



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064

SEP 21 1992

Docket Nos. 50-498  
50-499  
License Nos. NPF-76  
NPF-80

Houston Lighting & Power Company  
ATTN: Donald P. Hall, Group  
Vice President, Nuclear  
P.O. Box 1700  
Houston, Texas 77251

Gentlemen:

This refers to the management meeting, open to public observation, conducted at the South Texas Project Electric Generating Station (STP) on September 11, 1992. This meeting related to activities authorized by NRC Licenses NPF-76 and NPF-80 for STP and was attended by those on the attached Attendance List.

The subjects discussed at this meeting are described in the enclosed Meeting Summary.

It is our opinion that this meeting was beneficial and has provided a better understanding of your upcoming Unit 1 outage scope and shutdown risk assessment.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

A. Bill Beach, Director  
Division of Reactor Projects

Enclosure:  
Meeting Summary w/attachments

cc: (see next page)

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1/1

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PDR ADOCK 05000498  
P PDR

CC:  
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City Public Service Board  
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Matagorda County Courthouse  
1700 Seventh Street  
Bay City, Texas 77414

Houston Lighting & Power Company

-3-

Licensing Representative  
Houston Lighting & Power Company  
Suite 610  
Three Metro Center  
Bethesda, Maryland 20814

Houston Lighting & Power Company  
ATTN: Rufus S. Scott, Associate  
General Counsel  
P.O. Box 61867  
Houston, Texas 77208

Houston Lighting Company

-4-

SEP 21 1992

cc to DMP (if45)

cc distrib. by RIV:

J. L. Milhoan

DRP

Lisa Shea, RM/ALF, MS: MNRB 450?

DRSS-FIPS

Project Engineer (DRP/D)

DRS

Chief, Technical Support Section

Resident Inspector

Section Chief (DRP/D)

MIS System

RSTS Operator

File

K. Bachmann, GJC, MS: 15-B-18

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SEP 21 1992

bcc to DMB (IE45)

bcc distrib. by RIV:

J. L. Milhoan

DRP

Lisa Shea, RM/ALF, MS: MNBE 4503

DRSS-FIPS

Project Engineer (DRP/D)

DRS

Chief, Technical Support Section

Resident Inspector

Section Chief (DRP/D)

MIS System

RSTS Operator

RIV File

R. Bachmann, OGC, MS: 15-B-18

RIV:DRP/D	C:DRP/D	D:DRP		
MASatorius; dr	ATHowe	ABBeach		
9/21/92	9/21/92	9/21/92		

MEETING SUMMARY

Licensee: Houston Lighting & Power Company (HL&P)  
Facility: South Texas Project (STP)  
License Nos.: NPF-76 and NPF-80  
Docket Nos.: 50-498 and 50-499  
Subject: UNIT 1 OUTAGE SCOPE AND SHUTDOWN RISK ASSESSMENT

On September 11, 1992, representatives of HL&P met with Region IV personnel at STP in Wadsworth, Texas, to discuss the major work scope and schedule for the upcoming STP Unit 1 refueling outage, including a discussion of shutdown risk assessment. The attendance list and licensee handout are attached to this summary.

Attachments:

1. Attendance list
2. Licensee presentation (NRC distribution only)

ATTENDANCE LIST

Attendance at the management meeting between HL&P and NRC on September 11, 1992, in the Region IV office:

HL&P

D. P. Hall, Group Vice President, Nuclear  
W. H. Kinsey, Vice President, Nuclear Generation  
J. D. Sharpe, Maintenance Manager  
C. Parkey, Plant Manager  
A. W. Harrison, Supervising Engineer, Nuclear Licensing

City of Austin

P. W. Golde, Manager, Joint Projects  
M. T. Hardt, Director, Nuclear Division

NRC

J. L. Milhoan, Regional Administrator  
A. B. Beach, Director, Division of Reactor Projects (DRP)  
D. D. Chamberlain, Deputy Director, Division of Reactor Safety  
A. T. Howell, Chief, Project Section D, DRP  
J. I. Tapia, Senior Resident Inspector, South Texas Project  
R. J. Evans, Resident Inspector, South Texas Project  
M. A. Satorius, Project Engineer, Project section D, DRP  
G. L. Guerra, Radiation Specialist Intern

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# SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

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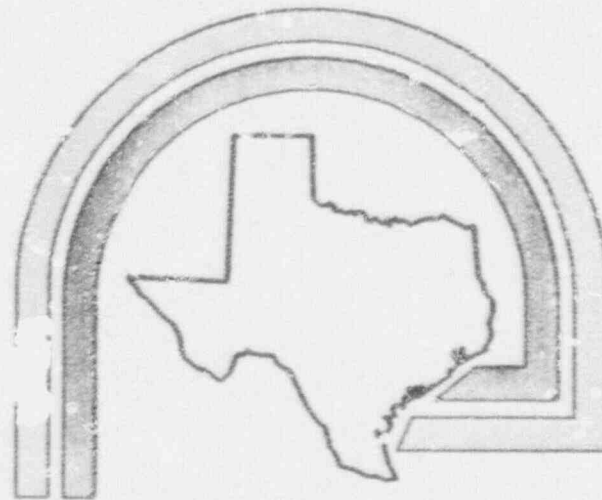
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**HL&P - NRC MANAGEMENT MEETING:**

**- UNIT 1 FOURTH REFUELING OUTAGE**

**- MATERIEL CONDITION**

**SEPTEMBER 11, 1992**



Excellence  
Through

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**SERVICE, TEAMWORK, PRIDE**

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## UNIT 1 FOURTH REFUELING OUTAGE

### AGENDA

- o Fourth Refueling Outage
  - Objectives and Scope
  - Outage Development
  - Outage Management
  - Outage Reactor Plant Operator (RPO) Training
  - License Amendments for 1RE04
  - Shutdown Risk Assessment
  
- Outage Impact on Materiel Condition
  - Historical Perspective
  - Materiel Condition

## UNIT 1 FOURTH REFUELING OUTAGE (1RE04)

SEPTEMBER 19 - NOVEMBER 20 (62 DAYS)

### OBJECTIVES:

- Complete work necessary to operate unit safely and reliably until next scheduled outage.
- Effectively evaluate and manage shutdown risk.
- Maintain control of scope, resources and schedule.
- Improve the overall unit materiel condition
- Complete outstanding inoperable automatic functions and main control board items
- Complete planning, modification design and other prerequisite activities well in advance

## UNIT 1 FOURTH REFUELING OUTAGE (1RE04)

### SCOPE:

- Full Core off-load and Reactor Refueling
- Local Leak-rate Testing
- Emergency Diesel Generator Maintenance (18 mo and 5 yr Service Inspection)
- High Pressure Turbine Gland Modification
- Essential Cooling Water Repairs
- Main Condenser Tube Cleaning
- Motor Operated Valve Testing
- Outage Maintenance Activities
- Other Design Changes, Service Requests, and Surveillance Tests

## OUTAGE DEVELOPMENT

- Multi-discipline teams
  - Develop Corrective Maintenance, Preventive Maintenance, and Surveillance Testing scope.
  - Establish resource requirements
  - Develop teamwork and ownership
- Executive Management approval on major scope activities.
- Shutdown Risk Assessment Group
- Outage scope established on March 1, 1992.
- Most modification design work completed April 1, 1992.
- Resource requirements established in April, 1992.
- Planning for baseline outage scope essentially complete in June, 1992.

## OUTAGE PLANNING

### NUMBER OF DAYS PRIOR TO OUTAGE

ACTIVITY	2RE02 (FALL '91)	1RE04 (FALL '92)
• Outage Scope	—	202
• Identify Contract Requirements	—	232
• Award Contracts	26	141
• Identify and Schedule Mod prerequisite activities	—	171
• Identify PMT requirements for Mod packages	—	141
• Identify Radiation Work Permit Requests	—	141
• Identify Equipment Clearance Order Requirements	—	141

## OUTAGE MANAGEMENT

- Schedule Control
  - The right jobs are worked
  - Shutdown risk is managed
  - The schedule logic sequence is followed
- Manpower Management
  - Reduce Fatigue
  - Control Overtime
  - HL&P and Contractors
- Maintenance craft resources levelized (5 x 12)
- Operations requalification training rescheduled
- Operations 4 shift rotation
  - increase staffing/reduce overtime
- On-shift Outage Director

## OUTAGE REACTOR PLANT OPERATOR (RPO) TRAINING

- Objectives
  - Maximize hands on training
  - Minimize equipment cycling
  - Minimize schedule impact
  
- Task Selection Criteria
  - Equipment not normally operated at power
  - Equipment history where operator performance is a causal factor
  
- Specific Goals
  - Participation by at least 20 RPO's
  - Conduct at least 30 specific tasks
  - Develop an outage "ready list"

LICENSE AMENDMENTS FOR 1RE04

- SUPPORT FROM NRR
  - Containment Spray Additive Deletion
  - RHR Autoclosure Interlock Elimination
  - Toxic Gas Monitoring System Redesign (Approval imminent)
  - Spent Fuel Pool Loading/Configuration
  - Turbine Overspeed Protection - Valve Inspection Extension
  - Snubber Visual Inspection Criteria
  
- NO AMENDMENTS REQUIRED FOR CORE DESIGN



## SHUTDOWN RISK ASSESSMENT (SRA)

- Performed in Conformance with Industry Guidance:
  - NUMARC 91-06
  - NUREG 1449
  - INPO 92-05
- "Defense in Depth" Philosophy
  - Adequacy of Systems
  - Planning for System Availability
  - Administrative Controls
  - Trained Personnel
- High Level of Management Attention
  - Established Policies, Programs, and Procedures
  - Proceduralized Risk Assessment Process
  - Qualified Individuals Performing Assessment, Including SRO
- Outage Planning and Control
  - Management Review
  - Weekly Review of Schedule by SRA Group
  - Assessment and Control of Emergent Work

## SHUTDOWN RISK ASSESSMENT

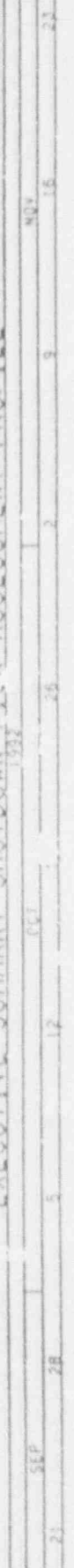
### KEY SAFETY FUNCTIONS:

- Power Source Availability
  - Off-Site
  - On-Site
  - LOOP Precursors (Switchyard)
- Decay Heat Removal/RCS Inventory
  - Procedures for Reduced Inventory/Mid-Loop
  - Minimization of Time in Mid Loop
  - RHR Availability
  - RCS Level Control/Monitoring
    - Vent paths
- Spent Fuel Pool Cooling
- Containment Integrity
- Fuel Handling Building HVAC
- Cold Overpressure Mitigation/RCS Integrity
- Reactivity Management
- Boron Dilution
- Hazards Control (fire, heavy loads, flooding, etc)
- Personnel Safety

## 1RE04 SHUTDOWN RISK ASSESSMENT

- No Reduced Inventory or Midloop Operations
- No Steam Generator Work
- Extended No-Mode Work Window
- Two RHR Trains and Associated Standby Diesel Generators Available in Modes 5 and 6
- One Safety Train Available in No-Mode
- Equipment Hatch closed in Mode 5 when Vessel Water Level is lowered
- Two Offsite Power Sources Available at all times

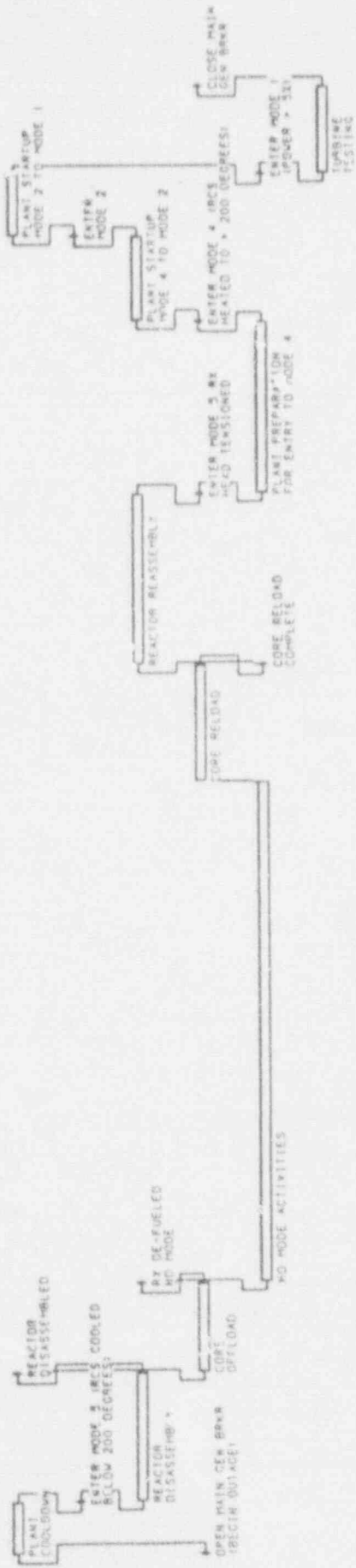
# EXECUTIVE SUMMARY SHUTDOWN RISK ASSESSMENT PROFILE



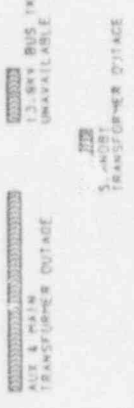
## MILESTONES



## CRITICAL PATH



## TRAIN OUTAGES



UNAVAILABLE

## HISTORICAL PERSPECTIVE

### MAJOR EQUIPMENT ISSUES

#### 1989

Main Condenser Expansion Bellows Failures  
Diesel Generator 22 Connecting Rod  
Main Generator Bearing Fire  
Turbine Governor Valves  
Winter Freeze  
Main Transformer

#### 1990

Turbine Generator Rotor Disk  
Turbine Generator Stationary Blades  
Circulating Water Pump

#### 1991

Main Generator Stator  
Feedwater Isolation Valves

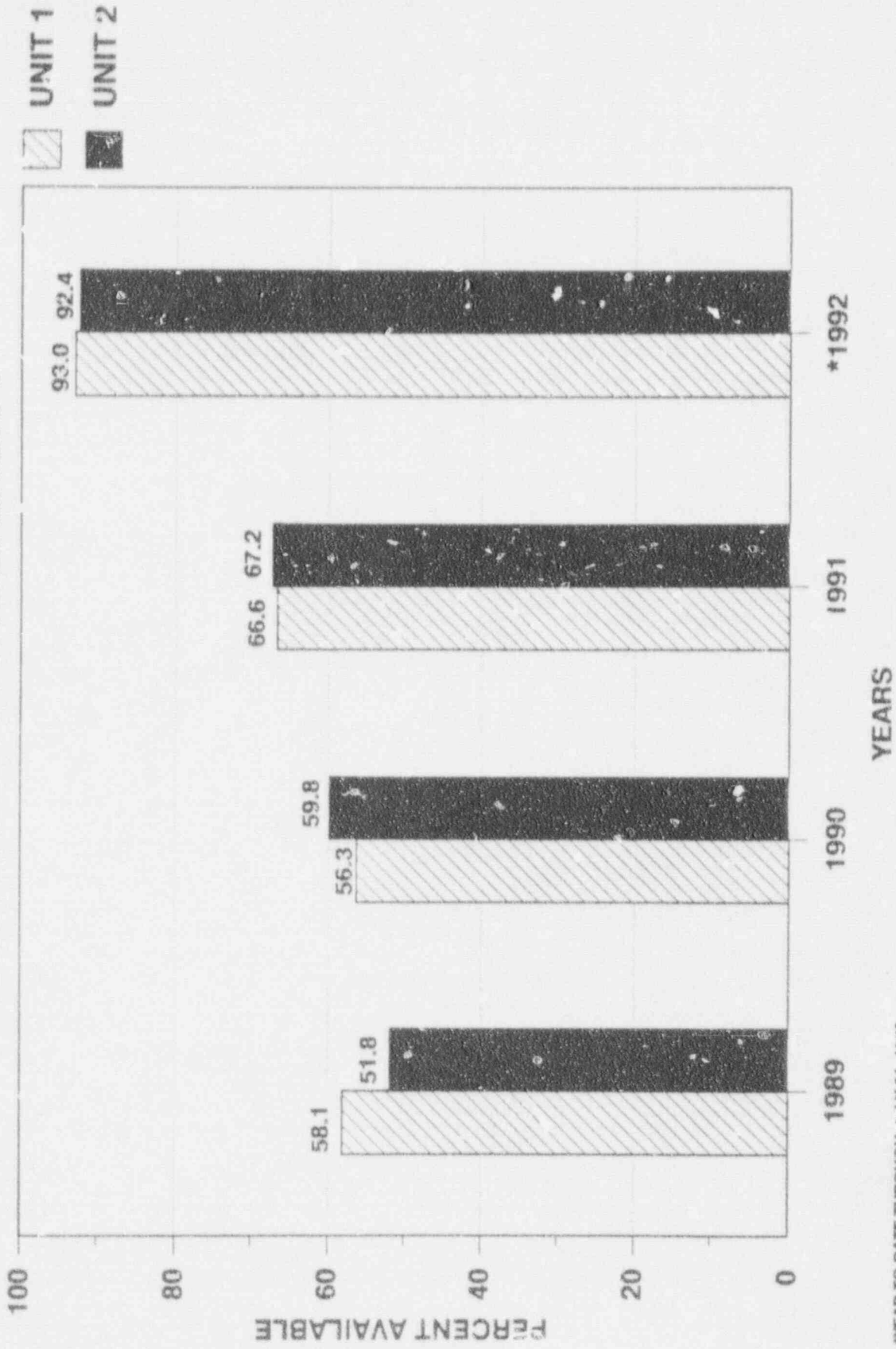
#### 1992

Diesel Generator Availability  
Motor Operated Valves  
ECW Piping

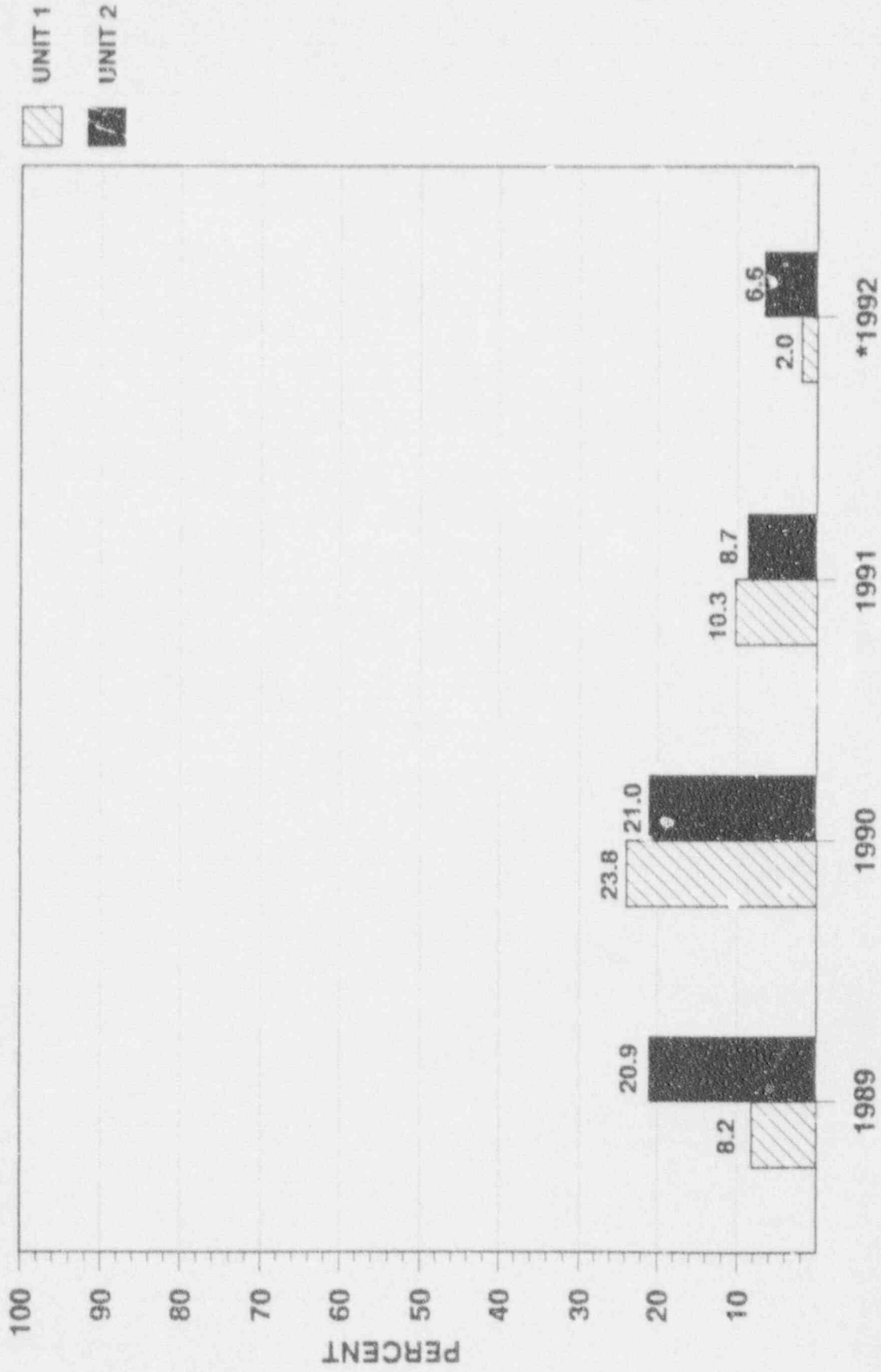
#### Future

Steam Generators

# EQUIVALENT AVAILABILITY



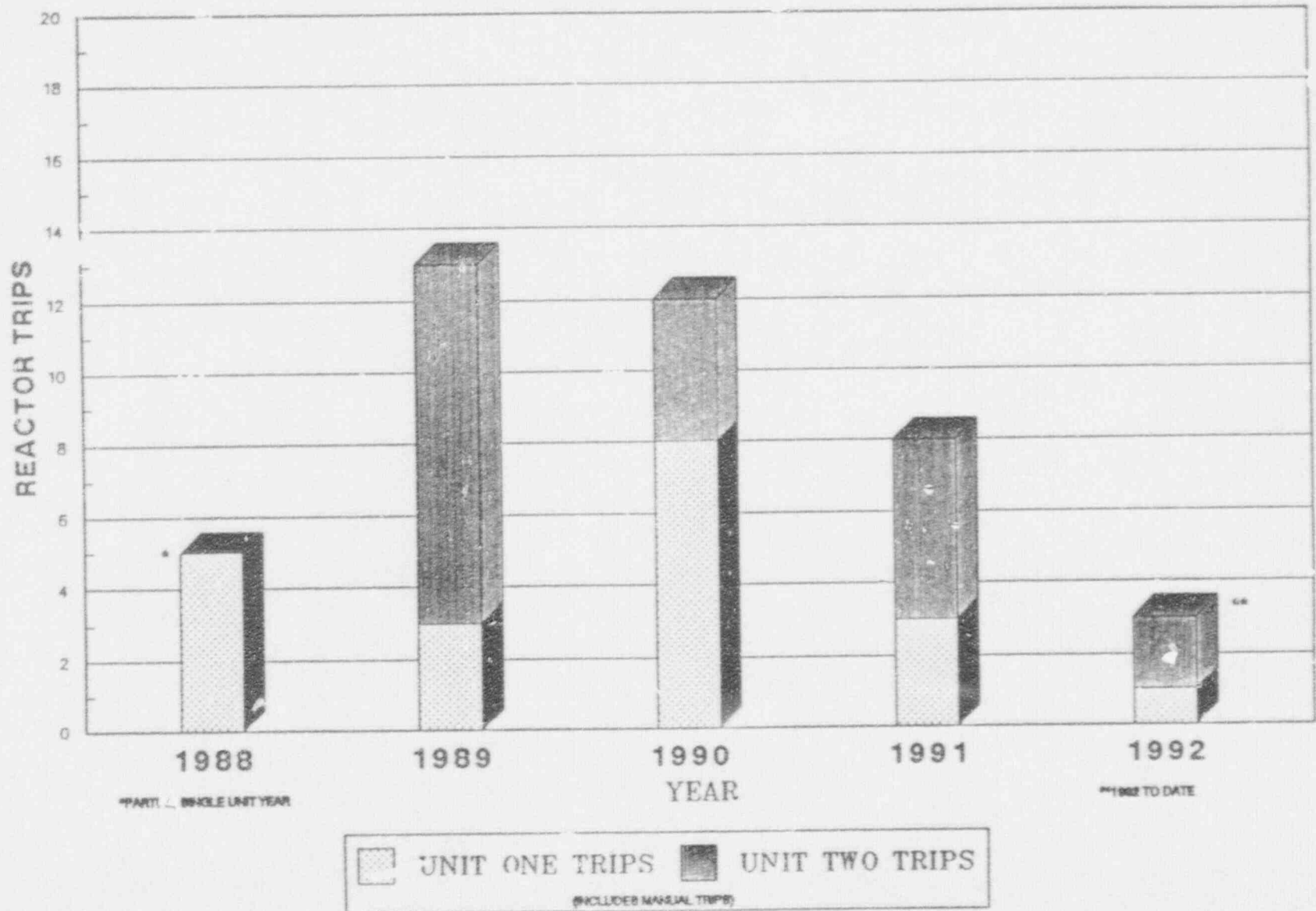
# UNPLANNED CAPABILITY LOSS FACTOR



YEARS

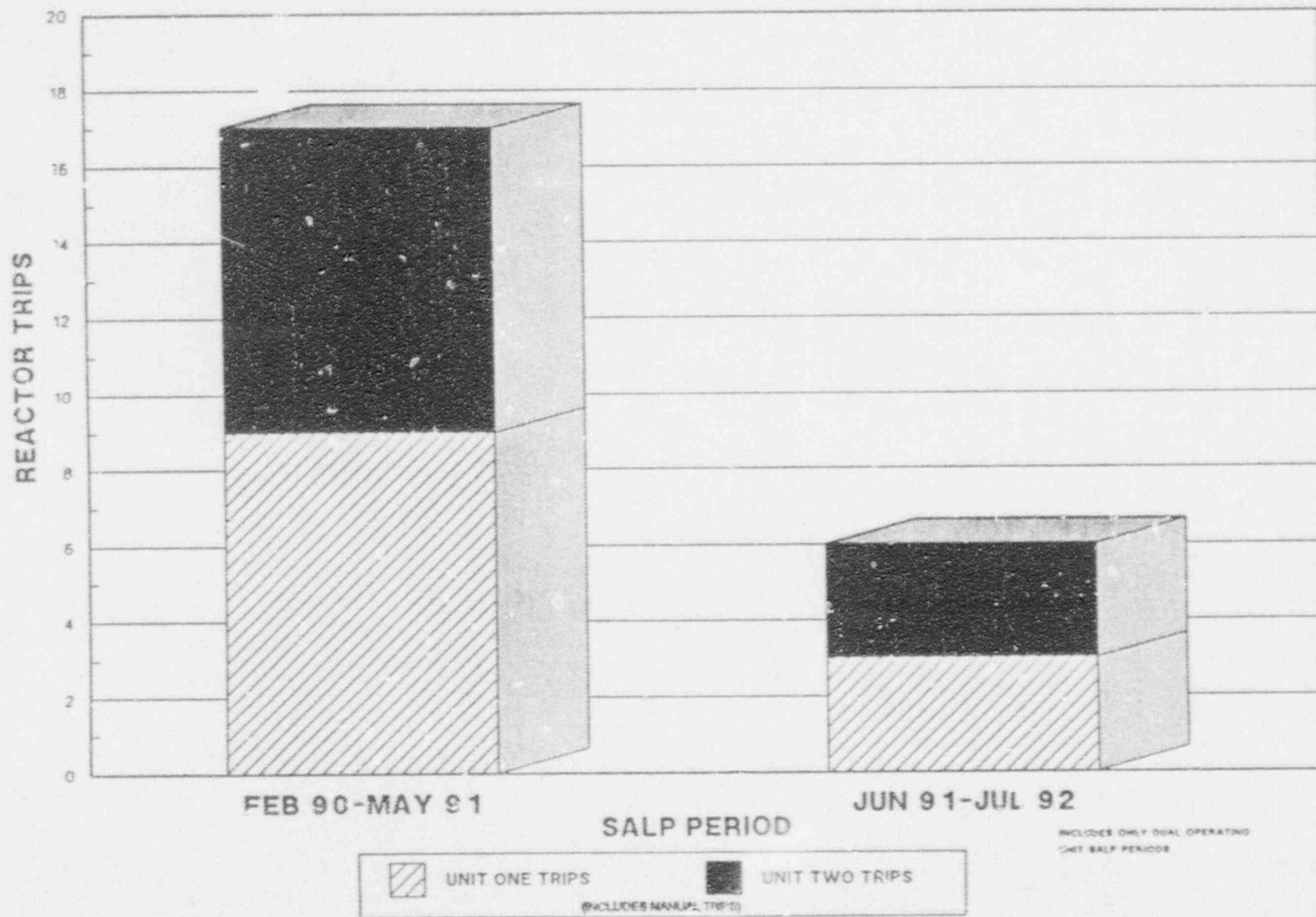
\*YEAR-TO-DATE THROUGH JULY 31, 1992

# REACTOR TRIPS BY YEAR

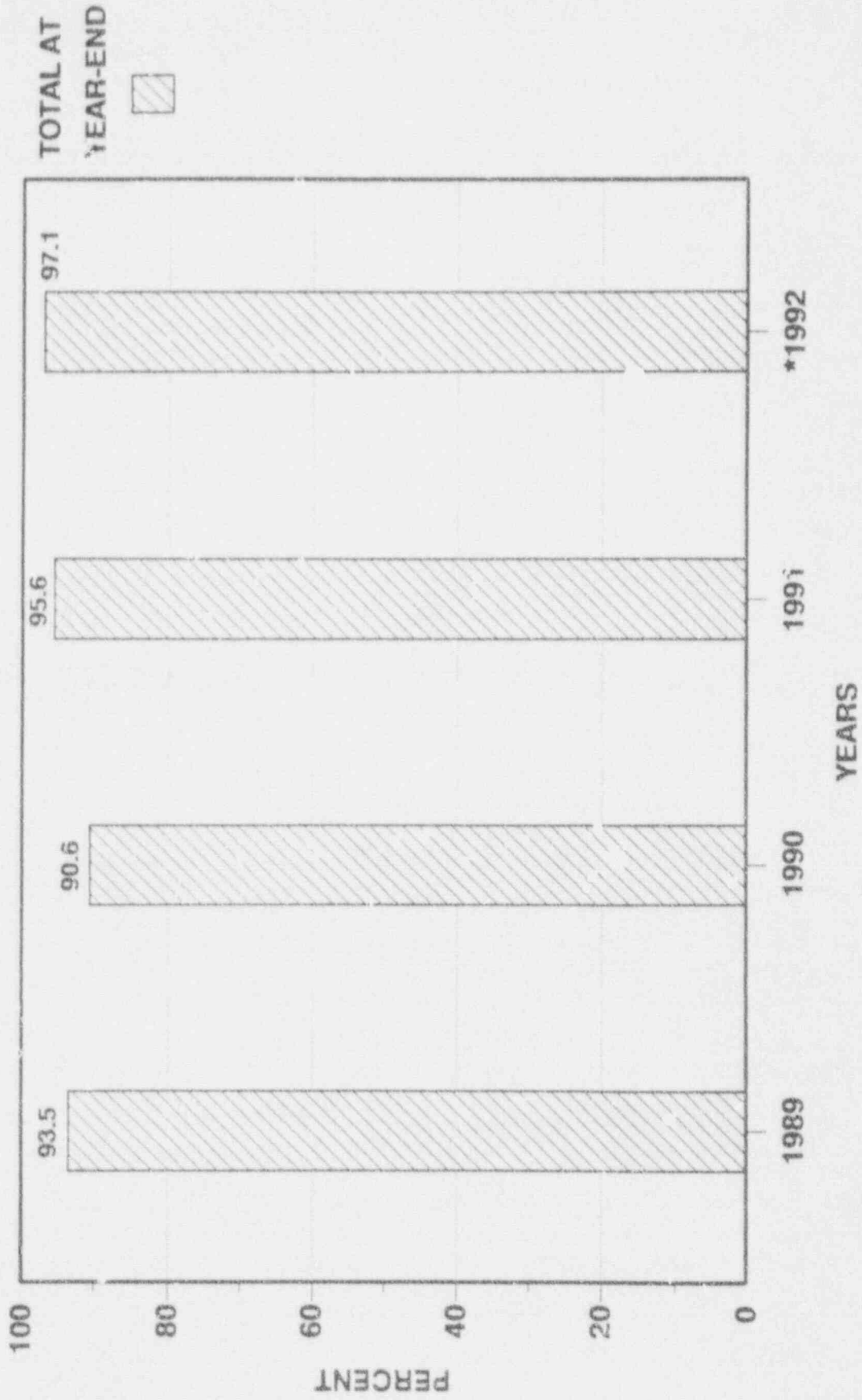




# REACTOR TRIPS BY SALP PERIOD



# EMPLOYEE RETENTION



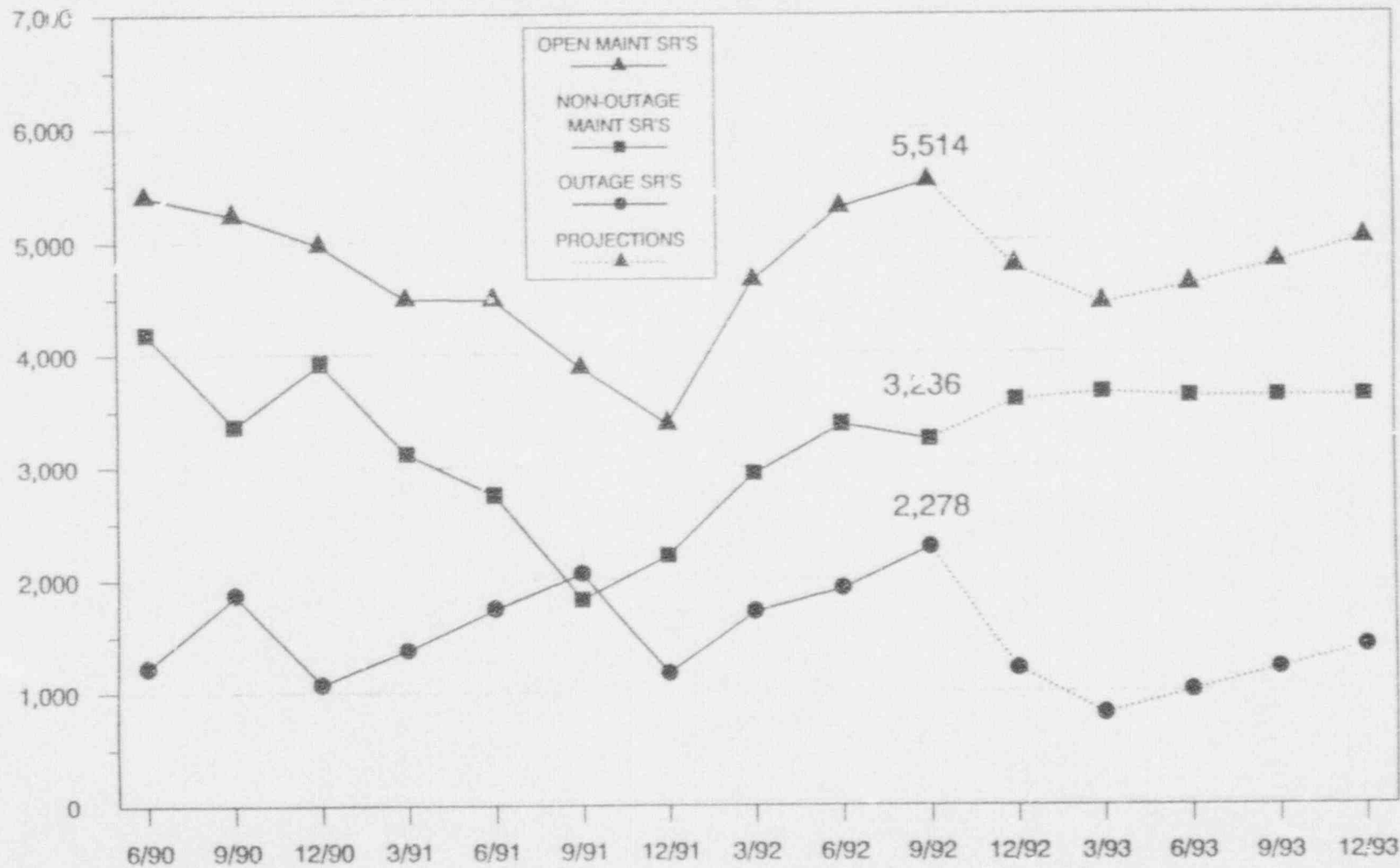
\*YEAR-TO-DATE THROUGH AUGUST 31, 1992

## SERVICE REQUEST DATA

Total Open	7203	
	<u>-1148</u>	Modifications
	6055	
	<u>- 488</u>	Tracking
	5567	
	<u>- 53</u>	Information Only
Open Maintenance Items	* 5514	
	<u>- 2278</u>	Outage
Non-Outage Maintenance Items	3236	
	<u>- 1879</u>	Miscellaneous
Important to Plant Operation	1357	

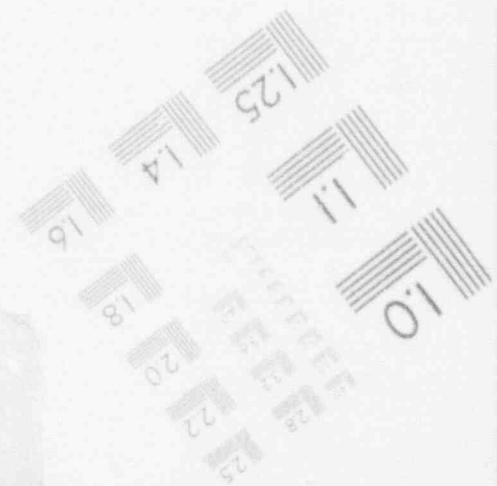
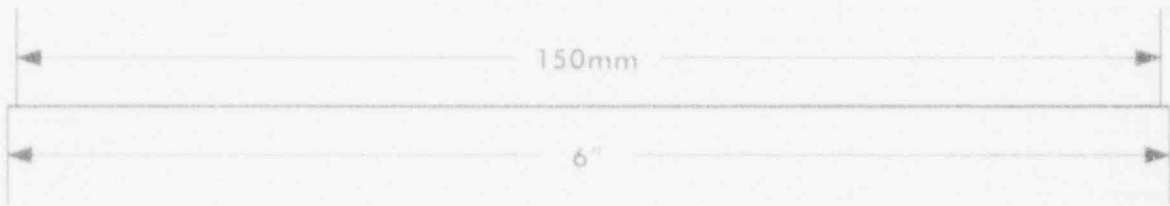
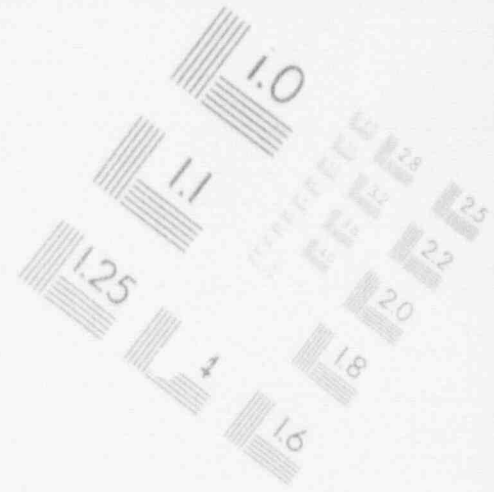
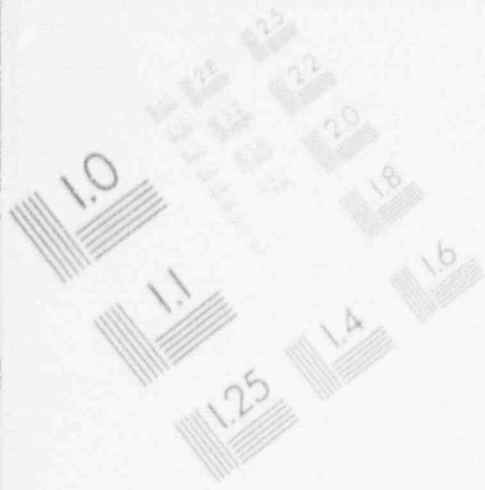
\* Two stand-alone units with three ESF trains on each unit.

# OPEN MAINTENANCE SERVICE REQUESTS (OUTAGE AND NON-OUTAGE)



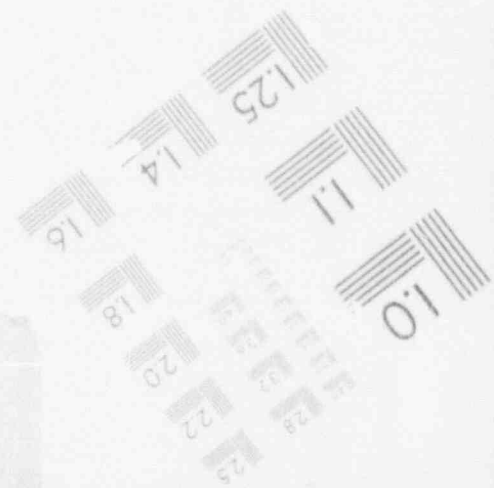
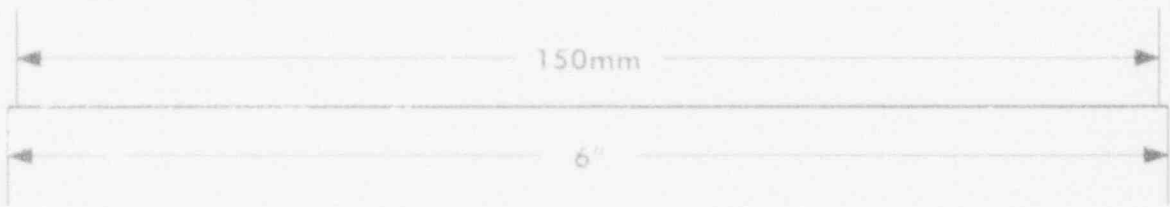
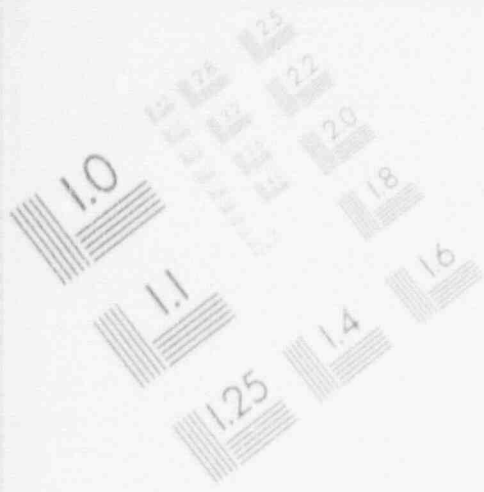
# 1

## IMAGE EVALUATION TEST TARGET (MT-3)



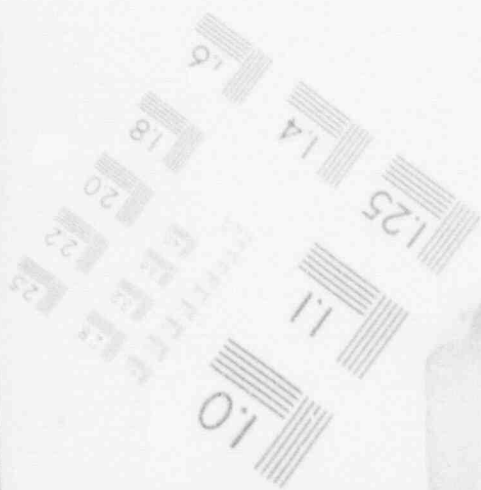
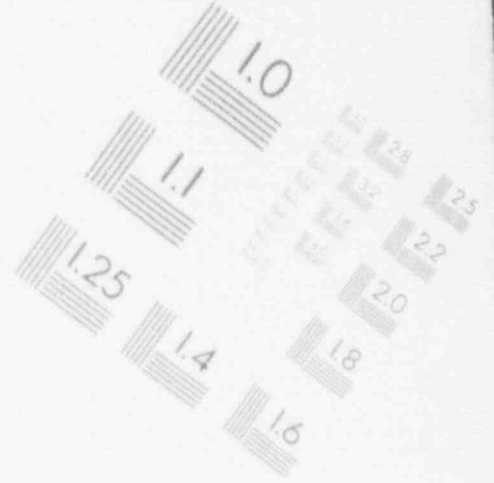
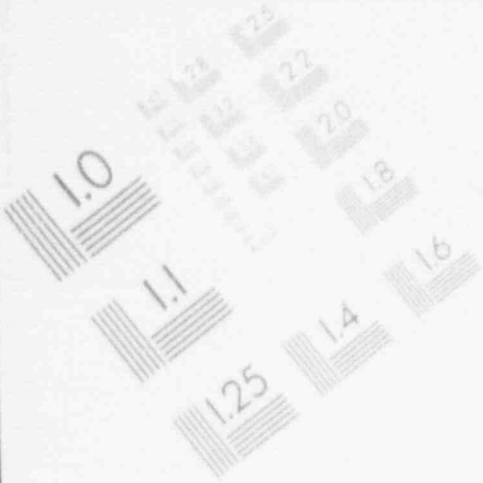
# 1

## IMAGE EVALUATION TEST TARGET (MT-3)



# 1

## IMAGE EVALUATION TEST TARGET (MT-3)



## MATERIEL CONDITION INITIATIVES

- Specialty Contractors
  - Pilot programs in 1992
  - Additional programs in 1993
- Work Process Improvement - 5% productivity gain in 9/92 and 9/93
- Reduced - frequency, high-value LCO outages
  - Semi-annual LCO outage for each train
  - Increased manhours for corrective maintenance
- Engineering solutions for recurring equipment malfunctions



## 1989 – 1992 PERFORMANCE

September 9, 1992

<u>UNIT 1</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992*</u>
Equivalent Availability	58.1	56.3	66.6	93.7
Capacity Factor	58.3	55.5	66.3	93.4
Unplanned Capability Loss Factor **	8.2	23.8	10.3	1.7
 <u>UNIT 2</u>				
Equivalent Availability	51.8	59.8	67.2	93.1
Capacity Factor	51.7	59.3	66.7	93.1
Unplanned Capability Loss Factor **	20.9	21.0	8.7	5.8
 <u>COMMON</u>				
Licensee Event Reports	53	45	34	16
Notices of Violation	24	14	14	11
Attrition				
Terminations	8.19%	9.44%	4.35%	2.89%
Transfers	1.69%	1.25%	0.83%	0.06%
 Cost Performance (mills/KWH)	 16.01	 16.91	 16.30	 11.28

\* Year-to-date through August 31, 1992  
 \*\* Reported as Forced Outage Rate prior to 1991