

DEC 10 1991

*Final  
copy*

Docket Nos. 50-325, 50-324  
License Nos. DPR-71, DPR-62

Carolina Power and Light Company  
ATTN: Mr. Lynn W. Eury  
Executive Vice President  
Power Supply  
P. O. Box 1551  
Raleigh, NC 27602

Gentlemen:

SUBJECT: ENFORCEMENT CONFERENCE SUMMARY  
(NRC INSPECTION REPORT NOS. 50-325/91-26 AND 50-324/91-26)

This letter refers to the Enforcement Conference held at our request on December 3, 1991. This meeting concerned activities authorized for your Brunswick facility. The issues discussed at this conference related to recurrent problems in the areas of work control and independent verification, as inhibited by recently identified deficiencies in procedural adherence and adequacy. A list of attendees and a copy of your handout are enclosed. We are continuing our review of these issues to determine the appropriate enforcement action.

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 and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this matter, please contact us.

Sincerely,

Original signed by:  
Jon R. Johnson/for

Ellis W. Merschoff, Acting Director  
Division of Reactor Projects

Enclosures:

1. List of Attendees
2. Licensee Handout

cc w/encs: (See page 2)

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PDR ADDCK 05000324  
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cc w/encls:

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Vice President  
Brunswick Nuclear Project  
P. O. Box 10429  
Southport, NC 28461

J. W. Spencer  
Plant General Manager  
Brunswick Steam Electric Plant  
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Manager - Legal Department  
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bcc w/encls: (See page 3)

DEC 10 1991

Director's Control Desk  
F. Christensen, RII  
MRR

Assistant Inspector  
Area Regulator, Commission  
1, Box 208  
NC 28461

RII:DRP  
*[Signature]*  
RCarroll:tj  
12/9/91

RII:DRP  
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HChristensen  
12/9/91

RII:JRP  
*[Signature]*  
DVerrelli  
12/9/91

RII:ELCS  
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GJenkins  
12/9/91

RII:DRP  
*[Signature]*  
JJohnson  
12/10/91

ENCLOSURE 1

LIST OF ATTENDEES

Carolina Power and Light Company

R. A. Watson, Senior Vice President, Nuclear Generation  
R. B. Starkey, Vice President, Brunswick Nuclear Project  
J. W. Spencer, General Manager, Brunswick Nuclear Plant (BNP)  
J. W. Moyer, Manager, Operations, BNP  
D. E. Quidley, Manager, Site Workforce Control Group, BNP  
K. J. Ahern, Manager, Regulatory Compliance, BNP  
D. E. Moore, Manager, Maintenance, BNP  
S. D. Floyd, Manager, Nuclear Licensing  
J. W. Crider, Manager, Inservice Inspection/Testing, BNP  
J. C. Reinsburrow, Shift Supervisor, Operations, BNP  
M. D. Potter, Reactor Operator, BNP  
M. W. Holland, Reactor Operator, BNP  
P. T. Abbott, Auxiliary Operator, BNP  
S. F. Tabor, Senior Specialist, Regulatory Compliance, BNP  
M. S. Calvert, Associate General Counsel

Nuclear Regulatory Commission

S. D. Ebnetter, Regional Administrator, Region II (RII)  
J. L. Milhoan, Deputy Regional Administrator, RII  
E. W. Merschoff, Acting Director, Division of Reactor Projects (DRP), RII  
J. R. Johnson, Deputy Director, DRP, RII  
A. F. Gibson, Director, Division of Reactor Safety (DRS), RII  
E. G. Adensam, Project Directorate II-1, Office of Nuclear Reactor Regulation (NRR)  
D. M. Varrelli, Chief, Reactor Projects Branch, DRP, RII  
H. O. Christensen, Chief, Reactor Projects Section 1A, DRP, RII  
R. L. Prevatte, Senior Resident Inspector - Brunswick, DRP, RII  
F. Jape, Chief, Test Programs Section, DRS  
B. Uryc, Senior Enforcement Specialist, Enforcement and Investigation Coordination Staff, RII  
G. J. Nelson, Resident Inspector - Brunswick, DRP, RII  
R. E. Carroll, Project Engineer, DRP, RII  
N. Le, Project Manager, NRR  
C. F. Evans, Regional Counsel, RII  
J. C. Lichman, Office of Enforcement (by telephone)  
R. S. Baldwin, Reactor Engineer, Operator Licensing Section, DRS, RII  
T. R. Farnholtz, Intern, DRS, RII  
F. X. Talbot, Intern, DRS, RII

ENCLOSURE 2

**BRUNSWICK NUCLEAR PROJECT**

**DECEMBER 3, 1991**

## AGENDA

INTRODUCTION	JACK SPENCER
DISCUSSION OF ISSUES:	
DIESEL GENERATOR #3	ED QUIDLEY
RHR VALVE F048B	MARK HOLLAND
LLRT ISSUE	JERRY CRIDER
RPS ACTUATION	JOHN MOYER
ECCS TRIP CARD	JOHN MOYER
RCIC VALVE F012	JOHN MOYER
SERVICE WATER VALVE V294	JOHN MOYER
CORRECTIVE ACTION OVERVIEW	JOHN MOYER
OVERALL PERFORMANCE TRENDS	KEITH AHERN
REGULATORY OVERVIEW	KEITH AHERN
SUMMARY	RUSS STARKEY

## INTRODUCTION

- SELF ASSESSMENT SURFACING ISSUES
- AGGRESSIVE CORRECTIVE ACTIONS IMPLEMENTED
- UNIT 2 OUTAGE RESULTING IN INCREASE LEVEL OF ACTIVITY
- UNIT 2 OUTAGE CONTAINED MANY SUCCESSFUL ACTIVITIES
- FREQUENCY OF ISSUES UNDERSTANDABLE RELATIVE TO LEVEL OF ACTIVITY
- EVALUATION OF RECENT ISSUES SUGGEST ON-GOING ACTIONS REMAIN APPROPRIATE FOR REDUCING ERRORS
- OVERALL PERFORMANCE TRENDS INDICATE IMPROVEMENTS
- PREVIOUS AND PLANNED ACTIONS WILL ACHIEVE CONTINUING IMPROVEMENT

# DISCUSSION OF ISSUES

## DIESEL GENERATOR #3

### CHRONOLOGY

Summer 1991	Established back to back LCO plan
8/22/91	Submitted LCO extension request
9/30/91	Thorough pre-job briefing stressed procedural compliance
10/1/91	Entered into maintenance outage
10/4/91	Improper valve adjustment took place
10/5/91	Extension request granted
10/9 - 10/14/91	Experienced delays in outage
10/14/91	EDG #3 loading issue investigation
10/15/91	Found valves out of adjustment
10/16/91	EDG #3 run successful
10/20/91	EDG #3 declared operable



## DISCUSSION OF ISSUES

### DIESEL GENERATOR #3

#### ROOT CAUSE

- Failure of an individual to implement one step in master procedure
- Level of attention to detail in the review of some work
- Level of contingency planning

#### CONTRIBUTING FACTORS

- Level of oversight
- Self imposed schedule pressure

#### CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE

- Personnel counselled and disciplined as appropriate
- Procedure enhancements on going
- Training implemented for selected Maintenance personnel
- BNP site management group training implemented

# DISCUSSION OF ISSUES

## DIESEL GENERATOR #3

### ISSUE ASSESSMENT

- o Procedure was adequate
- o Issue is not typical of CP&L conduct of business
- o CP&L considers involved individual actions intolerable
- o Counselling and disciplinary actions implemented will reinforce CP&L procedural compliance expectations
- o Recent examples of the typical CP&L/BNP conduct of business which also could have impacted Unit 1 operation include:
  - Subsequent EDG #3 outage
  - EDG #4 outage
  - 125/250 VDC battery replacement
  - SAT/UAT Bus bushing replacement
- o Maintenance supervisory position assignments and extensive team building will strengthen future projects

## DISCUSSION OF ISSUES

### RESIDUAL HEAT REMOVAL (RHR) VALVE F048B

#### CHRONOLOGY

10/3/91 A & B loop RHR in Suppression Pool Cooling (SPC) mode to support High Pressure Coolant Injection surveillance

Commenced SPC shutdown (OP-17)

- Secured "A" RHR/SPC (OP-17)
- Secured Service Water (SW) to Loop "A" RHR (OP-43)
- "A" loop RHR/Low Pressure Cooling Injection (LPCI) in standby (OP-17)
- Secured "B" RHR/SPC (OP-17)
- Secured SW to Loop "B" RHR (OP-43)

Step missed requiring opening RHR Heat Exchanger Bypass

- "B" loop RHR/LPCI in standby (OP-17)
- Independent verification of OP-17 and OP-43

Verification missed RHR Heat Exchanger Bypass

Resident Inspector noted the closed bypass

Bypass repositioned to the open position

## DISCUSSION OF ISSUES

### RHR VALVE F048B CONT'D

#### ROOT CAUSE

- Improper use of procedure

Resulting In:

- Valve mispositioned
- Improper independent verification

#### CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE

- Supervisory policy implemented
- Personnel counselled and disciplined
- Training implemented
- Procedure enhanced
- Operating Procedure review for generic concerns
- BNP site management group training implemented

## DISCUSSION OF ISSUES

### LOCAL LEAK RATE TEST (LLRT) ISSUE

#### CHRONOLOGY

- 10/5/91 Under clearance closed:
- RHR Suction Manual Isolation Valve (F067)
  - Recirculation Sample Line Manual Isolation Valve (F059)
- 10/18/91 Closed F067 interfered with the setup of the Shutdown Cooling Outboard Suction Valve (F008) PIV test
- ISI technicians questioned impact on the LLRT they had performed on the Shutdown Cooling Inboard Suction Throttle Valve (F009)
- 10/18 -  
10/20/91 Test documentation reviewed:
- Invalidation of two LLRTs

Tests repeated correctly

Results satisfactory

# DISCUSSION OF ISSUES

## LOCAL LEAK RATE TEST (LLRT) ISSUE

### ROOT CAUSE

- Failure to follow procedure

### CONTRIBUTING FACTORS

- Pre-job briefing mindset
- Self imposed pressure to minimize radiation exposure

### CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE

- Review of test documentation
- LLRTs repeated satisfactorily
- Personnel counselled and disciplined
- Vendor accountability
- Training implemented for LLRT personnel
- BNP site management group training implemented

# DISCUSSION OF ISSUES

## RPS ACTUATION

### CHRONOLOGY

9/26/91 Scram Discharge Volume Bypass Switch bypassed to allow the system to drain

Cleared annunciators:

- Scram Discharge Volume Not Drained
- Rod Block

Annunciators not cleared:

- Scram Discharge Volume HI HI Level Trip (RPS)

9/27/91 Unit 2 SRO noted "Not Drained" and "Rod Block" cleared

SRO returned switch to the normal position

Unplanned RPS trip

### ROOT CAUSE

- Lack of adherence to Operating Administrative Procedure and philosophy

### CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE

- Reactor Protection System reset and returned to normal
- Personnel counseled and disciplined

# DISCUSSION OF ISSUES

## ECCS TRIP CARD

### CHRONOLOGY

10/2/91      Vessel defueled

                 Fuel Pool gates installed

                 Special Procedure to lower level in progress

                 Disabling of ECCS, PCIS and RPS required

                 Clearance required by prerequisites

                 Low Level trip signal generated during  
                 clearance placement

### CONTRIBUTING FACTORS

- Prerequisites normally require no action and are typically verified in any order
- Special Procedure lacked caution regarding order of performance
- Special Procedure had been successfully used numerous times in past outages
- ACMS rearranged tag sheet in an alpha-numeric order



## DISCUSSION OF ISSUES

### ECCS TRIP CARD CONT'D

#### ROOT CAUSE

- o Procedure/software Interface

#### CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE

- o Procedure enhanced
- o Procedure prerequisite review to be performed
- o Evaluation of interface between procedures and clearances
- o Training Implemented

## DISCUSSION OF ISSUES

### RCIC VALVE F012

#### CHRONOLOGY

- 9/15/91 The RCIC Pump Discharge Valve (F012) closed under LLRT clearance
- 9/25/91 Pulled tag and opened F012 for maintenance and subsequently closed
- 10/4/91 Second clearance closed F012 for LLRT support
- 10/14/91 Third clearance to close F012 for LLRT support
- Found the valve fully open
- Valve returned to fully closed position

#### ROOT CAUSE

- No evidence exists which identifies how or when the F012 was opened.

#### CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE

- Training implemented
- Site awareness elevated

# DISCUSSION OF ISSUES

## SERVICE WATER VALVE V294

### CHRONOLOGY

10/21/91 Service Water Supply Outboard Isolation Valve V294 breaker opened under clearance.

- Valve open for maintenance
- No remote position indication

10/28/91 Maintenance verified open position  
Maintenance observed difficult operation  
Work order initiated

10/29/91 Clearance hung on handwheel - closed

- Two attempts to close the valve
- No valve movement was observed

Maintenance reported valve as open

Valve closed

## DISCUSSION OF EVENTS

### SERVICE WATER VALVE V294 CONT'D

#### ROOT CAUSE

- Valve stuck in the open position

#### CONTRIBUTING FACTORS

- Operations training on indicator reliability
- Operations policy on excessive force

#### CORRECTIVE ACTIONS, ACTIONS TO PREVENT RECURRENCE

- Training implemented
- V294 binding repaired

## CORRECTIVE ACTION OVERVIEW

- PROCEDURE ENHANCEMENT
- SUPERVISORS IN THE FIELD
- SELF CHECKING
- INCREASED QUALITY CONTROL INVOLVEMENT
- ADVERSE CONDITION REPORTING
- EFFECTIVE TRAINING
  - REAL TIME
  - INCREASED ON THE JOB TRAINING
- SITE WORK FORCE CONTROL GROUP
- PROJECT MANAGEMENT OF MAINTENANCE ACTIVITIES
- COACHING AND COUNSELLING

## OVERALL PERFORMANCE TRENDS

### ACRS

- ACR % SELF IDENTIFIED
- ACR % SIGNIFICANT
- CORRECTIVE ACTION STATUS
- CORRECTIVE ACTION BACKLOG

### REGULATORY INDICATORS

- RED PHONE REPORT EVENTS
- PERSONNEL RELATED LERS
- OUTAGE LERS
- VIOLATION SEVERITY

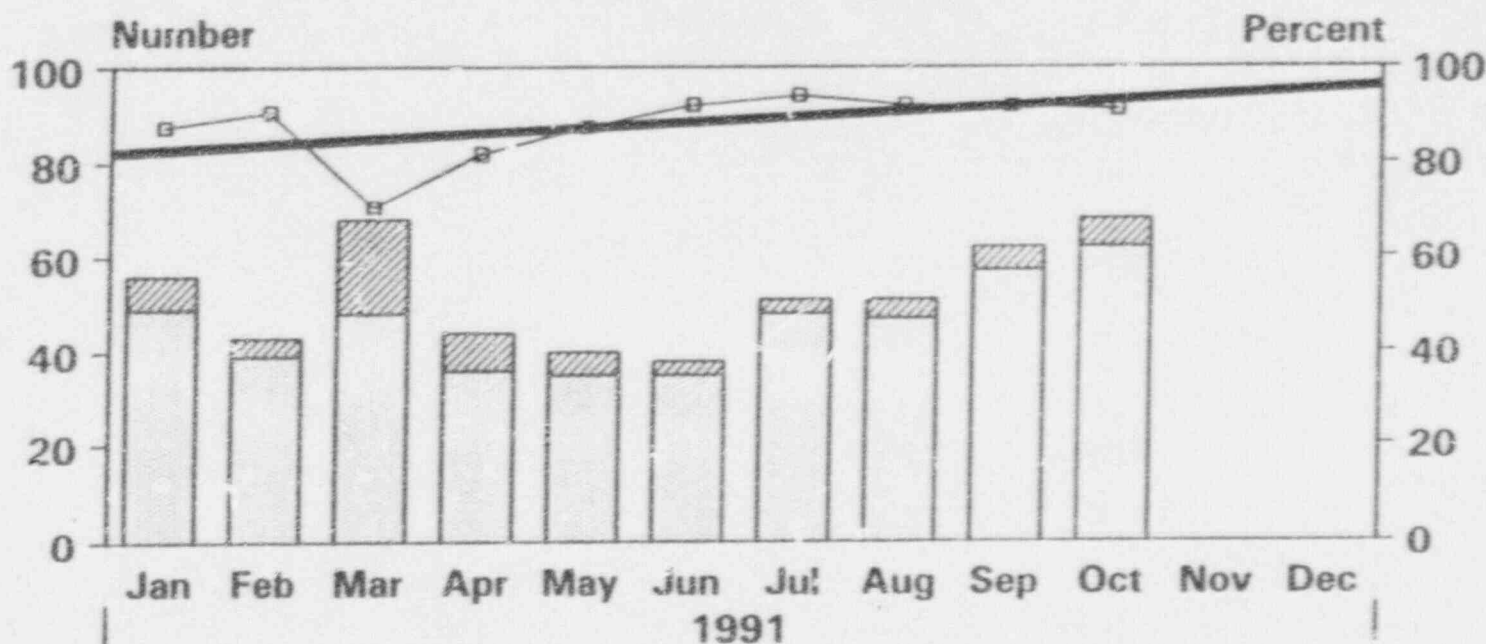
### CLEARANCE ERRORS

### PERSONNEL SAFETY

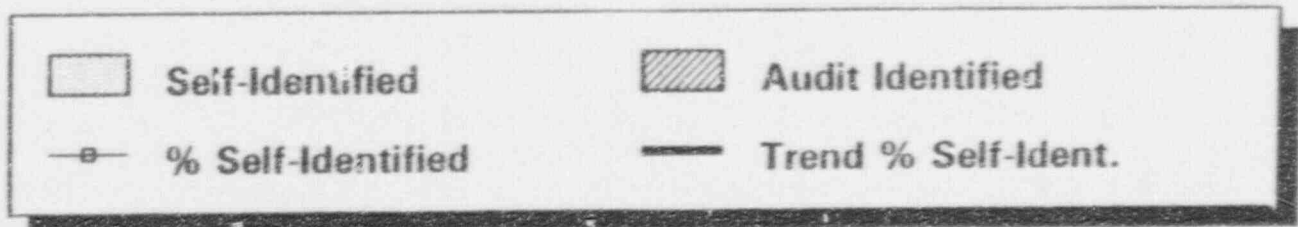
### CONTAMINATIONS

### RADIATION EXPOSURE

# Adverse Condition Reports (ACR) % Self-Identified



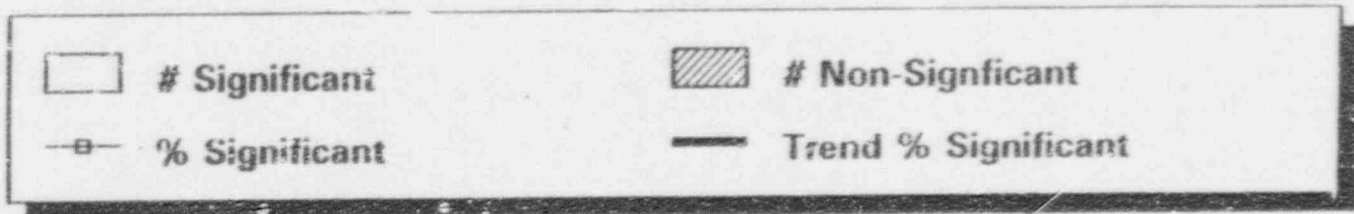
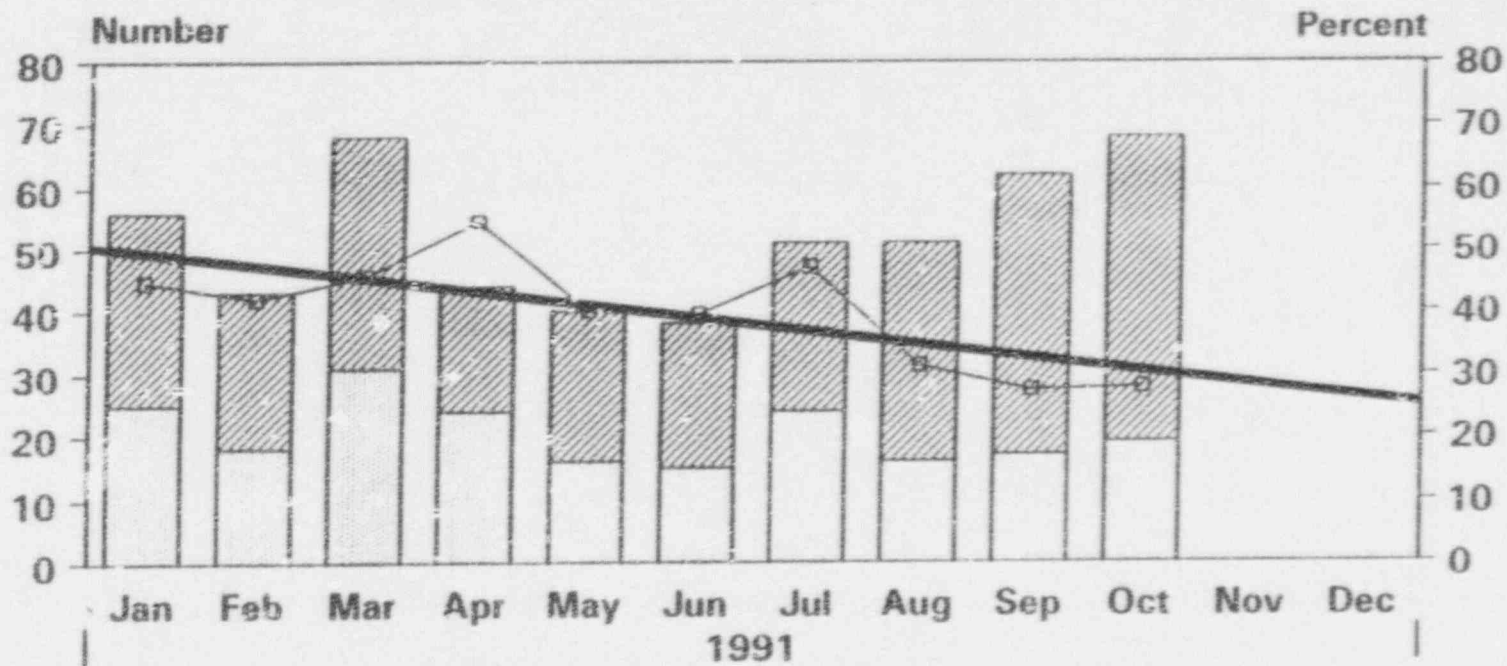
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# Adverse Condition Reports (ACR)

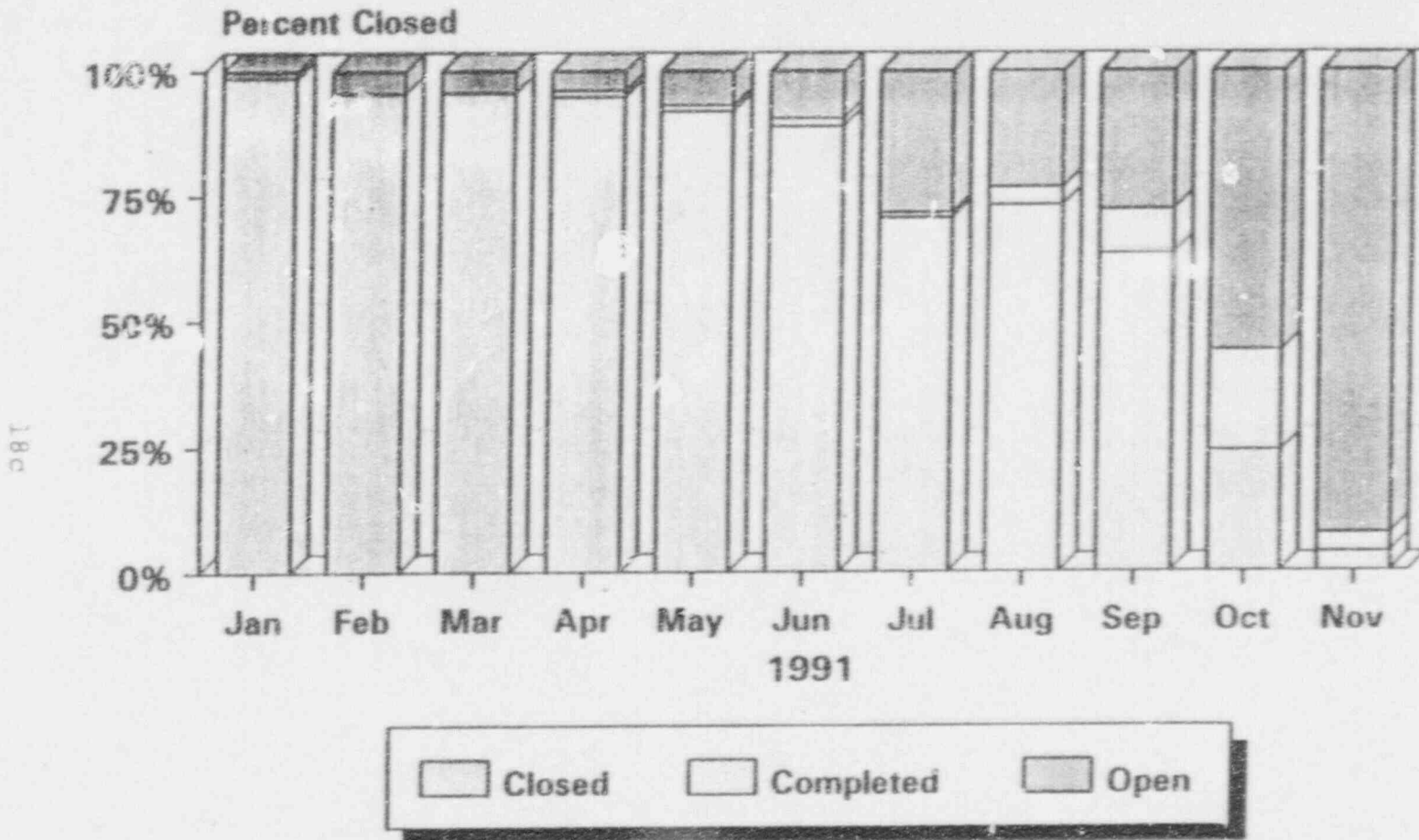
## % Significant

18b

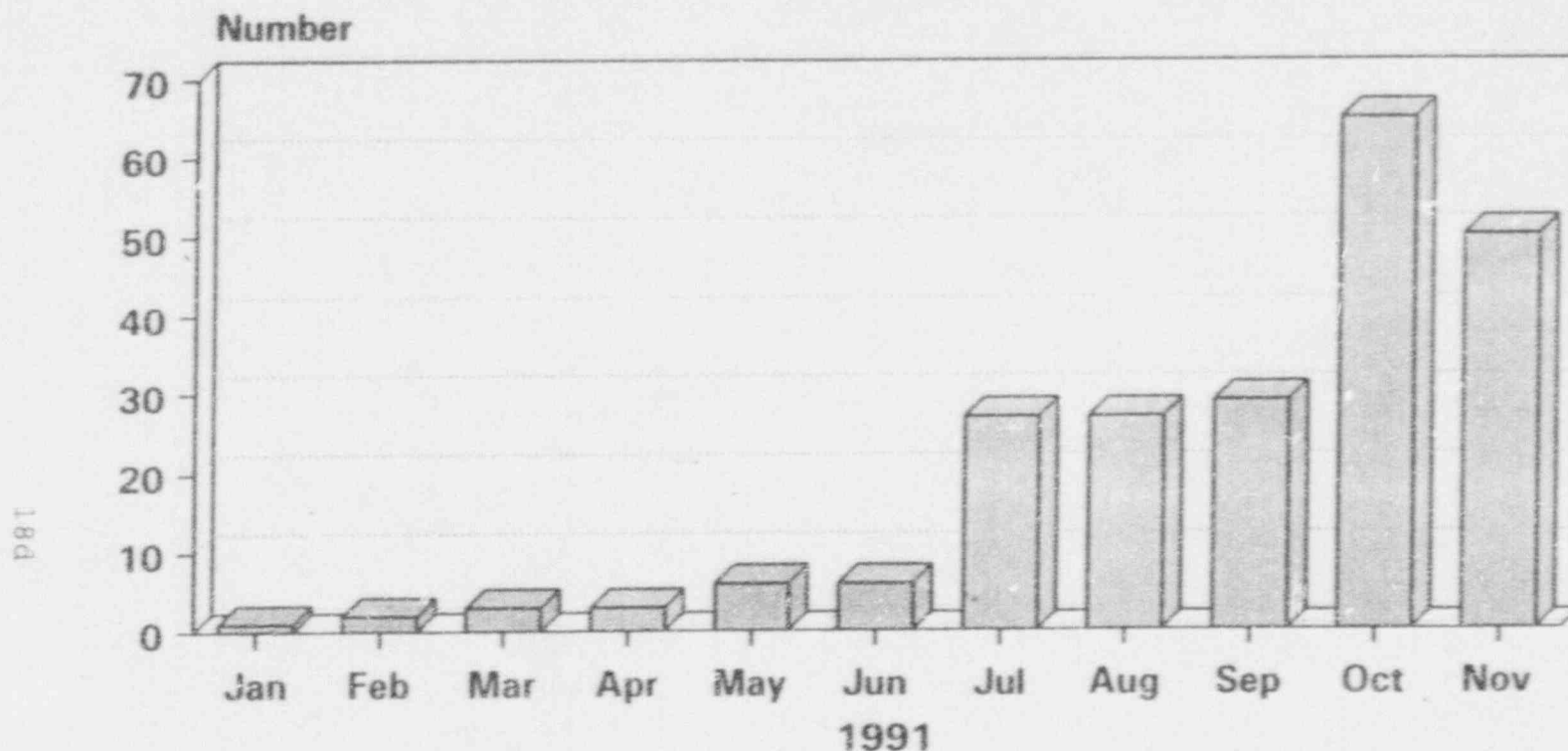




# Corrective Action Status Associated With Adverse Conditions

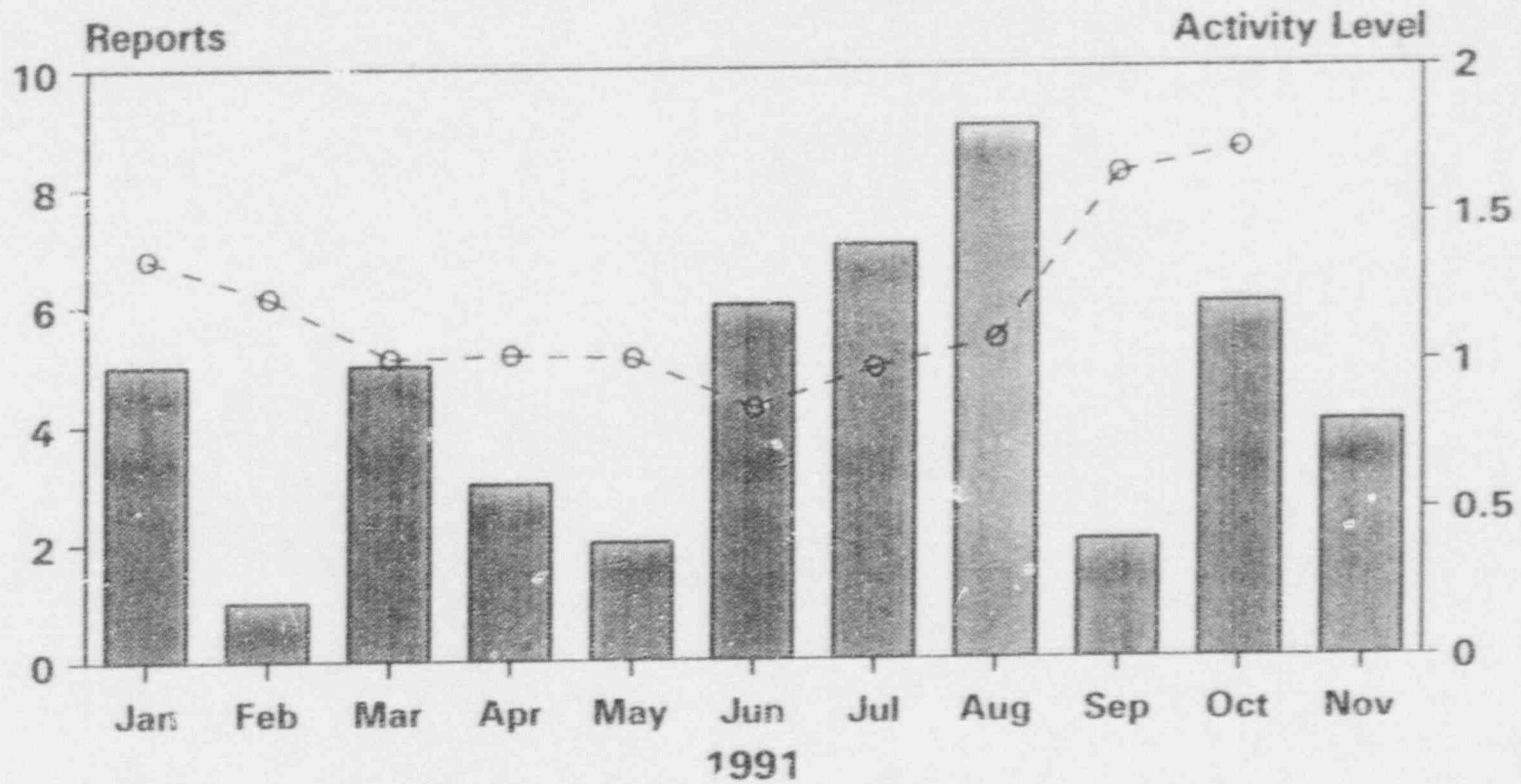


# Corrective Action Backlog Associated With Adverse Conditions

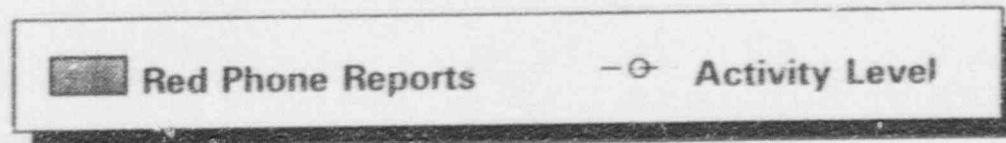


# Red Phone Reports

Not including followups

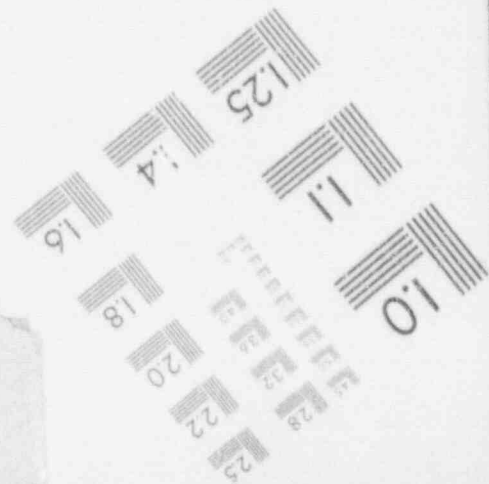
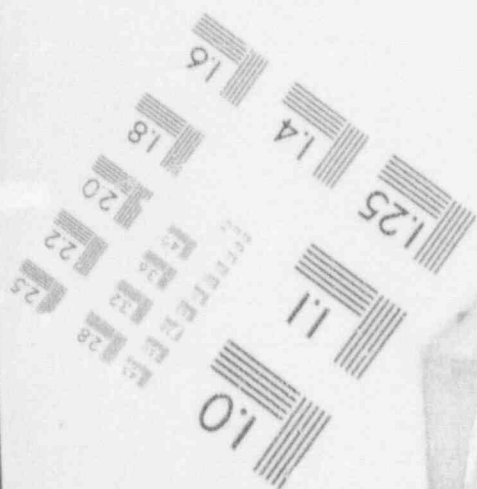
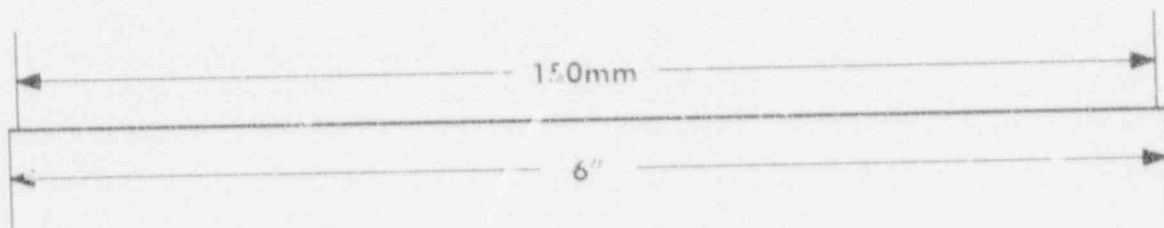
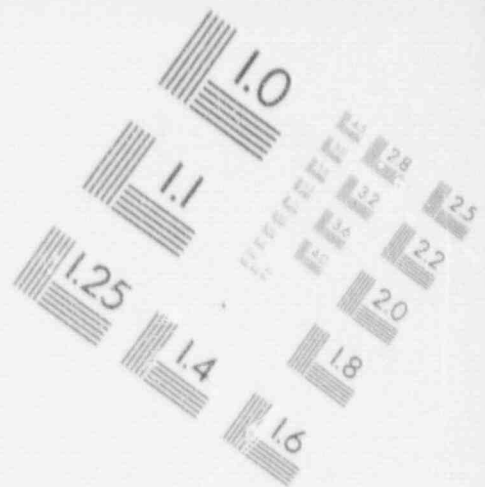
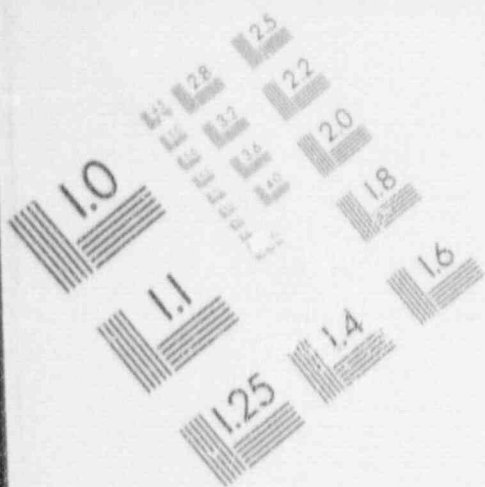


18e



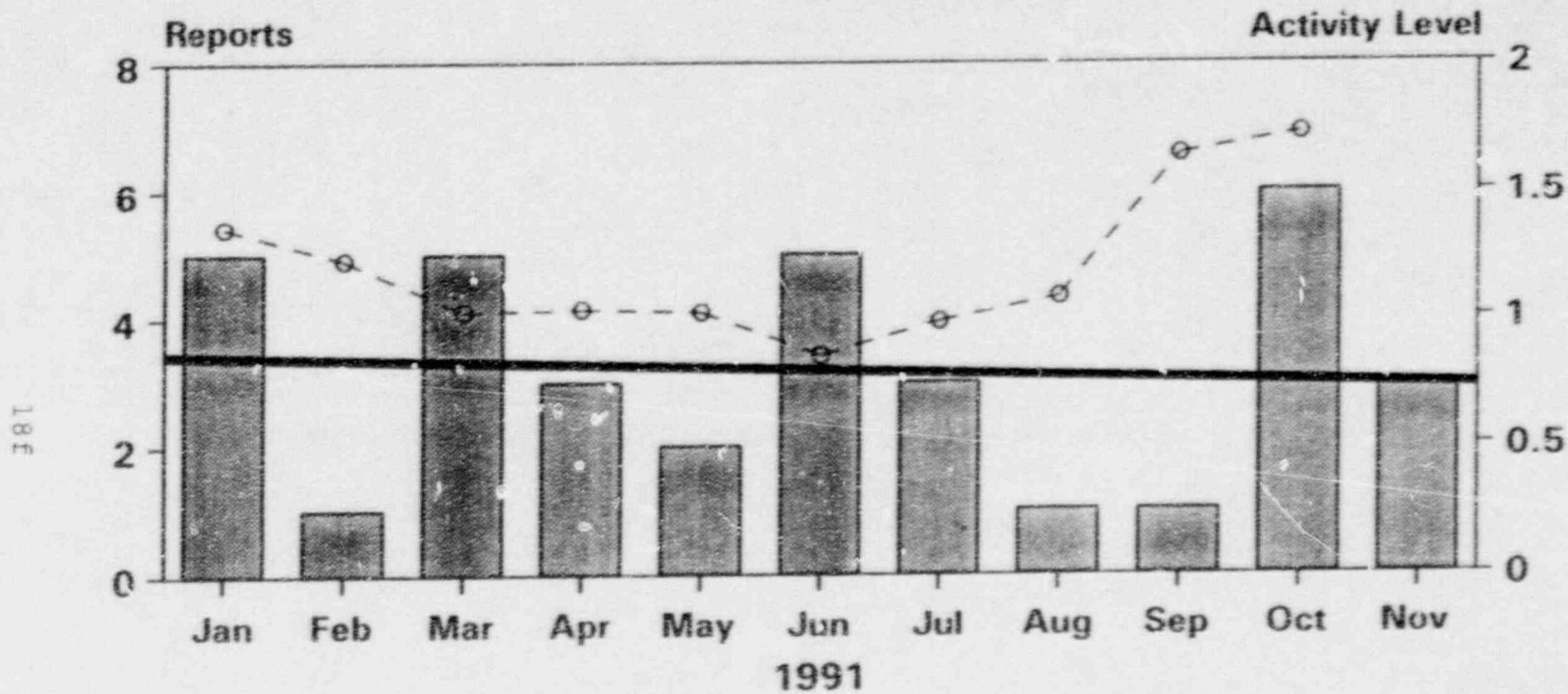
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## IMAGE EVALUATION TEST TARGET (MT-3)



# Red Phone Reports

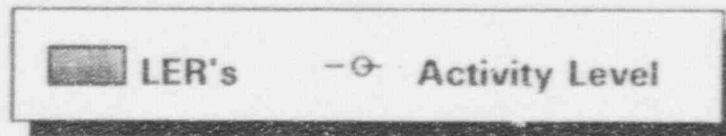
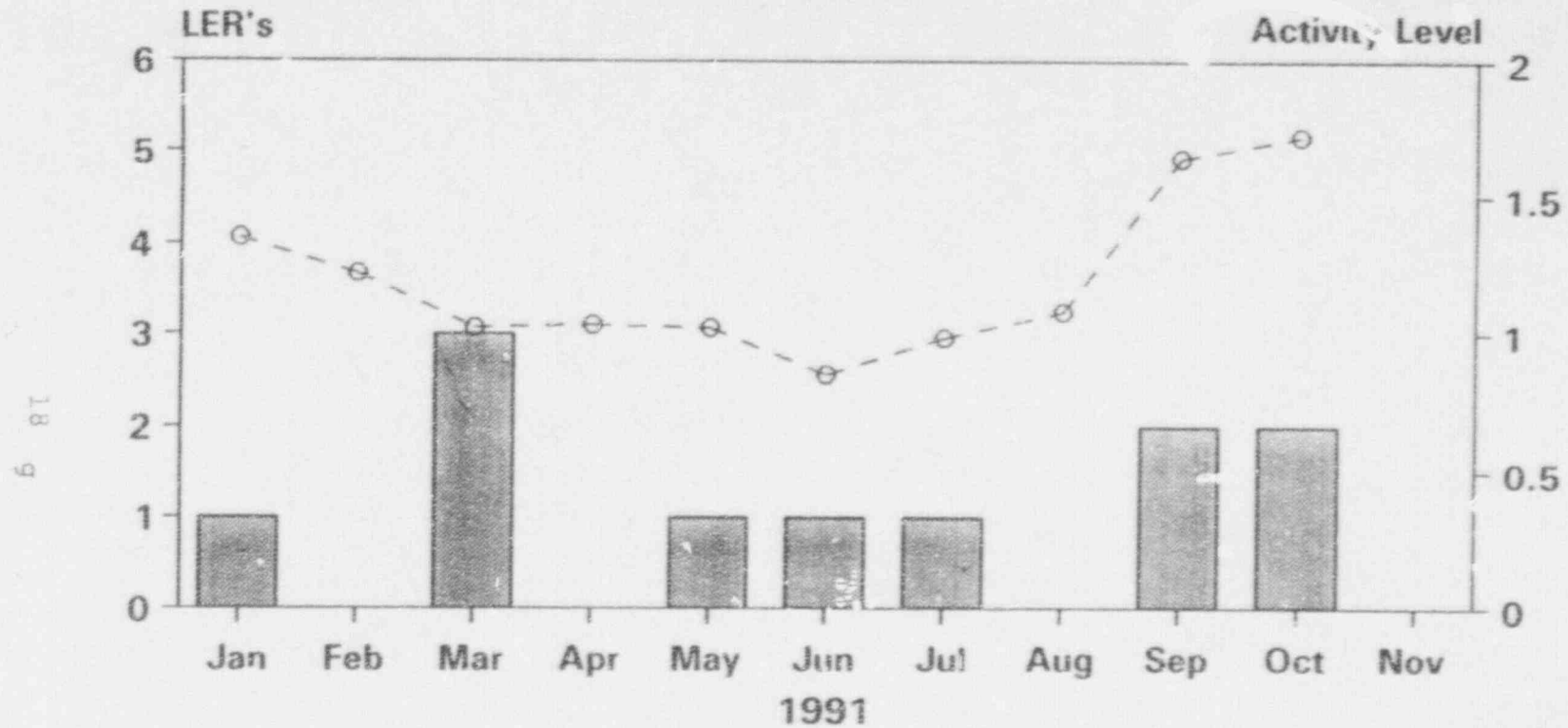
Not Including  
Followups & RWCU isolations



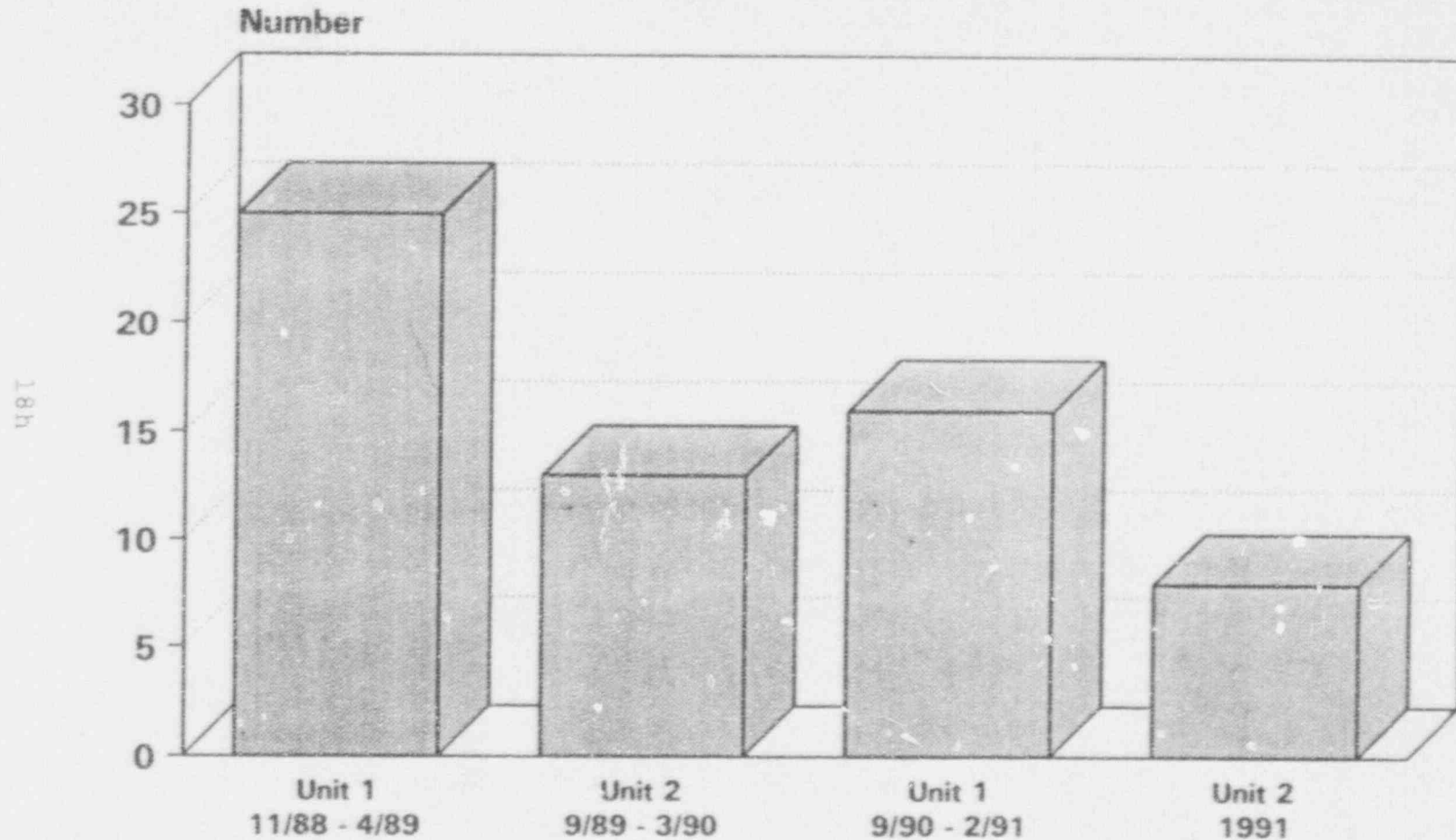
Red Phone Reports
  Trend
  Activity Level

18E

# Licensee Event Reports Personnel Related

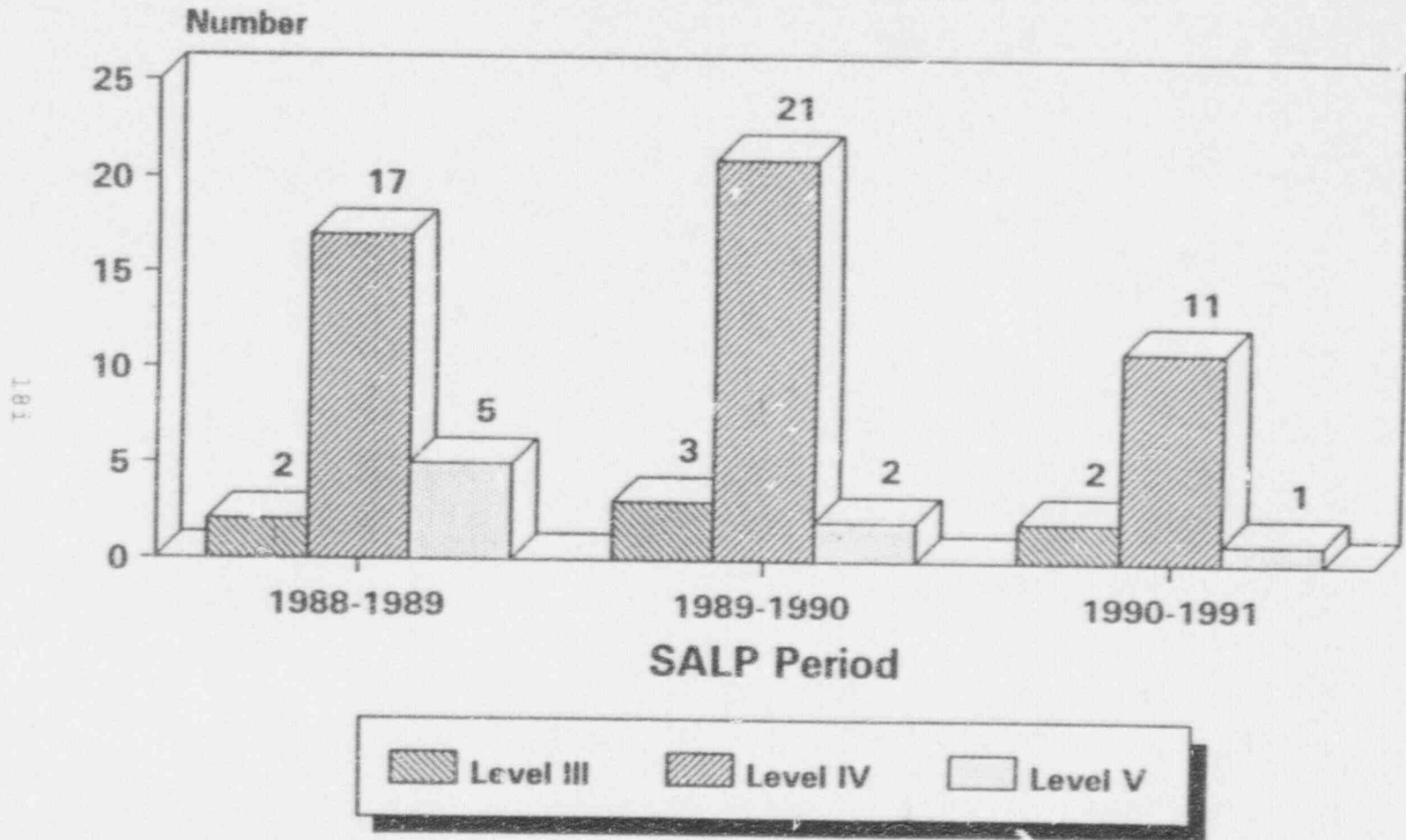


# Licensee Event Reports By Refueling Outage



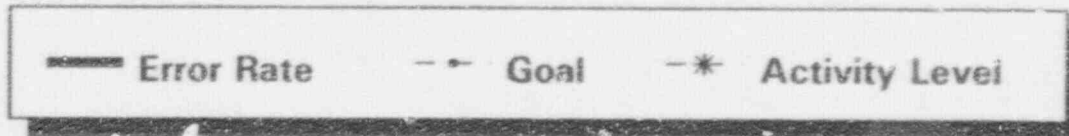
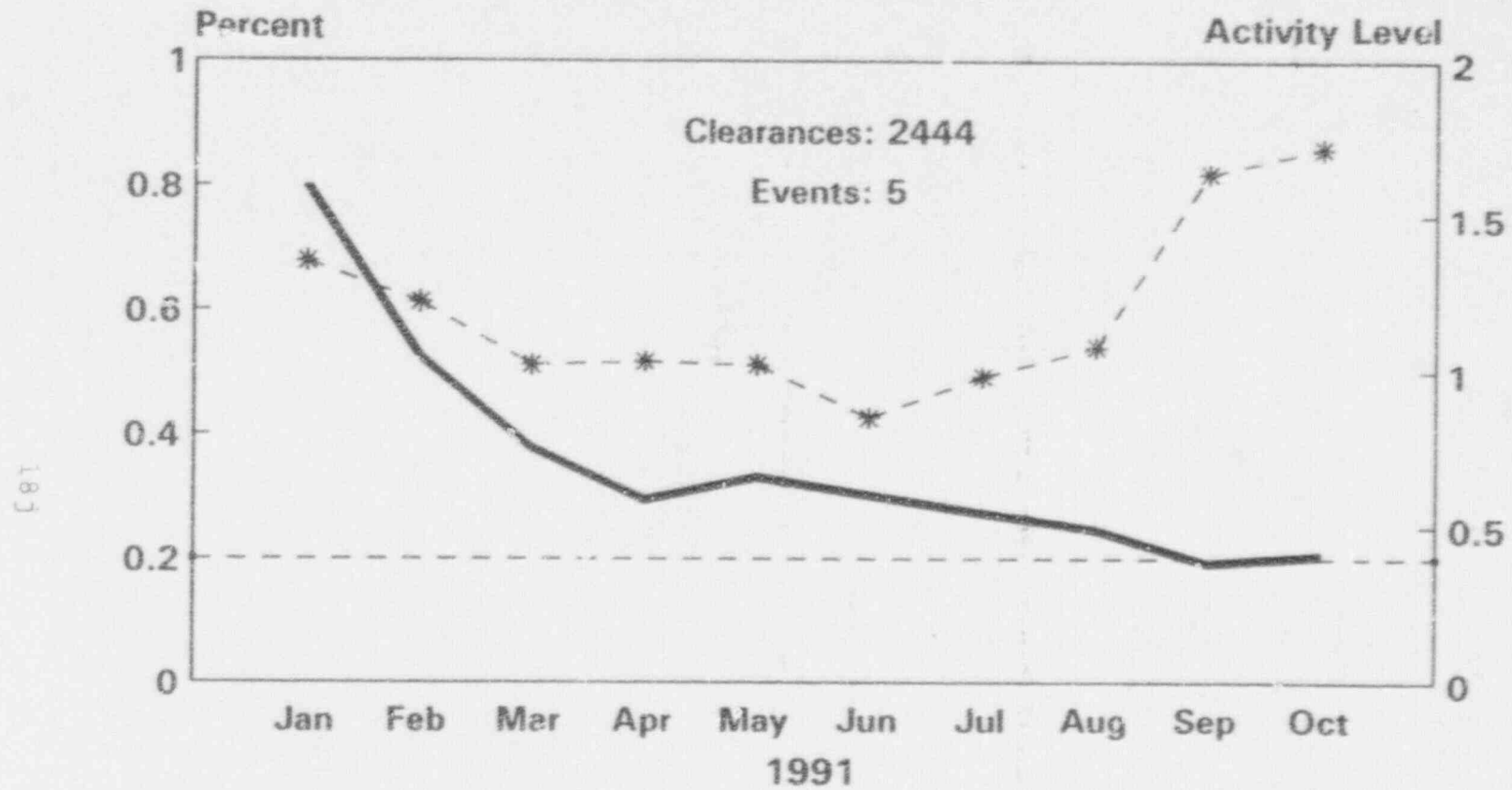
Refueling outages in chronological order

# Violations By Severity Level



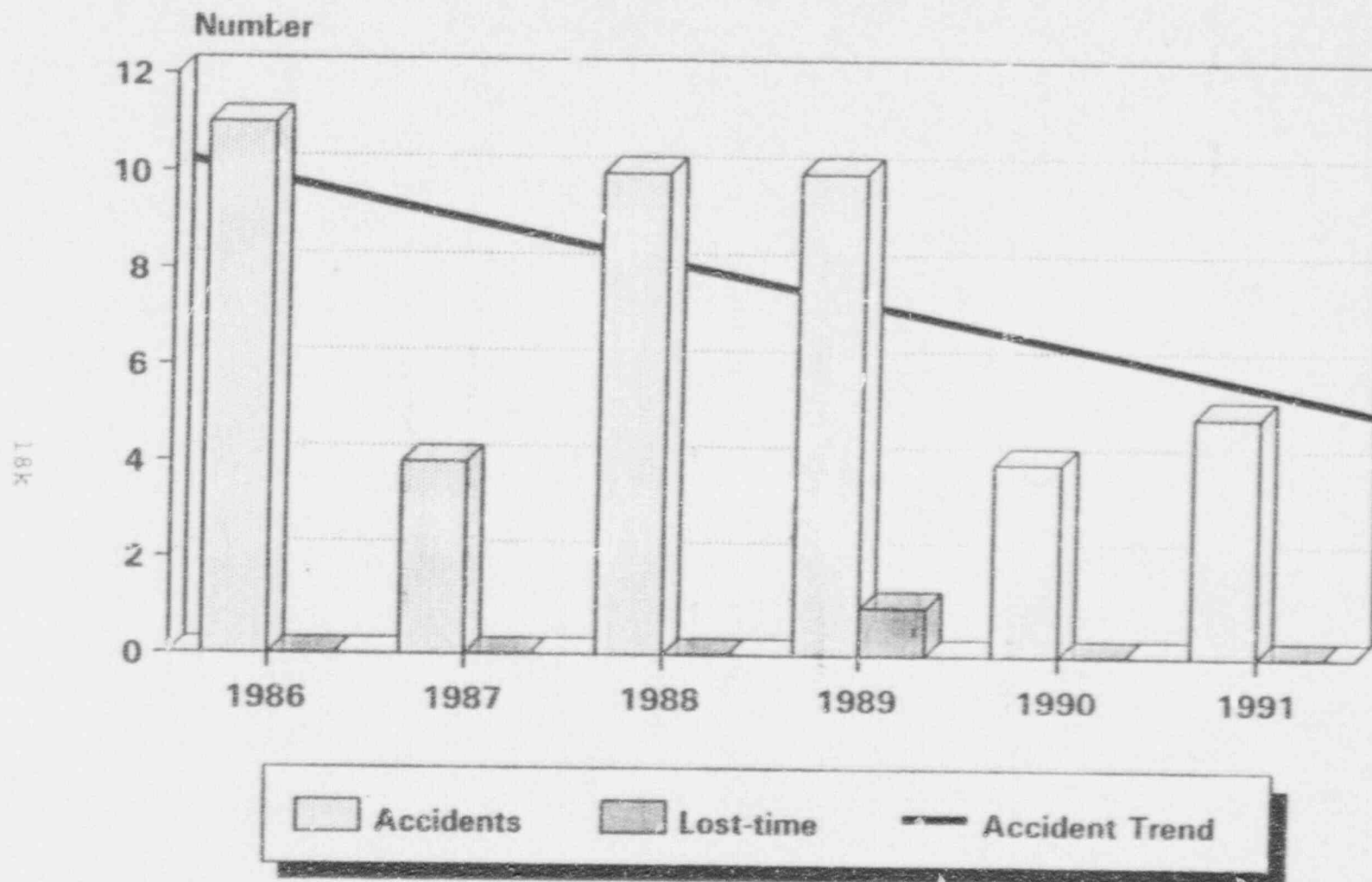


# Clearance Errors

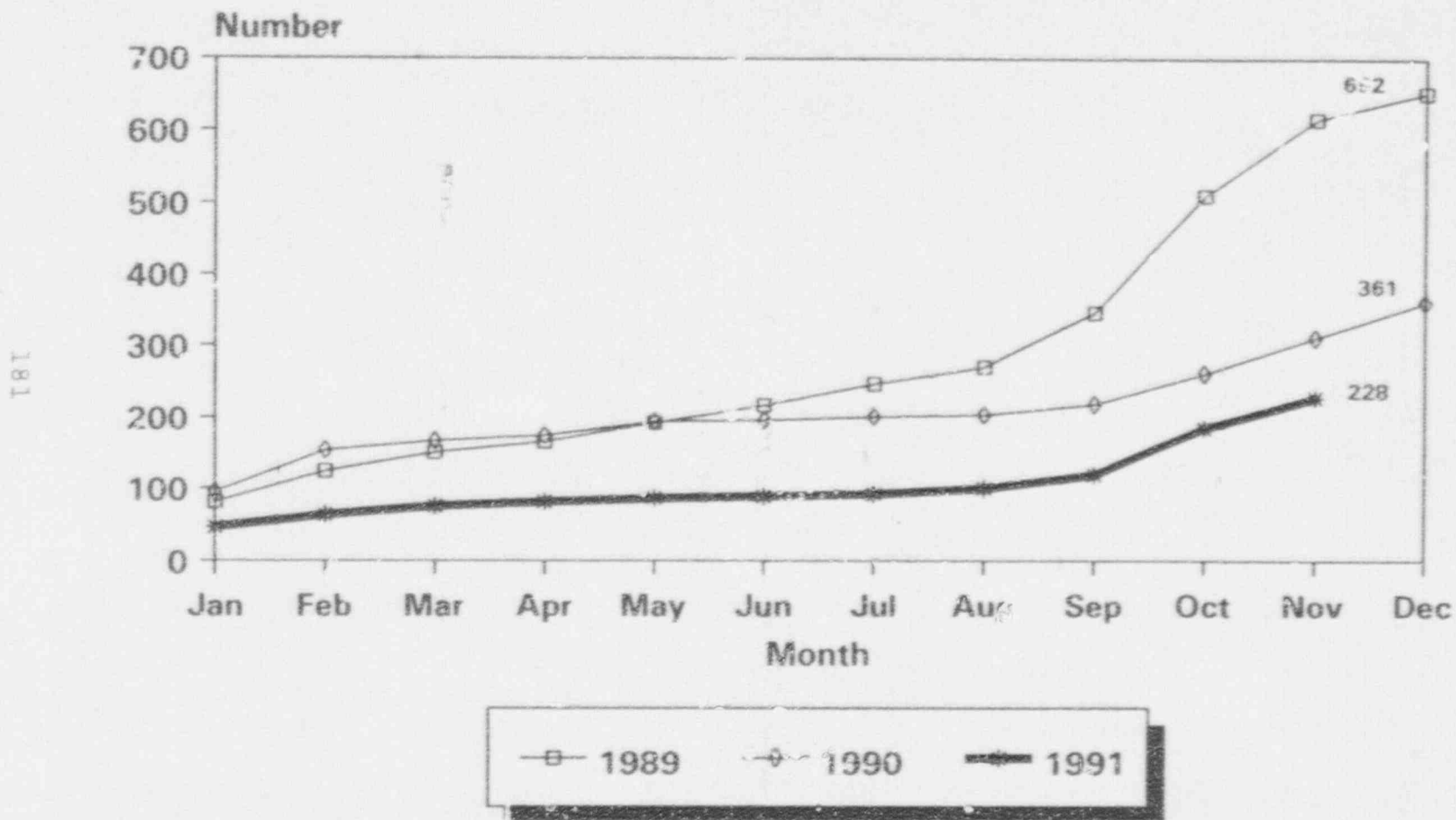


Activity Level of One = Avg. of Non-Outage activities used as baseline

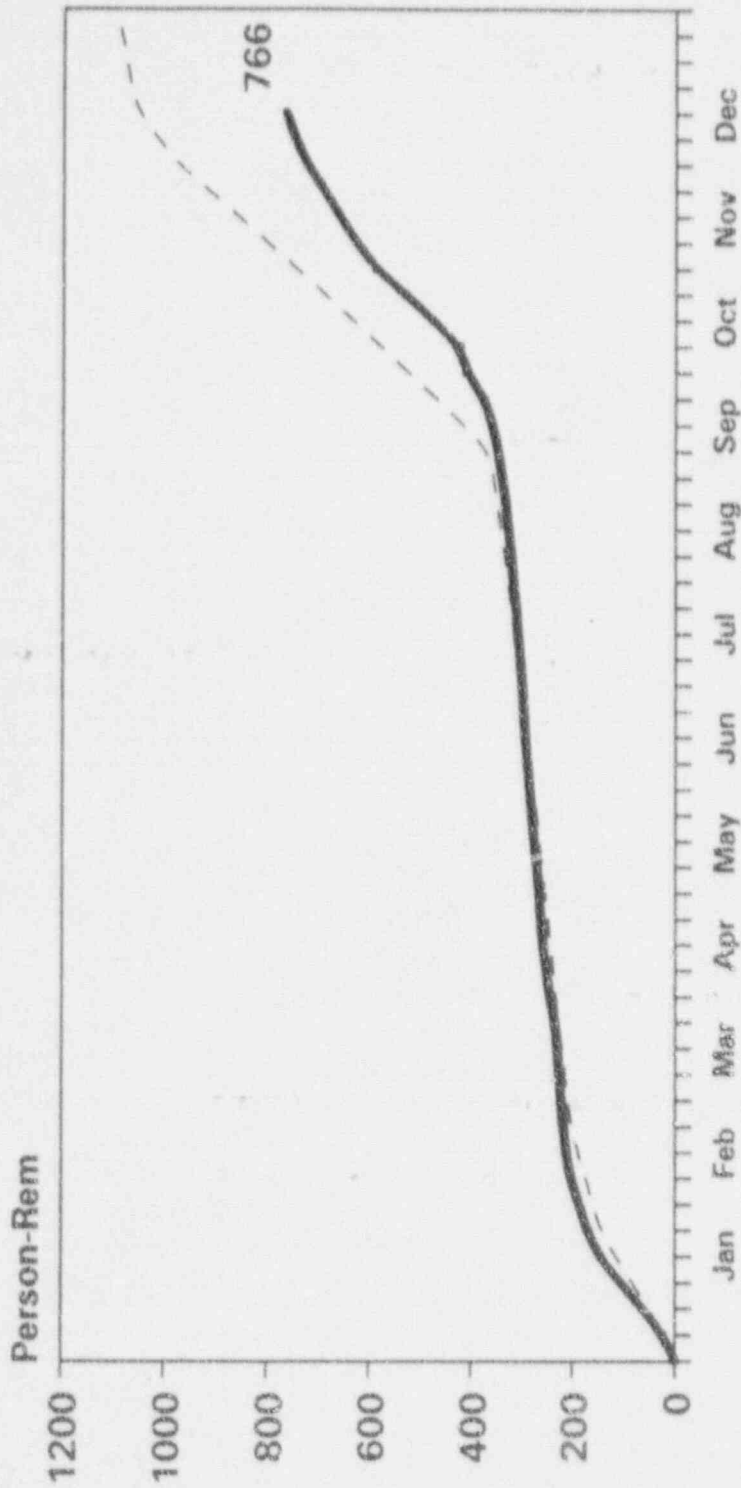
# Personnel Injuries



# Skin and Clothing Contaminations Cumulative

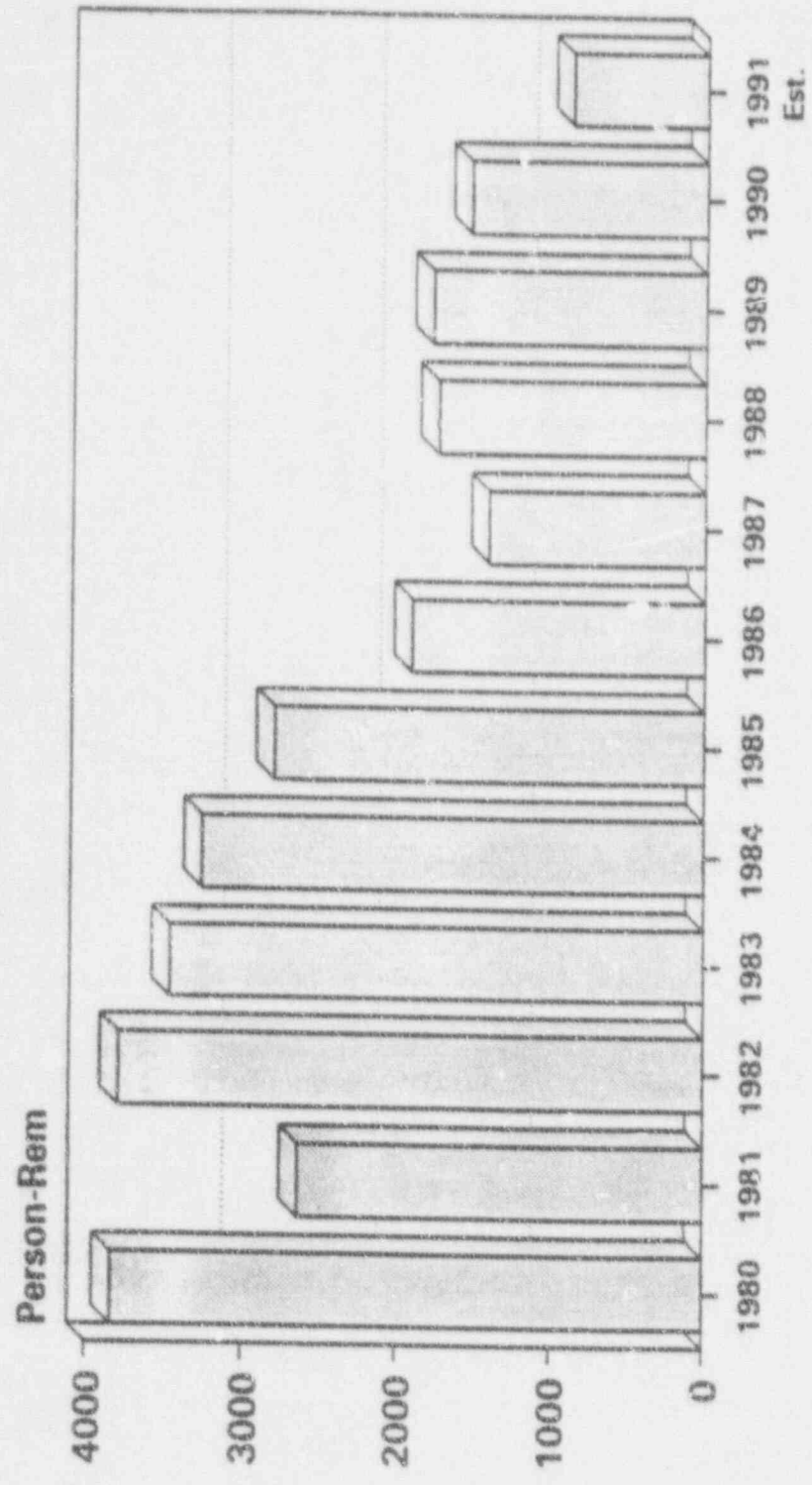


# Collective Radiation Exposure 1991 Exposure To Date



- - - 1991 Goal      — 1991 Actual

# Collective Radiation Exposure



Actuals

# ISSUES MATRIX

Issue	Procedure Available	Procedure Adequate	Procedure Followed/Used	Procedure Step Missed	CP&L Identified	Specific Previous Similar Event	Safety and Operational Significance					Notes
							Personnel Safety	Radiation Exposure	Operational Impact	Public Safety	Nuclear Safety	
DG #3												Procedure Enhanced
RHR F048B												Procedure Enhanced
ISI												
RPS												
ECCS												Procedure Enhanced
RCIC												Cause Indeterminate
SW												Valve Position Indication Issue

Green = Satisfactory  
 Red = Unsatisfactory  
 Yellow = Indeterminate

# REGULATORY OVERVIEW

## SAFETY SIGNIFICANCE

- NO IMPACT TO PUBLIC OR ENVIRONMENT.
- NO EXPOSURE POTENTIAL.
- COULD NOT INITIATE A TRANSIENT UNDER ALTERNATE CONDITIONS.
- TRANSIENT RESPONSE CAPABILITY NOT AFFECTED.

## IDENTIFICATION AND REPORTING

- SIX ISSUES IDENTIFIED BY BSEP.
- ONE ISSUE IDENTIFIED BY NRC RESIDENT INSPECTOR PRIOR TO BOARD WALKDOWN BY ONCOMING SRO AND RO.
- ADVERSE CONDITION REPORTS INITIATED PROMPTLY.
- IMMEDIATE CORRECTIVE ACTIONS TAKEN.

## PAST PERFORMANCE AND EFFECTIVENESS OF RESPONSE

- ON-GOING ACTIONS REMAIN APPROPRIATE.
- PREVIOUS ACTIONS ARE PRODUCING POSITIVE RESULTS.

## ASSESSMENT

- PLANT CONTINUES TO IMPROVE OVERALL.
- OVERALL PERFORMANCE RESULTS ARE HEADED IN THE RIGHT DIRECTION.
- SEVEN ISSUES NOT INDICATION OF OVERALL PERFORMANCE

## SUMMARY

- SIX ISSUES CP&L IDENTIFIED
  - DG #3 ISSUE RESULTED FROM ONE TASK IN THE WORK ACTIVITY
  - INDEPENDENT VERIFICATION ISSUE RESULT OF PROCEDURE NON-COMPLIANCE
  
- COMPREHENSIVE CORRECTIVE ACTIONS ESTABLISHED PROMPTLY RELATIVE TO:
  - SPECIFIC ISSUES
  - GENERIC IMPLICATIONS OF ALL ISSUES
  - PERSONNEL PERFORMANCE EXPECTATIONS
  
- NO SIGNIFICANT SAFETY HAZARDS EXISTED
  
- OVERALL PERFORMANCE TRENDS INDICATE CONTINUOUS IMPROVEMENT
  
- PAST, PRESENT AND PLANNED ACTIONS APPEAR TO BE ACHIEVING DESIRED RESULTS OVERALL
  
- LONG TERM PERSONNEL TRAINING AND PERFORMANCE ACTIONS CONTINUE