



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

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

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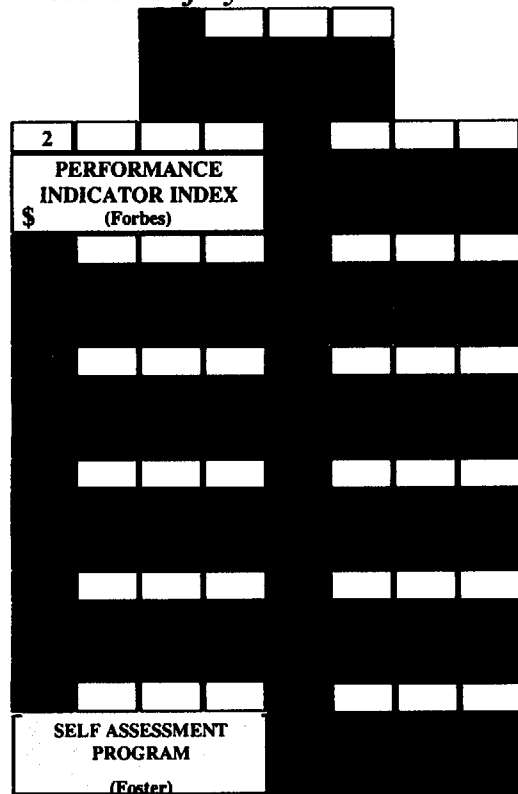
ONS Performance Measures

April 2000

Corporate Measures

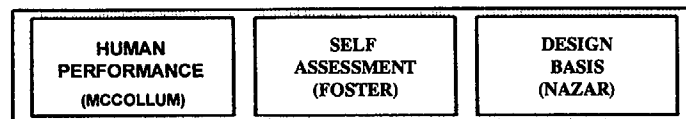


Nuclear Safety



Other Performance Data

- REGULATORY HEALTH (Nicholson) pg. 14
- TRAINING TRENDS (Jones) pg. 15
- HUMAN PERF. TRENDS (Forbes) pg. 16



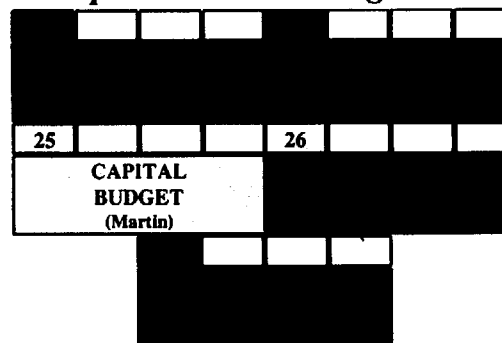
Production



Other Performance Data

- **PRODUCTION HISTORY** (Forbes) pg 19
- **EQUIPMENT RELIABILITY** (Curtis) pg 20
- **RISK ASSESSMENT** (Nazar) pg 21
- **OUTAGE IMPROVEMENT** (Boyd) pg 22

Competitive Positioning



Other Performance Data

- WORK PROCESS MEASURES (Boyd) pg 28
- MOD. EFFECTIVENESS (Hubbard) pg 29
- ENGR. WORK MGMT. (Edge) pg 30

KEY:

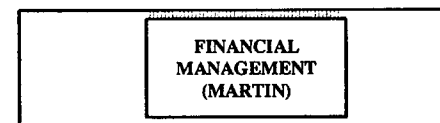
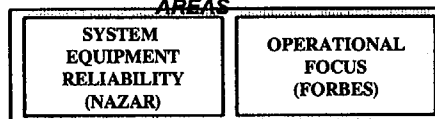
Red  - Not Meeting Expectations
Yellow  - Needs Improvement
Green  - Meeting Expectations
Gray  - Currently Unreported

Quarterly Status
YTD
Current Status

1Q	2Q	3Q	4Q
MEASURE (Owner)			

\$ - Represents Site Incentive Goal

OCONEE IMPROVEMENT FOCUS AREAS



ONS Improvement Plan Focus Area Annunciator Panel

April 2000

Nuclear Safety

HUMAN PERFORMANCE								SELF ASSESSMENT								DESIGN BASIS							
McCOLLUM								FOSTER								NAZAR							
								Timeliness And Effectiveness of Corrective Actions								Design Basis Clarification							
								Bond								Azzarello							
								Self Assessments And Benchmarking															
								Foster															

Production

SYSTEM EQUIPMENT RELIABILITY				OPERATIONAL FOCUS					
NAZAR				FORBES					
				Innage Planning & Execution					
				Boyd					
Risk Assessment Model									
Little & Medlin									
Quality of Maintenance									
Medlin									

Competitive Positioning

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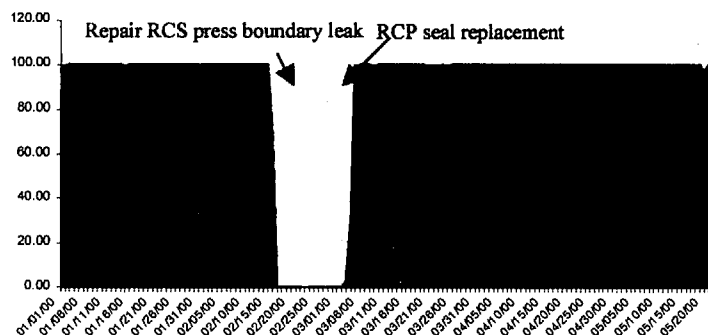
Oconee Nuclear Site
NRC Performance Indicators Annunciator Panel
1Quarter 2000

#	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			

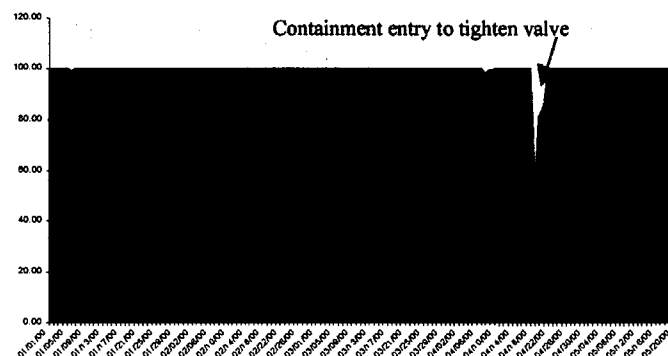


Operating Performance

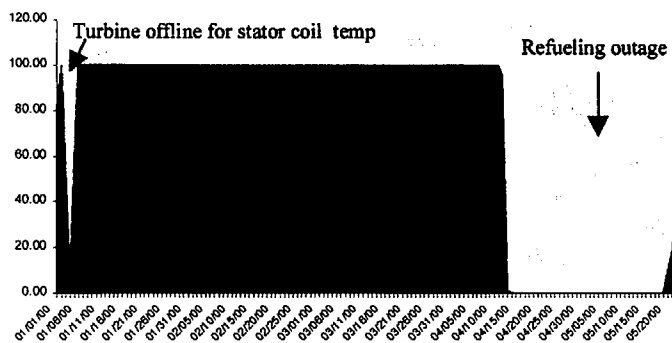
2000 Oconee Unit 1 Power History



2000 Oconee Unit 2 Power History



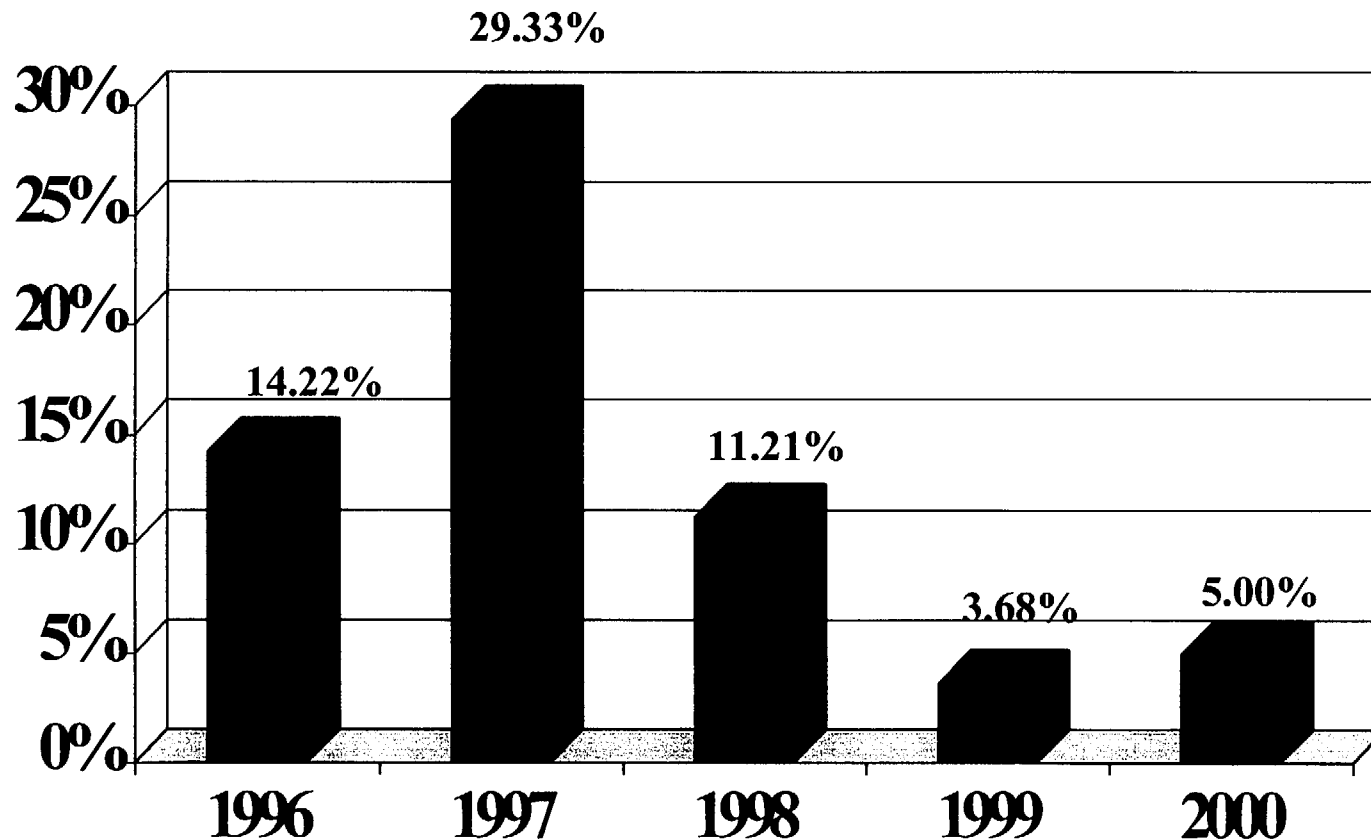
2000 Oconee Unit 3 Power History





Operating Performance

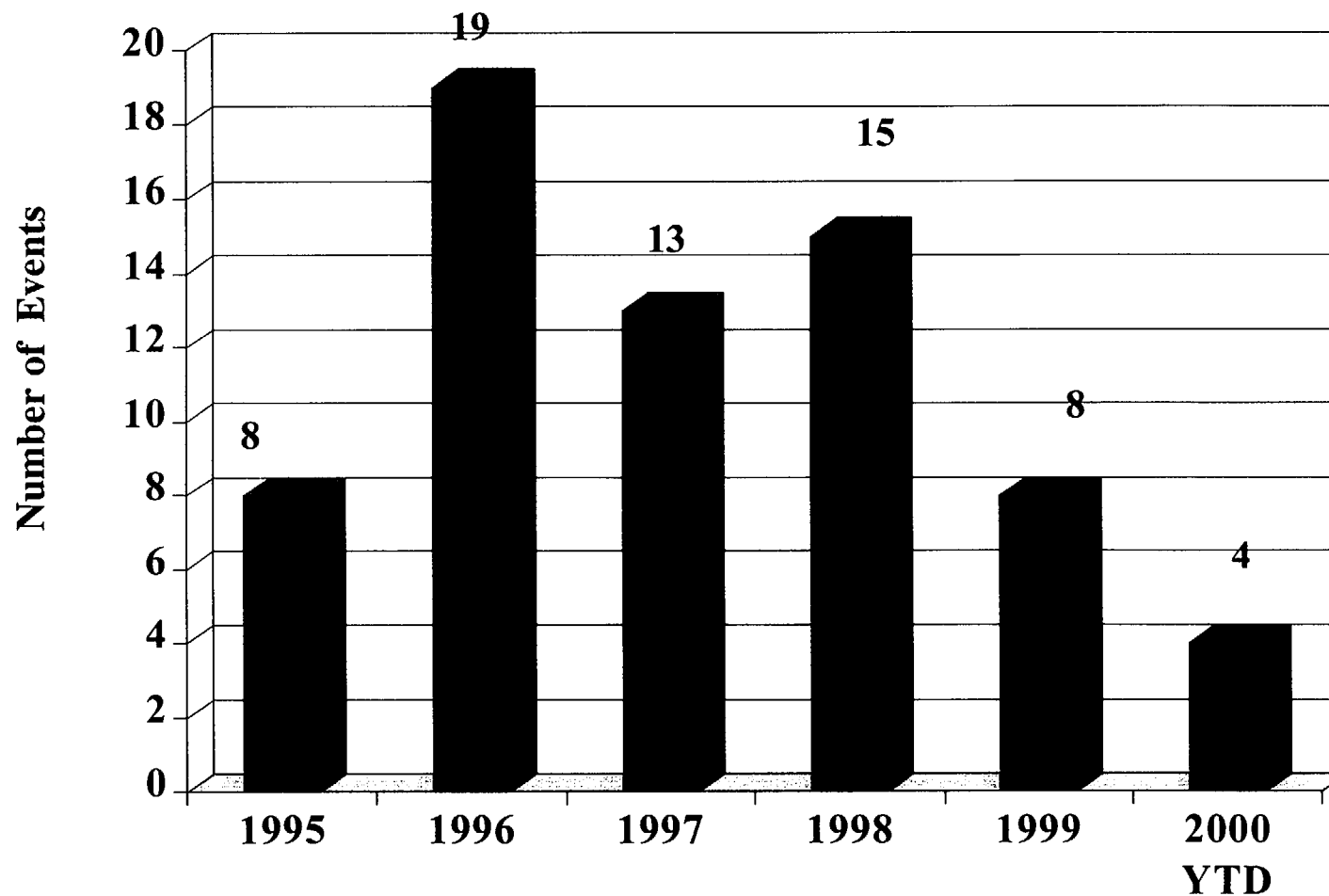
Historical Forced Outage Rate





Operating Performance

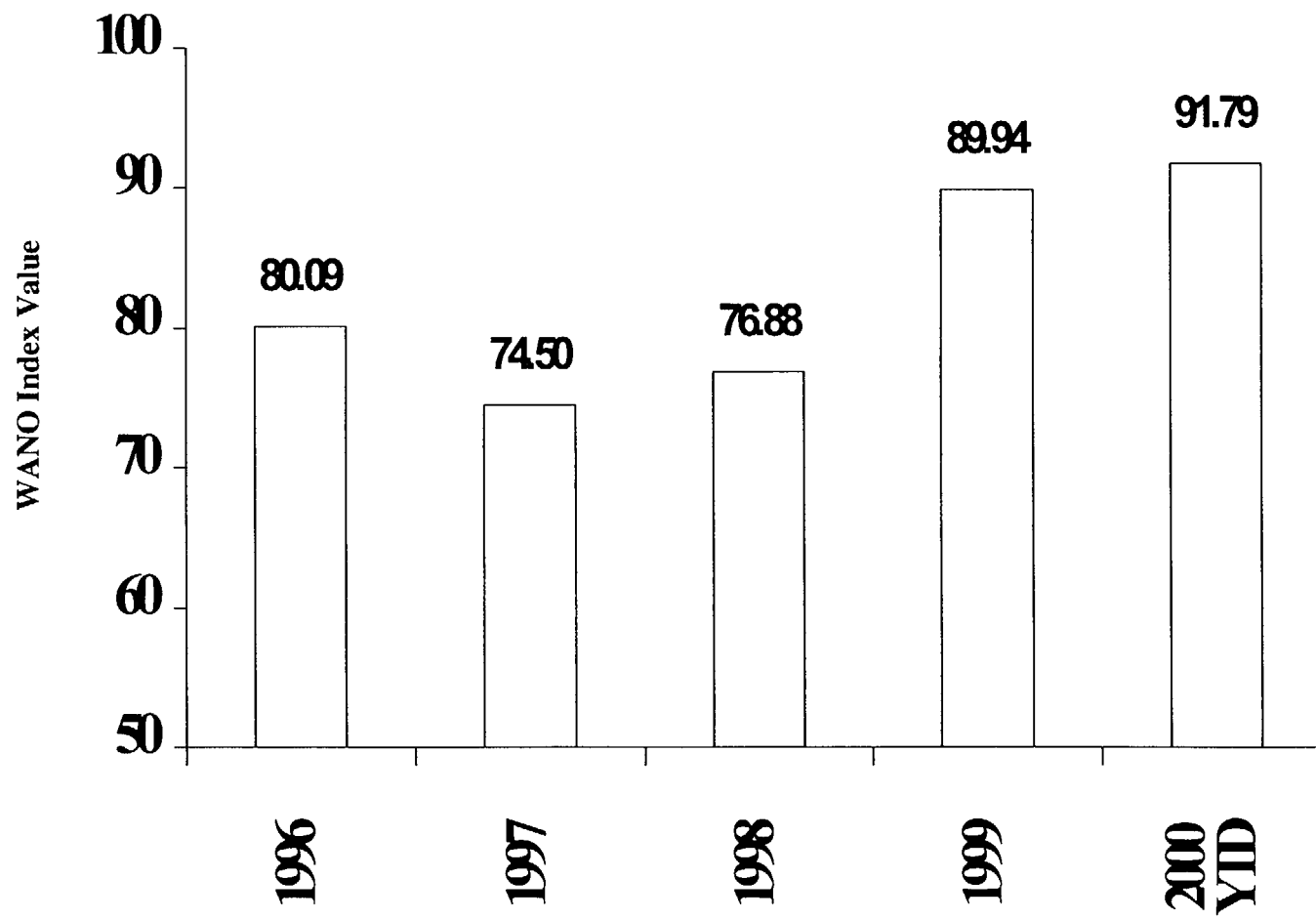
ONS System Events





Operating Performance

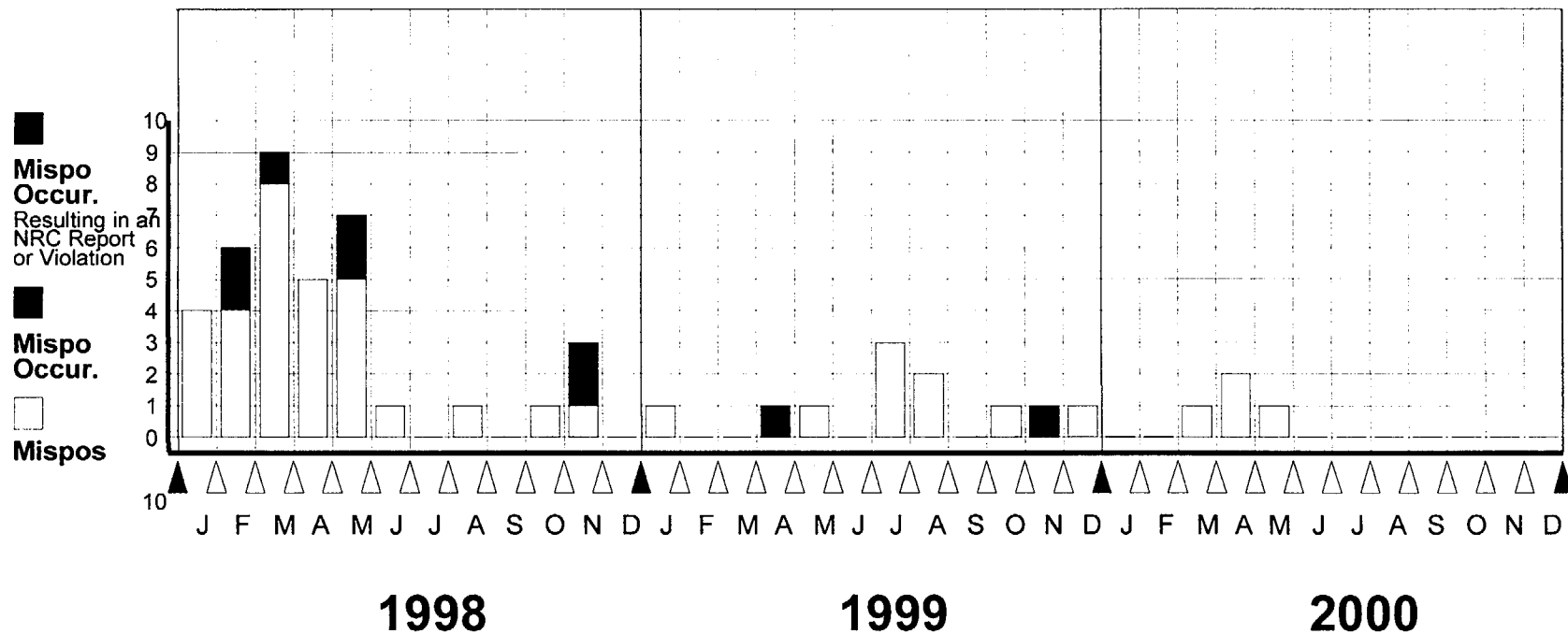
HISTORICAL TREND





Operating Performance

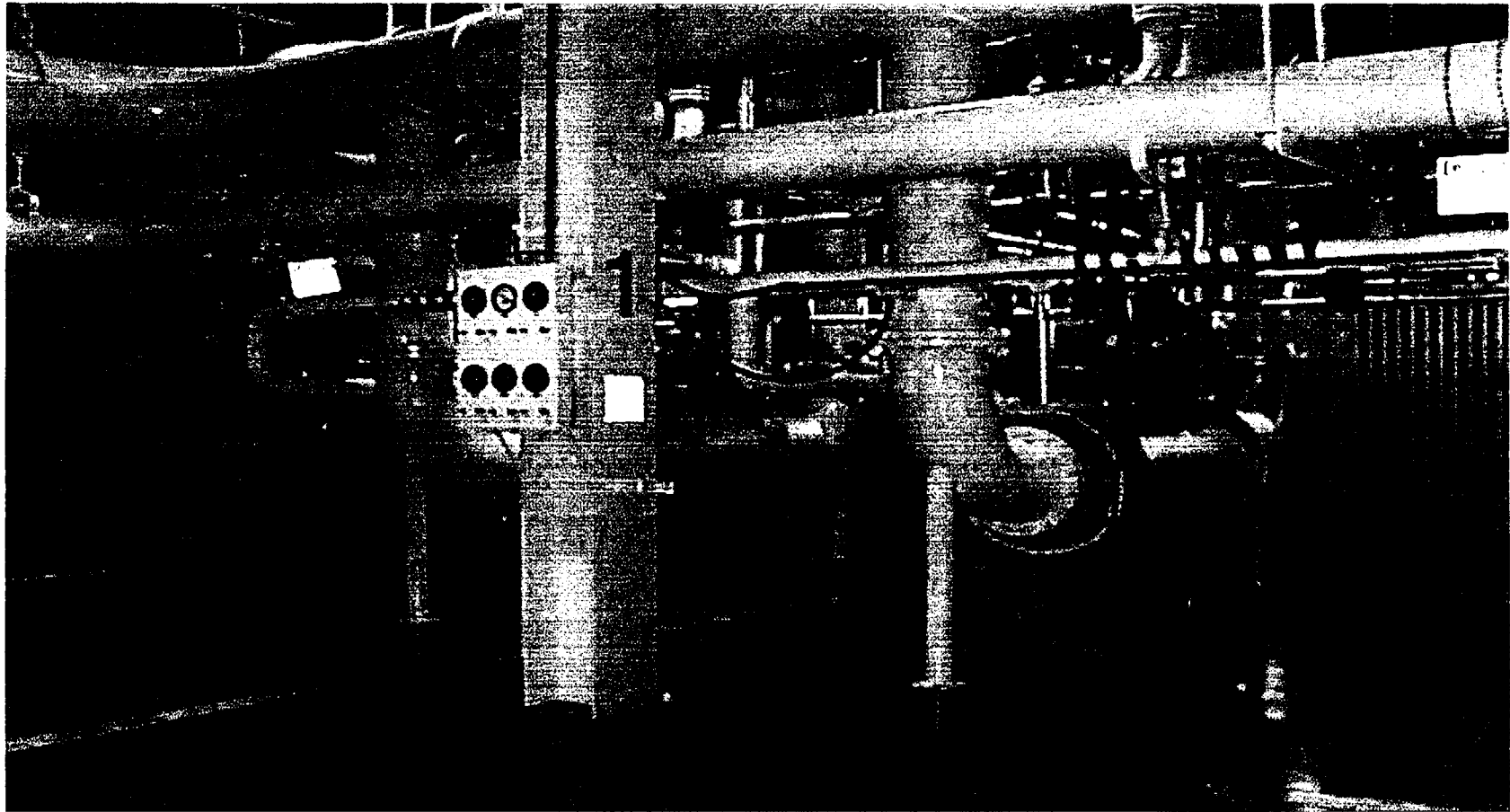
Mispositionings





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

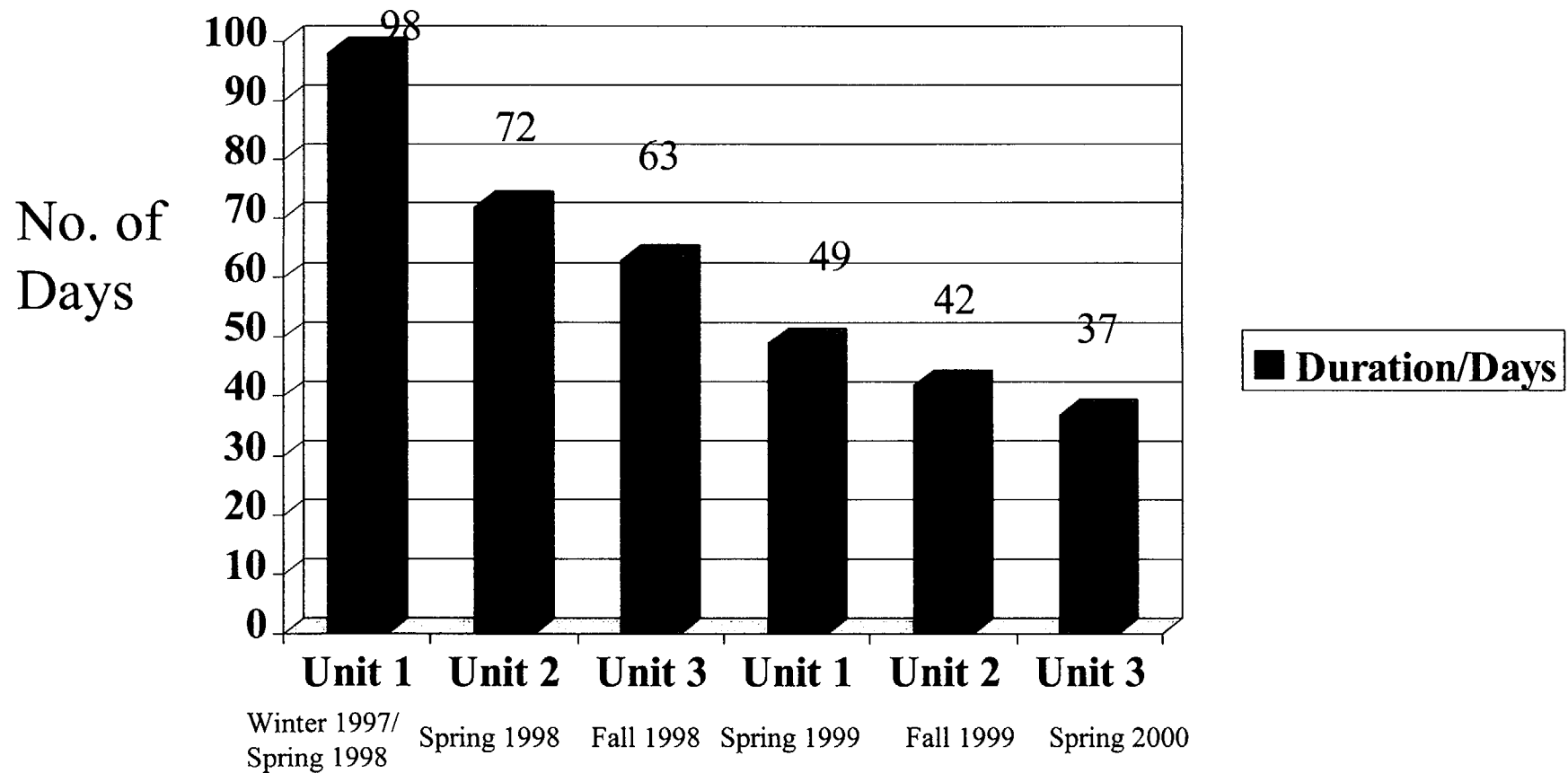
U3 RFO Performance

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



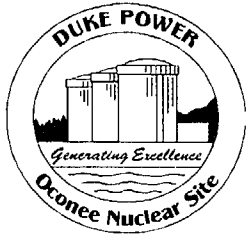
Areas of Continued Focus

- 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

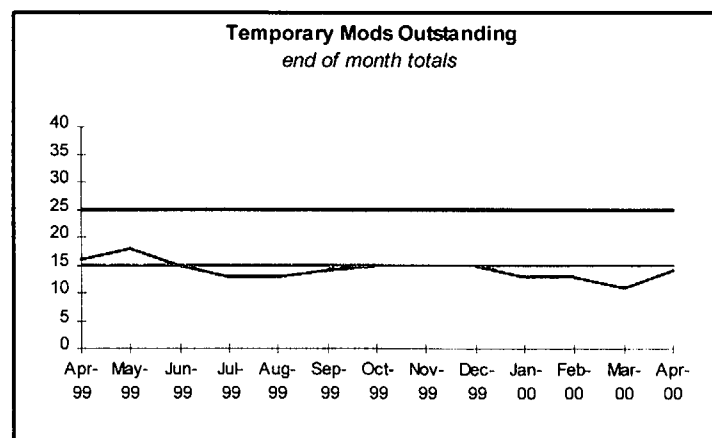
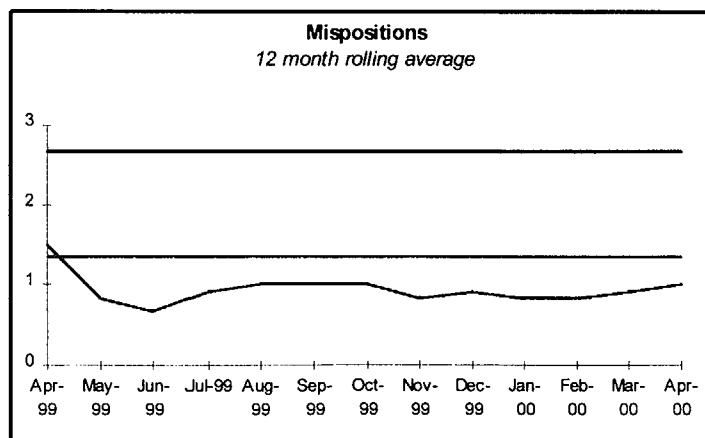
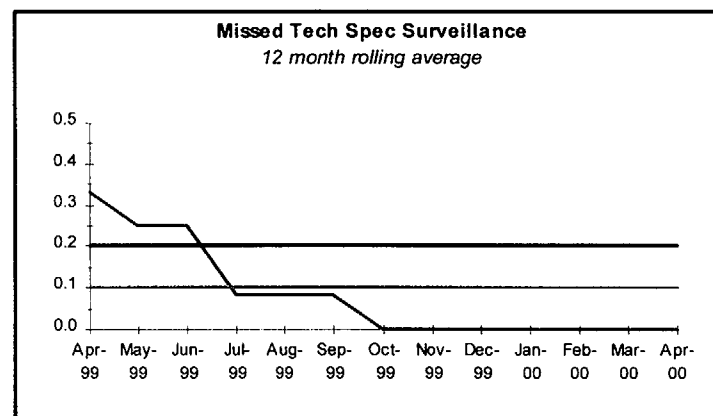
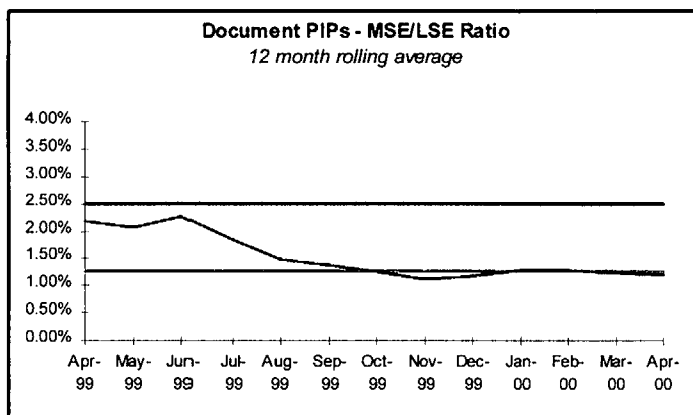
Design Review Board

- 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

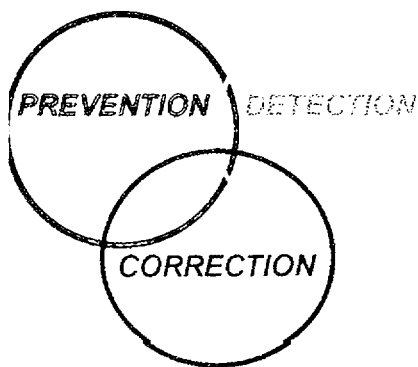
- Examples of team recommendations
 - Delete unnecessary secondary side auto trips, such as CBP low suction pressure trip
 - Upgrade NLO rounds
 - Correct material condition problems identified in walkdowns
 - Add redundancy to single failure points, such as stator coolant temp & pressure



Equipment Reliability

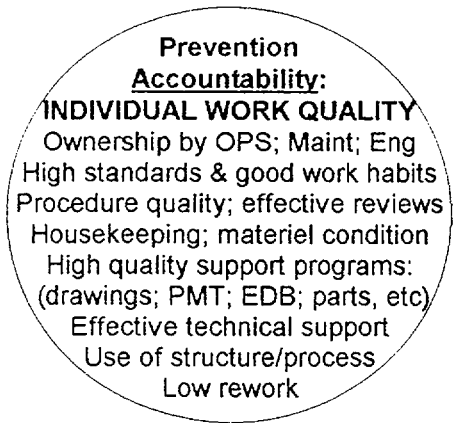
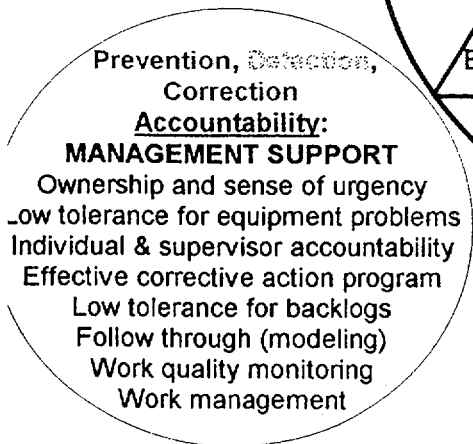
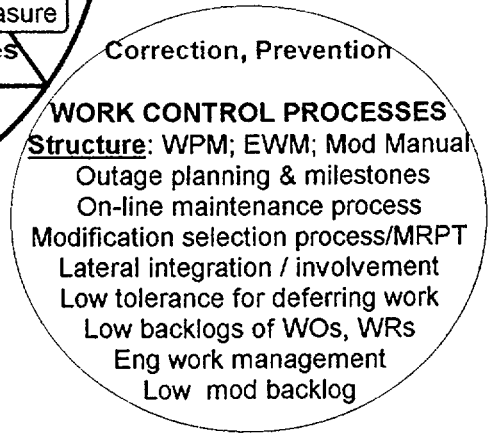
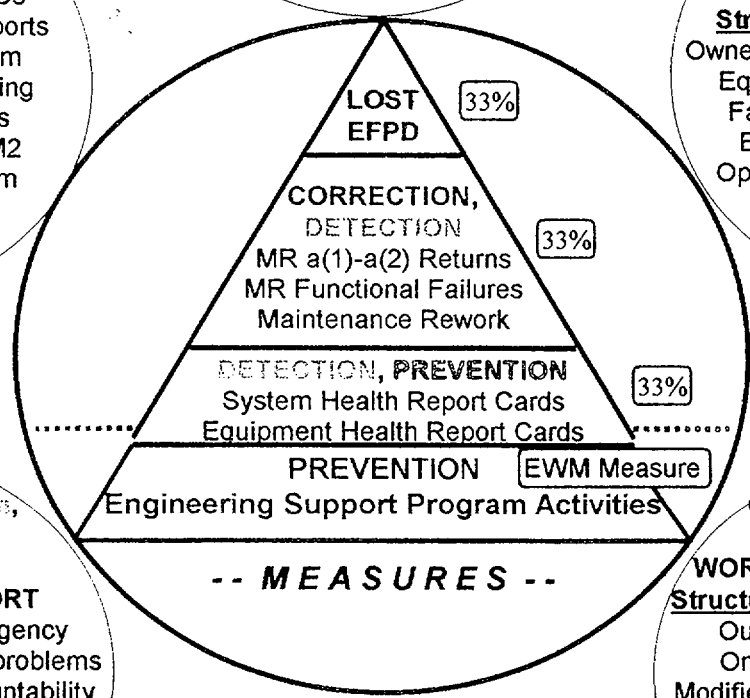
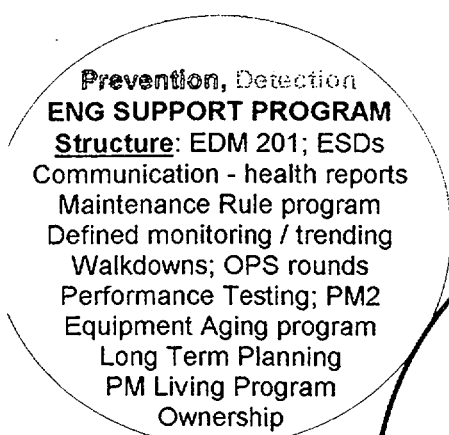
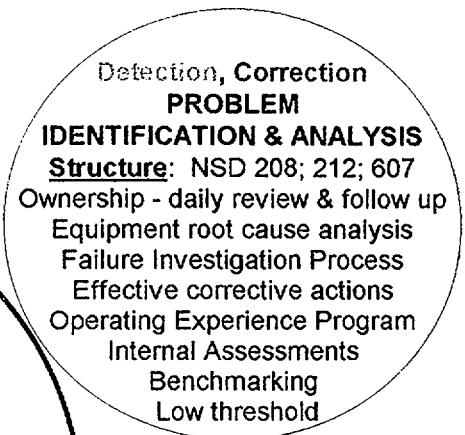
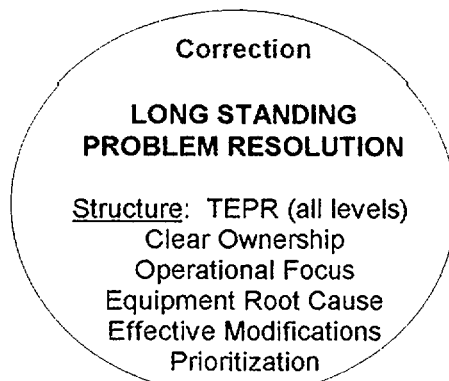
- Measures:
 - Lost generation due to equipment failure
 - Lost generation events
 - % Effectiveness in meeting M-Rule A1 action plans
 - M-Rule functional failures
 - System & component health reports

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.





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

