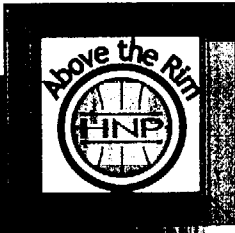


Harris Nuclear Plant

NRC Region II Visit

August 8, 2000

Enclosure 2

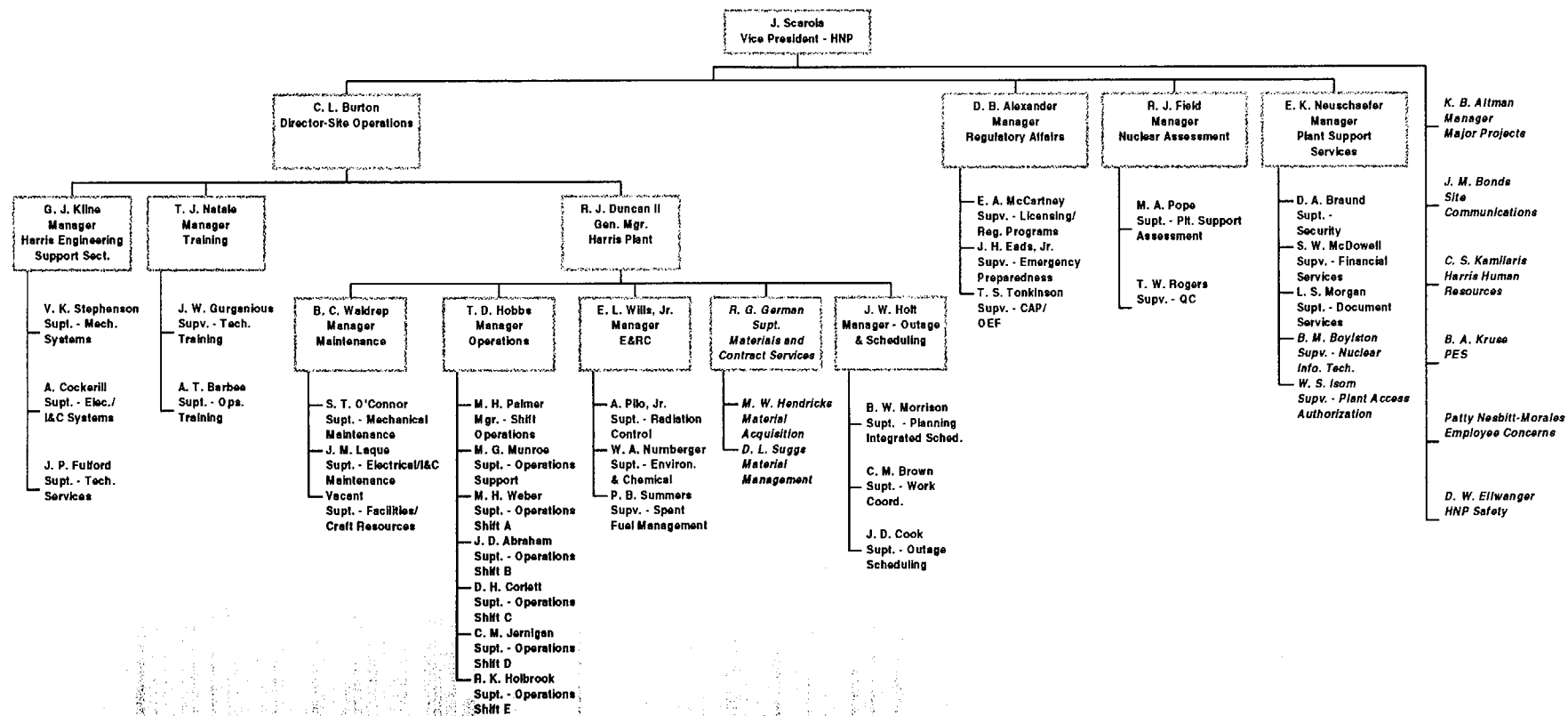


Agenda

- ★ Jim Scarola
 - ★ Management Changes
 - ★ Focus Areas
 - ★ Key Performance Indicators
- ★ Bob Duncan
 - ★ Plant Status
 - ★ Refueling Outage Performance
 - ★ Intolerance to Equipment Failure
- ★ Terry Hobbs
 - ★ Operational Focus
- ★ Bruce Altman
 - ★ RFO10 – SGR/PUR



Harris Nuclear Plant



Organizations located at HNP but reporting to another department are in italicized print.



Focus Areas

- ★ Refueling Outage 10
- ★ Zero Tolerance to Equipment Failures
- ★ Self Evaluation
- ★ Human Performance
- ★ Backlogs



July 2000

Safety

<div>—</div> Human Performance Events	<div>—</div> Site Exposure	<div>—</div> Personnel Injury Rate	<div>—</div> Safety Excellence	<div>—</div> Environ. Index	<div>↓</div> INPO Performance Index
<div>—</div> EAC Unavail.	<div>—</div> HPI Unavail.	<div>—</div> AFW Unavail.	<div>—</div> Fuel Reliability Index	<div>—</div> Scrams/7000 Hrs Critical	

Cost

<div>↑</div> Production Cost Mills/kWh	<div>↑</div> Capital Costs	<div>—</div> Non-Fuel O&M	<div>↑</div> Non-Fuel O&M Plus Capital	<div>—</div> Material Inventory Value
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Performance

<div>—</div> MWhrs Produced	<div>↑</div> Capacity Factor	<div>↓</div> UCLF	<div>—</div> Capability Factor	<div>—</div> Thermal Performance	<div>—</div> Forced Outage Rate
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Human Resources

<div>↑</div> Station Overtime	<div>↓</div> Vacancy Rate	<div>↓</div> Workforce Turnover
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- On Target
- In Jeopardy
- Off Target
- Not Stated
- ↑ Improving
- ↓ Degrading
- Stable



NRC Performance Indicators

Initiating Events

≤ 3.0	1.7
Unplanned Scrams	

≤ 2.0	0
Scrams With Loss of Heat Removal	

≤ 6.0	0
Unplanned Power Changes	

Mitigating Systems

≤ 2.5	0.7
Emergency AC Power	

≤ 1.5	0.4
High Pressure SI Pumps	

≤ 2.0	0.3
AFW Pumps	

≤ 1.5	0.3
RHR Pumps	

≤ 5.0	1
Functional Failures	

Barrier Integrity

≤ 5.0	0.1
RCS Specific Activity	

≤ 5.0	2
RCS Identified Leakrate	

Continued...



NRC Performance Indicators

...Continued

Emergency Preparedness

≥ 90.0	93.3
Drill/Exercise Performance	

≥ 80.0	94.7
ERO Drill Participation	

≥ 94.0	98.6
Notification System Reliability	

Occupational Radiation Safety

≤ 2	0
Occupational Exposure Control	

Public Radiation Safety

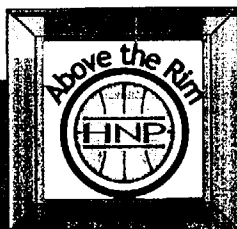
	0
RETS/ODCM Effluent Occurrences	

Physical Protection

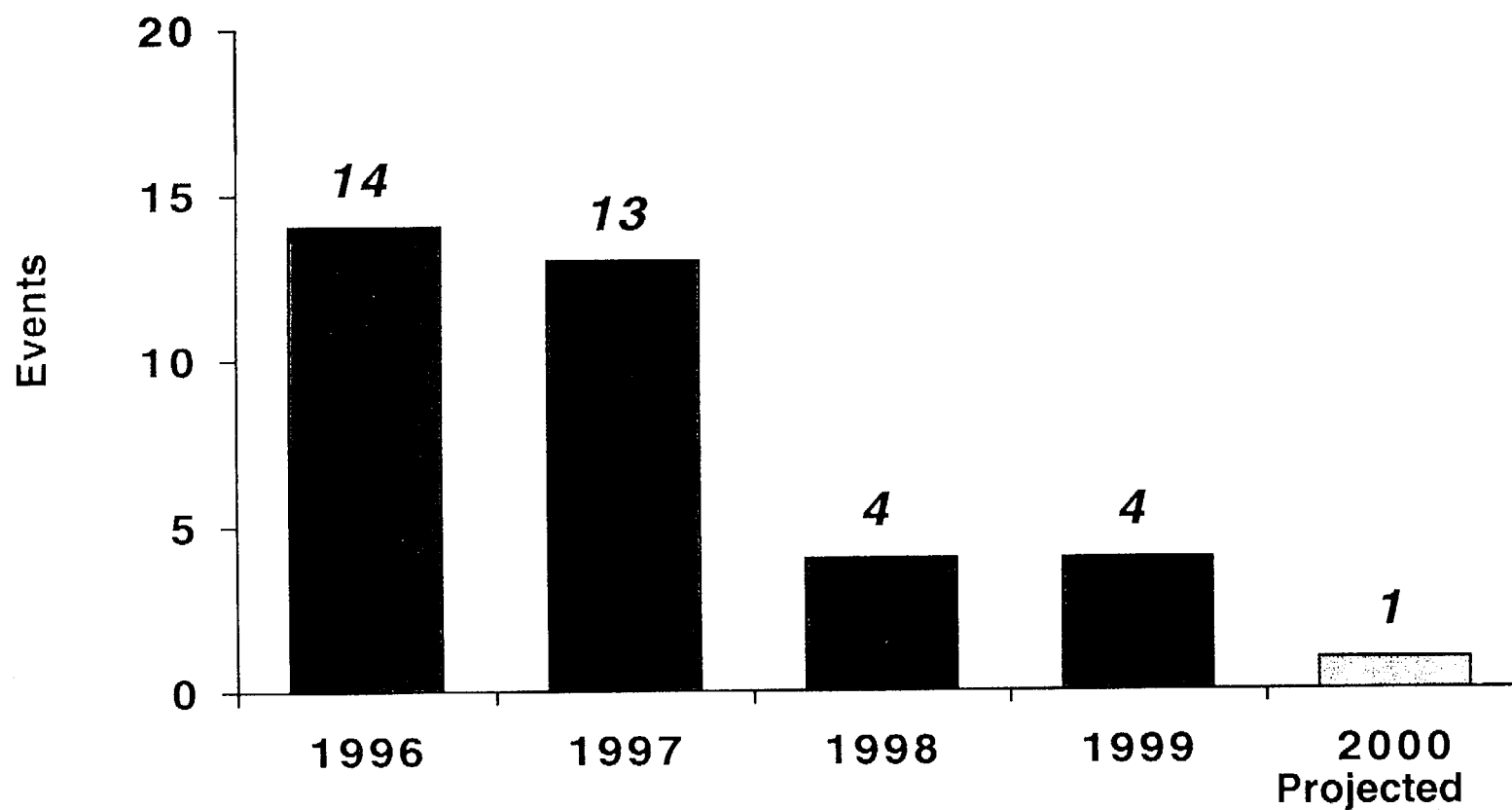
≤ 0.008	0.021
Security Equipment Performance	

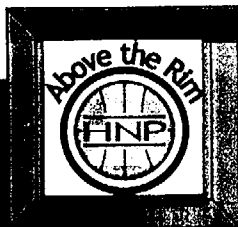
≤ 2	0
Personnel Screening Program	

≤ 2	0
FFD/Personnel Reliability Program	

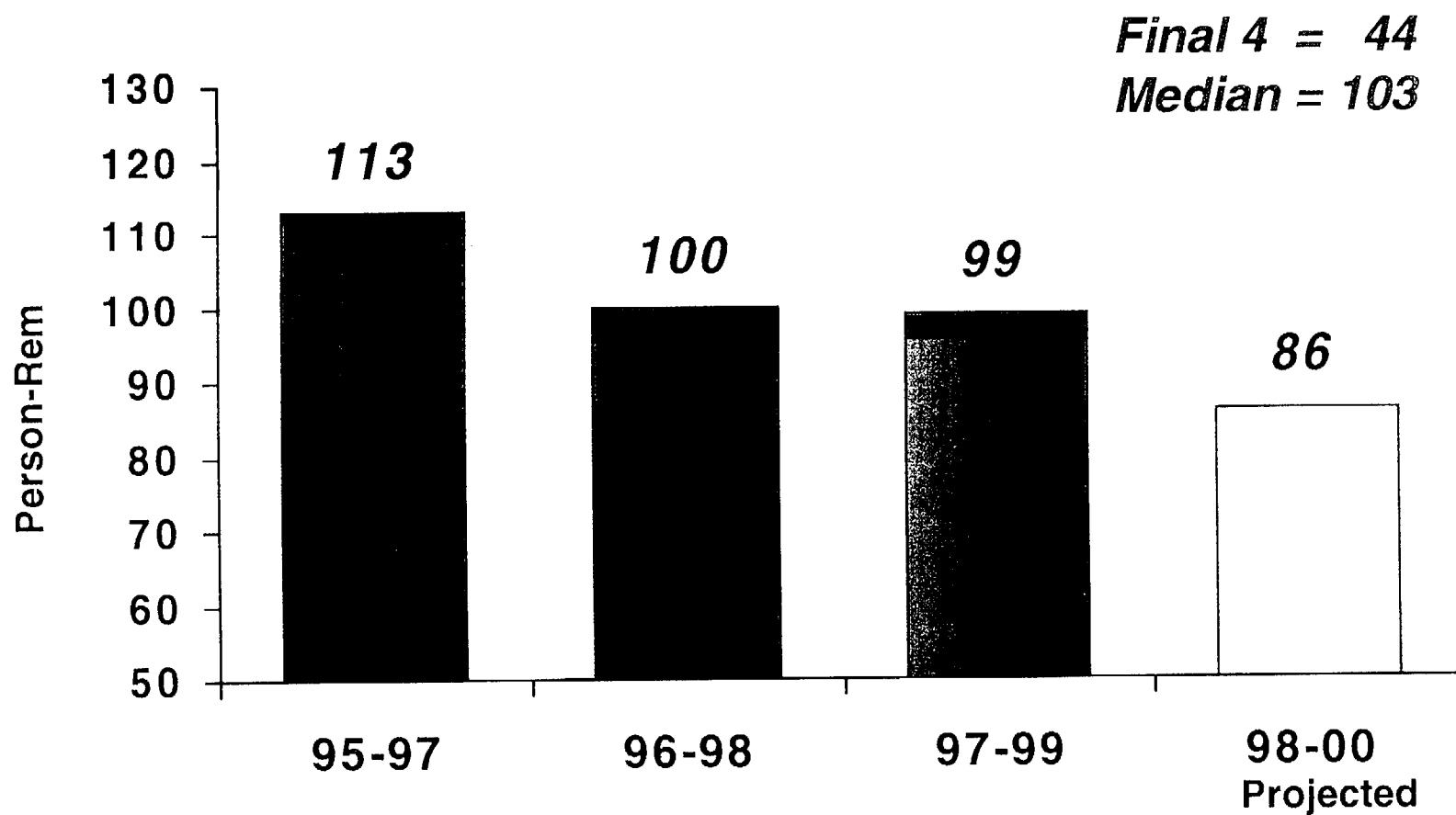


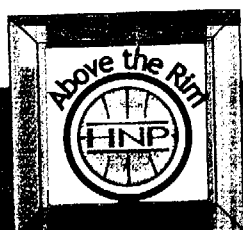
Human Performance Events



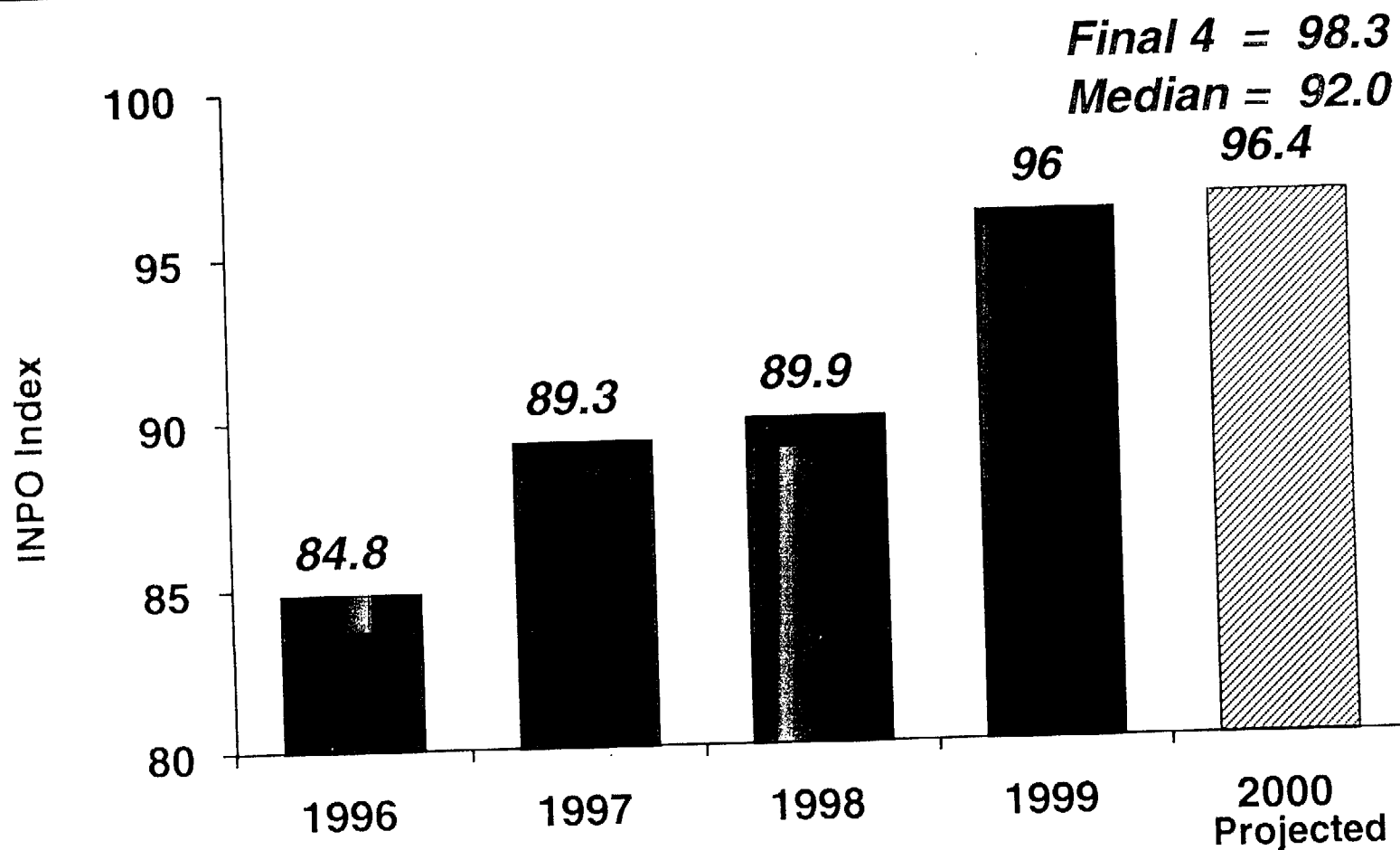


Radiation Exposure



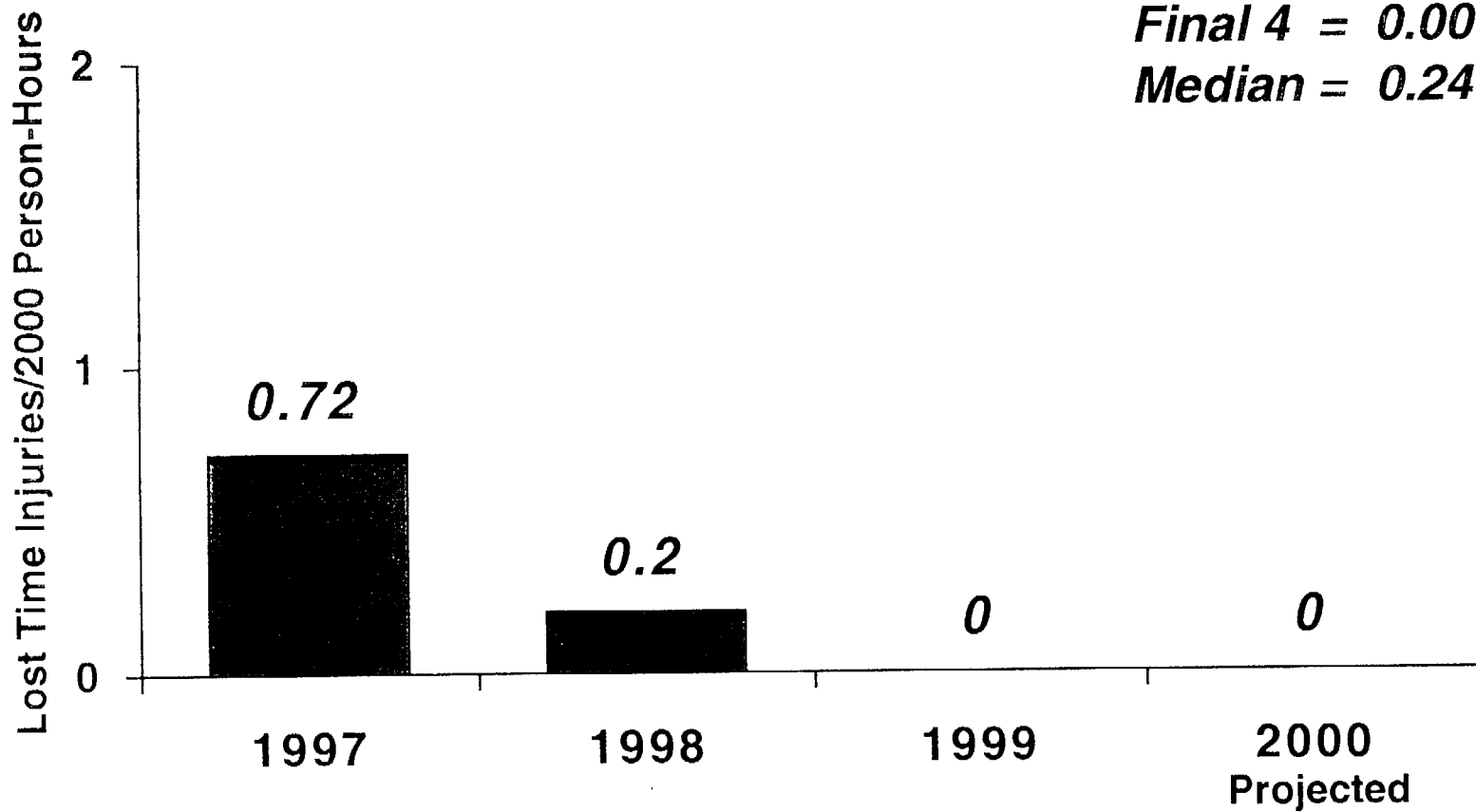


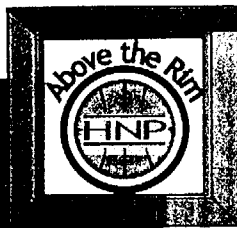
INPO Performance Index





Lost Time Injuries

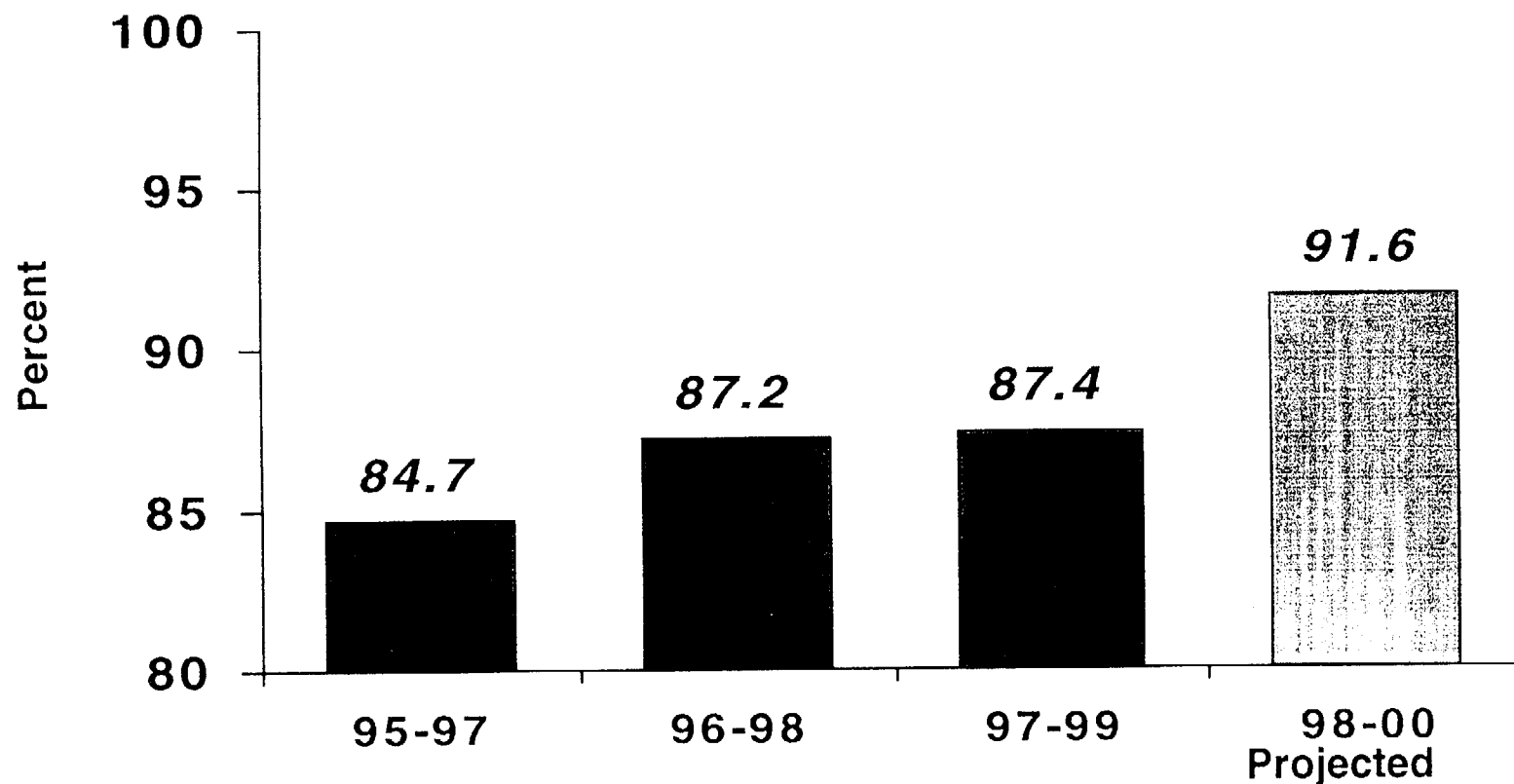


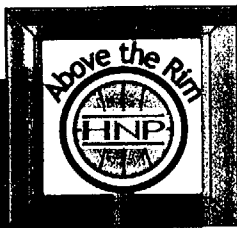


Capability Factor

Final 4 = 93.5

Median = 87.1

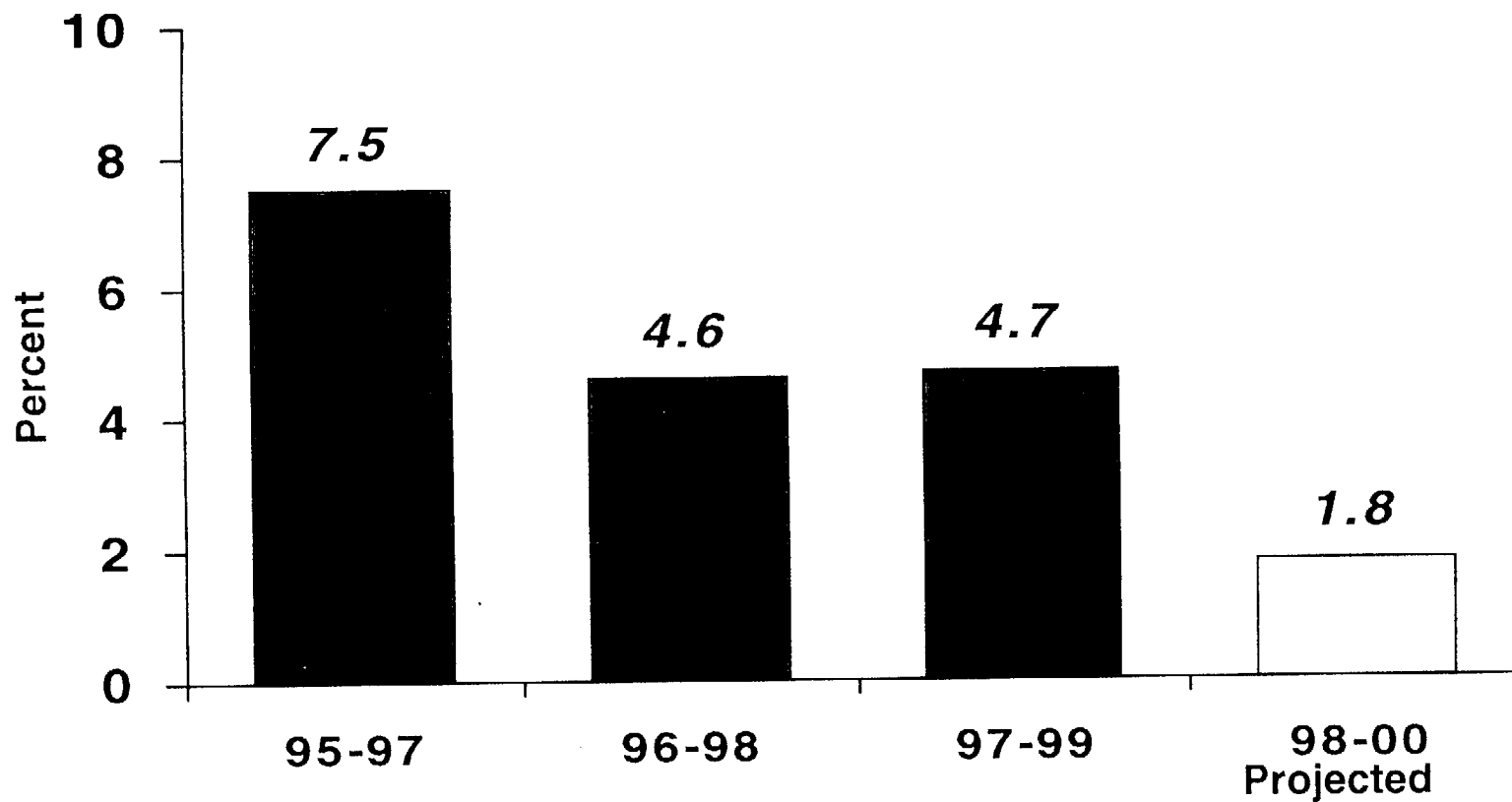


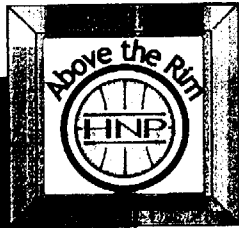


UCLF

Final 4 = 0.8

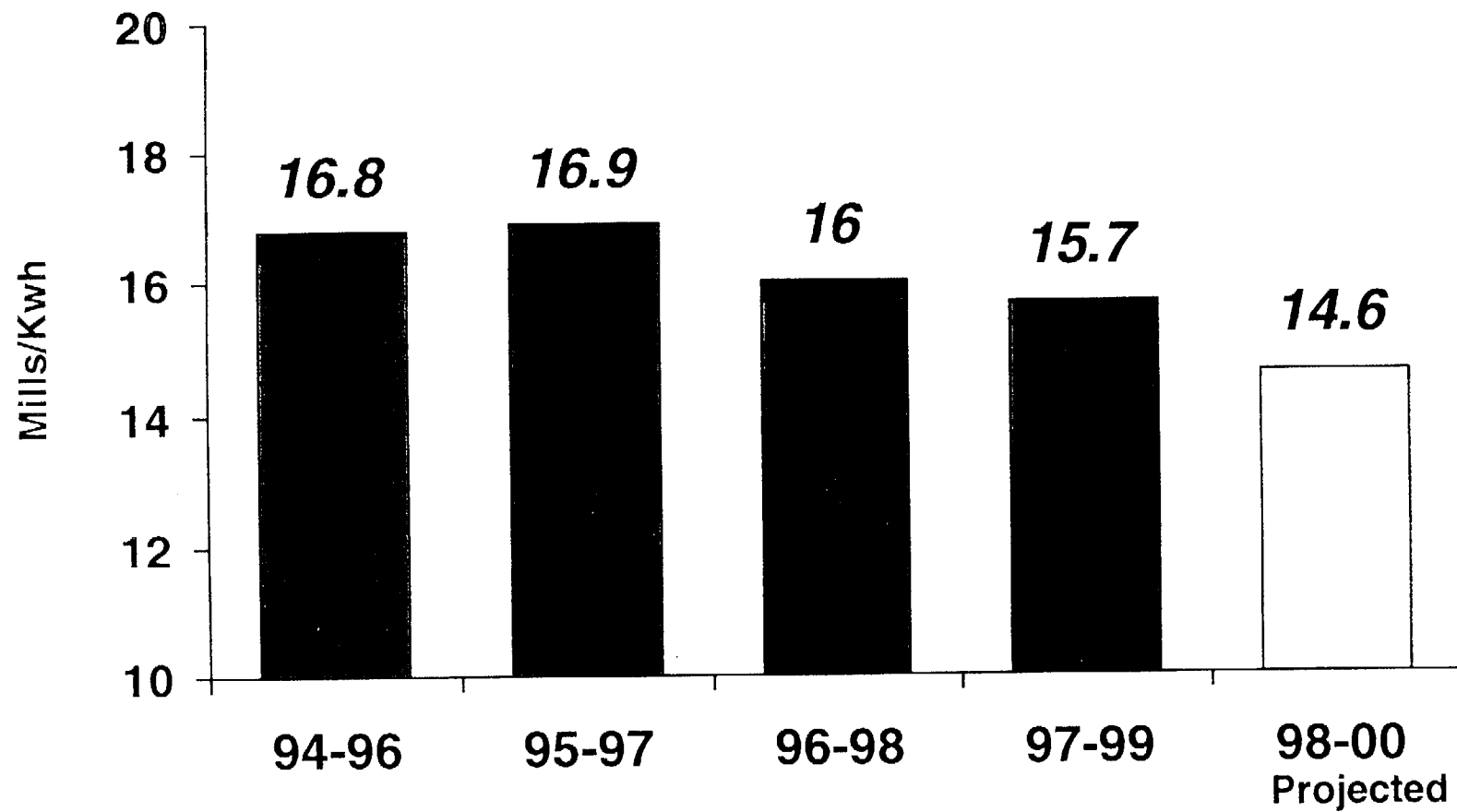
Median = 4.1





Cost

Final 4 = 13.4
Median = 18.0





Plant Status

- * Full Power
- * Continuous Run - 47 Days (On-Line 6/21/00)
- * 81.7% June YTD Cap. Factor (Target 76.7%)
- * 95 Days Without a Station Level HPE
- * 2.3 Million Hours Worked Without a Lost Time Injury



June Manual Trip

- ★ June 20
- ★ Diode Failure inside solenoid valve caused blown fuse
- ★ Root cause: Random manufacturing defect in coil diode
- ★ Excellent Operator Response
- ★ Excellent Plant Response
 - ★ Equipment
 - ★ Personnel Performance



Refueling Outage 9

	Goal	Actual
* Safety		
* Station Level HPEs	0	1
* OSHA Recordable Accidents	≤ 2	3
* Radiation Exposure (Pers. Rem)	≤ 100	89
* Production		
* Outage Duration (Days)	≤ 28	27
* Cost		
* O&M Cost (\$ Millions)	$\leq \$17.2\text{M}$	\$16.9M
* Other		
* Completion of Original Scope (%)	> 98	99.1
* Radwaste Generation (m ³)	< 40	35



Zero Tolerance to Equipment Failures

- ★ Culture
- ★ Equipment Challenges (Transients/Forced Outages)
- ★ Trending and Monitoring
- ★ Preventative Maintenance Optimization
- ★ Predictive Maintenance
- ★ Life Cycle Management (Equipment Obsolescence)



RFO9 Equipment Improvement

- ★ MS Condenser Dump Valves Improvement
- ★ Elimination of Condenser Vacuum Pump High Discharge Temperature
- ★ MFIV Replacement
- ★ Main Steam PORV Seat Leakage Resolution
- ★ MFRV Trim/Actuator Replacement
- ★ Replacement of Containment Air Handler ESW Drains and Vents
- ★ S/G Blowdown AOV Improvement
- ★ Heater Drain AOV Improvements
- ★ Permanent Cooling of Turbine E/H Fluid Reservoir
- ★ Several MOV Modifications to Improve Margin
- ★ BOP Piping Replacement/Upgrades due to FAC
- ★ Reactor Vessel Stuck Stud Removal
- ★ Cooling Tower Heat Removal Improvements
- ★ 'A' Condensate Pump Hi Vibration
- ★ Main Transformer Degraded Wiring Replacement
- ★ Sudden Pressure Relay Problem Resolution

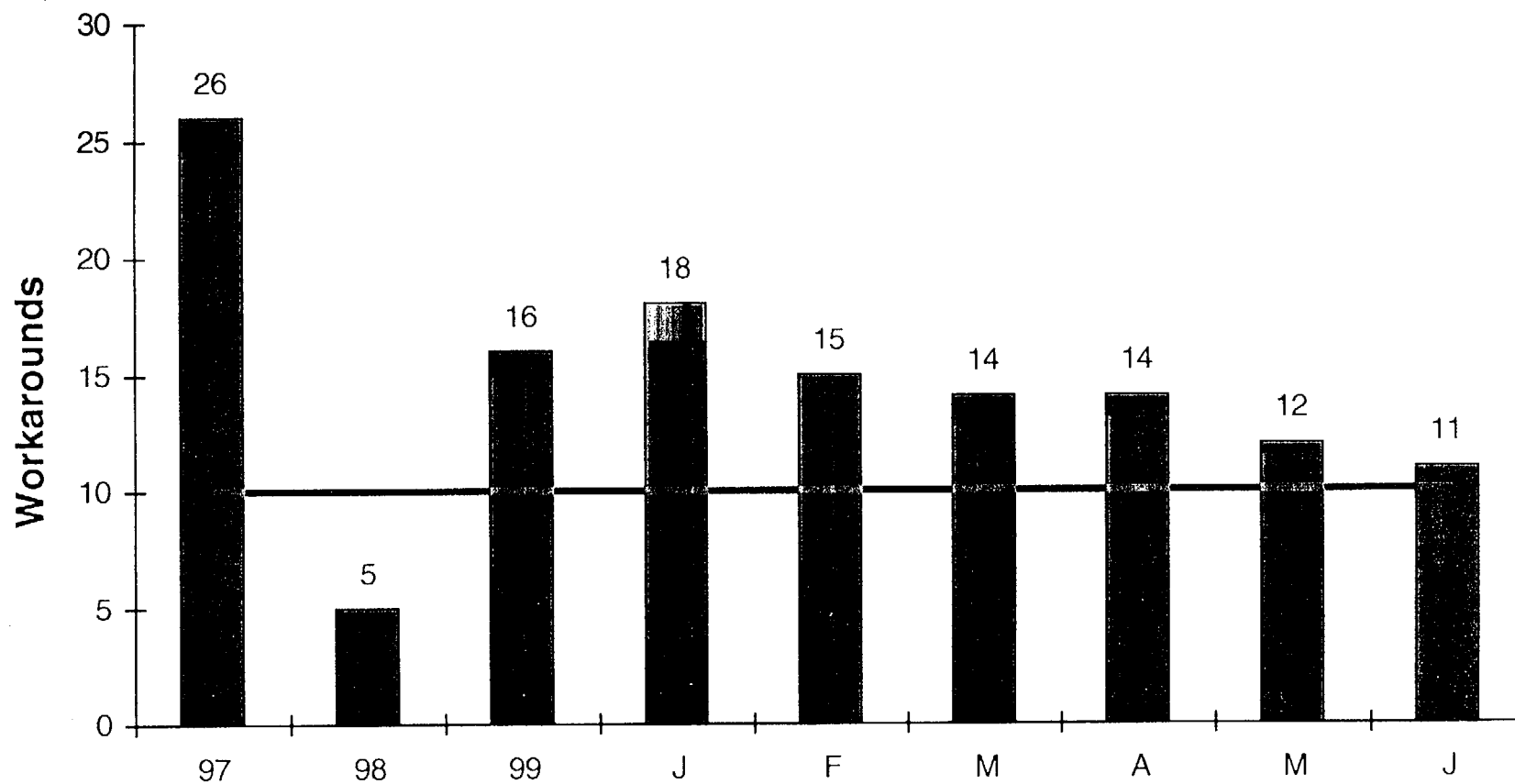


Operator Performance

- ★ Performance Indicators
 - ✧ Operator Workaround Arounds
 - ★ Operator Human Performance Errors
 - ★ Clearance Errors
 - ★ Procedure Backlog
- ★ Performance Improvements
 - ✧ March 1999 – Automatic Reactor Trip
 - ★ December 1999 – Manual Reactor Trip
 - ★ June 2000 – Manual Reactor Trip
- ★ Operator Training

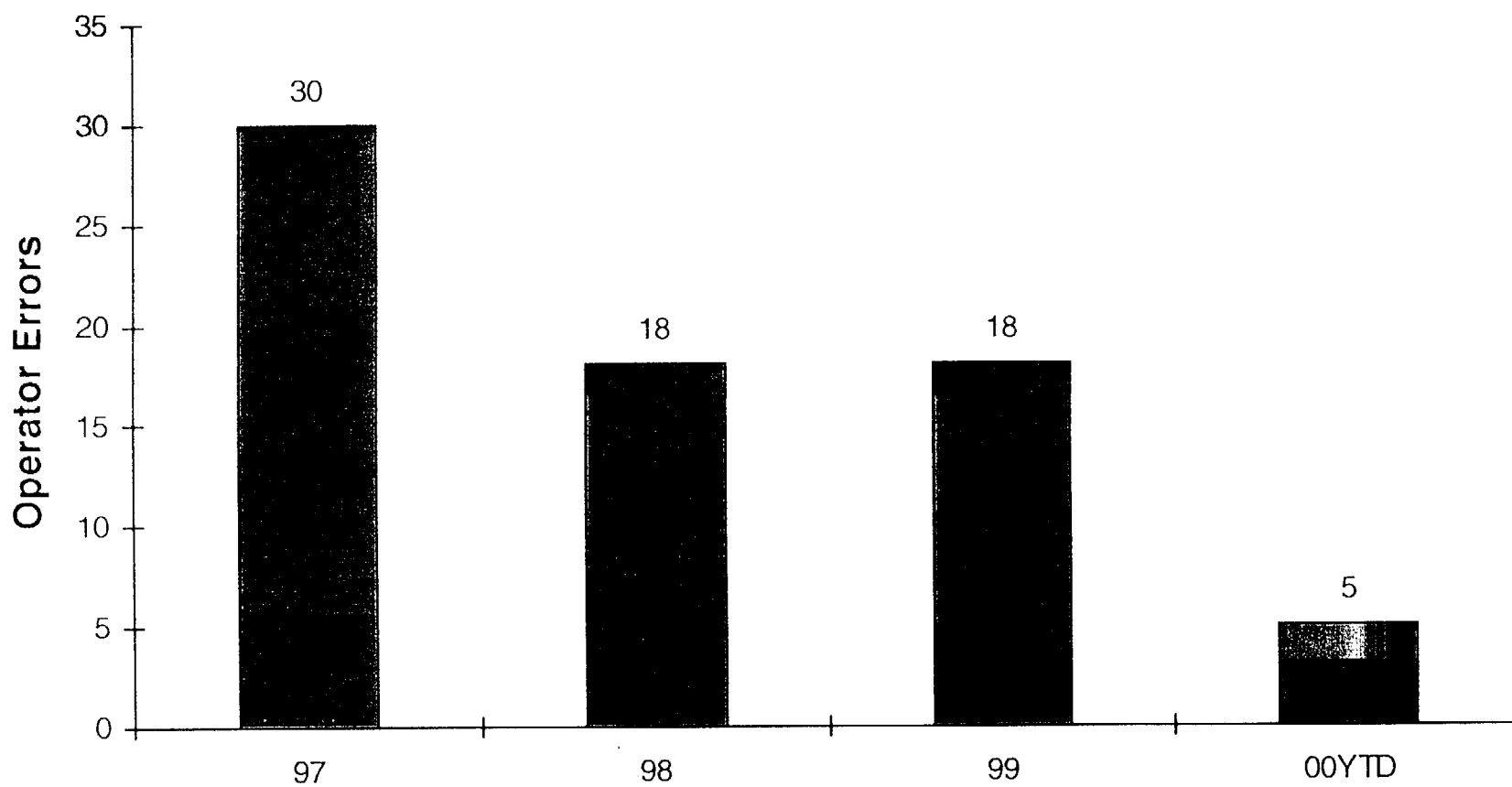


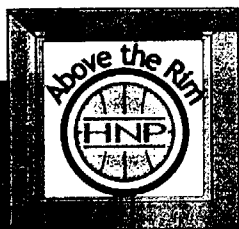
Operator Workarounds



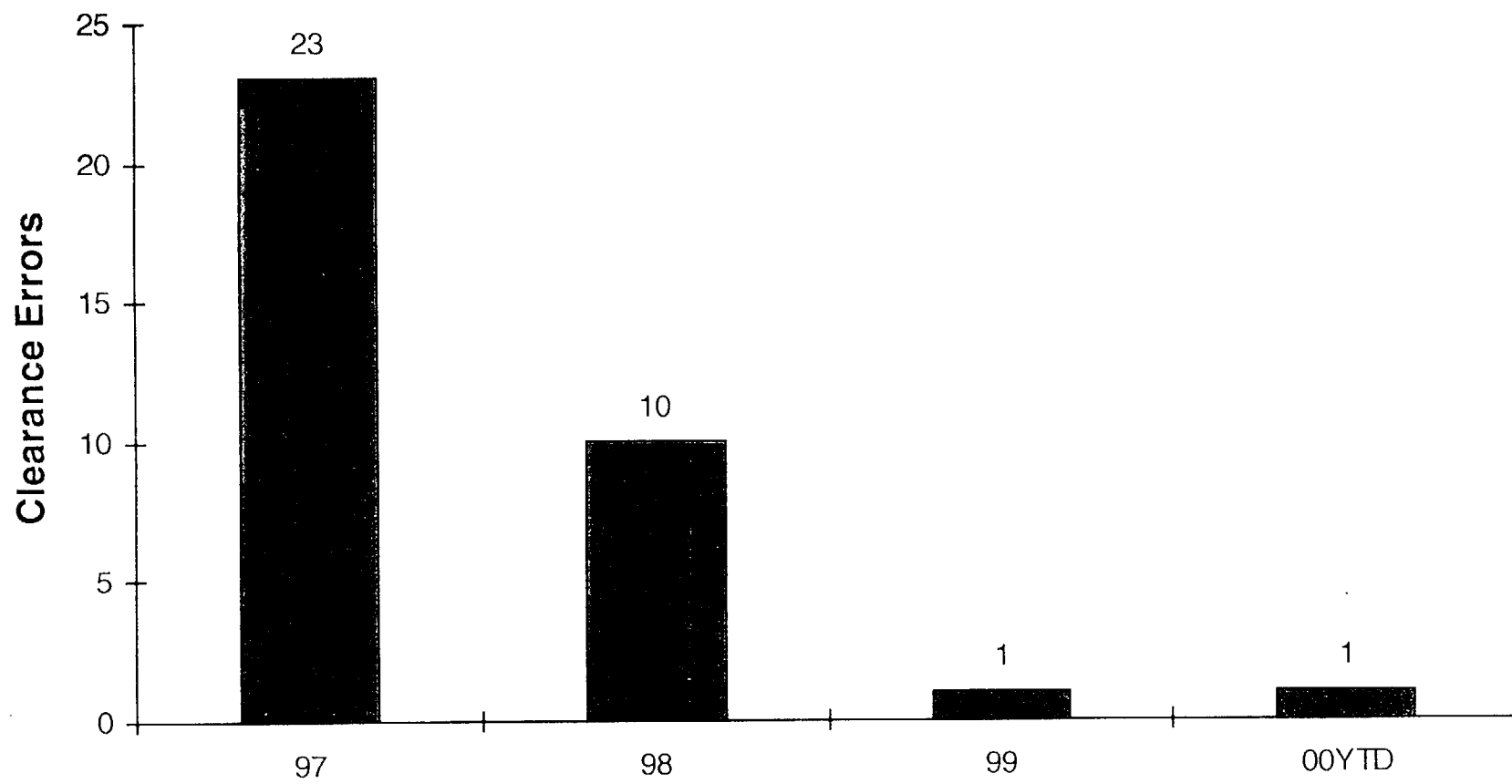


Operator HP Errors



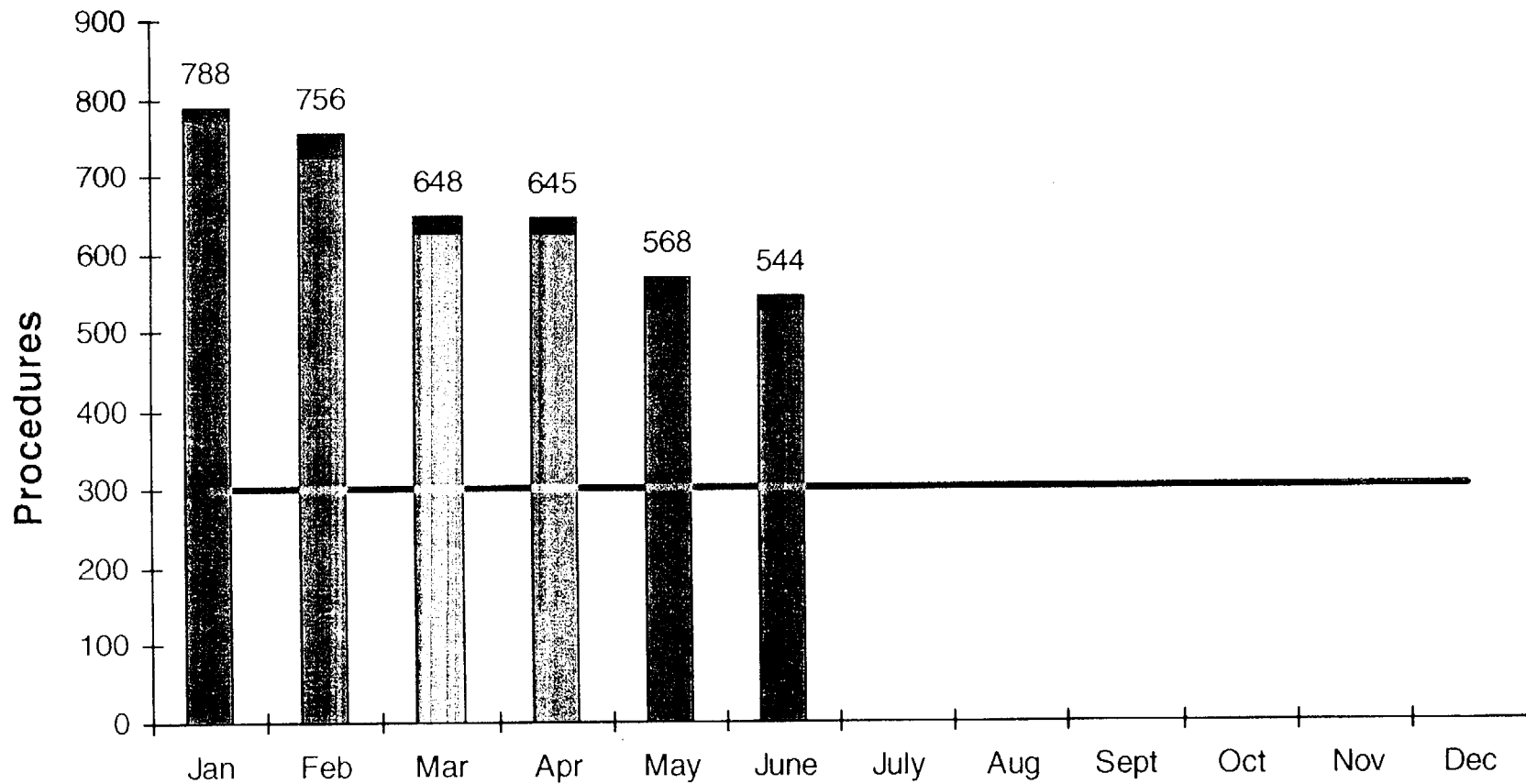


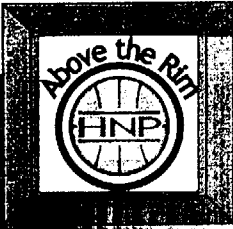
Clearance Errors





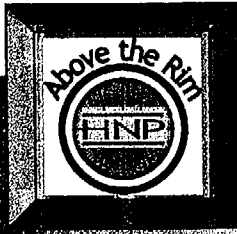
Operations Procedure Backlog





Improvement Initiatives

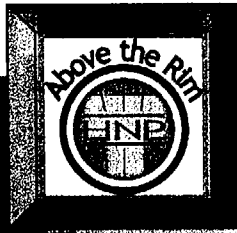
- ★ Operator Performance
- ★ Operations Procedures
 - ★ Standards
 - ★ Content
 - ★ Format
 - ★ Results in Crew Consistency
- ★ Oversight of the Transient Combustible Program



Operational Focus

- ★ Maintain Daily Focus
 - ★ Sensitive Activities
 - ★ LCO Management
 - ★ Emergent Work
 - ★ Condition Report Review

- ★ Personnel Development
 - ★ Operator Retention and Hiring
 - ★ Rotational Positions
 - ★ Succession Planning



Refueling Outage 10

- * Steam Generator Replacement
- * Power Uprate
- * Condenser Retubing



Steam Generator Replacement

- ★ Overview

- ★ Westinghouse Delta 75
- ★ Bechtel Project AE
- ★ Condenser Retubing
- ★ Implementation Fall 2001 (RFO 10)

- ★ Benchmarking

- ★ Salem
- ★ Almaraz
- ★ Byron
- ★ Braidwood
- ★ D. C. Cook
- ★ Farley



SGR – Current Activities

- ★ New Generators on Site
- ★ Engineering Design in Progress
- ★ Implementation Planning in Progress



Power Uprate Project

- ★ Overview

- ★ Increase Power by 4.5%
- ★ NSSS Power to Increase from 2785 to 2912.4 MWth
- ★ Station Electrical Output to Increase by 40.3 Mwe

- ★ Benchmarking

- ★ Farley



Power Upgrade Project Current Activities

- ★ Analysis Work Nearing Completion
- ★ Modifications Identified
 - ★ Main Feedwater Pump Impeller
 - ★ CCW Pump Impeller
 - ★ Main Transformer Cooling
 - ★ Turbine DEH Software Changes
 - ★ Isophase Bus Duct Cooling
 - ★ Set Point Changes
- ★ Engineering Phase In-Progress



Common Activities Licensing

- ★ Separate Submittals for SGR and PUR
- ★ Farley Uprate Used as Model
- ★ PNSC Subcommittee Review
- ★ Submit September 2000
- ★ Approval by September 2001



Common Activities 2001 Schedule

- ★ Complete Design Work - March
- ★ Mobilize and Begin Temporary Facility Construction - March
- ★ Complete Implementation Planning - July
- ★ Complete Pre-outage Preparations, Prefabrication, and Training - August
- ★ RFO 10 - September Through November
- ★ Closeout - December



Closing Remarks

- ✦ Strengthened Self Evaluation Culture
- ✦ Invest for Long Term Success
- ✦ Improvement Evident in Performance Measures