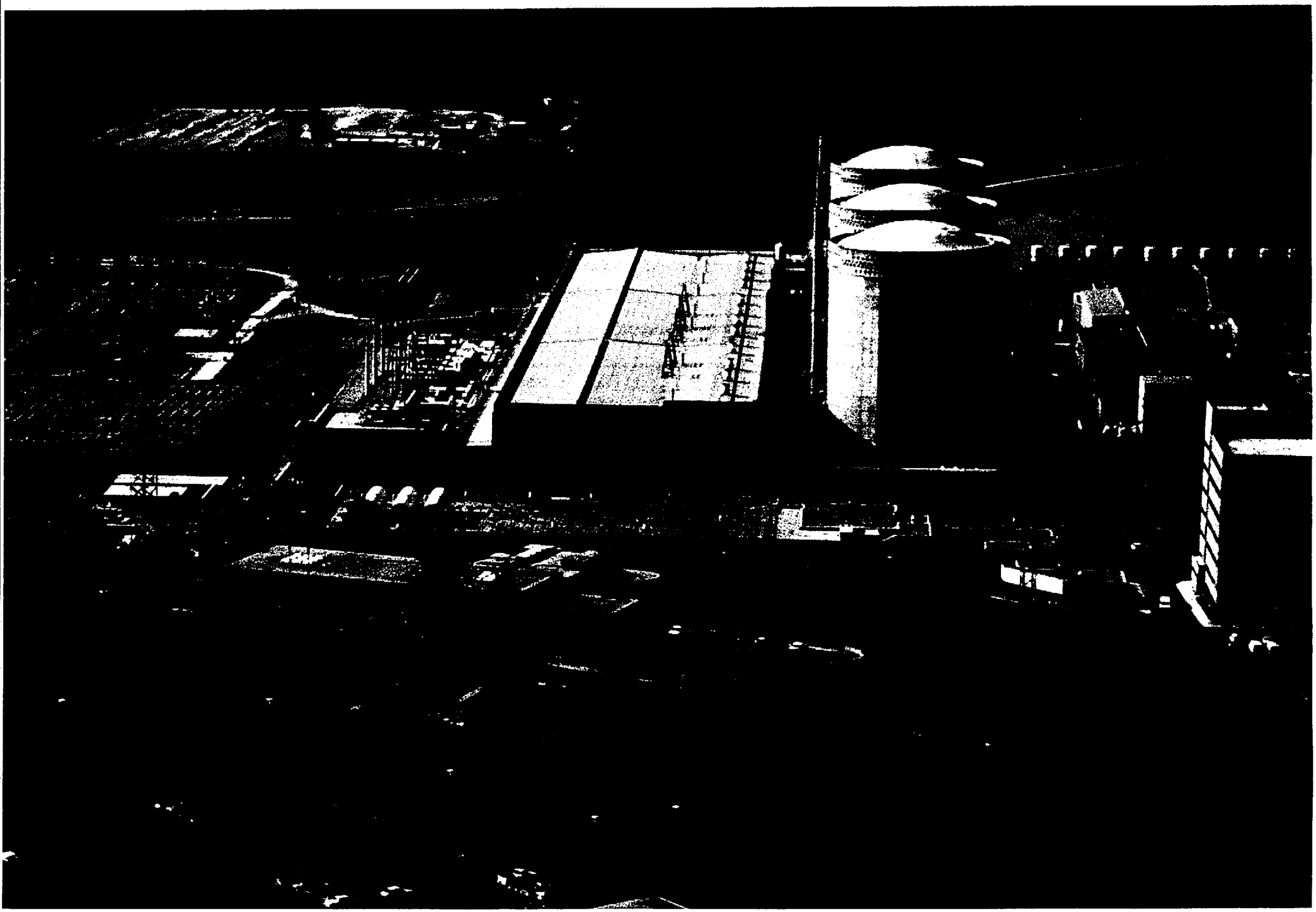
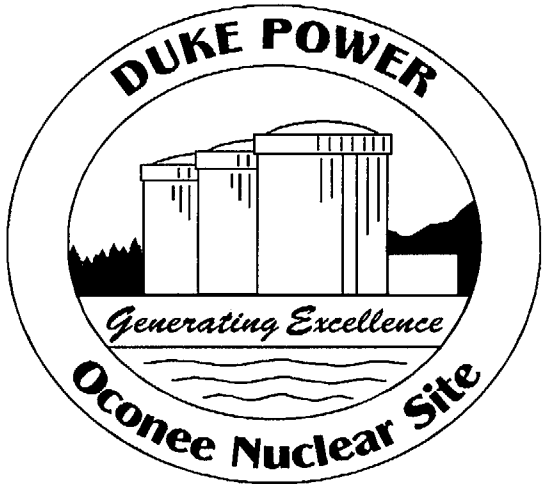


Oconee Nuclear Station

NRC Management Meeting



May 31, 2000

Agenda

- Overview - Bill Mc Collum
  - ONS Performance Measures
  - NRC Performance Indicators
- Station Performance - Jeff Forbes
  - Operating Performance
  - Outage Performance
  - Areas of Continued Focus
- Engineering Initiatives - Mano Nazar
  - Design Bases Activities
  - Equipment Reliability

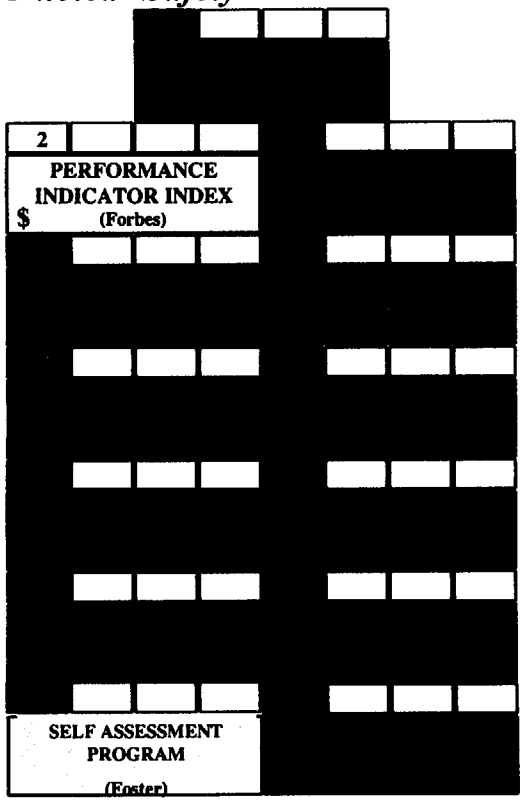
    - Note: There are no new regulatory commitments in this presentation

ONS Performance Measures
April 2000

Indicators of Success
- Top Quartile in Nuclear Safety as measured by NRC and INPO
- Top Quartile in Capacity Factor
- Top 10 in Production Cost
- Top Decile in Industrial Safety

Corporate Measures

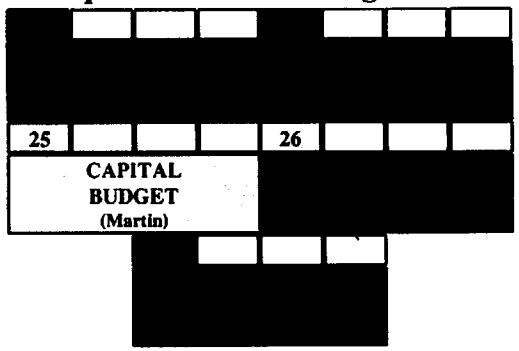
Nuclear Safety



Production

Other Performance Data

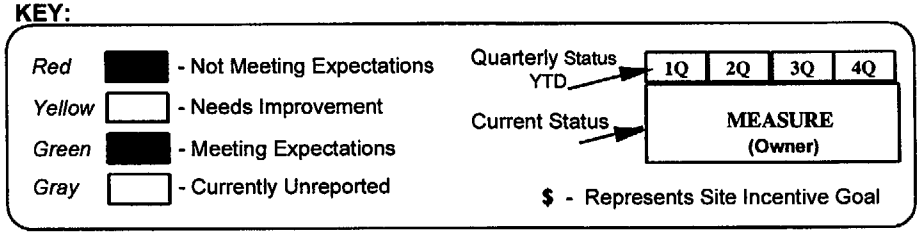
Competitive Positioning

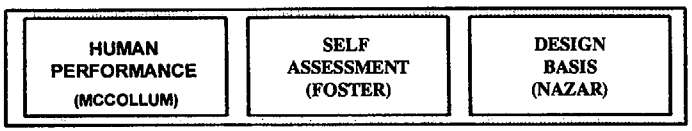


Other Performance Data

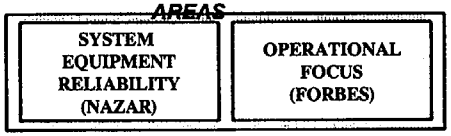
Other Performance Data

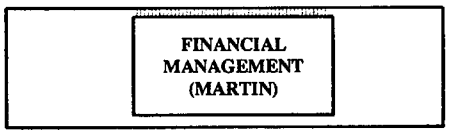
KEY:





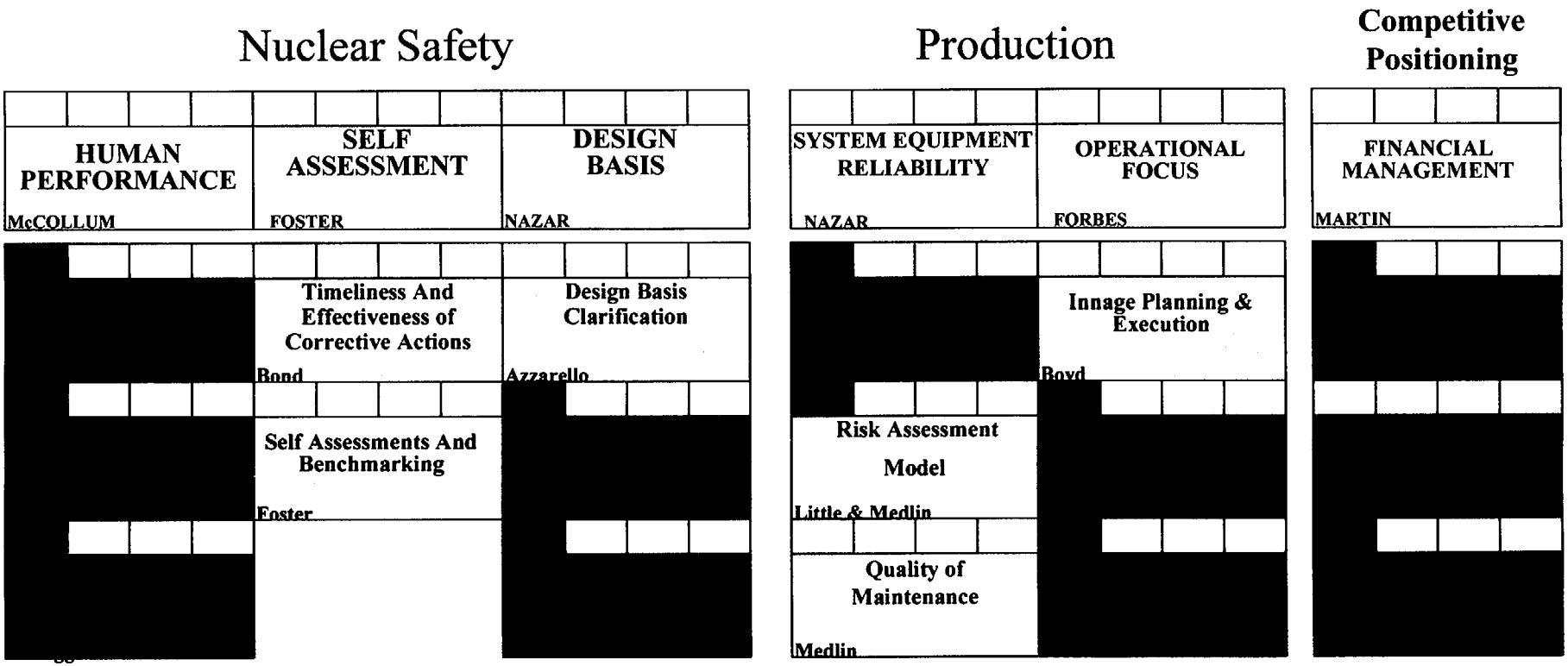
OCONEE IMPROVEMENT FOCUS AREAS





ONS Improvement Plan Focus Area Annunciator Panel

April 2000

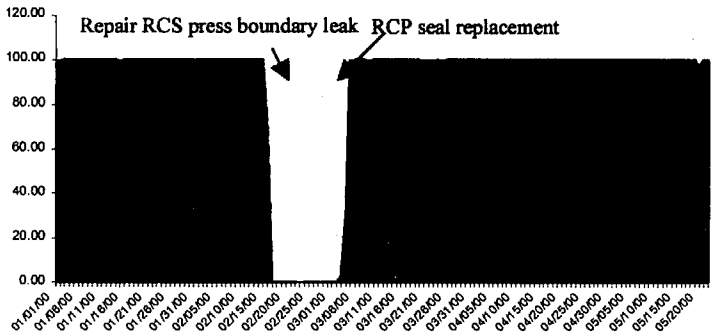


Oconee Nuclear Site
NRC Performance Indicators Annunciator Panel
1Quarter 2000

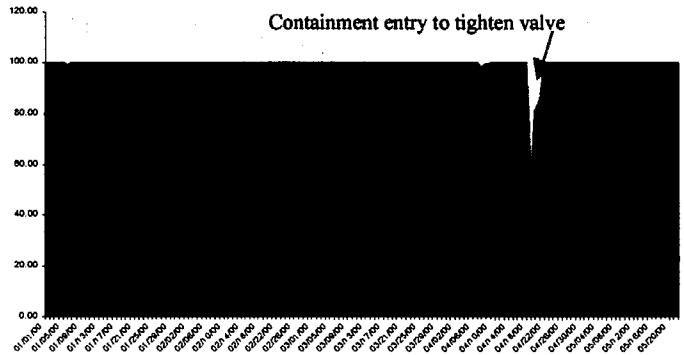
#	NRC Performance Indicator	Unit 1	Unit 2	Unit 3
	Initiating Events:			
IE-1	Unplanned Scrams Per 7000 Critical Hours (automatic & manual during previous 4 quarters) White > 3.0 | Yellow > 6.0 | Red > 25.0			
IE-2	Scrams with a Loss of Normal Heat Removal (over the previous 12 quarters) White > 2 | Yellow > 10 | Red > 20			
IE-3	Unplanned Power Reductions (Transients) per 7000 Critical Hours (over previous 4 quarters) White > 6.0			
	Mitigating Systems:			
MS-1	Safety System Unavailability (SSU) - Emergency Power (average of previous 12 Quarters) Threshold values are still being developed for Keowee.			
MS-2	Safety System Unavailability (SSU) - High Pressure Safety Injection '(average of previous 12 Quarters) White > 1.5 | Yellow > 5.0 | Red > 10.0			
MS-3	Safety System Unavailability (SSU) - Auxiliary Feedwater '(average of previous 12 Quarters) White > 2.0 | Yellow > 6.0 | Red > 12.0			
MS-4	Safety System Unavailability (SSU) - Residual Heat Removal '(average of previous 12 Quarters) White > 1.5 | Yellow > 5.0 | Red > 10.0			
MS-5	Safety System Functional Failures '(over previous 4 Quarters) White > 5			
	Barrier Integrity:			
BI-1	Reactor Coolant System (RCS) Specific Activity '(maximum monthly values, % of Tech. Spec. Limit, during previous 4 Qtrs.) White > 50.0 | Yellow > 100.0			
BI-2	RCS Identified Leak Rate '(maximum monthly values, % of Tech. Spec. Limit, during previous 4 Qtrs.) White > 50.0 | Yellow > 100.0			
	Emergency Preparedness:			
EP-1	Drill/Exercise Performance '(over previous 8 Qtrs.) White < 90.0 | Yellow < 70.0			
EP-2	ERO Drill Participation (% of Key ERO personnel that participated in a (drill or exercise in the previous 8 quarters) White < 80.0 | Yellow < 60.0			
EP-3	Alert & Notification System Reliability (% reliability during previous 4 quarters) White < 94.0 | Yellow < 90.0			
	Occupational Radiation Safety:			
OR-1	Occupational Exposure Control Effectiveness (occurrences during previous 12 Qtrs.) White > 2 | Yellow > 5			
	Public Radiation Safety:			
PR-1	RETS/ODCM Radiological Effluent Occurrence (occurrences during previous 4 Qtrs.) White > 1 | Yellow > 3			
	Physical Protection:			
PP-1	Protected Area Security Equipment Performance Index (over a 4 quarter period) White > 0.080			
PP-2	Personnel Screening Program Performance (reportable events during previous 4 Qtrs.) White > 2 | Yellow > 5			
PP-3	Fitness-For-Duty (FFD)/Personnel Reliability Program Performance (reportable events during previous 4 Qtrs.) White > 2 | Yellow > 5			

Operating Performance

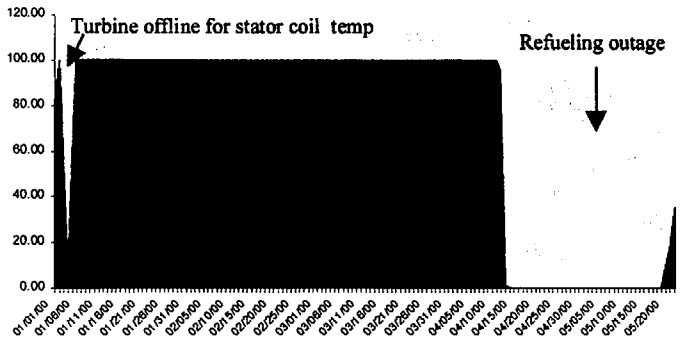
2000 Oconee Unit 1 Power History



2000 Oconee Unit 2 Power History

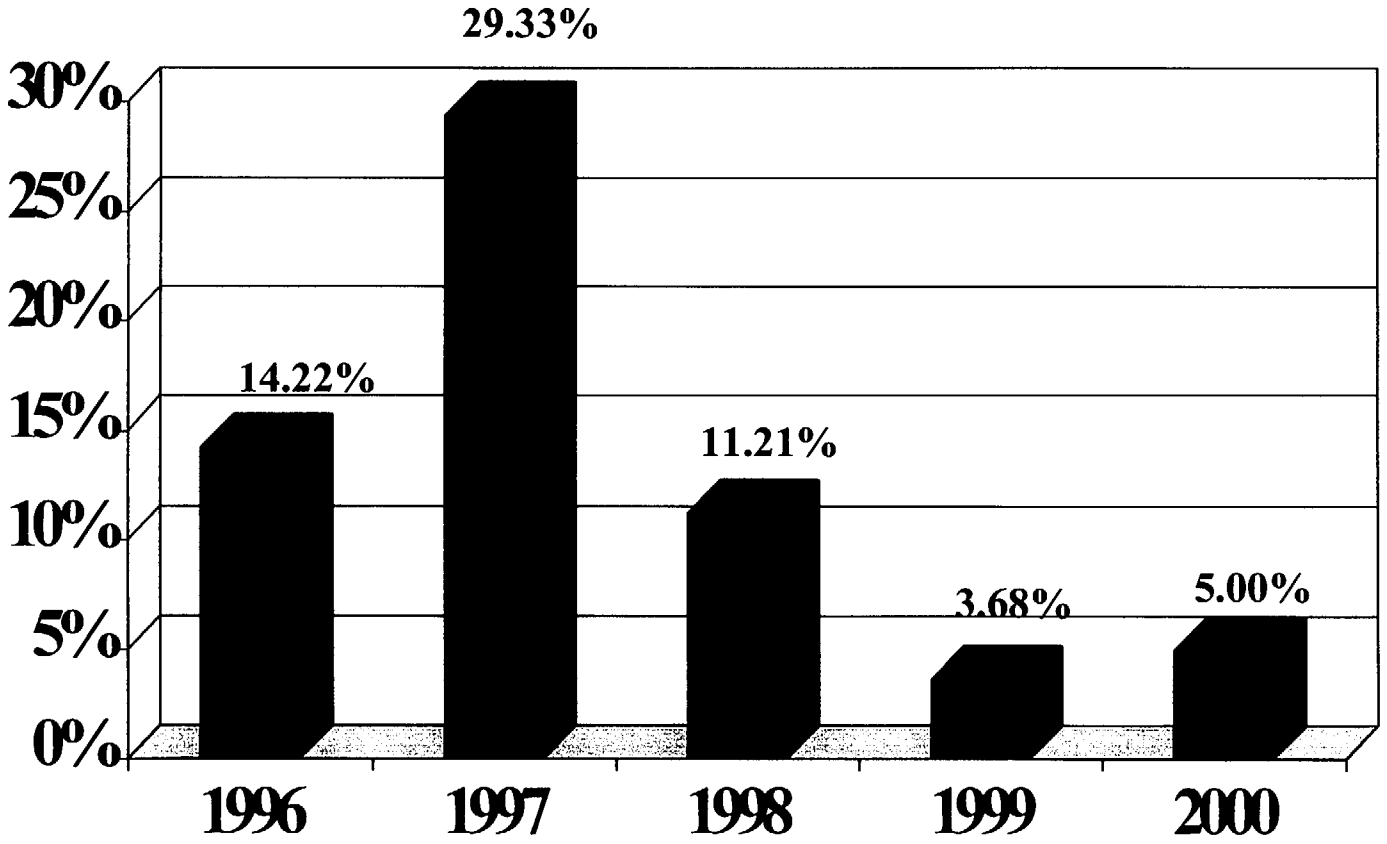


2000 Oconee Unit 3 Power History



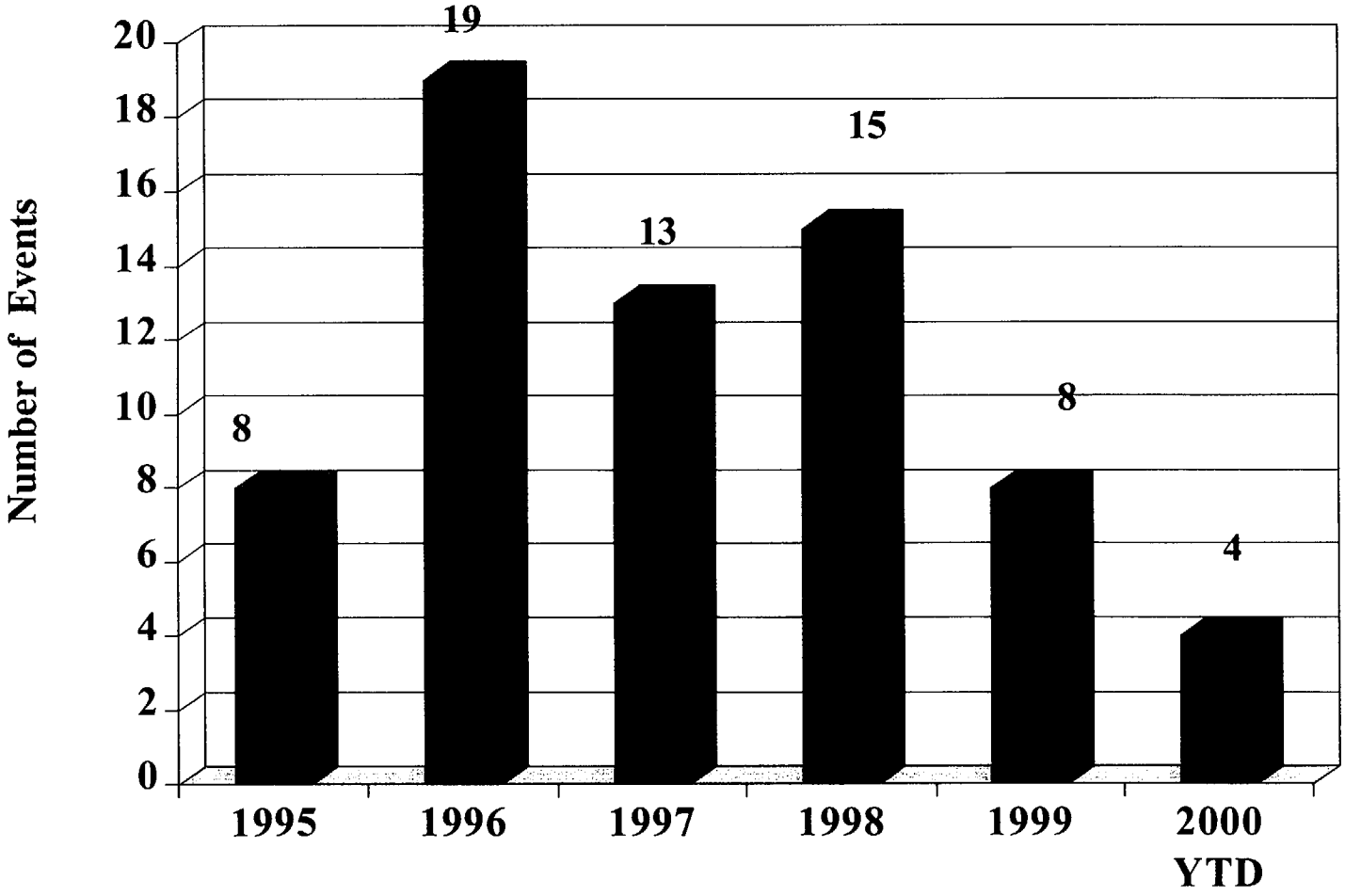
Operating Performance

Historical Forced Outage Rate

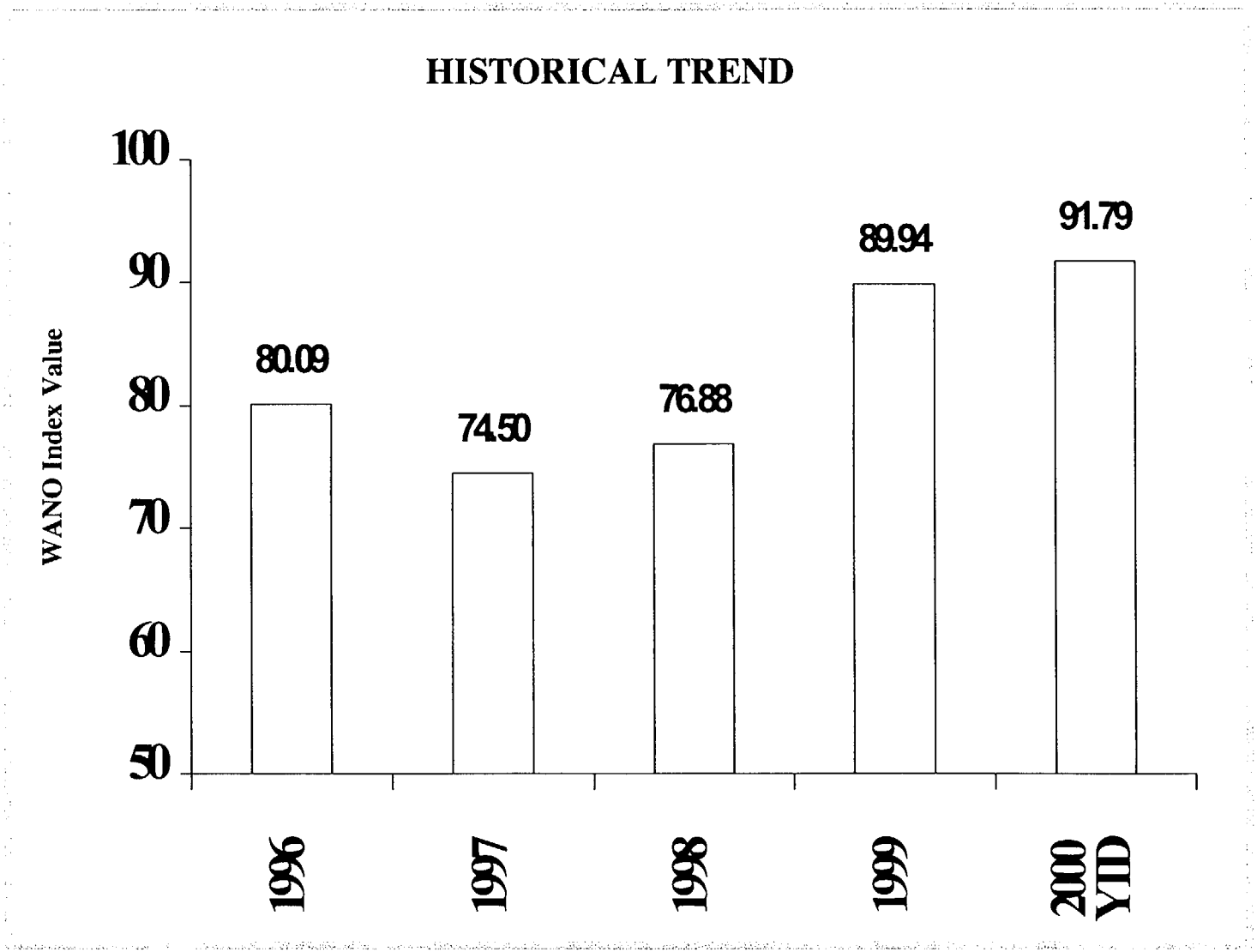


Operating Performance

ONS System Events

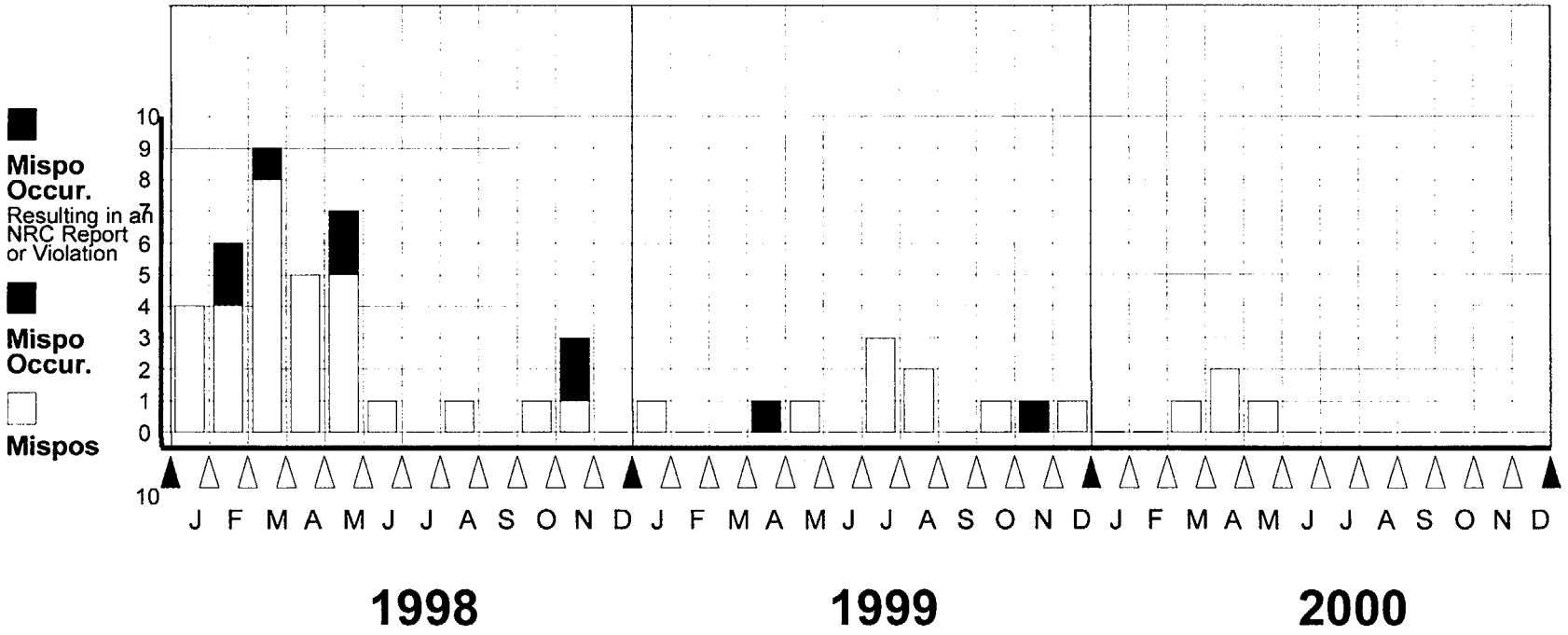


Operating Performance



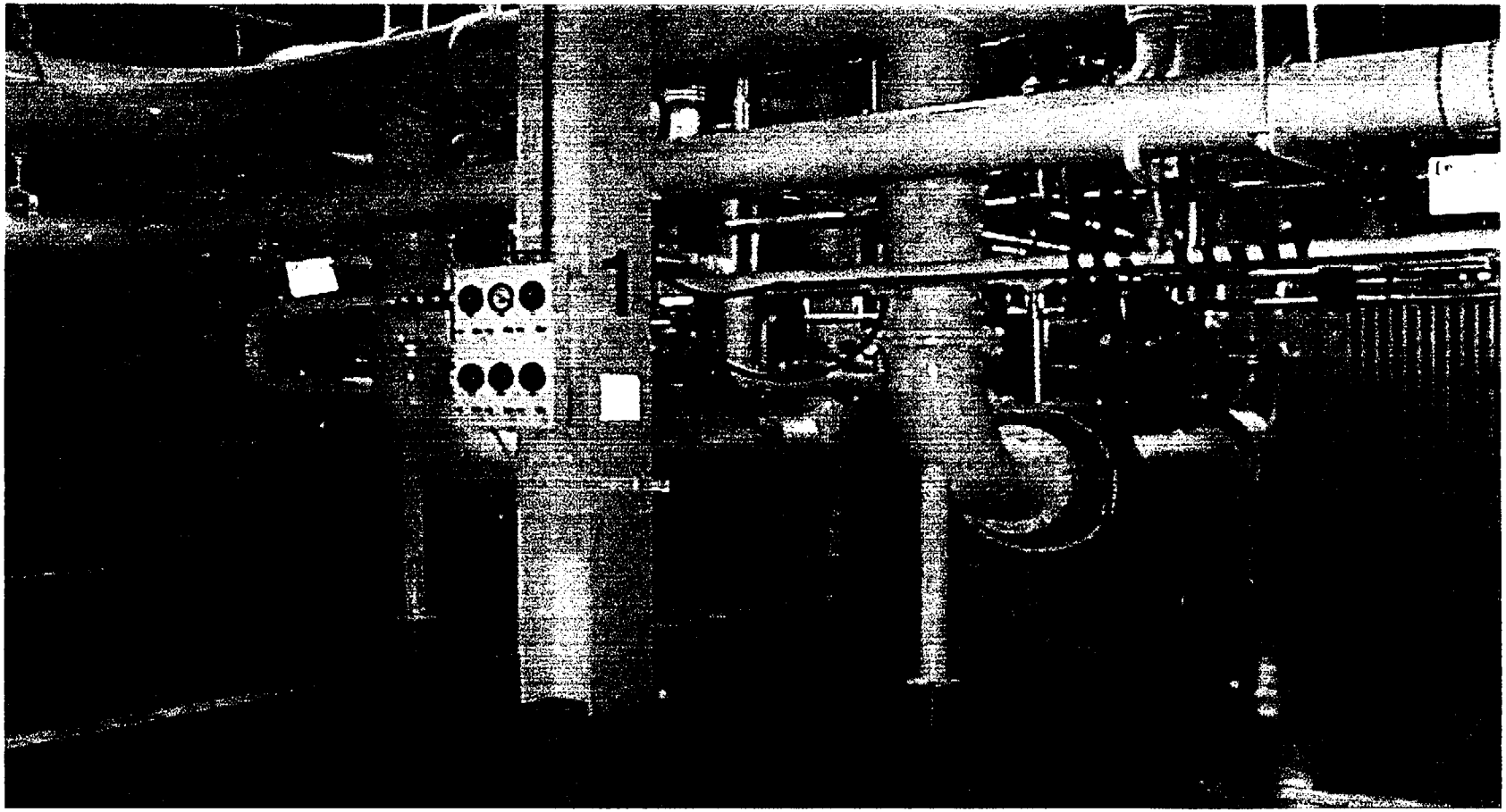
Operating Performance

Mispositionings



Operating Performance

Materiel Condition



Operating Performance

Materiel Condition

- Fluid leak management
- Operations ownership
- Pride in facility

Outage Performance

U3 RFO Performance

Significant Scope / Safety Improvements

- Major RCP Motor PM
- Major PM on Both Main Feed Pumps
- Replaced LP Turb Rotor
- LPI Valve Replacement
- 3C HPI Pump Motor
- 3A LPI Motor
- 3A and 3B BS Motor
- RBCU Dampers
- Large Scope of Valve Work
- Large S/G Scope
- ECT 3A LPI Cooler
- RB Coatings
- Significant Electrical PMs
- Significant Testing (HPI From Aux Service Water Switchgear, LPSW)
- CCW Valve Overhauls and Coatings Refurb

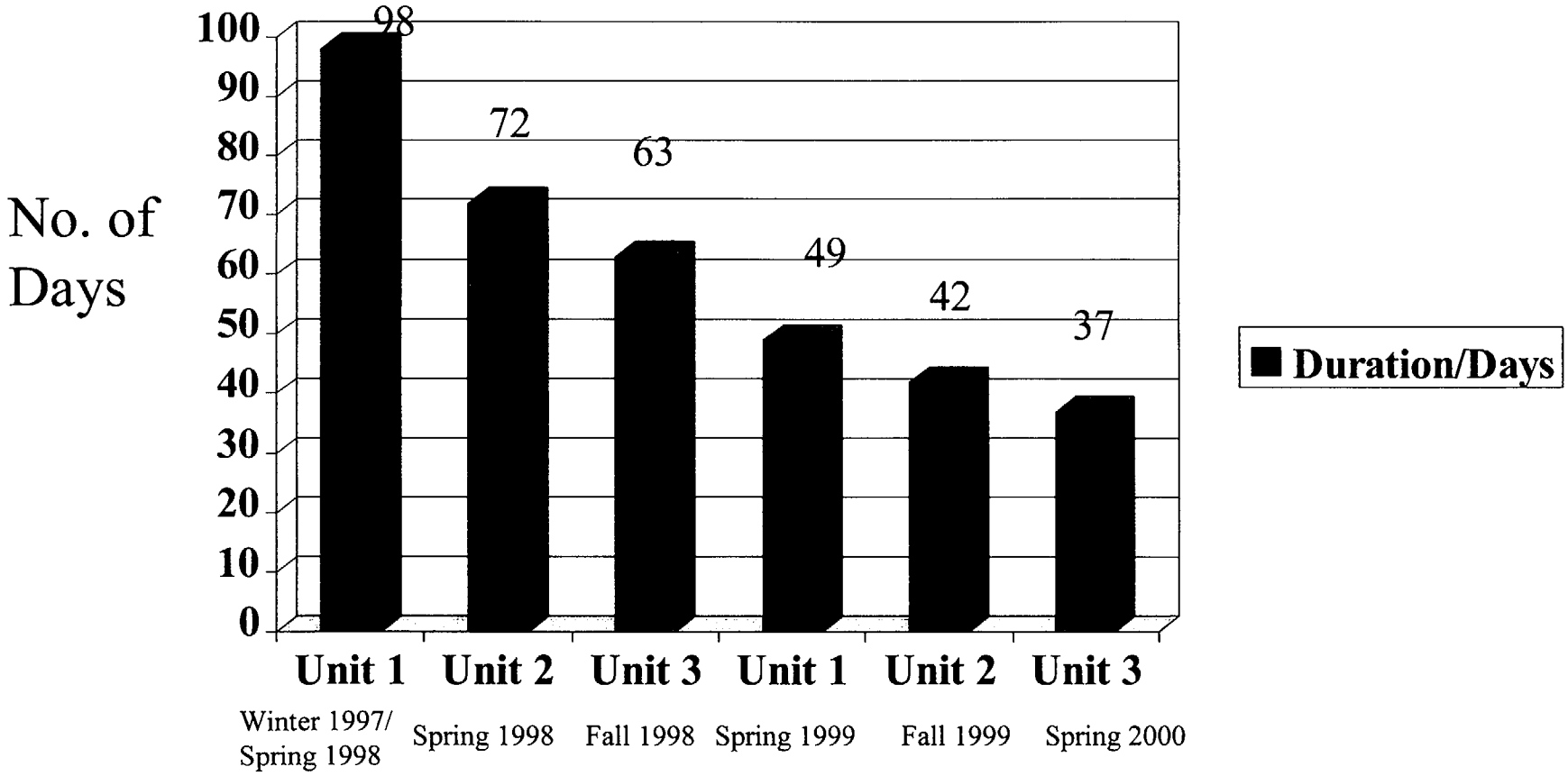
Outage Performance

U3 RFO Performance

Goal	Minimum	Target	Maximum	Results/ Projections
Safety Index	2	1.5	1	.74 max
Human Performance Errors	1	0	0	1 min
Duration (days)	40	38	36	37 max/tar
Radiation Dose (rem)	148	135	121	107 max
Solid Radwaste (cubic feet)	5500	5000	4500	4,000 max
Cost (Millions)	21.6	20.6	19.6	20.6 tar

Outage Performance

Outage Duration



Outage Performance

- Personnel Exposure
  - Excellent crudburst
  - Significantly improved radworker practices
  - Dose reduction techniques obtaining results
- Record dose in last refueling on each unit
  - U1= 70.4 Rem
  - U2= 91 Rem
  - U3= 108 Rem (est)
- 1999 Station dose lowest ever - 202 Rem

Outage Performance

- Human Performance
  - Lower tier schedules
  - Operations expectations
  - Rework
  - Control of non-assigned individuals
  - Individual initiative and ownership
  - Supervisory involvement

Areas of Continued Focus

- Operational Focus
- Human Performance
- Equipment Reliability
- Outage Performance

Design Bases Activities

- Emergency Feedwater
- High Energy Line Break
- Control Room Habitability
- OSRDC / QA-5 Implementation

Design Bases Activities

New Initiatives

- ECCS
- Emergency AC Power
- Review / revision of existing, risk significant calculations
- Creation of single failure calculations

Design Bases Activities

Other Accomplishments

- SQUG
- GL 96-06 Waterhammer Analysis
- EOP review / setpoint calculations
- UFSAR review discrepancy resolution

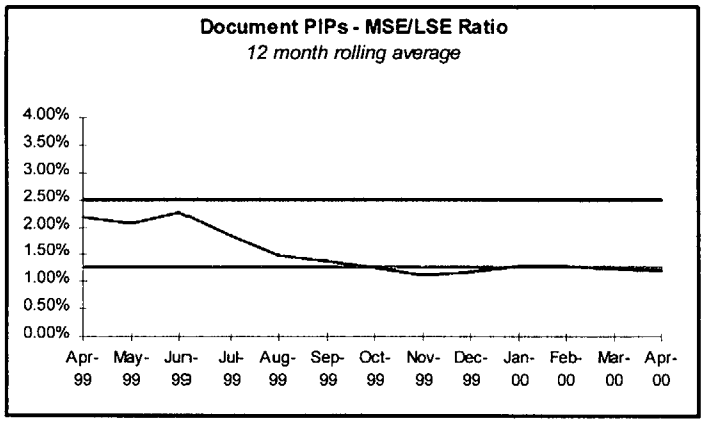
Design Bases Activities

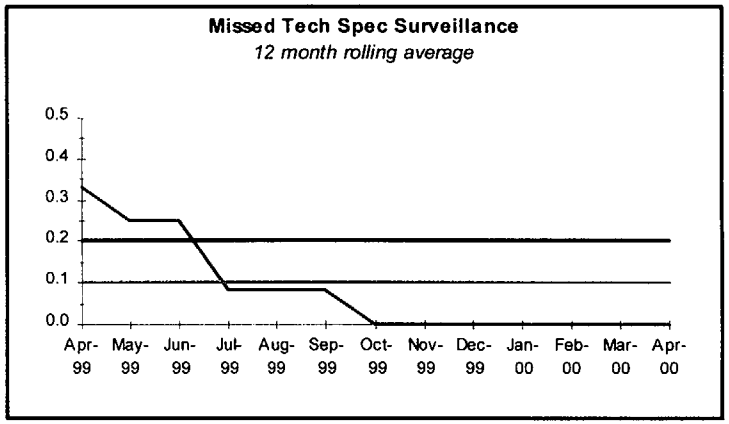
Design Review Board

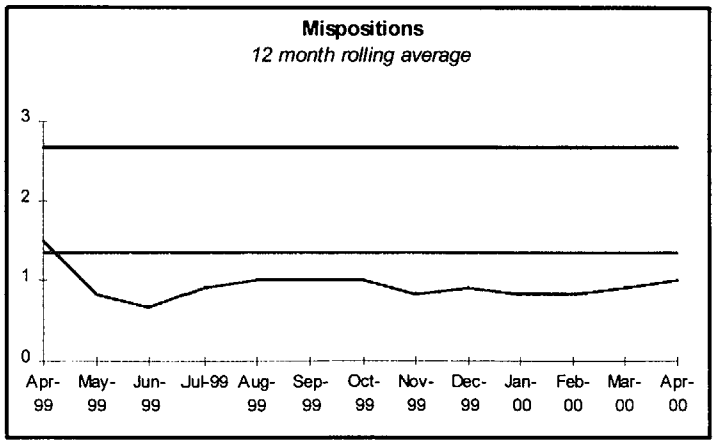
- Responsible for helping to determine and prioritize design basis issues
- Responsible for protecting, increasing design margin
- Recommends systems, issues to receive systematic internal audit
- Reviews current "Operable with Non-Conforming / Degraded Conditions" to ensure appropriate focus and resources are being applied to resolution
- Recommendations on modifications to restore design margin

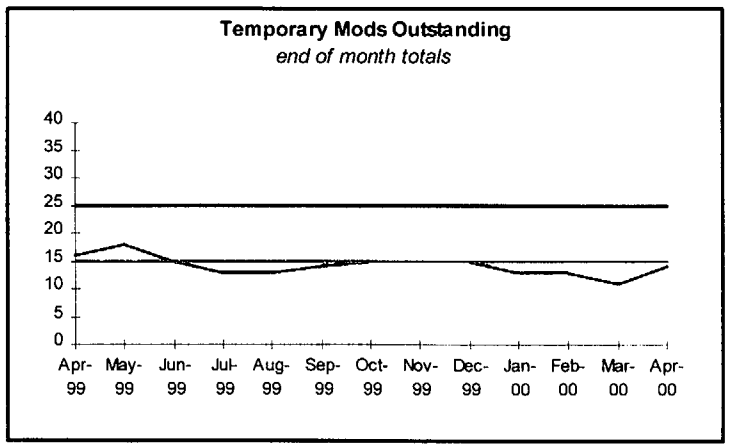
Design Bases Activities

Configuration Management









Equipment Reliability

- Ongoing initiatives
  - Equipment aging program
  - Engineering rapid response team
  - INPO assist visit
  - Trip/transient prevention

Equipment Reliability

Trip/Transient Reduction

- Review all previous ONS trips (complete)
- Review all B&W Owners Group recommendations (complete)
- Identify critical system functions (complete)
  - Perform walkdowns (complete)
  - Review monitoring programs (ongoing)
  - Review PM programs (complete)
  - Identify single failure vulnerabilities (complete)

Equipment Reliability

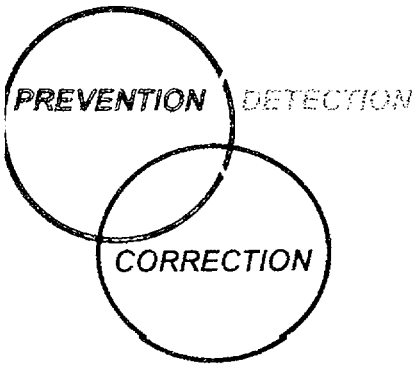
Trip/Transient Reduction

- Examples of team recommendations
  - Delete unnecessary secondary side auto trips, such as CBP low suction pressure trip
  - Upgrade NLO rounds
  - Correct material condition problems identified in walkdowns
  - Add redundancy to single failure points, such as stator coolant temp & pressure

Equipment Reliability

- Measures:
  - Lost generation due to equipment failure
  - Lost generation events
  - % Effectiveness in meeting M-Rule A1 action plans
  - M-Rule functional failures
  - System & component health reports

OCONEE SYSTEM / EQUIPMENT RELIABILITY MODEL



GOAL: Maximize time spent on prevention and detection, to minimize correction activities.

FOCUS: Ownership, accountability, high standards, structure, planning to do the job right the first time.

Correction

LONG STANDING PROBLEM RESOLUTION

Structure: TEPR (all levels)
Clear Ownership
Operational Focus
Equipment Root Cause
Effective Modifications
Prioritization

Prevention, Detection

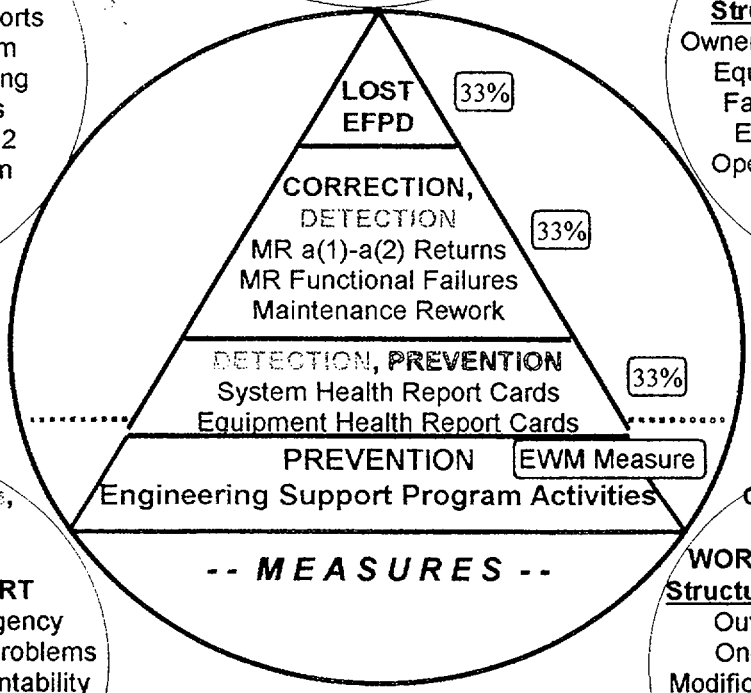
ENG SUPPORT PROGRAM

Structure: EDM 201; ESDs
Communication - health reports
Maintenance Rule program
Defined monitoring / trending
Walkdowns; OPS rounds
Performance Testing; PM2
Equipment Aging program
Long Term Planning
PM Living Program
Ownership

Detection, Correction

PROBLEM IDENTIFICATION & ANALYSIS

Structure: NSD 208; 212; 607
Ownership - daily review & follow up
Equipment root cause analysis
Failure Investigation Process
Effective corrective actions
Operating Experience Program
Internal Assessments
Benchmarking
Low threshold



Prevention, Detection, Correction

Accountability:

MANAGEMENT SUPPORT

Ownership and sense of urgency
Low tolerance for equipment problems
Individual & supervisor accountability
Effective corrective action program
Low tolerance for backlogs
Follow through (modeling)
Work quality monitoring
Work management

Correction, Prevention

WORK CONTROL PROCESSES

Structure: WPM; EWM; Mod Manual
Outage planning & milestones
On-line maintenance process
Modification selection process/MRPT
Lateral integration / involvement
Low tolerance for deferring work
Low backlogs of WOs, WRs
Eng work management
Low mod backlog

Prevention

Accountability:

INDIVIDUAL WORK QUALITY

Ownership by OPS; Maint; Eng
High standards & good work habits
Procedure quality; effective reviews
Housekeeping; materiel condition
High quality support programs:
(drawings; PMT; EDB; parts, etc)
Effective technical support
Use of structure/process
Low rework

Equipment Reliability

- Major Mods ongoing
  - CRDM replacement
  - U1 RCP cartridge seals
  - Powdex controls upgrade
  - RBCU damper replacement
  - MDEFW pump arc valve strainer

Figure 1-1. Duke Power Aging Management Planning Flowchart