

# PERFORMANCE REPORT

March 2001

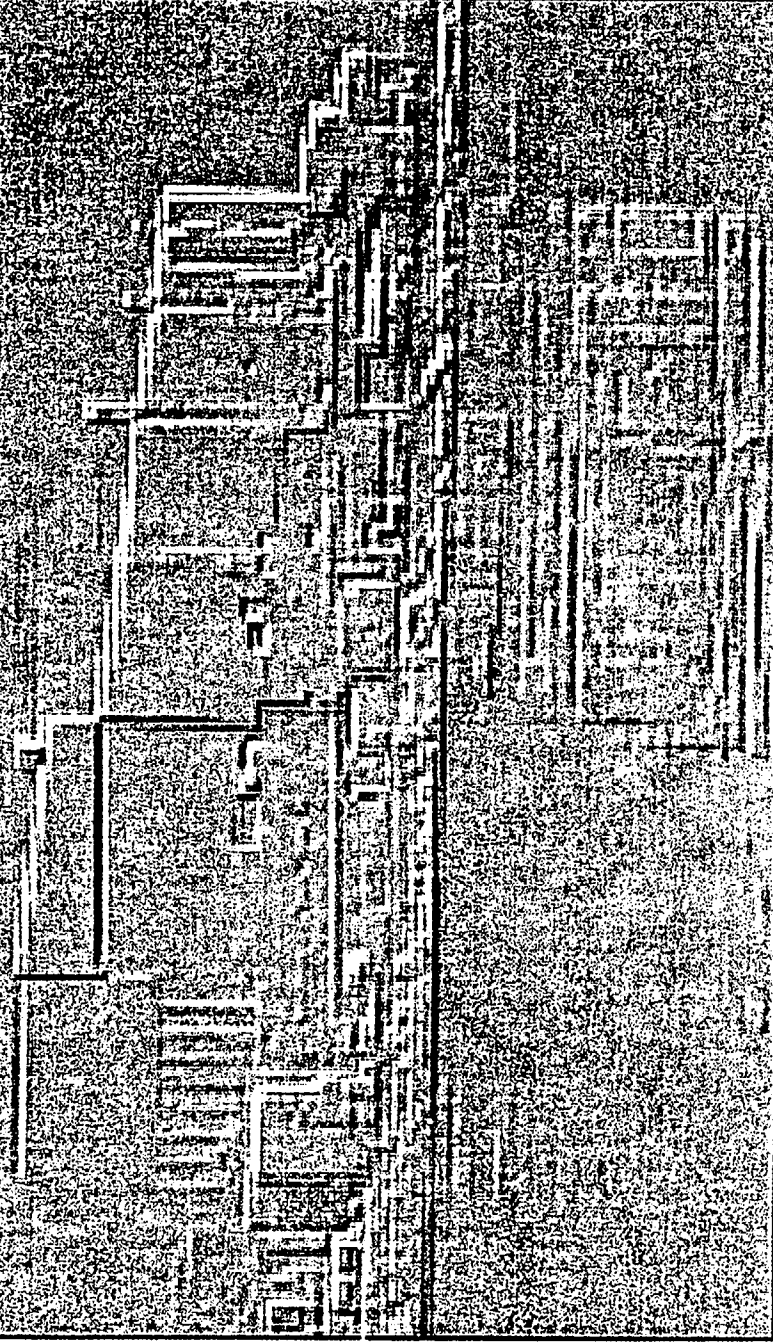


Nebraska Public Power District  
Advances Energy Inside

# COOPER NUCLEAR STATION

## Our Mission

To safely produce low-cost,  
reliable energy



**N**  
Nuclear Public Power District  
Member Energy Link

# **NPG Performance Report**

March 2001

## **Index**

- A. Cover Sheet
- B. Index
- C. Executive Summary
- D. Recent Events
- E. Recent Events, Continued; Upcoming Events
- F. Strategic Plan Performance Indicators

### **Strategic Plan Performance Indicators**

#### **1 Strategic Plan Performance Panel Critical Success Factor - Safety**

- 2 NRC Performance Indicator Panel  
NRC Performance Indicator Panel  
– Internal Limits

- 3 Human Performance Error Rate
- 4 Collective Radiation Exposure
- 5 Industrial Safety Accident Rate

#### **Critical Success Factor – Cost Competitiveness**

- 6 Bus Bar Cost
- 7 Controllable Cost Variance
- 8 Unit Capability Factor

#### **Critical Success Factor – Organizational Effectiveness**

- 9 WANO Index Panel  
WANO Index Table
- 9a WANO Index Benchmark
- 10 Voluntary Staff Turnover
- 11 Unplanned Capability Loss  
Factor
- 12 Open Non-Outage Corrective  
Maintenance Inventory
- 13 Corrective Action On-Time  
Completion
- 14 Pre-Outage Planning  
Milestones

# **NPG Performance Report**

March 2001

## **Executive Summary**

### **Safety –**

- All NRC performance indicators remain GREEN.
- The CNS established NRC Internal Limit indicators are all WHITE or GREEN.
- The Human Performance Error Rate 12 Month Average has improved to fall within the Needs Improvement (YELLOW Window) range. An improving trend continues from the past several months.
- Collective Radiation Exposure is WHITE. The station performance remains in the top quartile for the three-year industry average of Radiation Exposure received. 18.6 REM has been received year-to-date against a year-to-date goal of 20.6 REM.
- No accidents were reported in March, 2001. The Industrial Safety Accident Rate is in the RED range due to ice-related injuries received during December, 2000 and January, 2001. The current value is improving as injuries from 2000 fall out of the calculation, and the year end goal can be achieved if no further accidents occur in 2001.

### **Cost Competitiveness –**

- Bus Bar Cost year-to-date through March is \$36.57/MW-Hr, which is above the revised "Strategic Plan" estimate of \$34.56/MW-Hr for the same period. This variance is largely associated with the Mid-Cycle Outage extension, and the accounting treatment of the changes in the decommissioning fund.
- Controllable Cost is WHITE due to O&M expenses exceeding plan by \$775,500 during March, in large part attributable to the Mid-Cycle Outage extension.

### **Organizational Effectiveness –**

- Voluntary Staff Turnover (resignations and NPPD transfers out of the Nuclear Business Unit) averaged 6.1% over the previous 12 months, which is above the goal of 5%.
- Unplanned Capability Loss of 14.6% was experienced during March, due to the Mid-Cycle Outage extension.
- The Pre-Outage Planning Milestones indicator continues to remain GREEN.
- The WANO Index is YELLOW, due to Unplanned Capability Loss of 14.6% from the Mid-Cycle Outage extension and the combination of high Unplanned Capability Losses and low Unit Capability Factor from the three forced outages in 2000.

# NPG Performance Report

March 2001

## Recent Events

### Plant Activities of Interest

**Operation:** The plant operated at a 48.3% Capability Factor during March. Unplanned losses of 14.6% were experienced due to the Mid-Cycle Outage extension.

**Mid-Cycle Outage:** The planned Mid-Cycle Outage started at 0912 on March 3, 2001 (output breaker open) and was completed at 2240 on March 17, 2001 (synchronized to the grid). The outage exceeded the planned duration by 109 hours, due to emergent repairs on feedwater level control systems, steam jet air ejector and off-gas piping, and packing on a main steam line drain valve.

**Notice of Unusual Event (NOUE):** At 8:12 p.m. on April 23, 2001, Cooper Nuclear Station personnel declared an Unusual Event after a short circuit caused the visual and audio alarms in the control room to stop operating. An Unusual Event is the lowest level emergency classification at a nuclear station. The short circuit was located and the control room annunciators returned to service at 9:05 p.m., ending the event. The NPPD emergency response organization was placed on standby during the event. Members of the general public were not impacted by this low level emergency classification.

### Regulatory Interface

#### **Resident Inspection:**

The NRC Resident Inspection 2000-15 quarterly exit was held on April 3, 2001; the period covered by the inspection was December 31, 2000 thru March 31, 2001.

One Potential Violation was discussed. The NRC believes that the CNS Technical Specification bases are not consistent with the Updated Safety Analysis Report relative to offsite power source requirements. This potential violation was preliminarily classified as the lowest classification of cited violations, Severity Level IV. NPPD intends to deny this violation based upon our engineering determination that the modifications made to the 161kV line and the capacitor bank in the 69kV substation were not Unreviewed Safety Questions requiring prior NRC approval.

A Non-Cited Violation was also discussed, related to incorrectly oversized varistors in Diesel Generator #2. CNS personnel took appropriate action to correct this issue, and repairs are completed.

Several GREEN (lowest level of NRC concern) Findings were also noted at the exit. These included the operator difficulties in controlling water level during the Mid-Cycle Outage shutdown; two Operations crews failing Licensed Requalification Training; and a potential Finding regarding Operator Work Around items being imbedded in procedures.

The NRC also discussed an Unresolved Item, related to the 161kV and 69kV offsite power concerns.

# **NPG Performance Report**

March 2001

## **Recent Events, Continued**

### **Regional Inspections:**

The Supplemental Emergency Preparedness Inspection exited on April 17, 2001. The NRC discussed the CNS critique of the April 11, 2001 drill as "robust", and much improved from the August 2000 drill.

One potential Non-Cited Violation, failure to correct a drill weakness, was noted as a "GREEN" finding. The Non-Cited Violation relates to additional training needed in the understanding of core damage assessment, designed to address the drill weakness in classification of the emergency, identified during the August 2000 drill. The Emergency Preparedness Manager has taken actions to provide training to CNS personnel responsible for classifying emergencies within the Emergency Response Organization.

The Security Inspection exited on March 29, 2001. One "GREEN" finding resulted in a Non-Cited Violation, which relates to a previously documented finding involving a failure to provide timely compensatory measures. Licensee Event Report 2000-S01, submitted to the NRC on November 29, 2000, provided information on the corrective actions implemented to preclude recurrence of this event.

A telephone exit for the Triennial Fire Protection Inspection will be conducted on April 26. The following four "GREEN" Non-Cited Violations are being discussed:

- The flammable insulation which had been installed in the service water pump room.
- Two emergency lights that were not properly aimed.
- The failure to fully implement a 1979 commitment to install more smoke detectors.
- Incorrect sprinkler head sizing.

Information on the status of these four issues will be provided in the April, 2001 NPG Performance Report.

## **Upcoming Events**

<b>April 30 – May 10</b>	<b>Station-Wide Self Assessment</b>
<b>May 16</b>	<b>SRAB Meeting</b>
<b>May 21</b>	<b>NRC ALARA Inspection IAG Meeting</b>
<b>June 4</b>	<b>NRC Safety System Design (RHR)</b>
<b>June 21</b>	<b>On-site Safety Fair</b>
<b>July 9</b>	<b>NRC Gaseous and Liquid Effluents</b>

# NPG Performance Report

March 2001

## CNS Strategic Plan Performance Indicators

This report reflects the Cooper Nuclear Station Strategic Plan performance indicators.

Goals relative to these indicators have been identified within the Strategic Plan, which:

1. Establish performance levels consistent with top quartile performance in the industry as measured by the WANO index.
2. Provide margin to regulatory performance thresholds such that no increased regulatory response is required.
3. Meet or exceed NPPD's expectations for the performance of the Cooper Nuclear Station.

The charts reflect performance for 1998 and 1999 performance, recent and current year performance, and Strategic Plan goals for 2002 and 2007. This approach places current performance in the context of the 6-year plan.

Excellent (GREEN) or satisfactory (WHITE) performance relative to the current year goals was obtained during March for 5 of the 13 goals.

- **Indicators currently YELLOW (Needs Improvement) include:**

Voluntary Staff Turnover – This is a new indicator in the 2001 plan. The Goal was set below historic performance to reflect the need to lower turnover.

WANO Performance Index – The Mid-Cycle Outage extension caused Unplanned Capability Loss Factor to increase, lowering the WANO Index.

Human Performance Error Rate - Corrective actions are currently being taken, with improvements realized over the past 5 months.

- **Indicators currently RED (Action Required) include:**

Corrective Action On-Time                      ➤ Management focus on improvement.

Completion

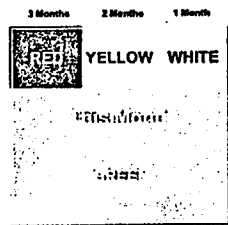
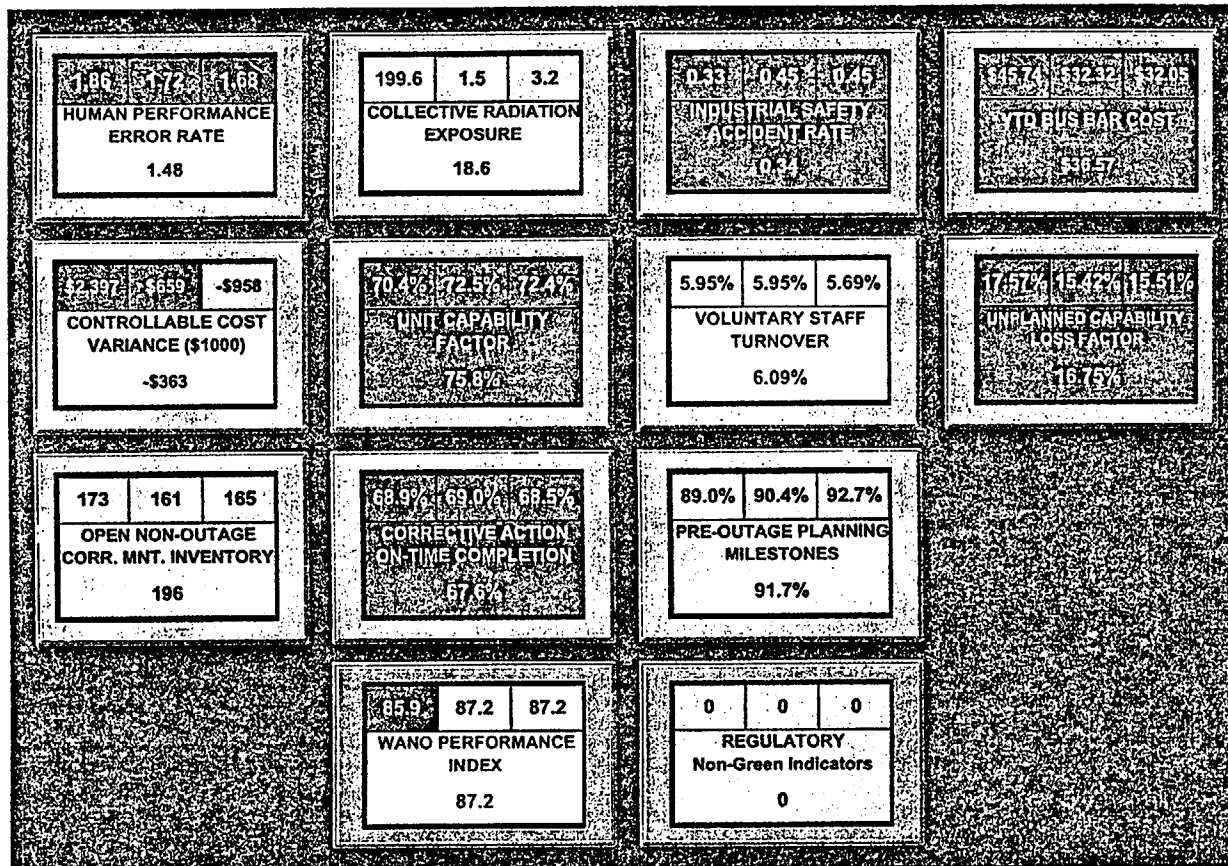
Unit Capability Factor                      ➤ 12 month rolling average is driven by the year 2000 forced outages. Successful 2001 operation will improve performance.

Unplanned Capability Loss Factor                      ➤ 12 month rolling average is driven by the year 2000 forced outages. Successful 2001 outage will improve performance.

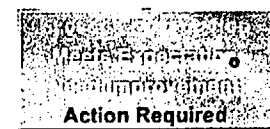
Industrial Safety Accident Rate                      ➤ Weather related accidents in December 2000 and January 2001

Bus-Bar Cost                      ➤ Accounting treatment of an overpayment of decommissioning funds in January and the Operations and Maintenance costs of the Mid-Cycle Outage extension.

# STRATEGIC PLAN PERFORMANCE PANEL



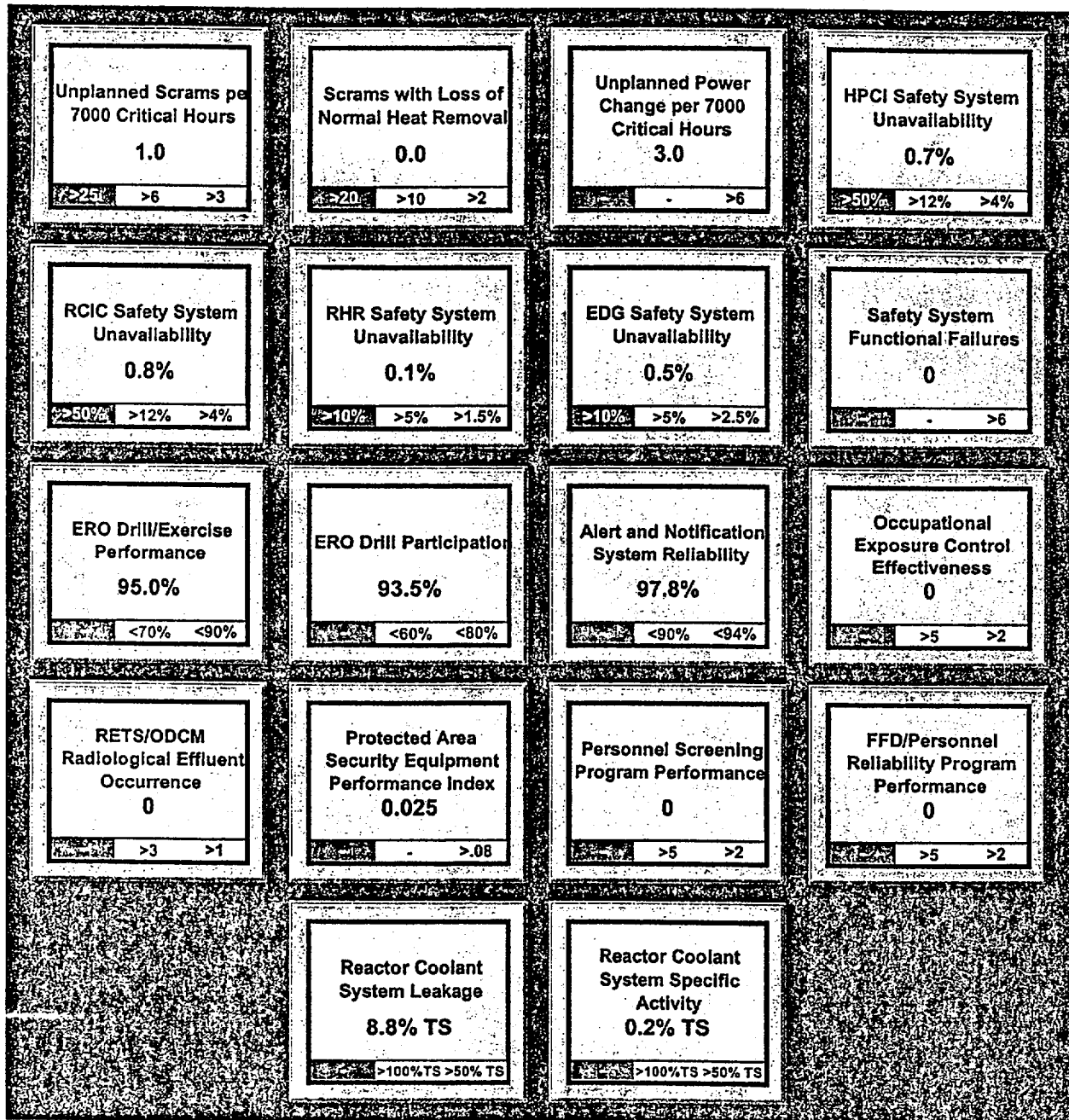
March  
2001



NOTE:



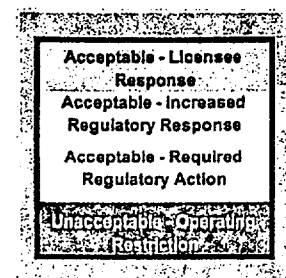
# NRC Performance Indicator Panel



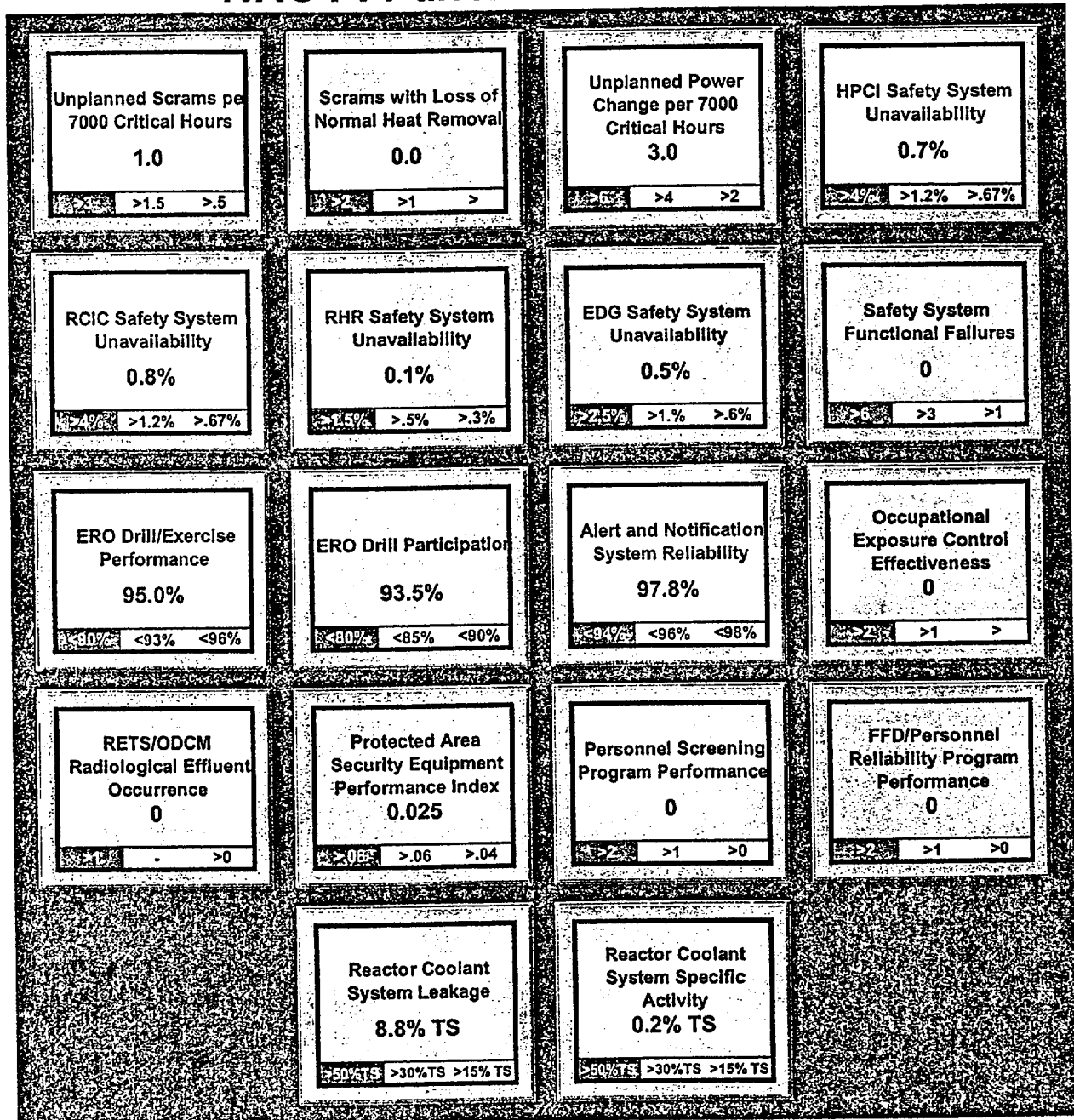
March

2001

NOTE: All values rounded to the significant digit



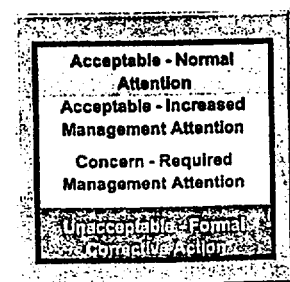
## NRC PI Panel - Internal Limits



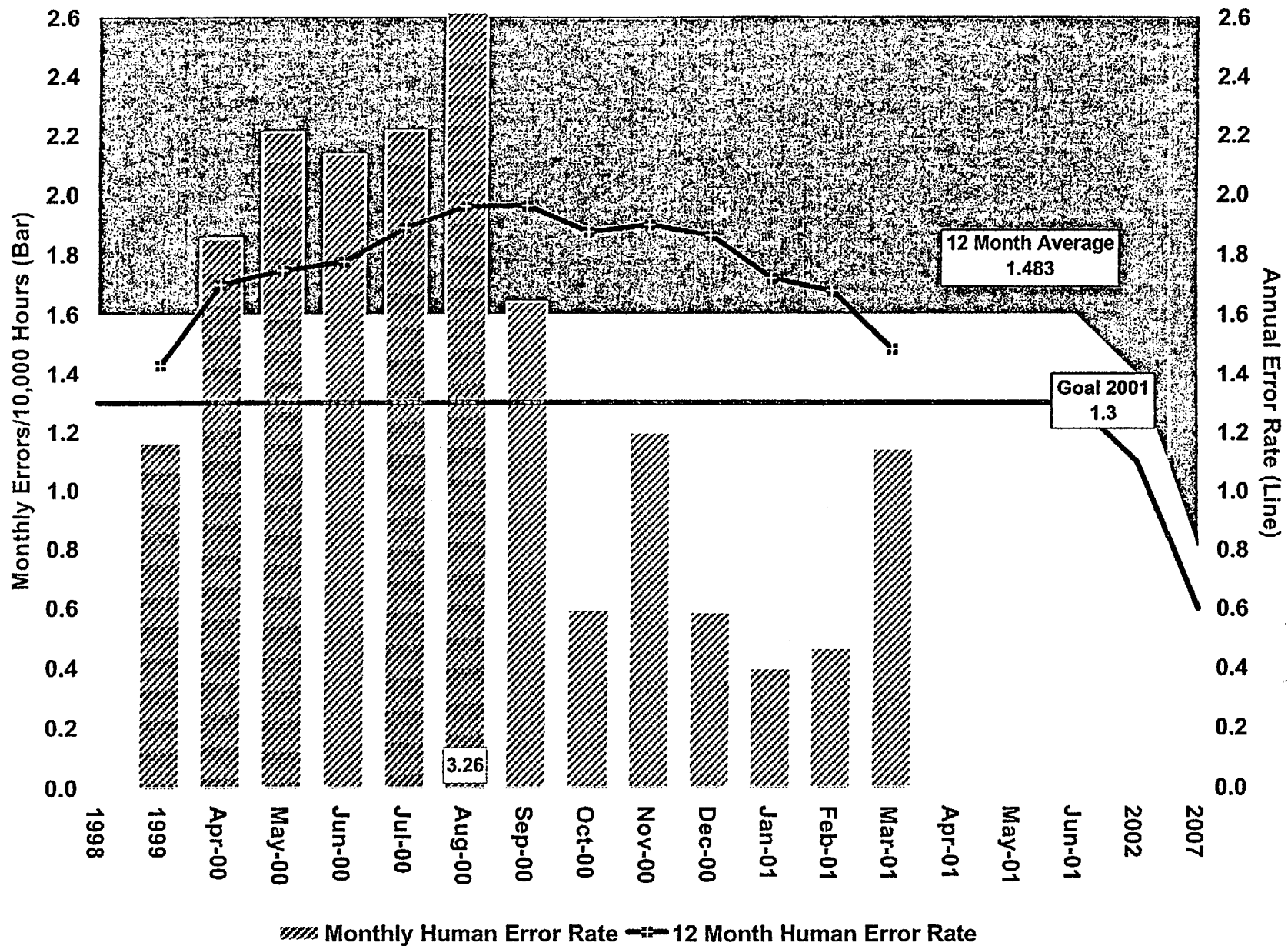
March

2001

NOTE: All values rounded to the significant dig



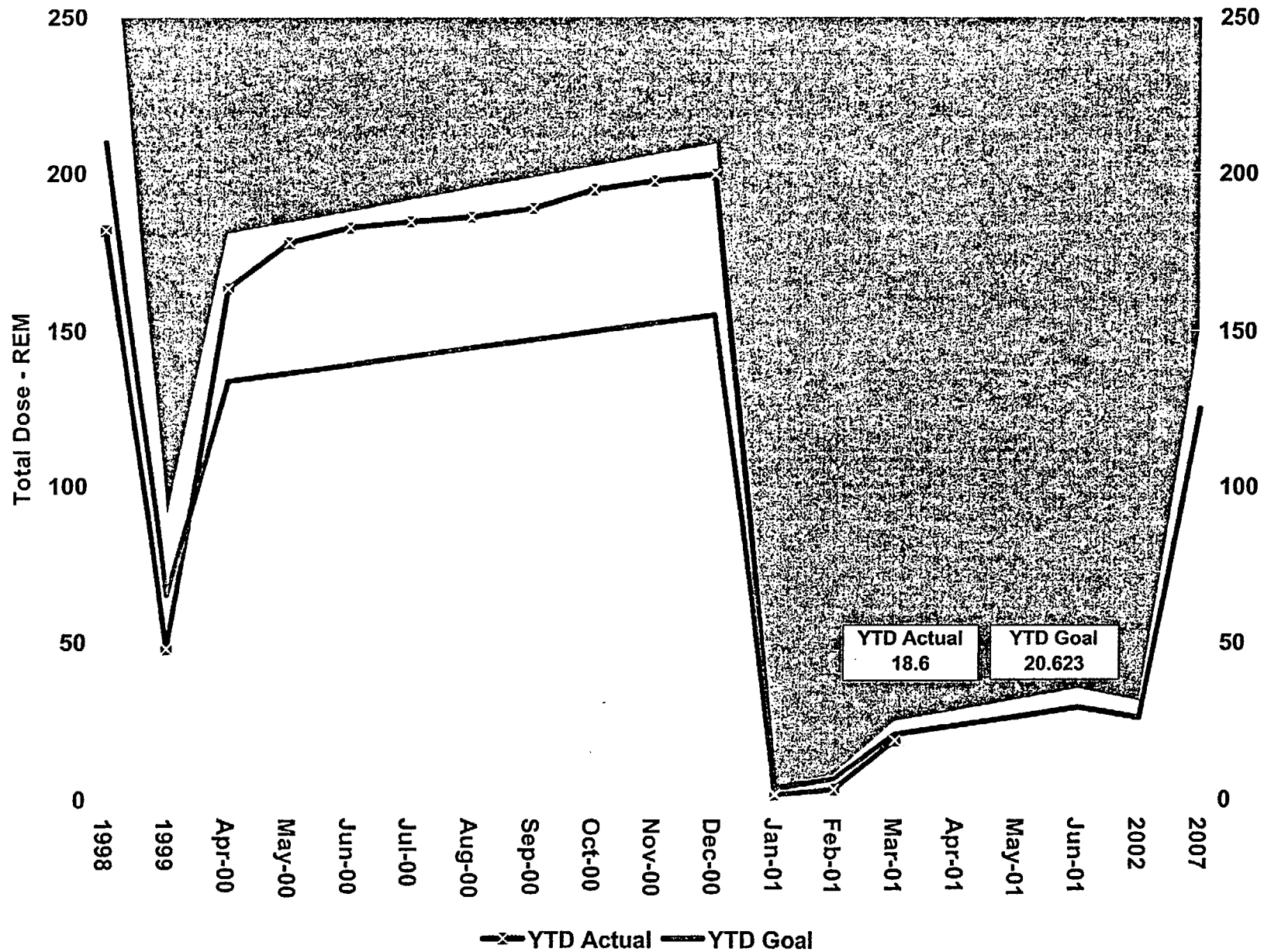
# HUMAN PERFORMANCE ERROR RATE



## HUMAN PERFORMANCE ERROR RATE

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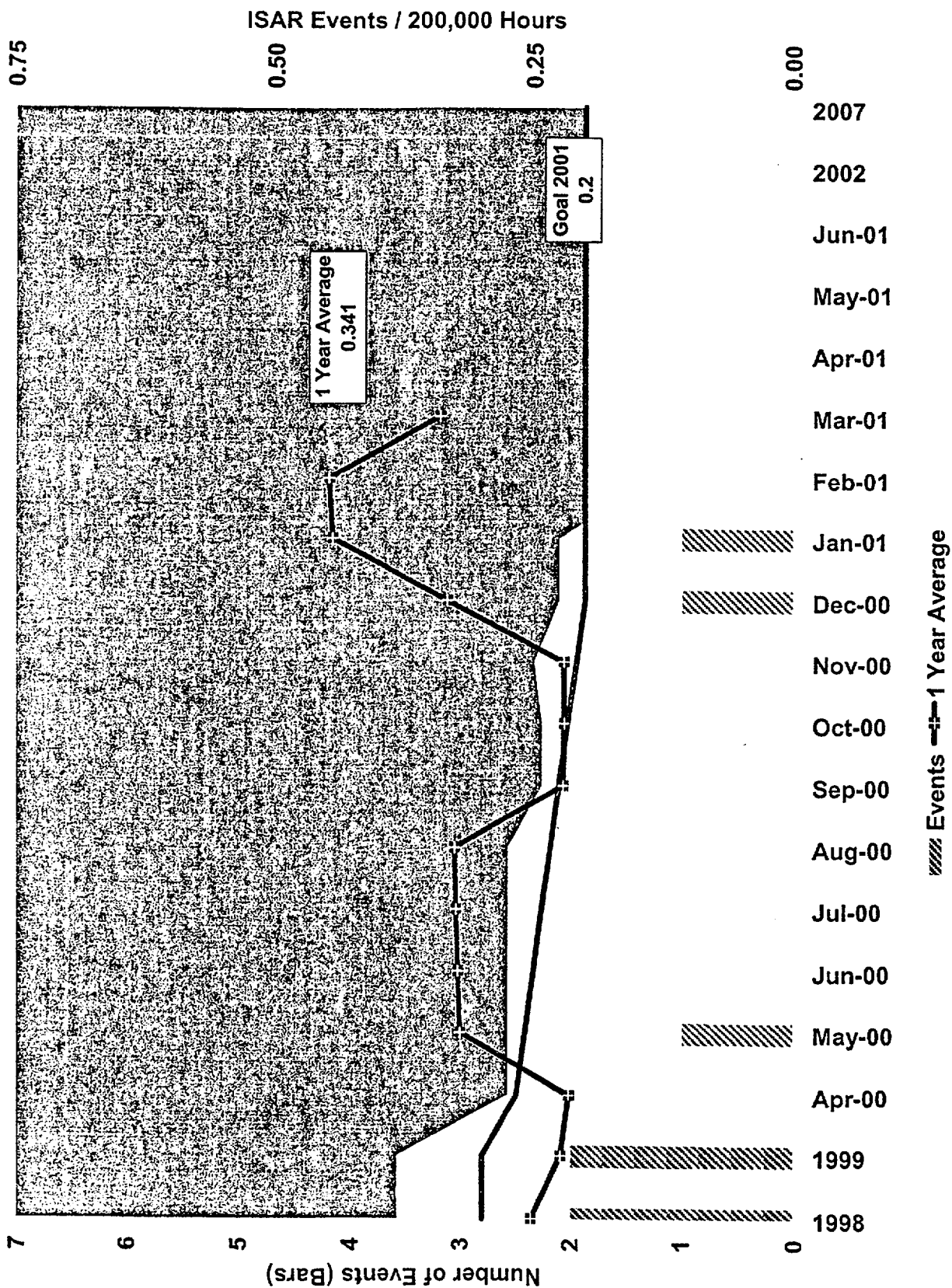
# COLLECTIVE RADIATION EXPOSURE



## COLLECTIVE RADIATION EXPOSURE

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
Month Actual	42.8	14.4	4.9	2.0	1.5	2.7	5.9	2.7	2.2	1.5	1.6	15.5
YTD Actual	163.4	177.8	182.6	184.6	186.1	188.8	194.8	197.4	199.6	1.5	3.2	18.6
YTD Goal	133.8	136.5	139.1	141.8	144.5	147.1	149.8	152.4	155.0	3.4	6.5	20.6
<div>Comments:</div> <div>1. 4-5/00 - Forced Outage</div> <div>2. 3/01 - Corrected 2000 Dose based upon TLD readout. Overall correction is .15% lower dose.</div> <div>Mid-Cycle Outage</div>												
INDICATOR DEFINITION												
Collective Radiation Exposure is the sum of internal and external radiation dose received by all personnel including contractors and visitors.										<div>Action Required</div> <div>Need Improvement</div> <div>Meets Expectation</div> <div>Exceed Expectation</div>		
2001	Strategic Plan Key Station Goals				Critical Success Factor: Safety							4
					Goal Source: CNS Strategic Plan (10/00)							

# INDUSTRIAL SAFETY ACCIDENT RATE



## **INDUSTRIAL SAFETY ACCIDENT RATE**

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
Restrict Work Accidents	0	0	0	0	0	0	0	0	0	1	0	0
Lost Time Accidents	0	1	0	0	0	0	0	0	1	0	0	0
Fatalities	0	0	0	0	0	0	0	0	0	0	0	0
1 Year Average	0.22	0.32	0.32	0.33	0.33	0.22	0.22	0.22	0.33	0.45	0.45	0.34

**Comments:**

1. 5/00 - Knee injury while exiting Drywell, requiring surgery. Not reported until 8/00.
2. 12/00 - Twisted back from a slip on ice.
3. 1/01 - Fall from ladder, Back Strain

### **INDICATOR DEFINITION**

Industrial Safety Accident Rate is calculated by determining the number of events that occur per 200,000 person-hours worked.

Action Required:
Need Improvement
Meets Expectation
Exceed Expectation

**2001**

**Strategic Plan  
Key Station Goals**

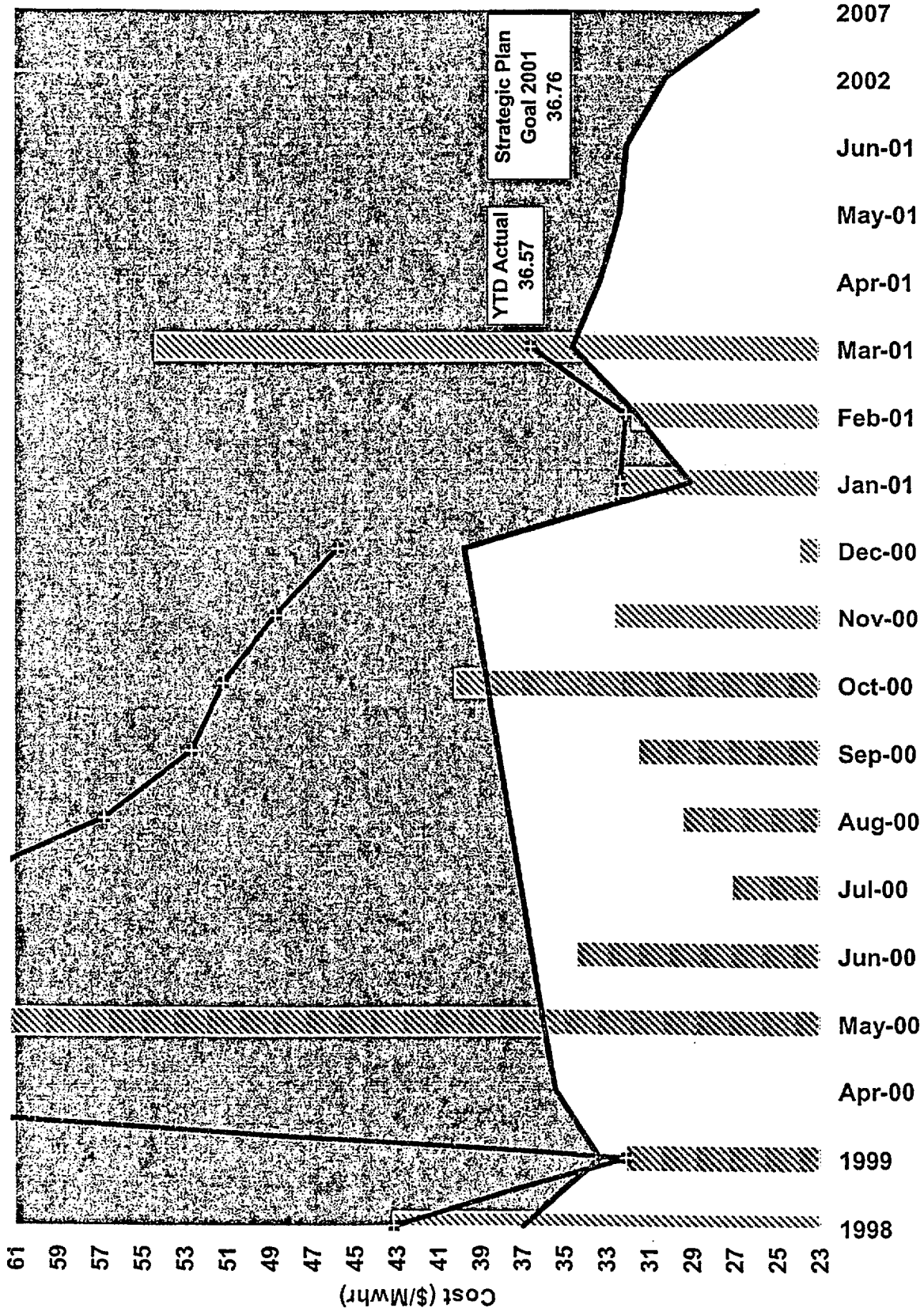
**Critical Success Factor:** Safety

**Goal Source:** CNS Strategic Plan (10/00)

**5**



# YTD BUS BAR COST



Month Actual \$/Mwhr Year to Date Actual \$/Mwhr

## YTD BUS BAR COST

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
Month Actual Cost (\$ x1000)	\$28,695	\$17,477	\$17,853	\$14,844	\$16,321	\$16,303	\$17,627	\$17,901	\$13,430	\$18,444	\$16,245	\$14,988
NET GENERATION (Mwhr X 1000)	DN	30.8	519.5	548.1	555.6	518.3	438.9	549.2	561.8	570.7	511.8	276.1
Month Actual \$/Mwhr	DN	\$567.51	\$34.36	\$27.08	\$29.38	\$31.46	\$40.16	\$32.59	\$23.91	\$32.32	\$31.74	\$54.29
Year to Date Actual \$/Mwhr	\$83.73	\$98.00	\$76.86	\$63.94	\$56.74	\$52.63	\$51.12	\$48.68	\$45.74	\$32.32	\$32.05	\$36.57
Strategic Plan Total Cost Estimate	\$18,463	\$28,654	\$17,029	\$17,947	\$17,331	\$17,033	\$17,804	\$17,946	\$17,322	\$16,134	\$17,018	\$15,575
Strategic Plan Generation Estimate	259.0	533.0	515.0	533.0	533.0	515.0	533.0	515.0	533.0	556.0	496.0	358.0
Strategic Plan Bus-Bar Estimate YTD \$/Mwhr	\$54.17	\$54.05	\$49.53	\$46.63	\$44.45	\$42.98	\$41.84	\$41.13	\$40.30	\$29.02	\$31.51	\$34.56

**Comments:**

**Notes:**

1. 3/00 - Refueling Outage 19
2. 4/00 - Refueling Outage 19 and forced Okonite outage
3. 5/00 - Forced Outage continued for majority of May
4. 3/01 - Mid-Cycle Outage

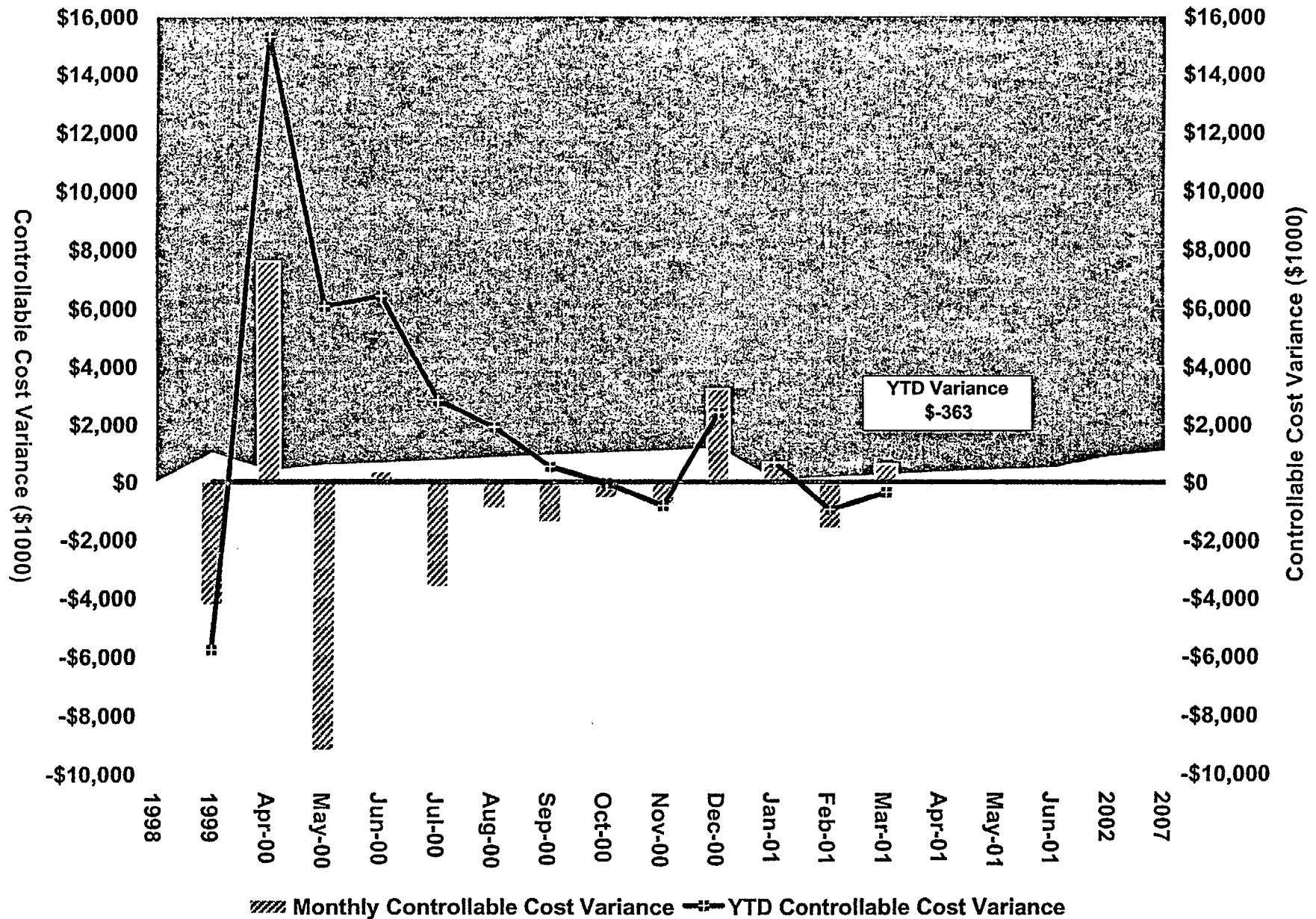
## INDICATOR DEFINITION

**Calculated cost of energy at the Bus-bar, obtained by dividing Nuclear Facility costs by the net electrical generation. A measure of CNS's competitive stance in the marketplace.**

Action Required
Need Improvement
Meets Expectation
Exceed Expectation

2001	Strategic Plan Key Station Goals	Critical Success Factor: Cost Competitiveness	6
		Goal Source: CNS Strategic Plan (10/00)	

# CONTROLLABLE COST VARIANCE



## **CONTROLLABLE COST VARIANCE**

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
Month Controllable Cost (X1000)	\$17,369	\$10,479	\$8,546	\$5,410	\$7,513	\$6,795	\$8,259	\$8,285	\$11,544	\$8,577	\$7,783	\$8,527
Budget Controllable Cost (X1000)	\$9,773	\$19,685	\$8,182	\$9,035	\$8,429	\$8,178	\$8,816	\$9,054	\$8,338	\$7,919	\$9,400	\$7,932
YTD Controllable Cost Variance	\$15,284	\$6,077	\$6,441	\$2,816	\$1,900	\$517	-\$40	-\$809	\$2,397	\$659	-\$958	-\$363

**Comments:**

**Notes:**

1. 4/00 - Refueling Outage 19 and forced outage 2000-02. Includes an adjustment to correct fuel settlements in EBS.
2. 5/00 - Re-cashflow moved outage dollars from Jun-Dec into May to correct Year-to-Date Budget.
3. 1/01 - NRC Fees and INPO Dues not cash-flowed to January.

### **INDICATOR DEFINITION**

Annual budget for costs that are directly controllable by the site. These include Operating and Maintenance costs (exclusive of Fuel) and Capital costs.

Action Required
Need Improvement
Meets Expectation
Exceed Expectation

<b>2001</b>	<b>Strategic Plan Key Station Goals</b>	<b>Critical Success Factor:</b> Cost Competitiveness	<b>7</b>
		<b>Goal Source:</b> CNS Strategic Plan (10/00)	

# UNIT CAPABILITY FACTOR

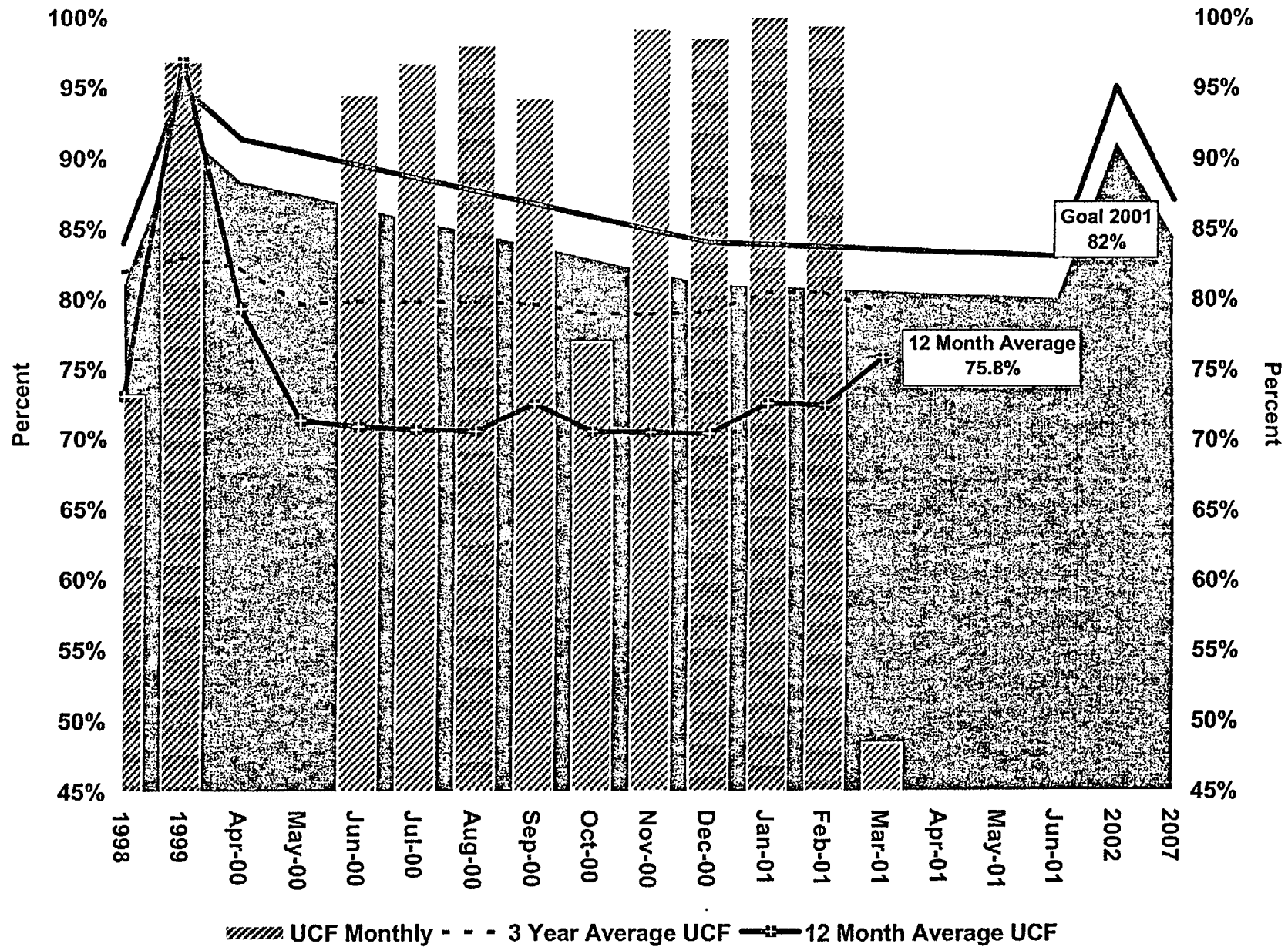
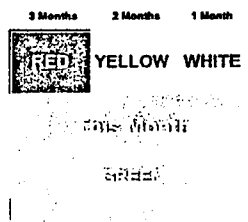
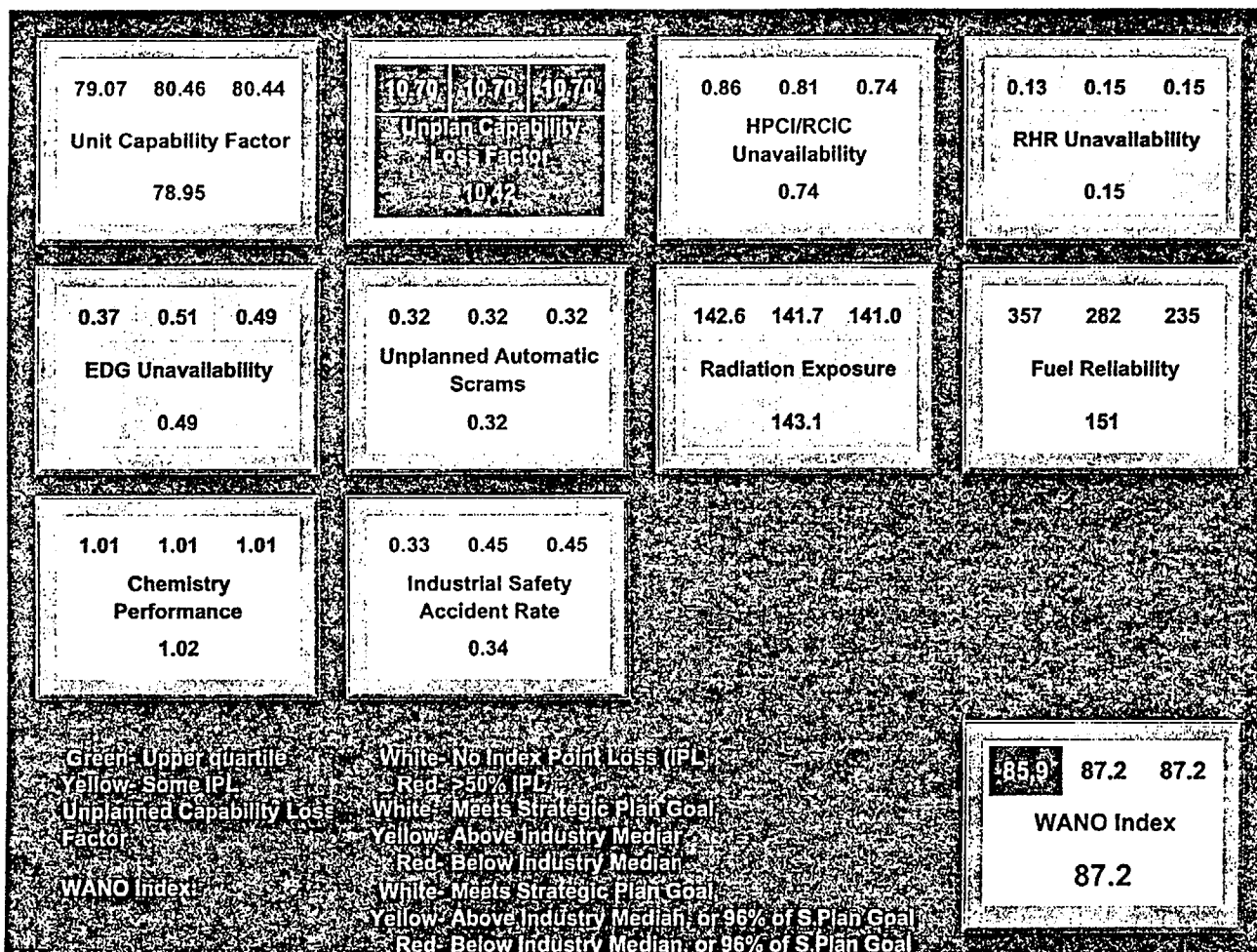


Table 1. *Continued*

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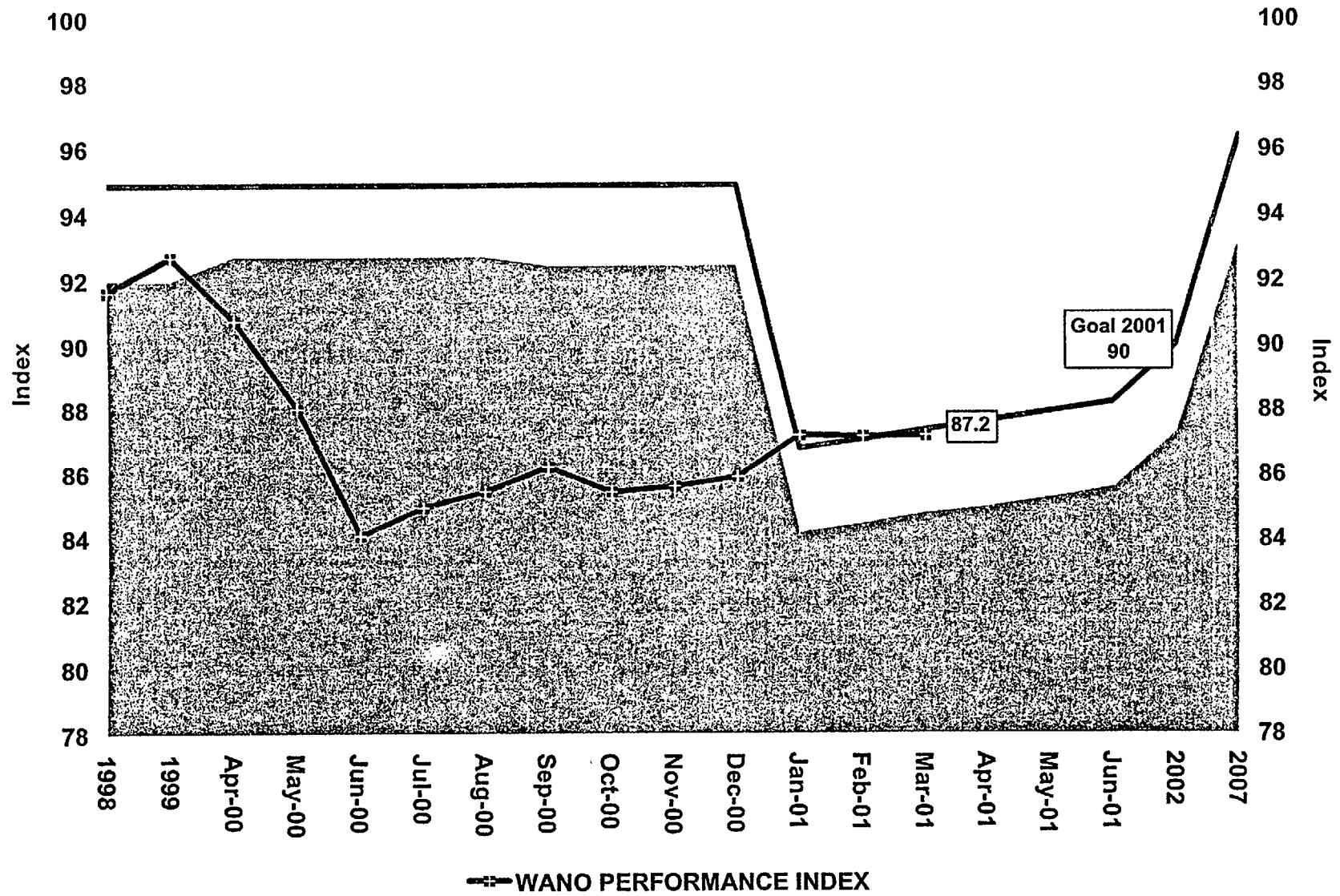
# WANO INDEX PANEL



March  
2001

Meets Expectation  
Need Improvement  
Action Required

# WANO INDEX CHART





# WANO INDEX BENCHMARKS

STATUS referenced to WANO-US 2000 BWR 4th Quarter Data

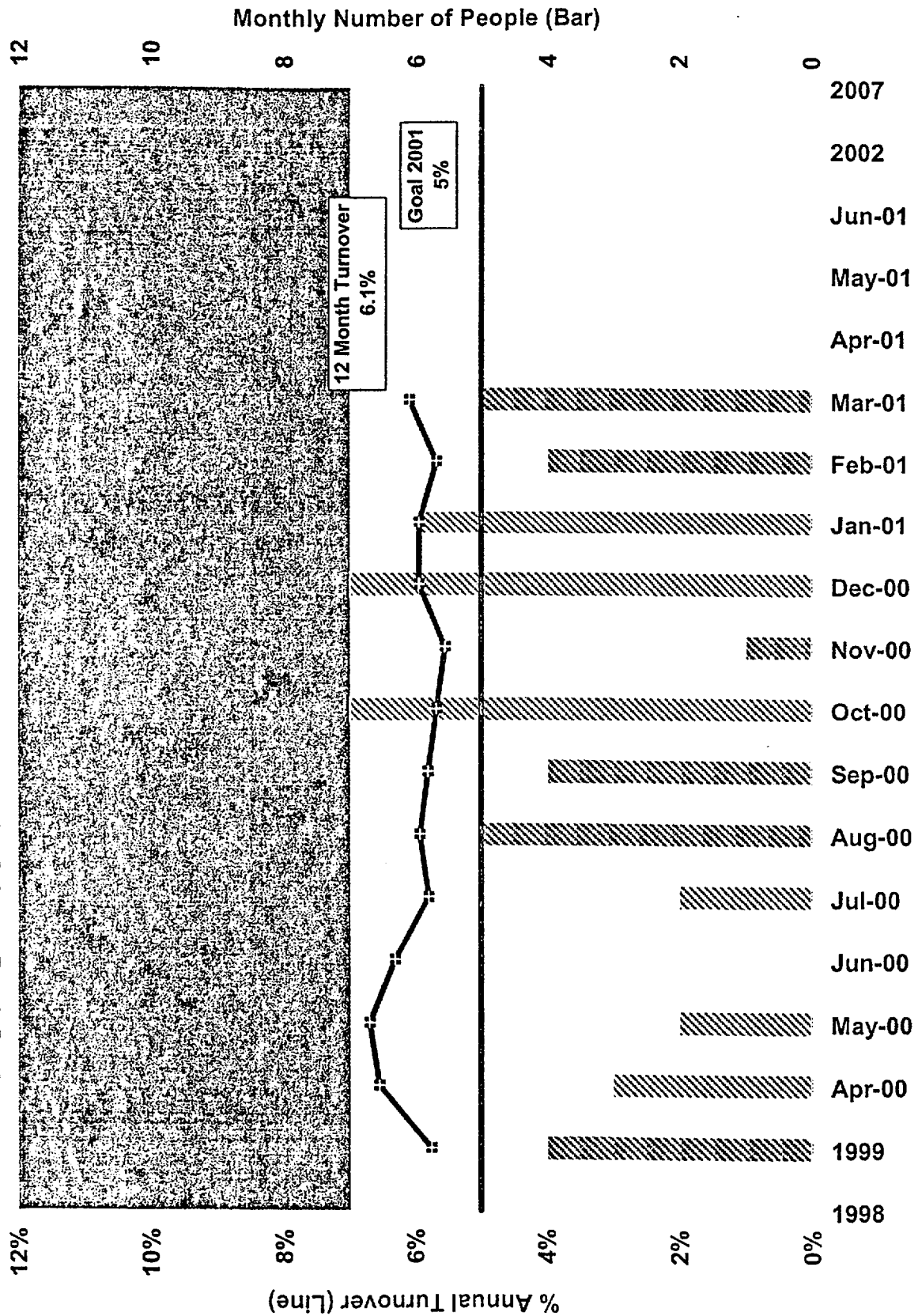
INDICATOR	CURRENT PERFORMANCE	INDUSTRY MEDIAN	STATUS
Performance Indicator Index	87.2	93.1	LOWER HALF
Unit Capability Factor (Percent/3 Year Average)	79.0	88.8	LOWER QUARTILE
Unplanned Capability Loss Factor (Percent/3 Year Average)	10.4	3.3	LOWER QUARTILE
High Pressure Injection System (Percent Unavailable/3 Year Average)	0.74	0.6	LOWER HALF
Residual Heat Removal System (Percent Unavailable/3 Year Average)	0.15	0.5	TOP 10%
Emergency AC Power System (Percent Unavailable/3 Year Average)	0.49	1.0	TOP 10%
Unanticipated Automatic Scrams (per 7,000 Critical Hours/3 Year Average)	0.32	0.5	UPPER HALF
Collective Radiation Exposure * (Rem/3 Year Average)	143.1	176.1	UPPER QUARTILE
Fuel Reliability * (Microcuries per Second/Quarter Average)	151	11.0	Not Evaluated
Chemistry Performance (Index/1 Year Average)	1.02	1.03	UPPER HALF
Industrial Safety Accident Rate (Events per 200,000 Hours/1 Year Average)	0.34	0.1	LOWER QUARTILE

March  
2001

\* Indicates comparison is BWR's only

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# VOLUNTARY STAFF TURNOVER

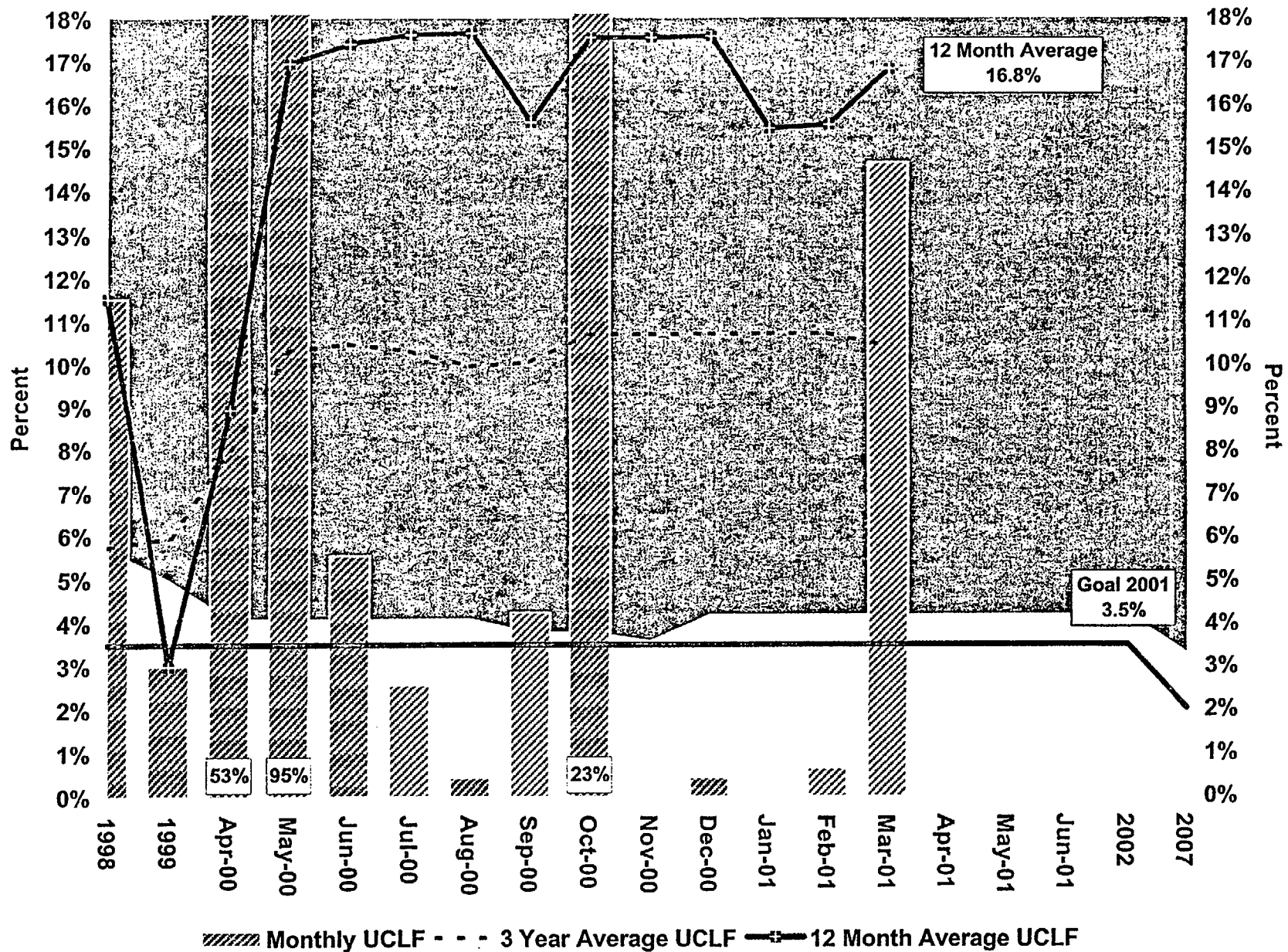


Voluntary Staff Departures Voluntary Staff 12 Month Turnover Rate

## VOLUNTARY STAFF TURNOVER

[illegible]

# UNPLANNED CAPABILITY LOSS FACTOR



## UNPLANNED CAPABILITY LOSS FACTOR

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
Monthly UCLF	53.3%	94.6%	5.5%	2.6%	0.4%	4.2%	23.0%	0.0%	0.4%	0.0%	0.6%	14.6%
12 Month Average UCLF	8.9%	16.9%	17.4%	17.6%	17.7%	15.6%	17.5%	17.5%	17.6%	15.4%	15.5%	16.8%
36 Month Average UCLF	8.0%	10.3%	10.5%	10.3%	10.0%	10.0%	10.7%	10.7%	10.7%	10.7%	10.7%	10.4%

**Comments:**

**Notes:**

1. 4-5/00 - Refueling Outage 19, Forced Outage (Electrical Splices)
2. 6/00 - Fuel Leak and RRMG "Hot Wire" power reduction
3. 7/00 - Fuel Leak and REC LCO power reduction
4. 8/00 - Power reductions for rod adjustments
5. 9/00 - Turbine Generator Governor Valve
6. 10/00 - Forced Outage 2000-03, Transformer Ground Fault
7. 12/00 - Reactor Recirc. Pump Trip
8. 2/01 - Z Sump Surveillance Test Failure
9. 3/01 - Mid-Cycle Outage Extension

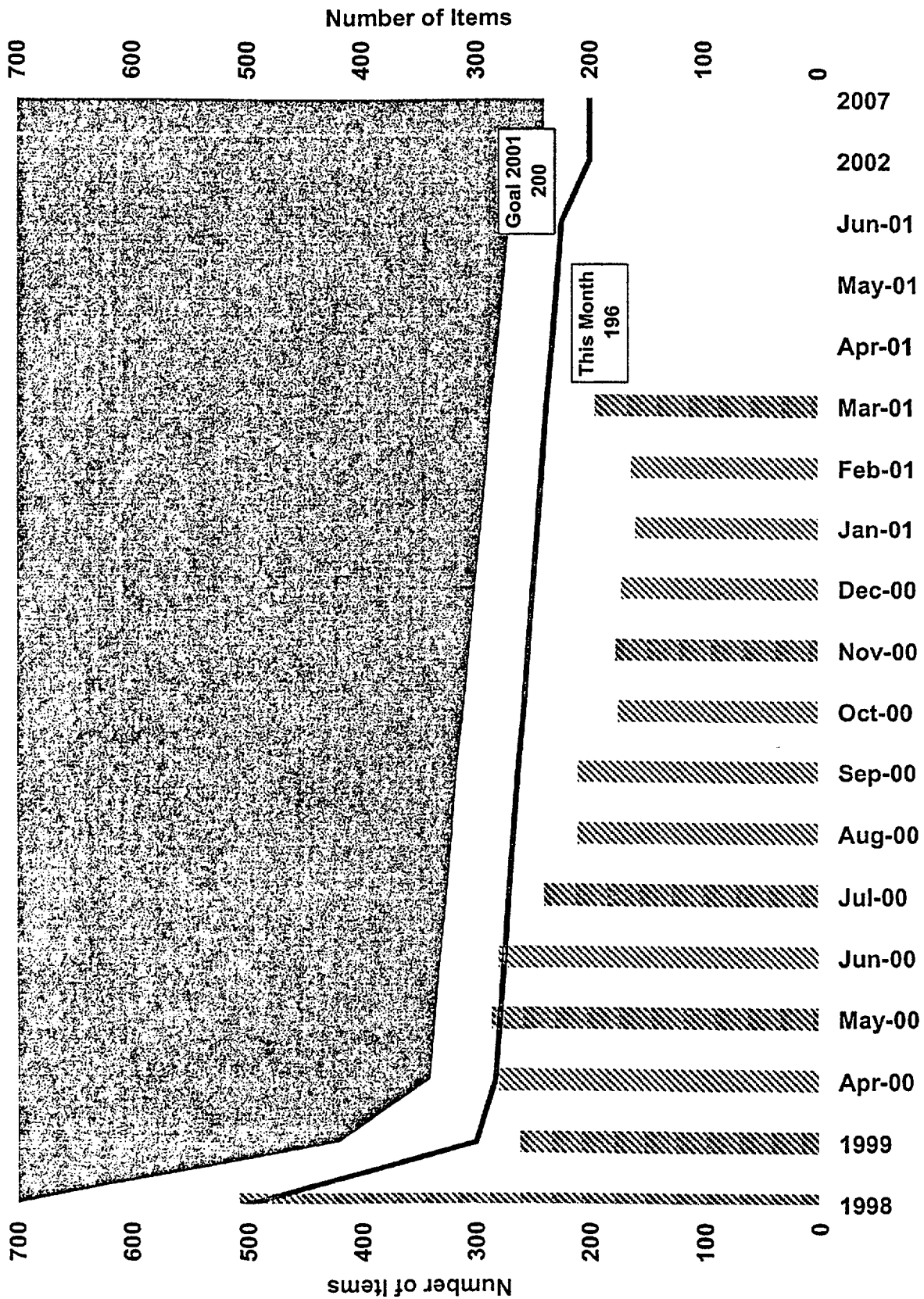
### INDICATOR DEFINITION

**Unplanned Capability Loss Factor is the percentage of maximum energy generation that CNS is not capable of supplying to the grid because of unplanned energy losses, such as unplanned shutdowns or outage extensions.**

Action Required
Need Improvement
Meets Expectation
Exceed Expectation

<b>2001</b>	<b>Strategic Plan Key Station Goals</b>	<b>Critical Success Factor:</b> Organizational Effectiveness	<b>11</b>
		<b>Goal Source:</b> CNS Strategic Plan (10/00)	

# NON-OUTAGE CORRECTIVE MAINTENANCE INVENTORY

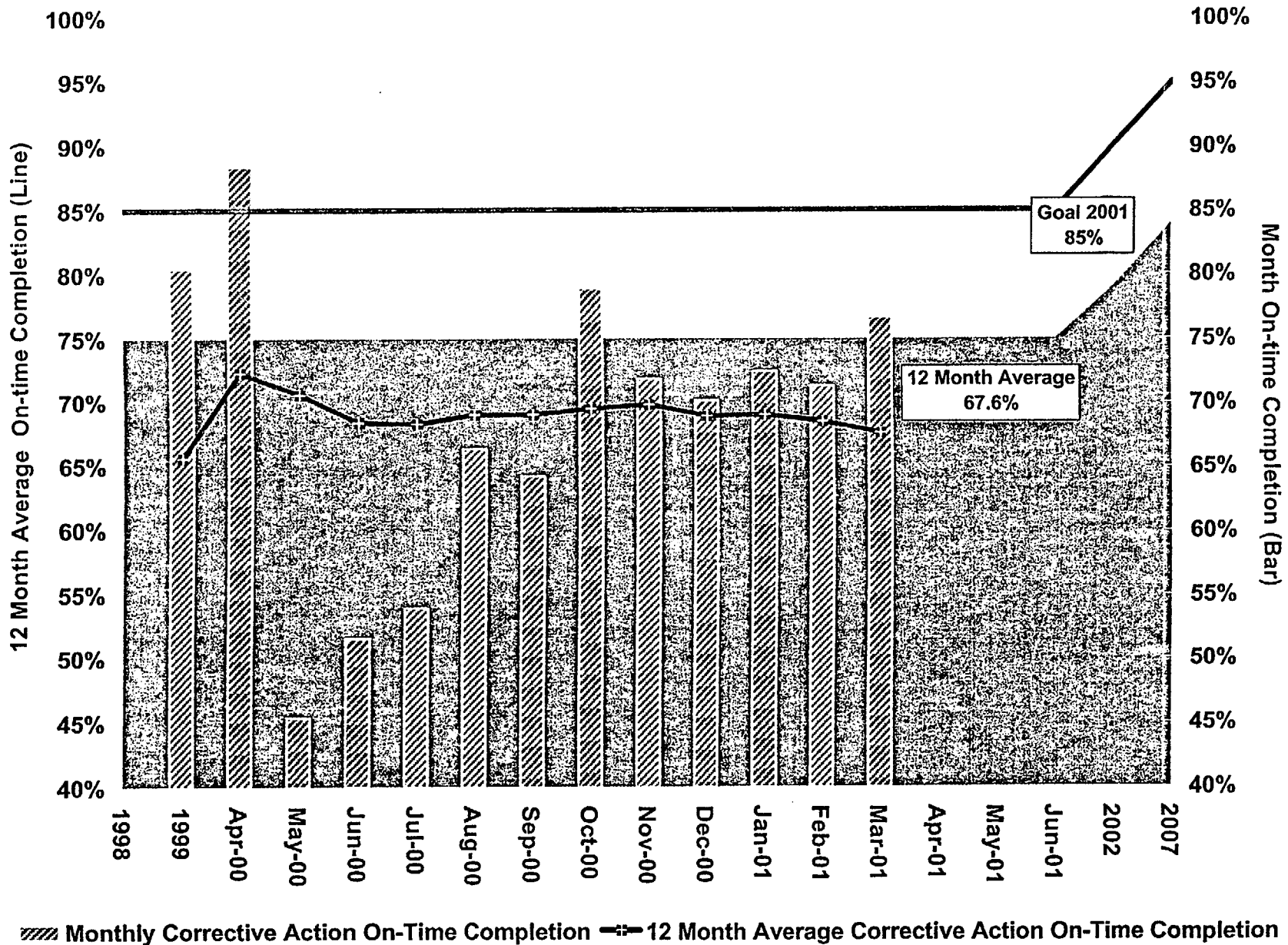


NON-OUTAGE CORR. MNT. INVENTORY

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
OPEN NON-OUTAGE CORR. MNT. INVENTORY	281	287	281	241	211	211	176	178	173	161	165	196
<div>Comments:</div> <div>Notes:</div>												
INDICATOR DEFINITION												
Total number of open corrective maintenance work requests that can be performed online.										<div>Action Required</div> <div>Need Improvement</div> <div>Meets Expectation</div> <div>Exceed Expectation</div>		
2001	Strategic Plan Key Station Goals				Critical Success Factor: Organizational Effectiveness Goal Source: CNS Strategic Plan (10/00)							
12												



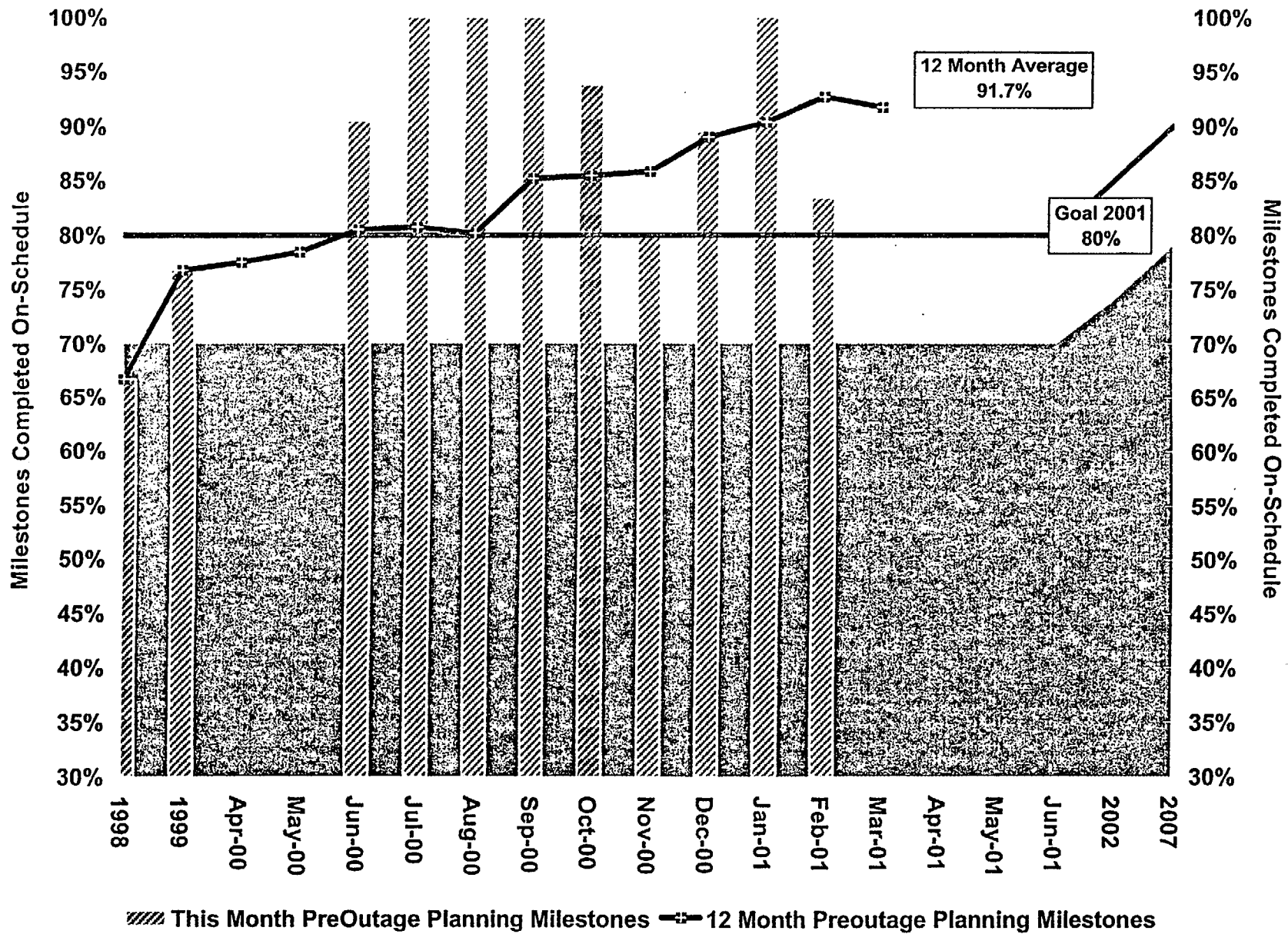
# ***CORRECTIVE ACTION ON-TIME COMPLETION***



## ***CORRECTIVE ACTION ON-TIME COMPLETION***

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01	
Monthly Corrective Action On-Time Completion	88.4%	45.4%	51.5%	53.9%	66.3%	64.2%	78.9%	71.8%	70.1%	72.4%	71.3%	76.6%	
12 Month Average Corrective Action On-Time Completion	72.3%	70.6%	68.4%	68.3%	69.0%	69.0%	69.5%	69.8%	68.9%	69.0%	68.5%	67.6%	
<div><div>Comments:</div><div>Notes:</div><div>1. 5/00 - Forced Outage 2000-02 caused reprioritization of Corrective Actions, impacting the On-Time Completion starting in May.</div></div>													
INDICATOR DEFINITION													
Percent of evaluations and corrective actions assigned under the corrective action program, which are completed on-time with respect to the initial assigned due date. This measure is indicative of CNS's ability to plan work effectively.										<div>Action Required</div> <div>Need Improvement</div> <div>Meets Expectation</div> <div>Exceed Expectation</div>			
2001	Strategic Plan Key Station Goals				Critical Success Factor: Organizational Effectiveness								13
					Goal Source: CNS Strategic Plan (10/00)								

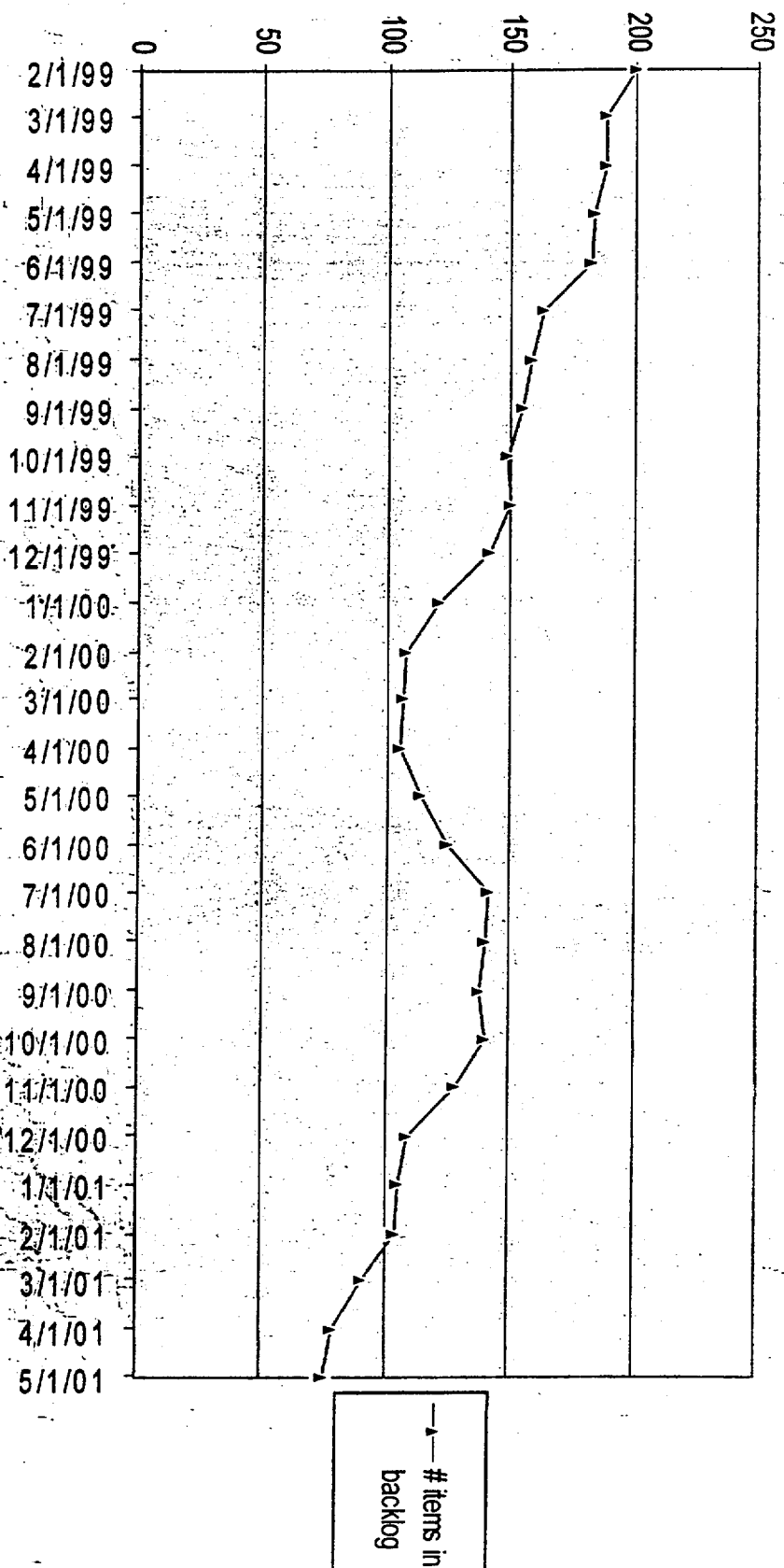
# PRE-OUTAGE PLANNING MILESTONES



## PRE-OUTAGE PLANNING MILESTONES

	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
12 Month Preoutage Planning Milestones	77.5%	78.4%	80.5%	80.7%	80.2%	85.2%	85.5%	85.8%	89.0%	90.4%	92.7%	91.7%
This Month PreOutage Planning Milestones	N/A	N/A	90.5%	100.0%	100.0%	100.0%	93.8%	80.0%	89.5%	100.0%	83.3%	0.0%
<div>Comments:<div>1. 4/00 - No Milestones due in April, 2000 2. 5/00 - No Milestones due in May, 2000</div></div> <div>Notes:</div>												
INDICATOR DEFINITION												
Percentage of Pre-Outage major and sub-milestones completed, compared to scheduled completion.										<div>Action Required<div>Need Improvement</div><div>Meets Expectation</div><div>Exceed Expectation</div></div>		
2001	Strategic Plan Key Station Goals				Critical Success Factor: Organizational Effectiveness Goal Source: CNS Strategic Plan (10/00)							14

# Design Engineering CAP Backlog Reduction



## **Problem Identification Reports (PIRs) Identified 1997-2000**

