation Deficiencies Identified during Planned Inspections
- Repair Options Investigated
- Permanent Repair Completed

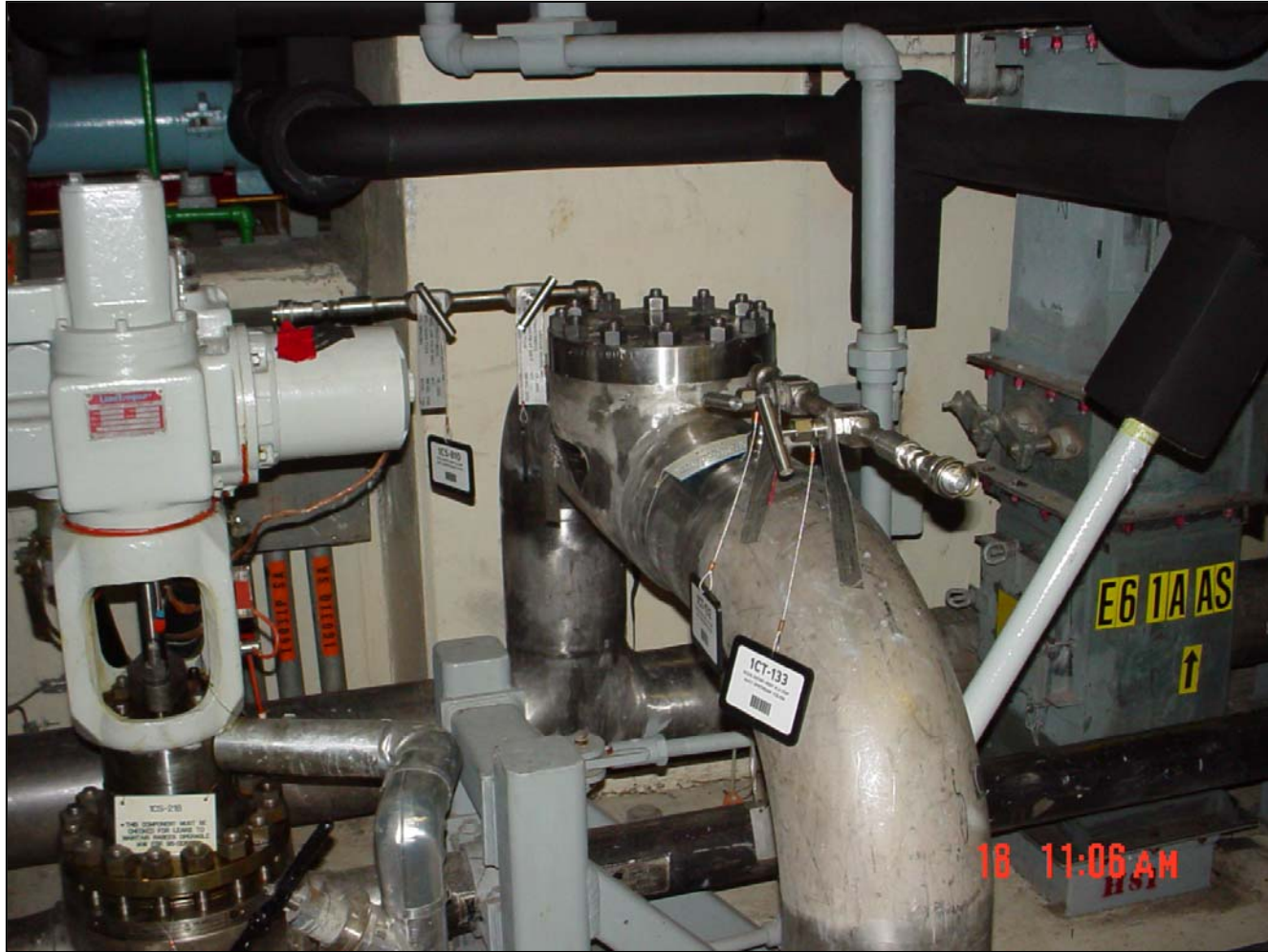
R-11 Outage - 1A Bus Repairs



RFO-11 - *ECCS Vent Modification*

- SOER 97-01
- PM established for NDE
- Routed CSIP Recirculation Flow to VCT top
- Installed 14 additional vents in 9 locations

RFO-11 - ECCS Vent Modification



RFO-11 – *ESW Inspections*

- 2700' of Large Bore Piping Inspected and Cleaned
 - No Significant findings
- ~100' Small Bore Piping Replaced
- Heat Exchangers in Good Overall Condition
 - Fouling Significantly Less than RFO-10
 - Few Tubes Required Plugging

RFO-11 – *Reactor Head Inspections*

- Spare Reactor Vessel Head Used for Mock-up Testing
- Comprehensive Inspection
 - Established Acceptance Criteria
- **No Evidence of Leakage**
- Video Record

RFO-11 – *Reactor Head Inspections*



RFO-11 – *Bottom Vessel Inspection*

- Proactive Response To STP Finding
 - 2 Weeks After STP
 - 100% Bare Metal Visual Exam (VT-2)
 - Video Record
- Used Same Acceptance Criteria As Developed For RPV Head Exam

RFO-11 – *Bottom Vessel Inspection*

- **No Evidence Of Leakage From Bottom Mounted Instrumentation (BMI) Nozzles**
- **Some Streaking From Removable Cavity Seal Ring Leaks (Replaced In 1994):**
 - Thin, Transparent Film; No Masking
 - Met Acceptance Criteria
 - Local Cleaning Performed To Aid In Evaluation

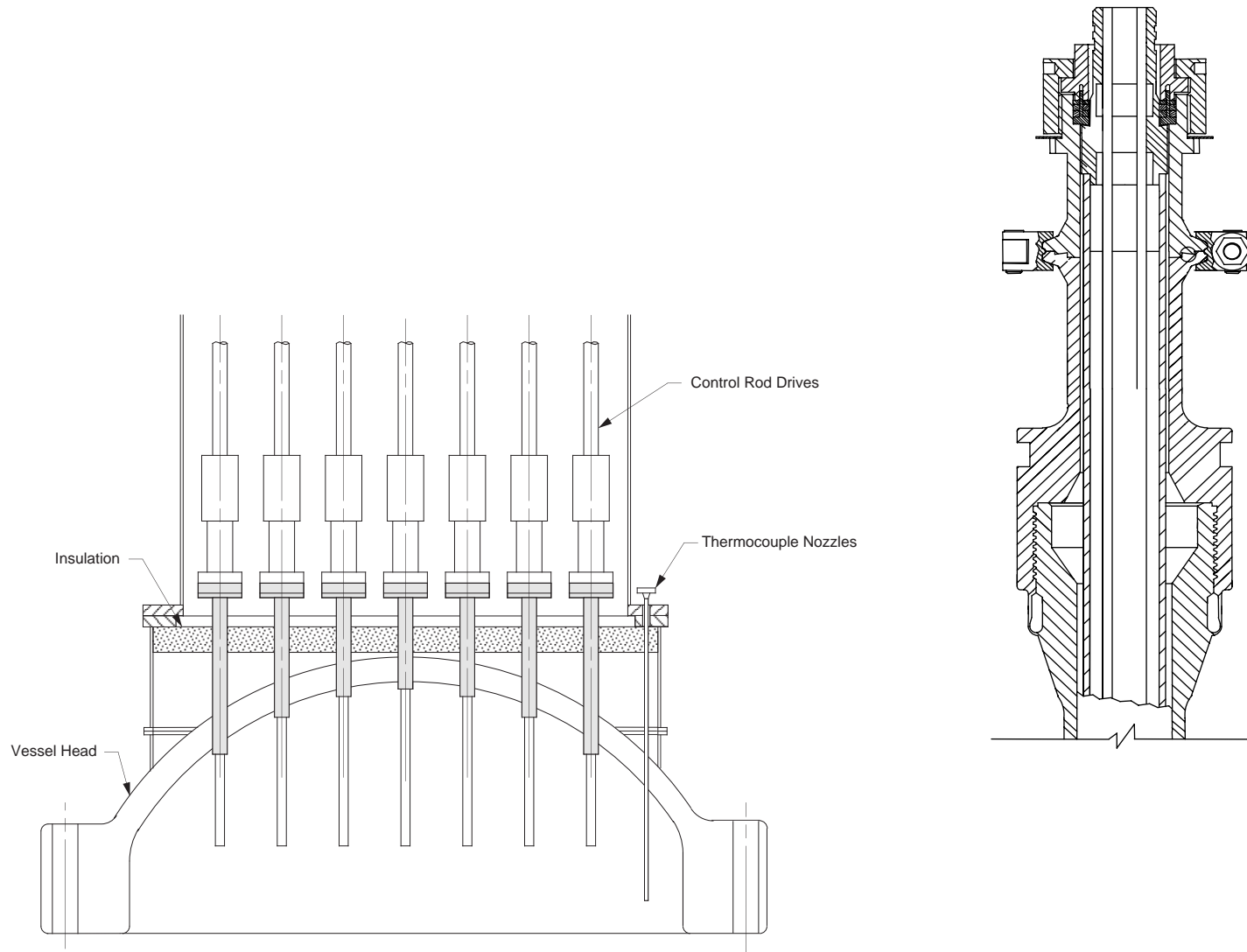
RFO-11 – *Bottom Vessel Inspection*



RFO-11 – *CETNA Modification*

- RFO-10 Experience
- CETNA Design – Old versus New
 - Why Modify...
- Advantages of New CETNA Design

RFO-11 – *CETNA Modification*



Operations

Ed Wills



Operations Performance

- RFO-11
- Trips Post-RFO-11
- Forced Downpowers

Risk Improvements

- Raised 1CC-294 Setpoint
- DEH Changes
 - Firmware
 - Procedure Changes
- Surge Protection A Condensate Pump Motor
- Minimize ESW Operation (GL 89-13)
- Procedure Changes to Support AFW Outage

Operator Career Path

- Operations Pipeline
 - Ten NLO New Hires
 - Eleven Operators Currently in Class
 - Next License Class
- Overtime Challenge
- Moving to Other Organizations
 - Engineering
 - Nuclear Assessment
 - Training

Self Evaluation

Terry Morton



Overview

- Self Evaluation
 - Continuous Improvement
 - Examples of Results
 - ◆ CAP
 - ◆ Self Assessment
 - ◆ Operating Experience
 - ◆ Benchmarking

Continuous Improvement



CAP Results

- Condensate Pump Root Cause Investigation
 - 1999 Failure
 - August 17, 2003 Failure
 - August 27, 2003 Failure
 - 96 Possible Failure Modes Analyzed

CAP Results

- Actions
 - Refurbishment & Testing
 - Modification to Prevent Surge Damage on “A” Bus

Surge Suppression and Lightning Arrestor



Surge Suppression and Lightning Arrestor



CAP Results

- Component Cooling Water Event Root Cause
 - 18 Failure Modes Analyzed
 - Relief Valve Set Point too Close to System Transient Pressure
 - Reseat Error Caused by Incorrect Settings

Counting notches



Relief Valve Secured for Testing



CAP Results

- Actions
 - Revised Set Point
 - Revised Maintenance Procedure – In Shop Settings
 - Implemented Concurrent Verification of Settings
 - Retrain Technicians
 - Shared OE with the Industry

Operating Experience Results

- Reactor Vessel Head Inspections
 - South Texas Project Bottom Mounted Instrument Leaks
 - Action Prior to SEN 238
 - Proactive 100% Bare Metal Inspection
 - Baseline for Future Inspections
 - No Evidence of Leakage

Operating Experience Results

- Davis-Besse Event
 - ▶ Major contributor to this event was a shift in the focus at all levels of the organization from implementing high standards to justifying minimum standards.
 - ▶ Senior Management Involvement
 - ▶ Conducted an Independent Fleet Evaluation

Self Assessment Results

- Davis-Besse Self Assessment
 - Focused Assessment to Determine Degree of Respect for Nuclear Safety
 - Emphasis on Leadership
 - Five Key Attributes

Self Assessment Results

- HNP has Healthy Respect for Nuclear Safety
- All Five Attributes Satisfactorily Met
- Actions
 - Improve Lower Threshold Problem Reporting
 - Enhance Approval and Funding Process for Equipment Repairs

Self Assessment Results

- Electrical Safety
 - Fleet Round Robin Self Assessment
 - Strengths
 - ◆ Zero Energy Checks Prior to Work Start
 - ◆ Pre-job Briefs with Non-Station Personnel
 - Actions
 - ◆ Improve Use of pre-job Inspection Checklist
 - ◆ Acquire Additional Insulated Tools for Operations
 - ◆ Improved Verification During Electrical Tag Outs

Benchmarking Results

- Rigging Program
 - Benchmarked Program to Industry Standards
 - Program In Compliance with Regulations
 - Focus Included
 - ◆ Inspections and Records
 - ◆ Safety Record
 - ◆ Training and Qualification
 - ◆ Program Ownership
 - Actions
 - ◆ Develop Fleet Procedure

Benchmarking Results

- Service Water Program
 - Industry Contact Through EPRI Meeting
 - Successes and Opportunities Discussed with a Focus on Piping Issues
 - Actions
 - Implement Improved Motor Oil Cooler Cleaning Techniques
 - Use of MIC Indices

Continuous Improvement

