

May 1, 1995

Florida Power and Light Company
ATTN: Mr. J. H. Goldberg
President - Nuclear Division
P. O. Box 14000
Juno Beach, FL 33408-0420

*See
Rpts*

SUBJECT: MEETING SUMMARY - ST. LUCIE SELF-ASSESSMENT
DOCKET NOS. 50-335 AND 50-389

Gentlemen:

This refers to the meeting conducted at your request at the NRC Region II Office in Atlanta, Georgia on April 10, 1995, at 1:00 p.m. The meeting's purpose was to allow you to present a self-assessment of the St. Lucie Nuclear Plant performance.

It is our opinion that this meeting was beneficial. Enclosed are a list of attendees and your presentation handout. During this meeting, we informed you of our decision to extend the St. Lucie SALP period from 18 to 24 months. The St. Lucie SALP period ending date is currently scheduled for January 6, 1996.

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 letter, please contact us.

Sincerely,

Orig signed by Kerry D. Landis

Kerry D. Landis, Acting Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosures: 1. List of Attendees
2. Handout - St. Lucie
Nuclear Plant Self
Assessment

cc w/encls:
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cc w/encls: See page 2

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cc w/encls: Continued see page 3

FPL

3

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LIST OF ATTENDEES

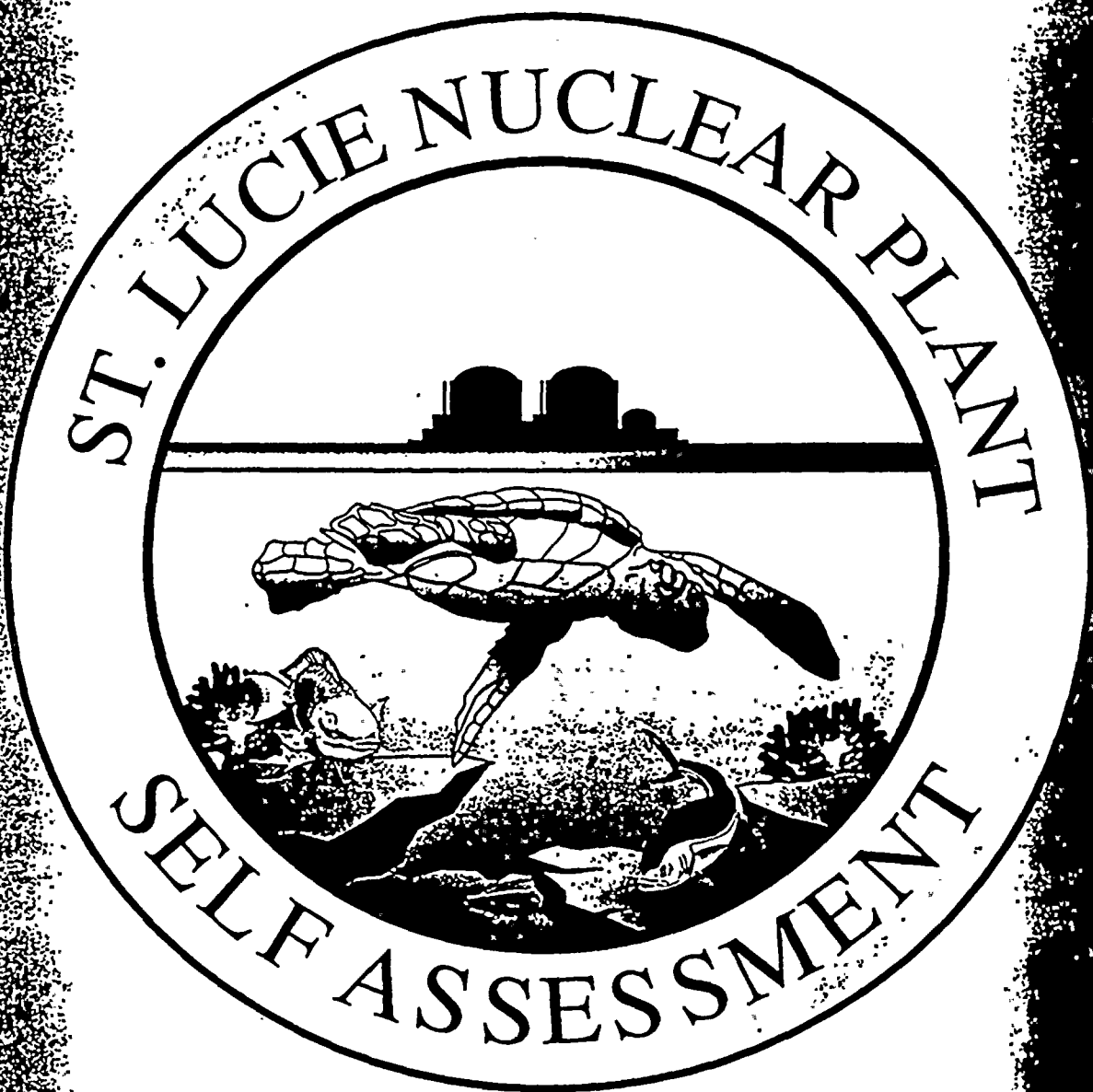
NRC

- L. Reyes, Deputy Regional Administrator, Region II (RII)
- D. Matthews, Director, Project Directorate II-2 (PD II-2), Office of Nuclear Reactor Regulation (NRR)
- J. Norris, Senior Project Manager PD II-2, NRR
- A. Gibson, Director, Division of Reactor Safety (DRS), RII
- J. Johnson, Deputy Director, Division of Reactor Projects (DRP), RII
- B. Mallett, Deputy Director, Division of Reactor Safety and Safeguards (DRSS), RII
- K. Landis, Acting Chief, Branch 2, DRP, RII
- K. Barr, Chief, Emergency Preparedness Section, DRSS
- R. Schin, Project Engineer, Branch 2, DRP, RII
- R. Prevatte, Sr. Resident Inspector, St. Lucie, DRP, RII

Florida Power and Light Company

- D. Sager, Vice President, St. Lucie Nuclear Plant
- B. Bohlke, Vice President, Engineering & Licensing
- J. Geiger, Vice President, Nuclear Assurance
- C. Burton, Plant General Manager, St. Lucie
- J. Scarola, Operations Manager, St. Lucie
- J. Marchese, Maintenance Manager, St. Lucie
- R. Dawson, Licensing Manager, St. Lucie
- D. Denver, Site Engineering Manager, St. Lucie
- J. West, Services Manager, St. Lucie
- W. Bladow, Site Quality Manager, St. Lucie
- H. Buchanan, Health Physics Supervisor, St. Lucie

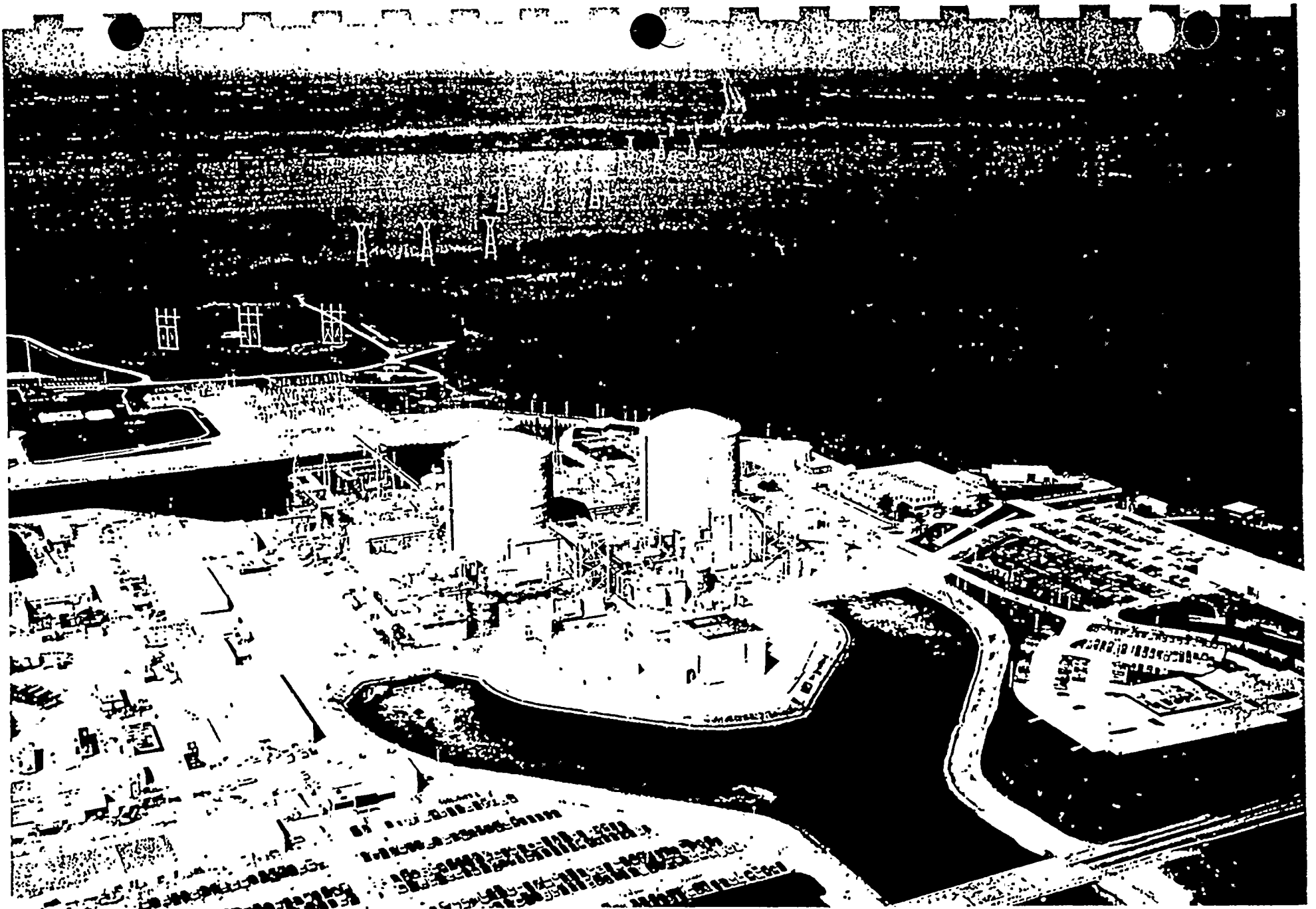
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St. Lucie Nuclear Plant
(Figure 1)

Introduction

Dave Sager
Site Vice-President

Overview

Self-assessment of Plant Performance in Early 1994 Indicated a Need for Change and Improvement

Result was Commitment to Provide Greater Focus on "Core Business". Elements Included:

- Reduction of Distractors
- Organizational Changes - "Fresh Perspective" (Fig.2)
- Increased Executive Management Oversight
- Perspective of New Resident Inspectors

Improved Plant Processes

- Problem Identification "STAR"(St. Lucie Action Report)
- Backlog Reduction
- On-line Maintenance Program (CMM)

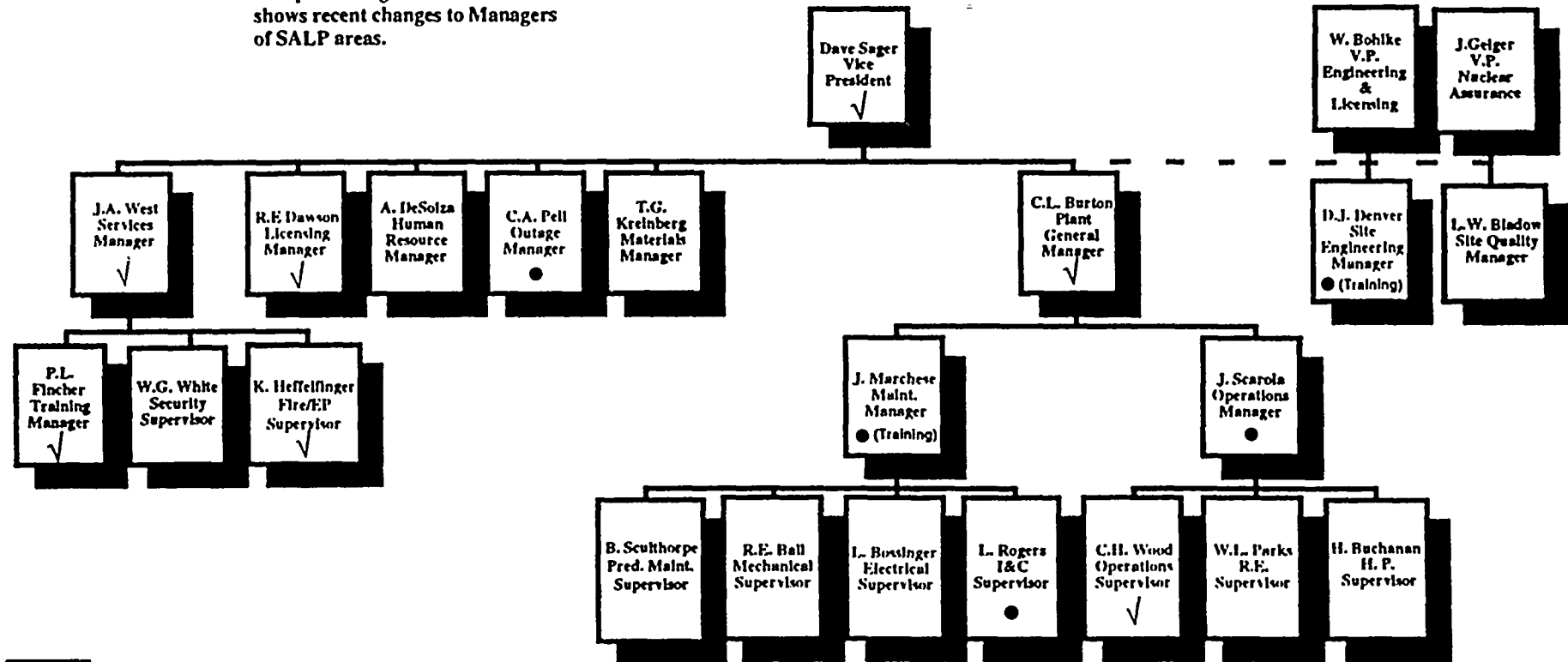
Improved Plant Performance

- Refueling Outage Performance (Fig. 3)
- Plant Availability
- Lost Time Injury Rate

Automatic Reactor Trips -Area for Improvement in 1995 (Fig.4)

St. Lucie Organization Chart

Note: This partial organizational chart shows recent changes to Managers of SALP areas.



□ New in Position Since January, 1994

✓ SRO Licensed

● SRO Certification

Figure 2

Refueling Outage Duration

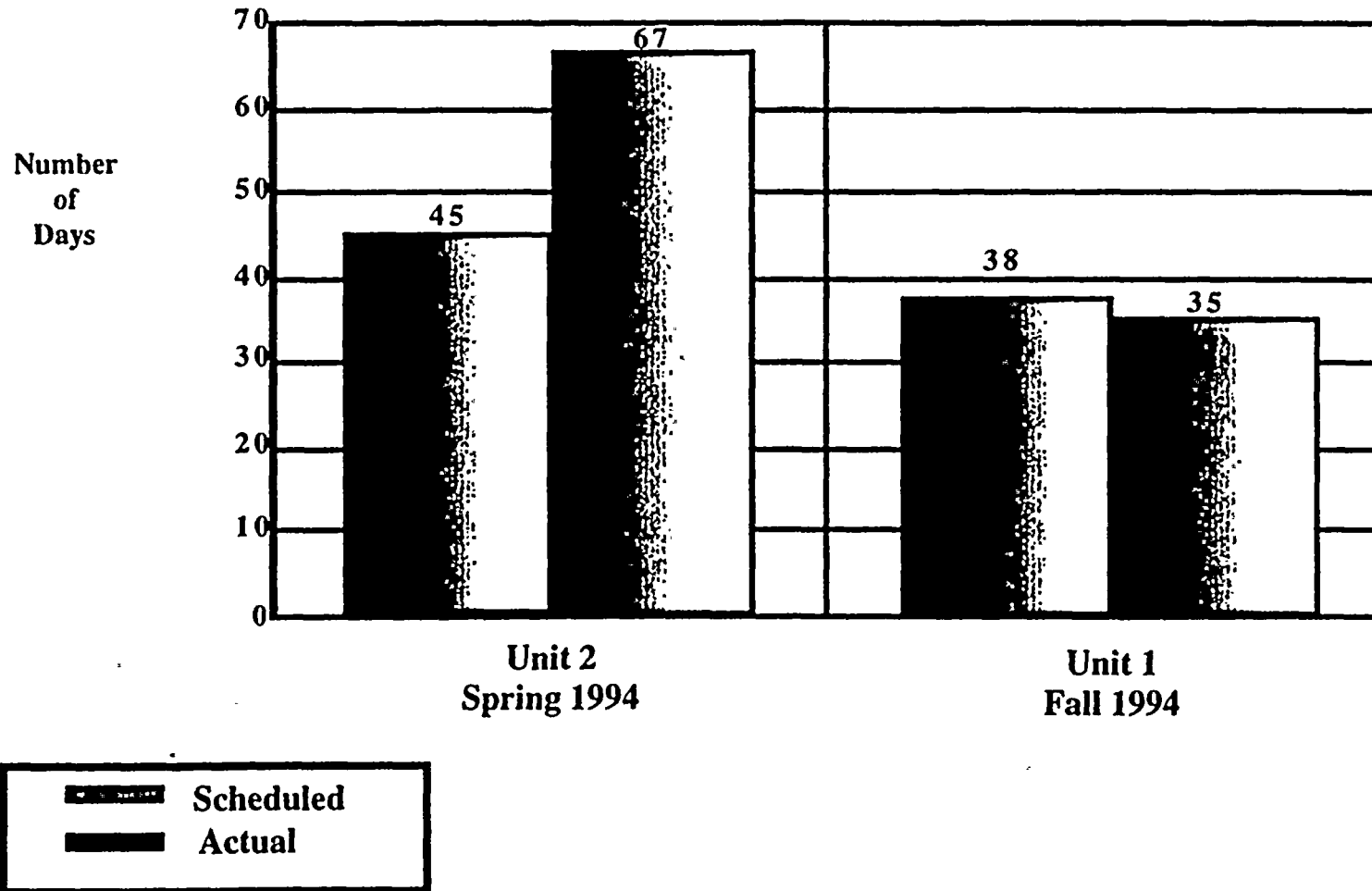


Figure 3



Automatic Reactor Trips

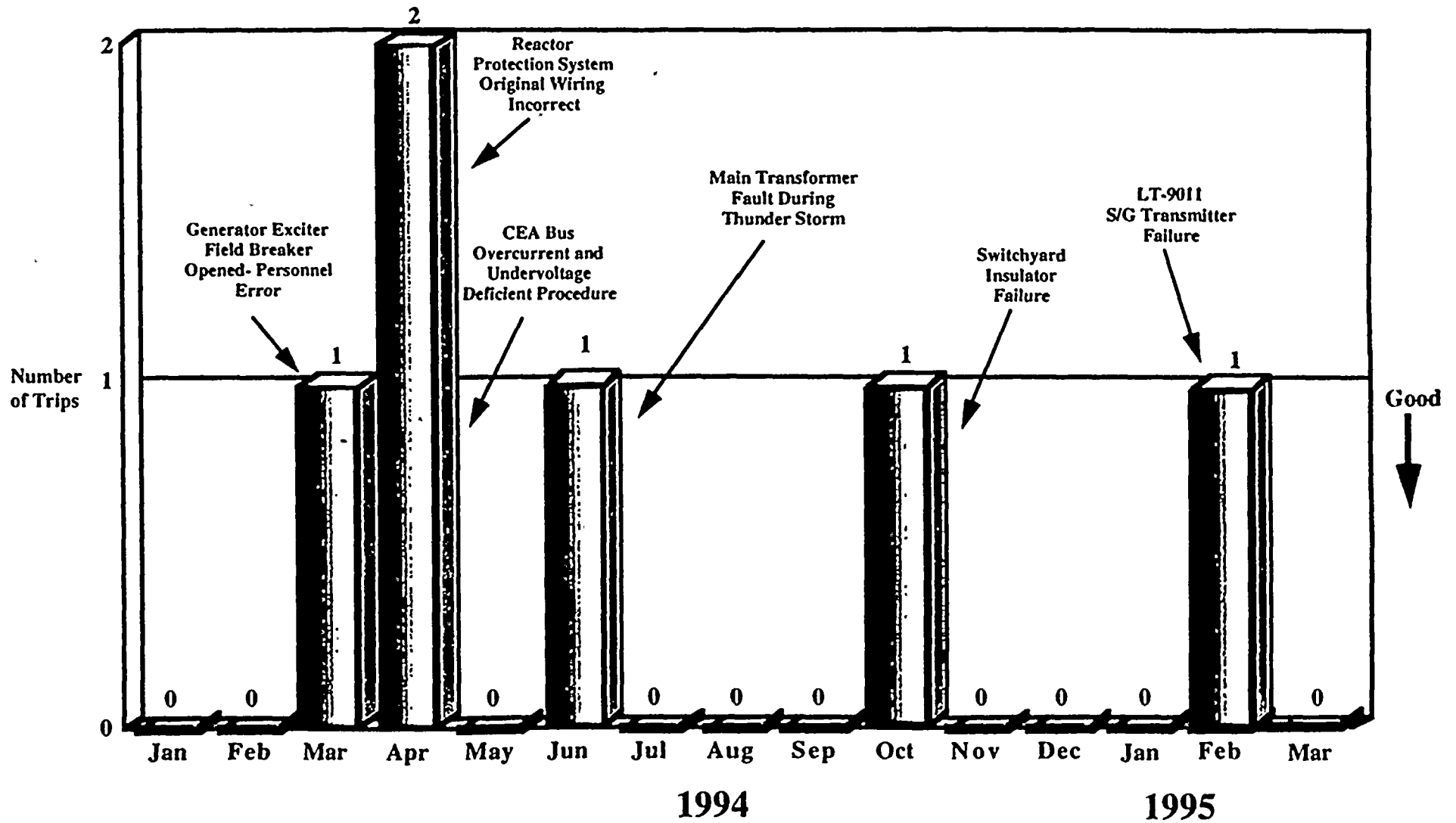


Figure 4

Current Assessment

- Strong Management Team in Place
- Focused on Conservative Plant Operation
- Performance Restored to High Industry Standards
- Emphasis on Continuous Improvement Through In-Depth Root Cause Analysis

Major Challenges

- Maintain Consistent High Level of Performance
- Aggressively Pursue Elimination of Repetitive Problems
- Safely Conduct Refueling Outages Within Schedule and Budget
- Remain Cost Competitive with Other Sources of Electrical Generation
- Address Equipment Obsolescence Issues Through On-site Maintenance Capability and Standardization of Components
- Prepare for Replacement of Unit 1 Steam Generators-1998
- Minimize Low Level Waste

Agenda

Introduction	Dave Sager
Operations	Jim Scarola
Maintenance	Joe Marchese
Engineering	Dan Denver
Plant Support	Jeff West
Radiological Controls	Hank Buchanan
Management Review	Chris Burton
Closing Remarks	Jerry Goldberg

Operations

Jim Scarola
Operations Manager

Operations

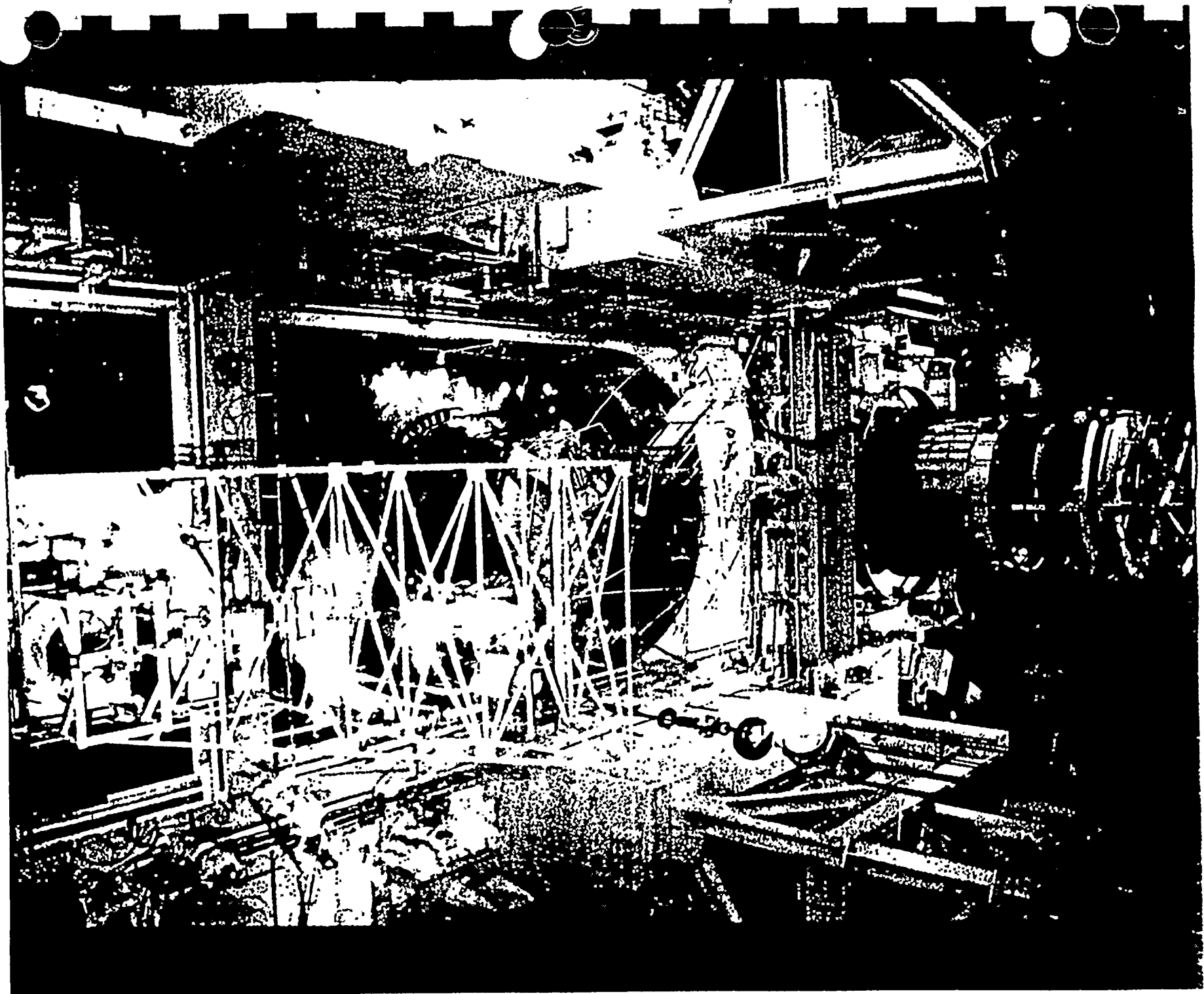
Major Accomplishments

Shutdown and Refueling Operation (Fig.5)

- Improved Outage Planning Scope and Safety Sequencing
- Eliminated Refueling Contractor and Enhanced Operator Ownership
- Health Physics and Reactor Engineering Integrated onto Refueling Crews
- Increased Oversight During Mid-loop Operation By Additional Management SRO
- Developed and Implemented Lower Mode Off Normal Procedures
- Added Detailed Shutdown Tests and Inspection to Provide Early Detection of Potential Problems

Start-up Operation

- Dedicated Reactivity SRO for Reactor Start-up
- Improved Reactor, Maintenance, and Engineering Real-time Support
- Strengthened Valve Line-up and Verification Monitoring
- Improved System Performance Evaluation During Start-up



Refueling Activities
(Figure 5)

Operations

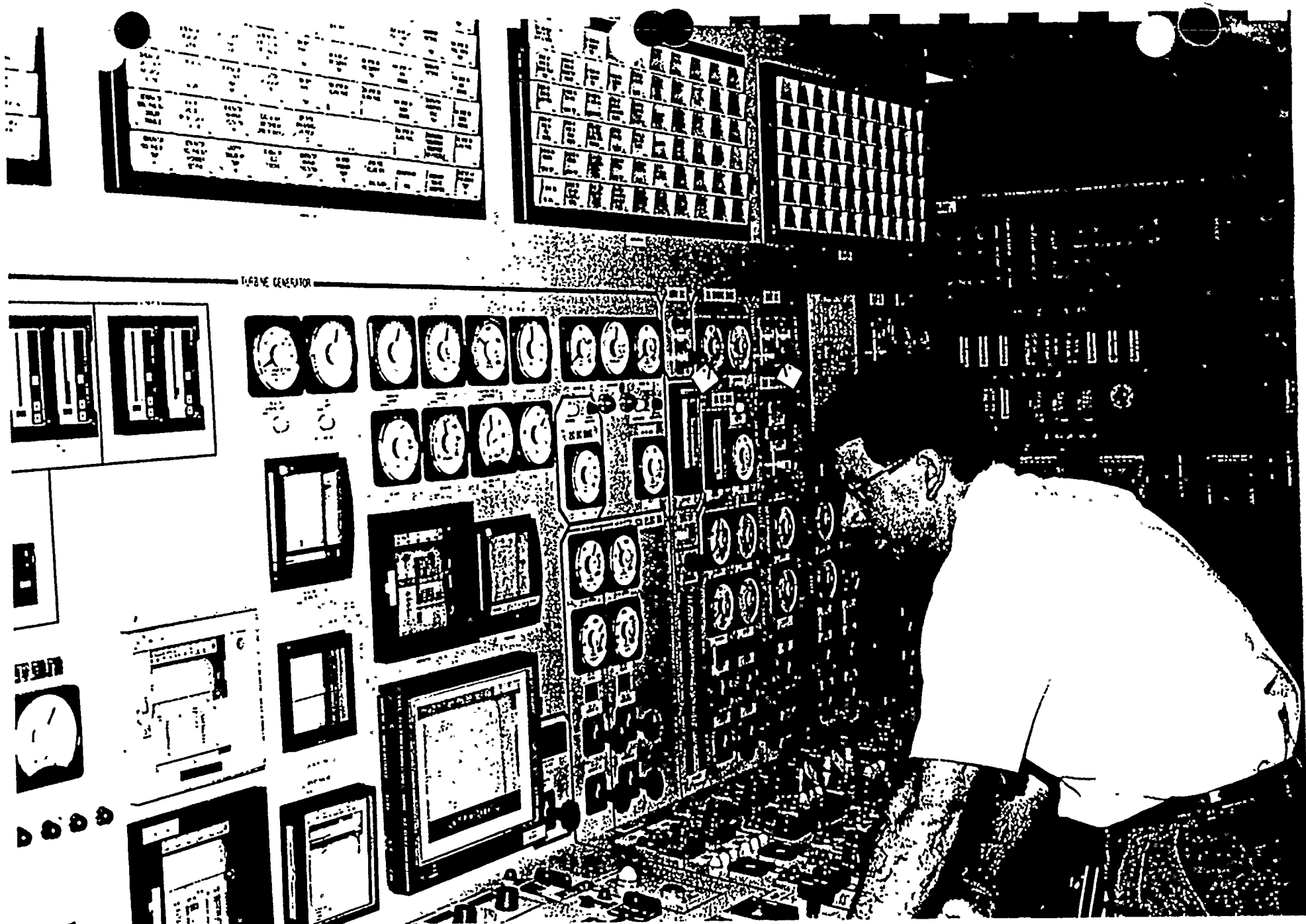
Major Accomplishments (cont'd)

Power Operation

- Reduced Operator Workarounds
 - Clear Expectations on Not Accepting Workarounds
 - Captured Workarounds in St. Lucie Action Report
 - Improved Engineering Support in Resolving Workarounds
- Instituted On-line Maintenance Process
 - Planned for Less than 50% of LCO
 - Contingency Plans Developed
 - Risk Assessment via PSA
 - Continuous Management Oversight

Response to Transients/Decreased Transient Potential

- Accurate and Prompt Operator Action in All Cases
- Developed Infrequent Evolutions Plant Policy #105
 - Re-affirmation of Conservative Operating Philosophy to Avoid First Time Line-ups and Infrequent Evolutions
 - Requires Technical Subcommittee be Established
 - Requires Facility Review Group (FRG) Review
- Thorough Root Cause Analysis and Broad Countermeasures in Response to Events
- Reduce Normally Lit Control Room Annunciators - "Black Board" (Fig.6)



Control Room "Black Board" Annunciators
(Figure 6)

Operations

Current Initiatives

Strengthen On-going Operations

- Watch Station Logs Being Improved
- Operator Turnovers are Improving Knowledge and Ownership
- Implementation of Computer Data Loggers to Enhance Equipment Monitoring (Fig.7)
- Attention to Detail Being Stressed by Positive Examples

Increase Personnel Performance

- Re-affirmed Operations Commitment to the Highest Standards of Integrity
- Implemented 12 Hour Work Limitation
- Added Psychological Evaluation to Shift Supervisor Selection Process

Routinely Reinforce Management Expectations for Conservative Operation

- Senior Management Involved
- Operators are Fully Empowered and Expected to Take Conservative Actions



Operator Using New Data Logger
(Figure 7)

Maintenance

Joe Marchese
Maintenance Manager

Maintenance

Major Accomplishments

Reduce Equipment Failure/Plant Transients

- Early Detection Through Predictive Maintenance
 - 1B Main Transformer Cooling Power Cables (Fig.8)
 - Unit 2 Turbine Generator Degraded Bearings
 - 1A M.G. Set 480v "C" Phase Power Circuit "Open"
 - Unit 1 Low Pressure Turbine Missing Balance Weights (Fig.9)
- Utilization of Component Engineers
 - Rosemount Transmitters (Fig.10)

Root Cause Capability Improvements

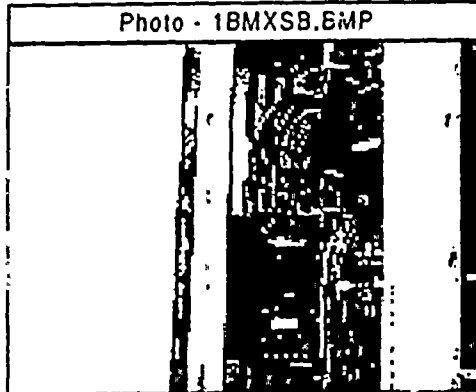
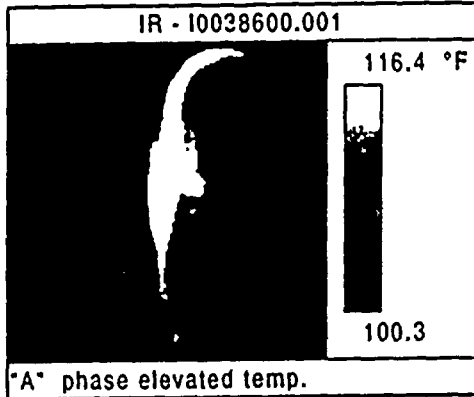
- Bearing Inspection/Failure Analysis
- On-line Preventative Maintenance Basis

Increase Equipment Reliability

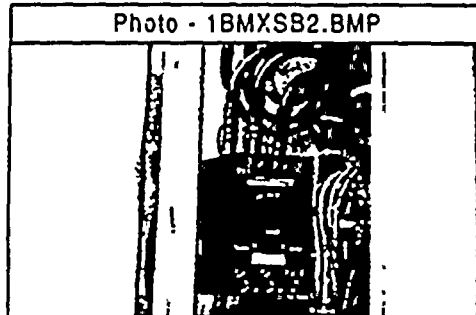
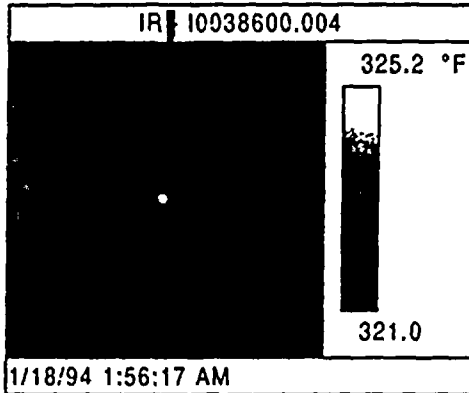
- RCP Vibration Monitor Upgrade
- Valve Standardization Program
- Turbine Lube Oil Filtration Modification
- Old Work Order Backlog Reduction (Fig.11)

1B MAIN TRANSFORMER 225 AMP COOLING FAN BREAKER

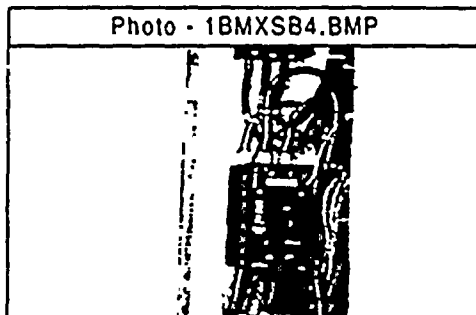
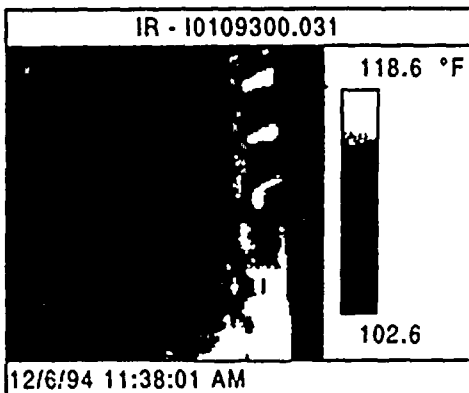
1B MAIN TRANSFORMER 225 AMP COOLING FAN BREAKER.
"A" PHASE, LINE SIDE CABLE, AT AN ELEVATED TEMPERATURE OF
325 DEGREES F.



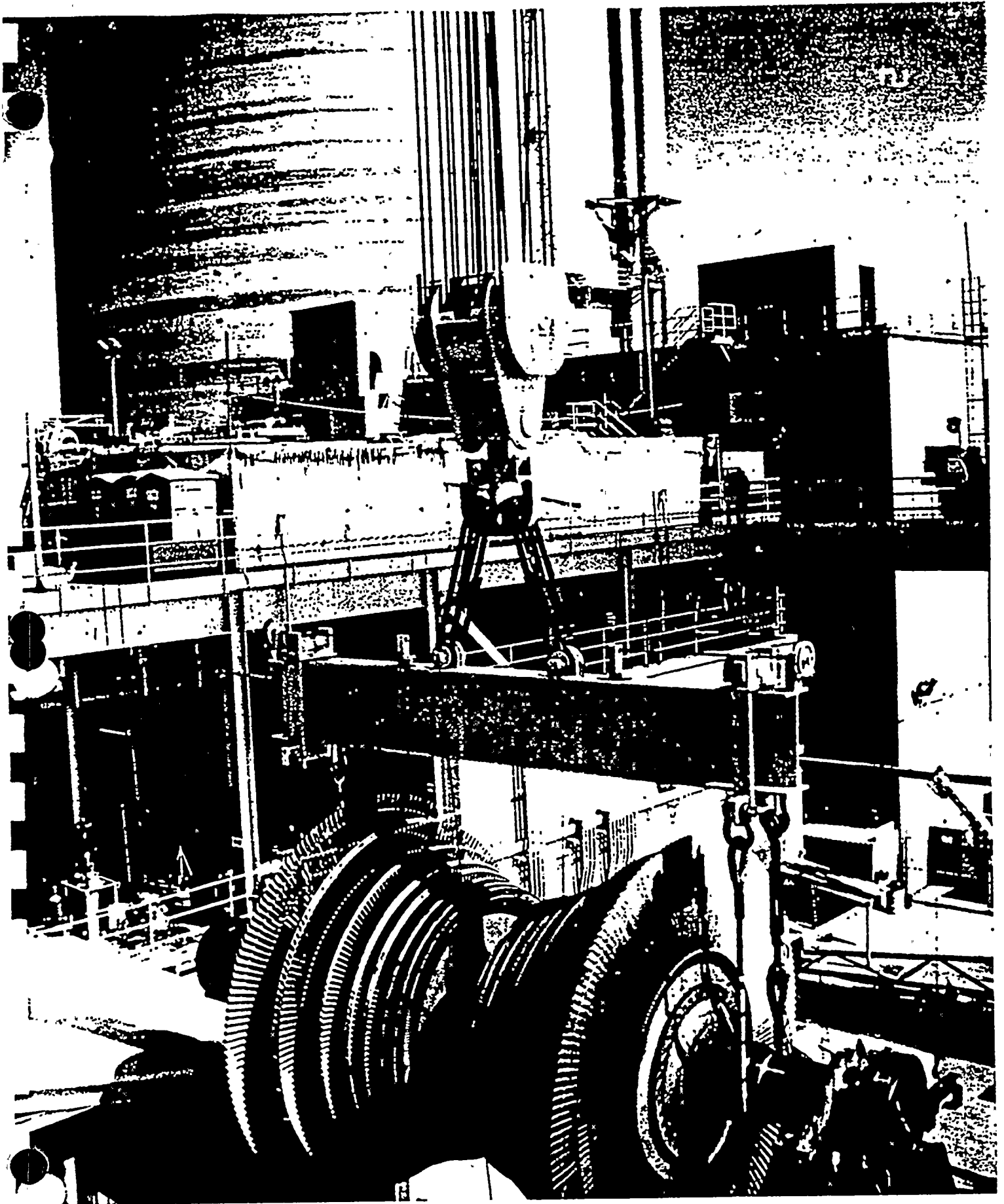
1B MAIN TRANSFORMER 225 AMP COOLING FAN BREAKER.
"A" PHASE, LINE SIDE CABLE, 325 DEGREES F AT SPOT.



1B MAIN TRANSFORMER 225 AMP COOLING FAN BREAKER.
"A" PHASE, LINE SIDE CABLE RETURNED TO 104.9 DEGREES F
AFTER REPLACEMENT.



(Figure 8)



St. Lucie Unit 2 L.P. Rotor
(Figure 9)



Rosémount Transmitter
(Figure 10)

Plant Work Order Backlog Reduction

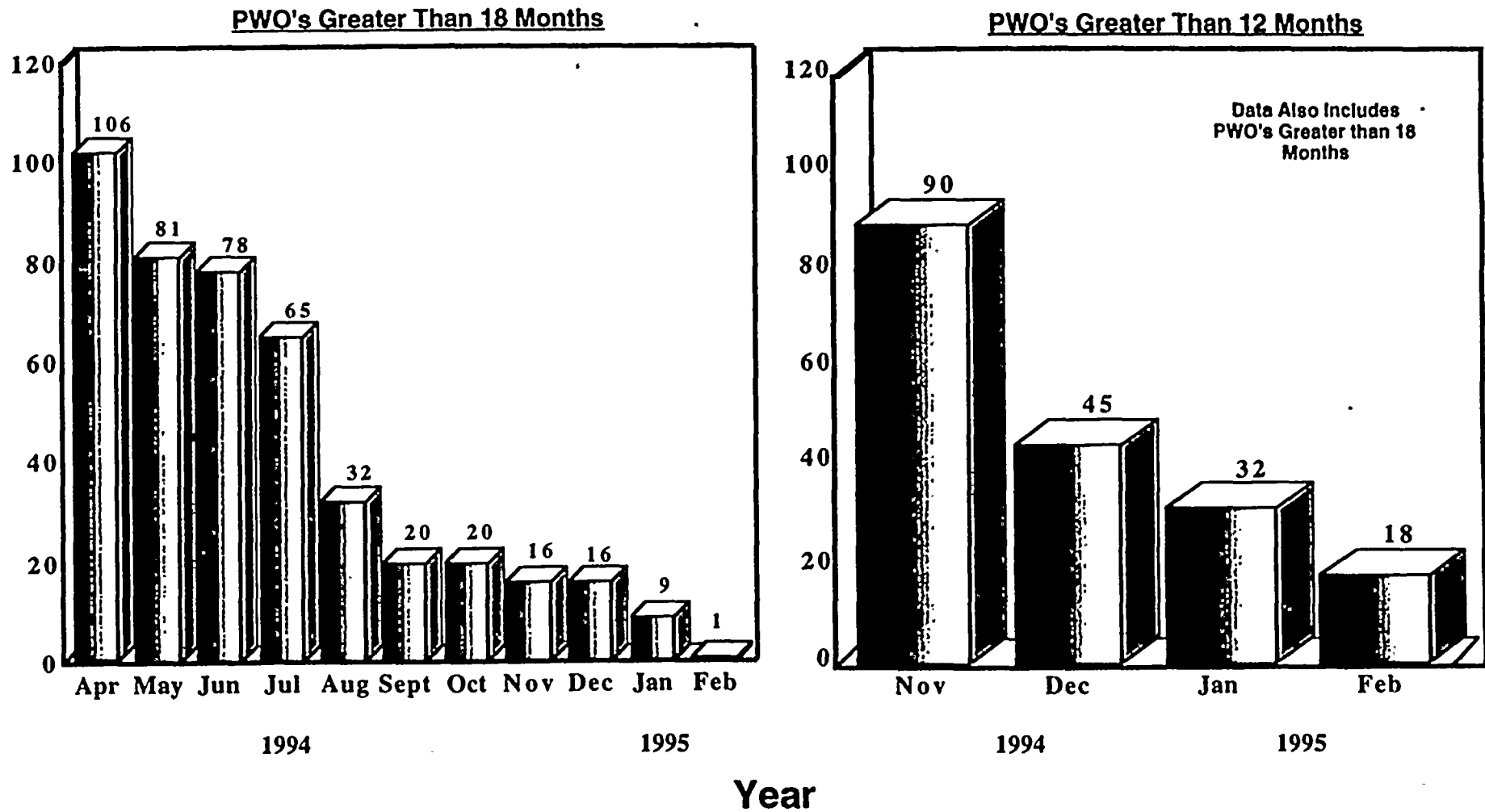


Figure 11

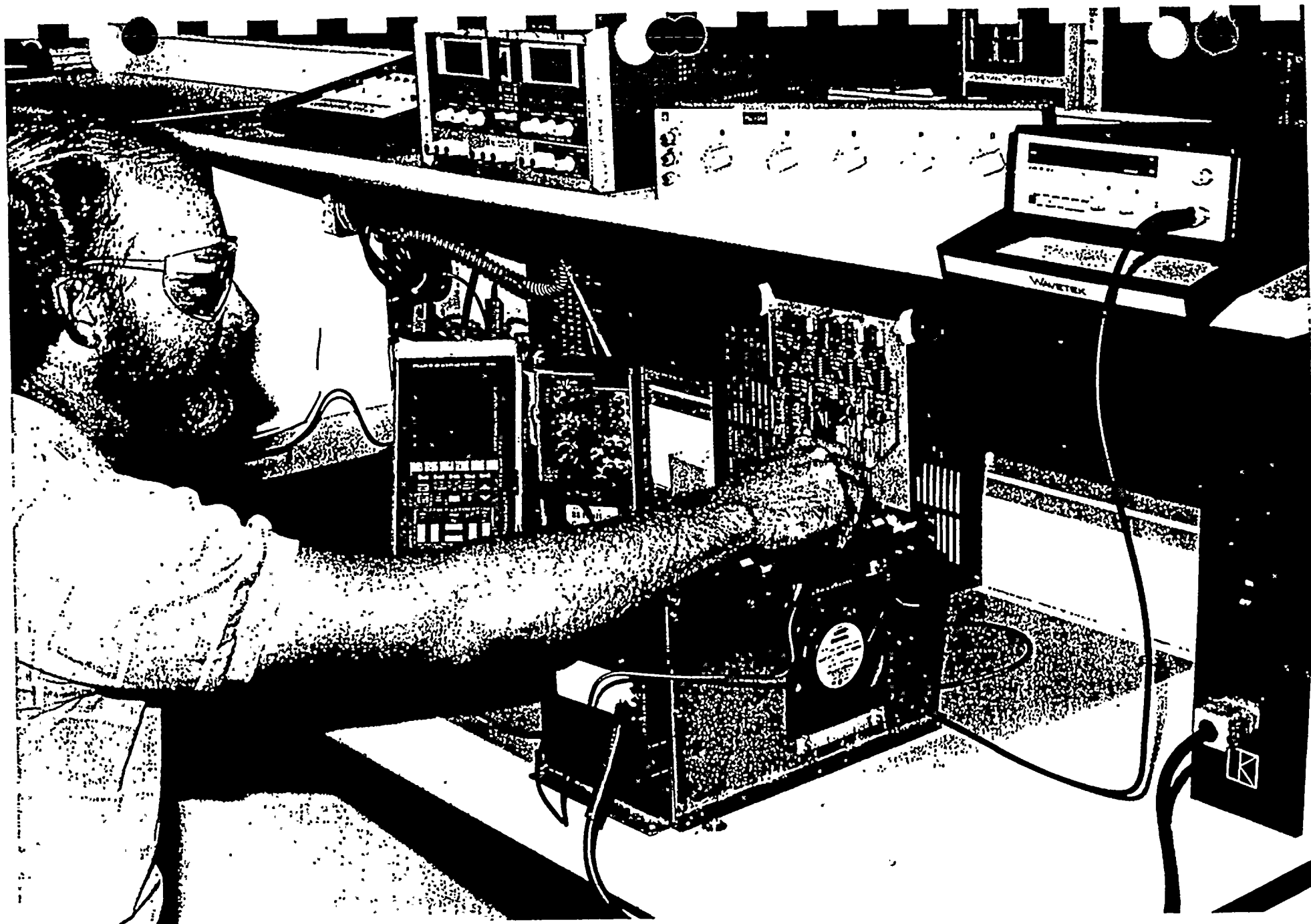
Maintenance

Major Accomplishments (cont'd)

Implemented On-site Circuit Board Repair Facility (Fig.12)

Refueling/ALARA Improvements

- Installation of Permanent Reactor Cavity Seal Ring
- Reduced Number of Bolts Required for Refueling Transfer Flange
- Implemented Use of Underwater Reactor Vessel Flange Cleaning Tool
- Implemented Single Pass Reactor Head Tensioning Process
- Implemented Use of New Reactor Stud Hole Cleaning Tool.
- New Underwater Refueling Lighting
- Resulted in Savings for Each Future Outage
 - 15 Man-rem
 - 2 Days Critical Path



Circuit Board Repair Facility
(Figure 12)



Maintenance

Current Initiatives

Personnel Error Reduction

- Self Checking
- Vendor Technical Manual
- Site Welding Program

On-Line Maintenance

Increase Equipment Reliability

- On-line Condenser Cleaning System
- AOV Performance Monitoring
- Maintenance Rule Implementation
- Safety/Relief Valve Testing Capability
- 4160 Volt Breaker Failures
- Security System Improvements

Refueling/ALARA

- ICI Flange Modification
- Remotely Operated Tool for Reactor Head O-ring Groove Cleaning
- Upgrade Reactor Stud Handling Tool System

Engineering

Dan Denver
Engineering Manager

Engineering

Major Accomplishments

GL-89-10 MOV Test Completion

- Unit 1-Completed
- Unit 2- On Schedule

Unit 1 Reactor Cavity Seal Ring (Fig.13)

- 12 Man-Rem Savings per Outage (Estimated)

Unit 1 Main Transformer Replacement (Fig.14)

Unit 1 Refueling Water Tank Bottom Repair

NaOH System Design Deficiency

- Self Identified via GL 89-10 Testing
- Design Modified During Unit 1 Outage
- Extensive Analysis to Determine Consequences

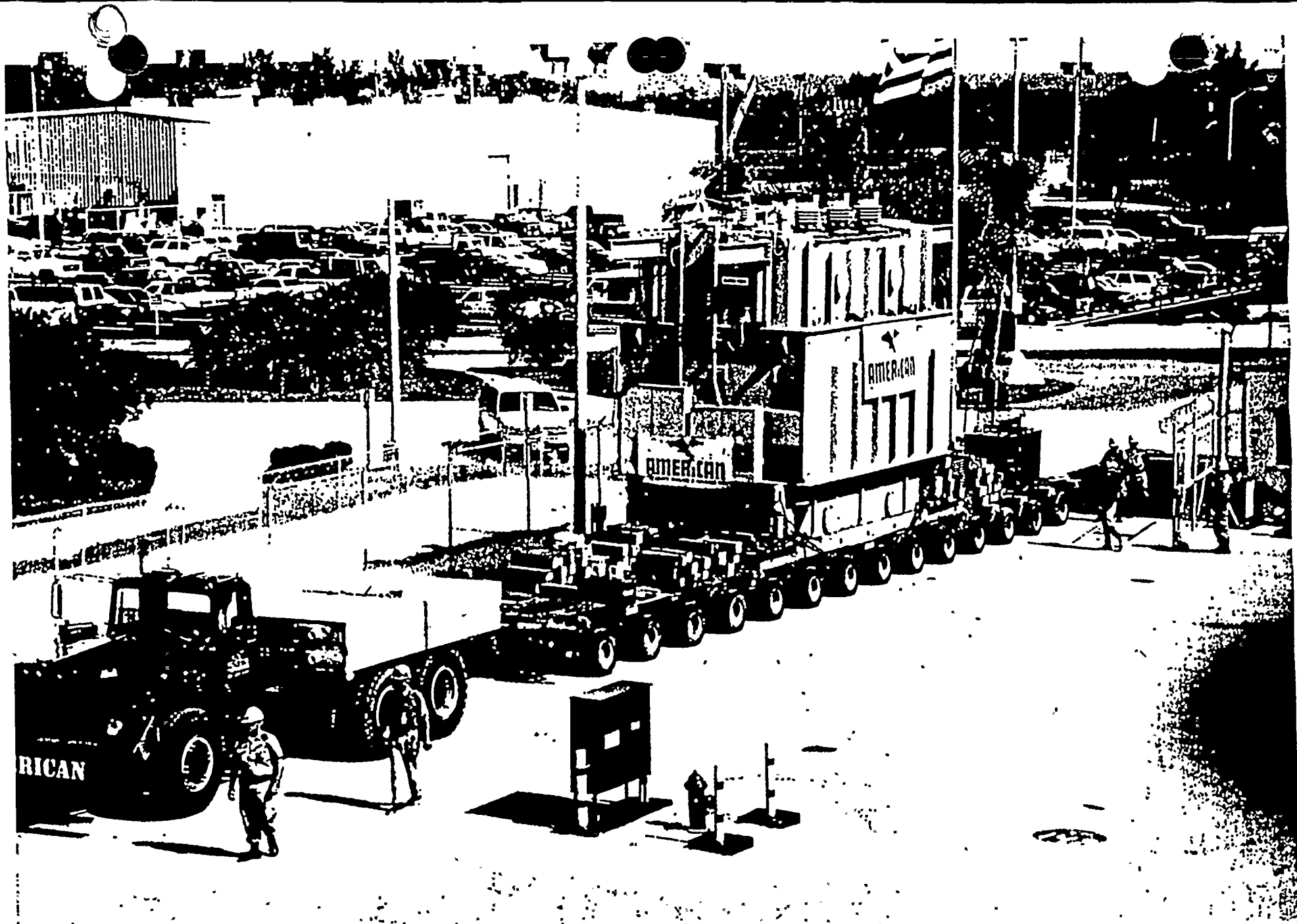
Increased Use of Risk Analysis

- Application to On-line Maintenance
- Training of Engineering and Plant Personnel





New Cavity Seal Ring Installation
(Figure 13)



1B Main Transformer Replacement
(Figure 14)

Engineering

Major Accomplishments (cont'd)

Improved Plant Support

- Operator Workaround Resolution
 - Identification and Tracking
 - Prioritization
 - Closure
- As-Required Packages (ARPs)
 - Efficient Process for Component Replacements
 - Quicker Turnaround for Maintenance
- Maintenance Specifications
 - 18 Issued to Date
 - Communicates Design Basis

Engineering

Current Initiatives

Inconel 600 - Nozzles and Steam Generator Plugs

Unit 1 Steam Generator Replacement

CAD Redraw of Principal Drawings

Jumper and Lifted Lead Reduction (Fig.15)

Plant Change Backlog Reduction (Fig.16)

Plant Team Problem Solving

- Main Condenser Improvements (Fig.17)
- Integrated Safeguards Testing
- Quench Tank Leakage
- LPSI Pump Surveillance Failure

Engineering Jumpers/Lifted Leads

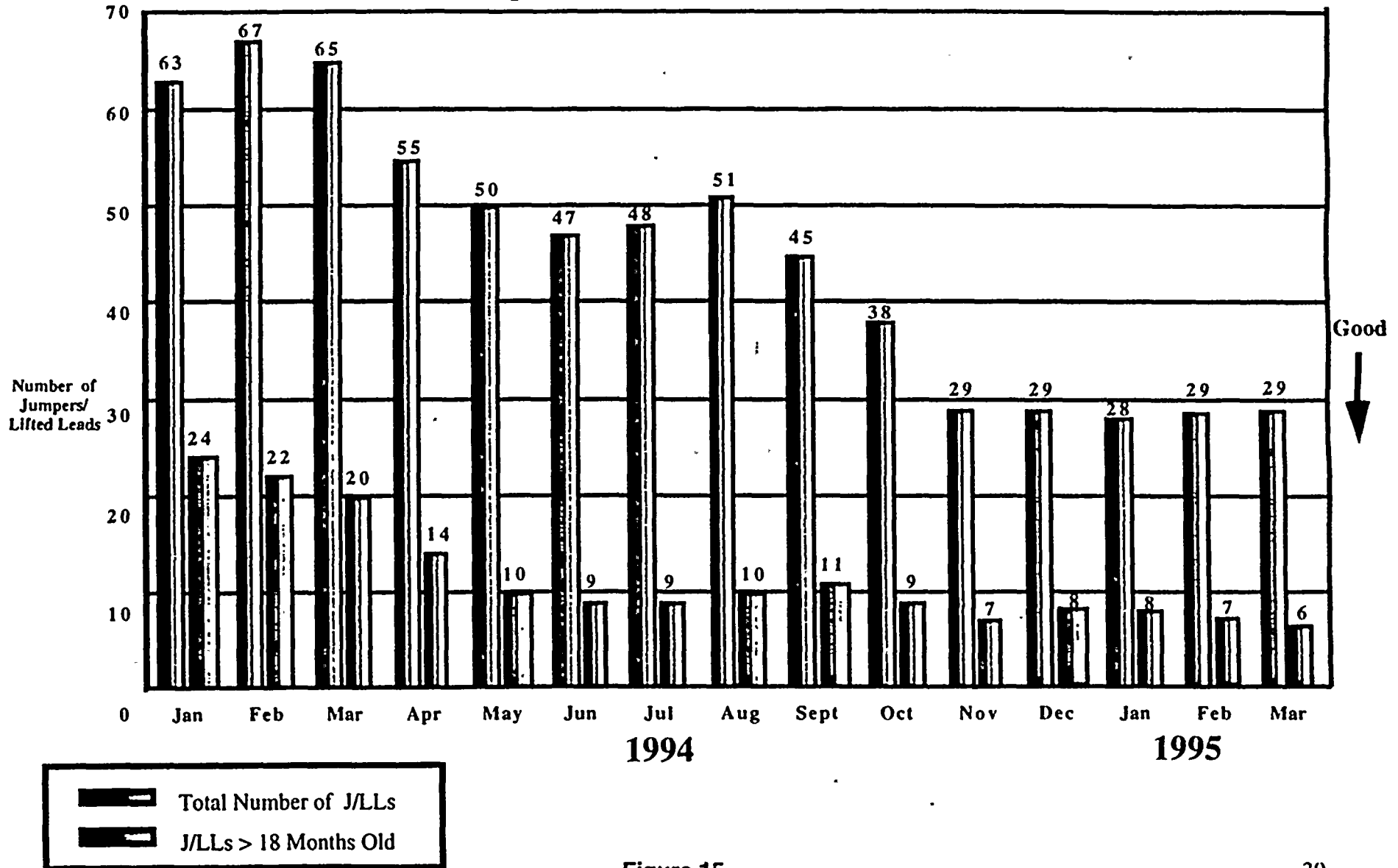


Figure 15

Engineering PCM Backlog

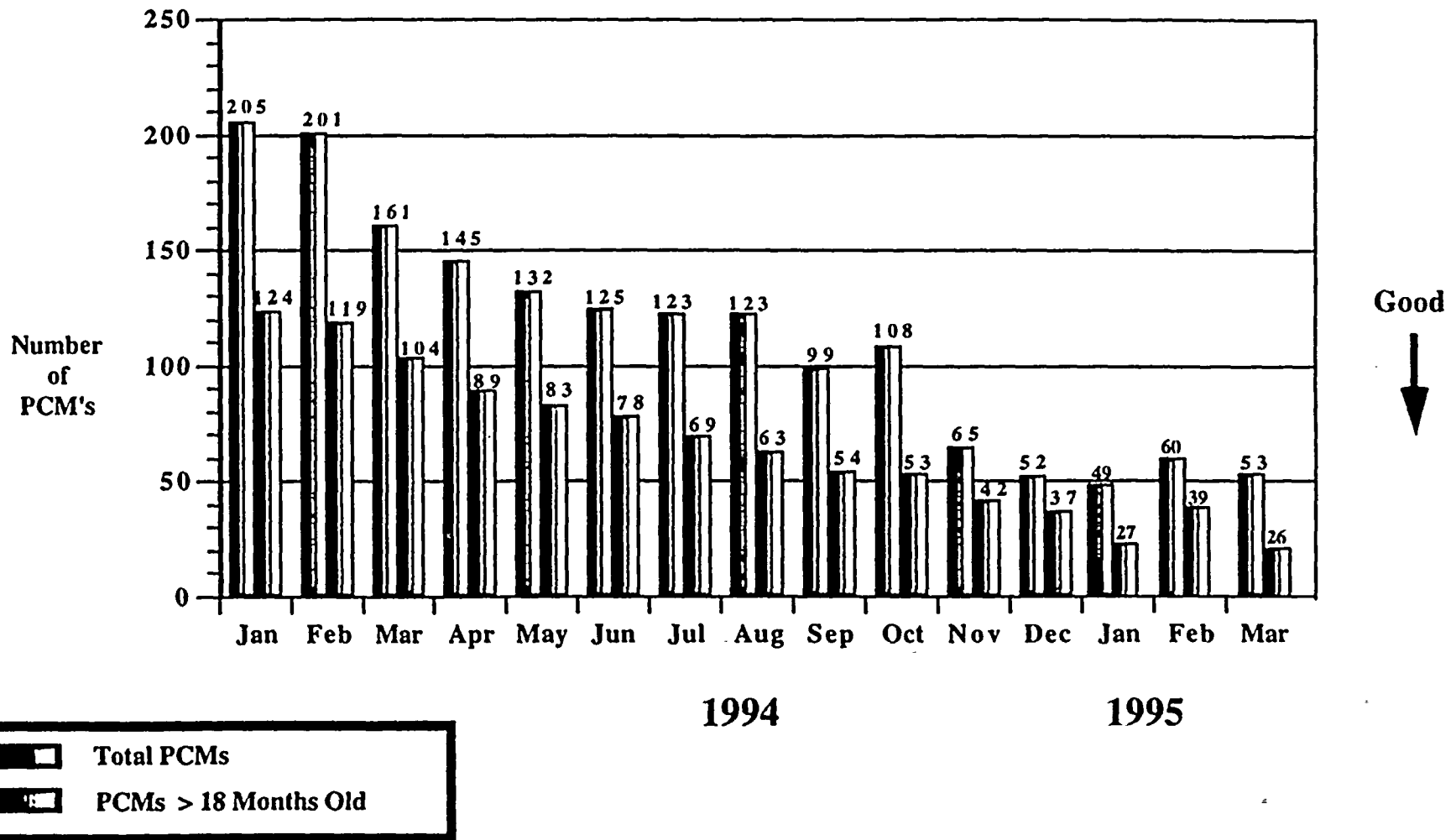
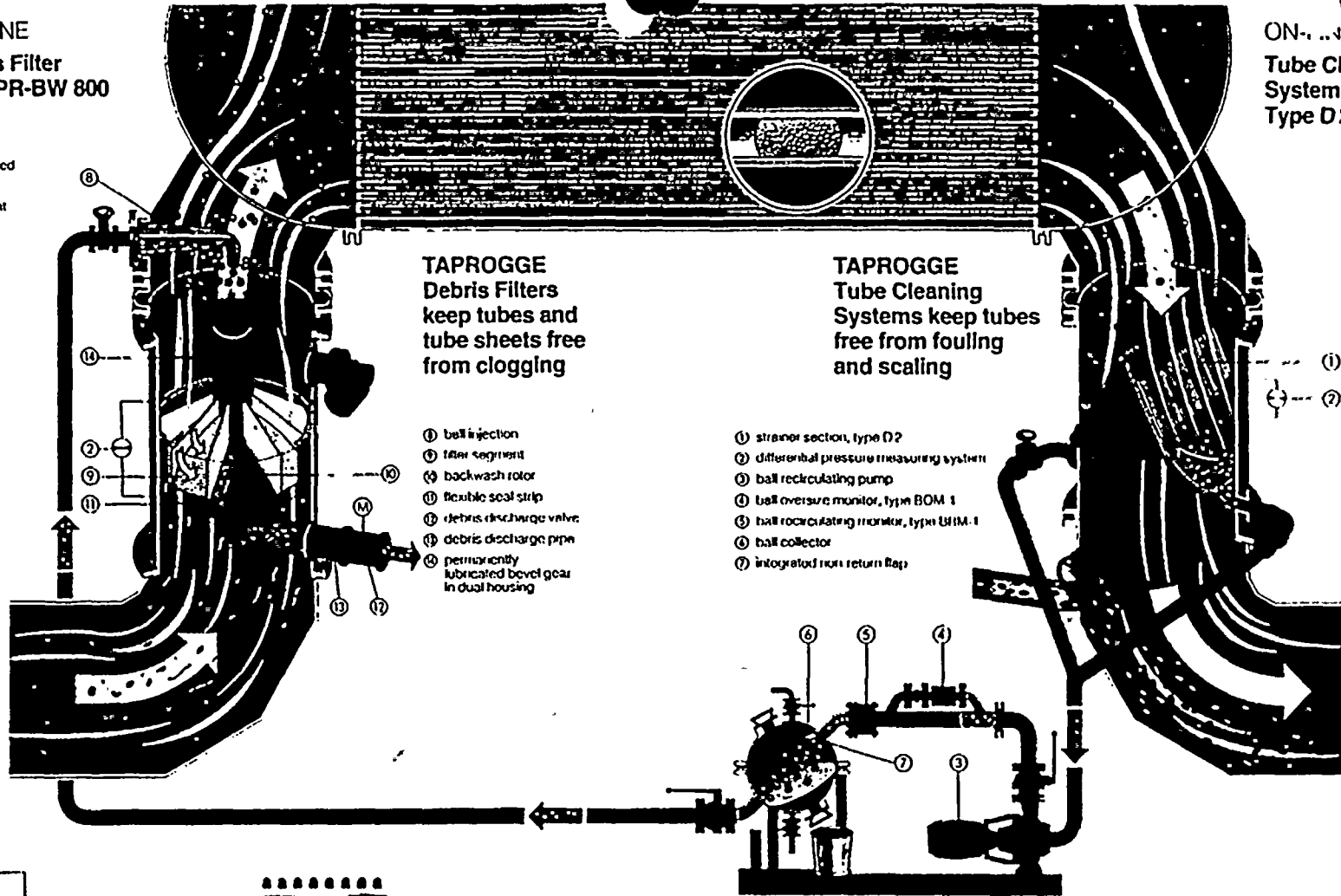


Figure 16

**J-LINE
Debris Filter
Type PR-BW 800**

Cleaning balls specifically selected for the condenser design and tube material insure that every tube is kept clean

**ON-LINE
Tube Cleaning
System
Type D2**

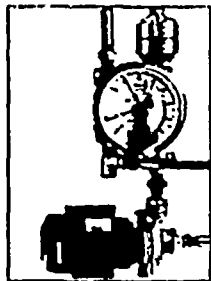


**TAPROGGE
Debris Filters
keep tubes and
tube sheets free
from clogging**

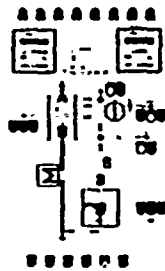
**TAPROGGE
Tube Cleaning
Systems keep tubes
free from fouling
and scaling**

- ① ball injection
- ② filter segment
- ③ backwash rotor
- ④ flexible seal strip
- ⑤ debris discharge valve
- ⑥ debris discharge pipe
- ⑦ permanently lubricated bevel gear in dual housing

- ① strainer section, type D2
- ② differential pressure measuring system
- ③ ball recirculating pump
- ④ ball oversize monitor, type BOM 1
- ⑤ ball recirculating monitor, type BIM 1
- ⑥ ball collector
- ⑦ integrated non return flap



Differential pressure monitoring
Continuous monitoring of debris load of the filter by differential pressure measuring system with automatic control and flushing device, micro switch and local indication

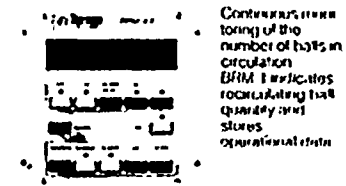


Programmable logic control
State of the art protection
Low voltage pilot lamps and control
Separate control and power sections
Detailed system mimic with component identification

Ball collector, type C40

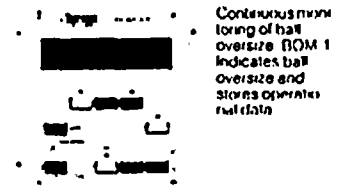
Ball charge and removal through quick opening ports
Integrated non return flap prevents reverse flow
Ball recirculating pump
Mechanical seal and lubrication of friction surfaces

Monitoring of ball quantity



Continuous monitoring of the number of balls in circulation
BIM 1 indicates recirculating ball quantity and stores operational data

Monitoring of ball diameter



Continuous monitoring of ball oversize BOM 1 indicates ball oversize and stores operational data

**Condenser Cleaning System
(Figure 17)**

Plant Support

Fire Protection
Emergency Planning
Security
Training

Jeff West
Services Manager

Plant Support Fire Protection

Major Accomplishments

Improved Fire System Reliability

- System Maintenance and Testing
 - Replacement of Section of Underground Fire Main
 - Upgrade Fire Barriers and Doors
- Training
 - Implementation of New Burn Building

Current Initiatives

Resolution of Thermo-lag Issues

Plant Support Emergency Preparedness

Major Accomplishments

Development of Core Melt Model for Simulator

Communications Upgrades

- Backup to HF System
- Telephone Capability via Satellite
- Pager Backup to Autodialer System

Response to Emergency Facilities

- Accountability Drill
- Interim Recovery Managers

Current Initiatives

Enhanced Communications for HP Field Monitoring Teams

Emergency Action Level Enhancements

Plant Support Security

Major Accomplishments

Installation of BIOMETRICS System (Fig.18)

Current Initiatives

Reduce Loggable Events

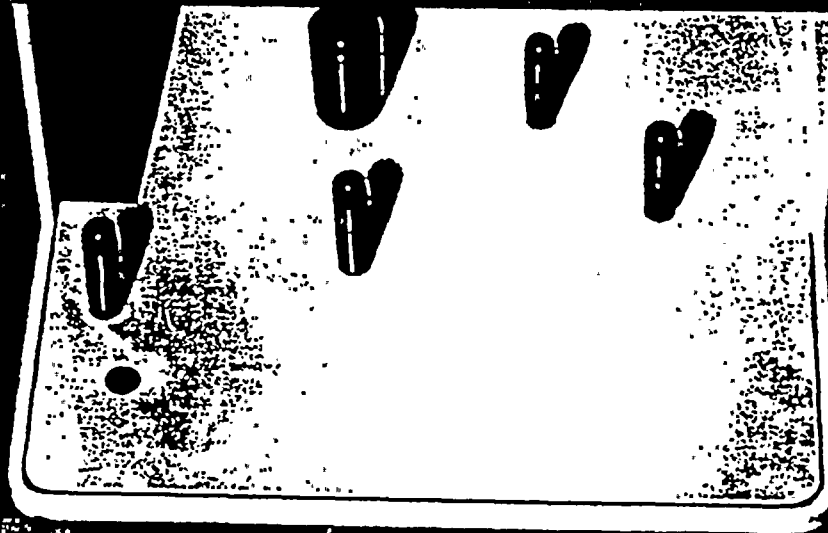
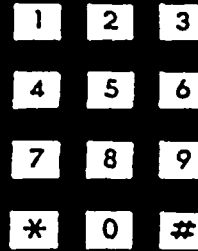
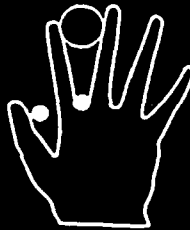
- Vital Door Control
- Security System Reliability
- Lost Key Cards

Design Basis Vehicle Threat System Implementation

RECOGNITION SYSTEMS

ID3D HandKey™

- If wearing ring turn stone up
- Slide hand firmly against web pin
- Hold hand flat against platen
- Close fingers against pins



Biometric Hand Reader
(Figure 18)

Plant Support Training

Major Accomplishments

Re-accreditation of Operations Training Programs

Licensed Operator Examination Results

- 100% Pass Rate on Initial Exams, 8 SRO and 2 RO
- Greater than 90% Pass Rate on Requalification Exams

Enhanced Maintenance Training Materials and Mock-ups

Revised Technical Training to Include Interactive Techniques

Revised 10 CFR 20

Integrated Training Personnel into Line Groups During Outages

Current Initiatives

Re-accredit Maintenance and Technical Programs

Development of Engineering and Site Personnel

Continue Use of Simulator to Support Operations

- Procedure Development
 - Lower Mode Procedures
 - Validate Safeguards Procedures
 - Blackout Procedure
- Practice Plant Evolutions on Simulator Prior to Their Implementation in Plant.

Instituted Computer Based Training

Radiological Controls

Hank Buchanan
Health Physics Supervisor

St. Lucie Plant

Unit #1 Refueling Outages Radwaste Generation

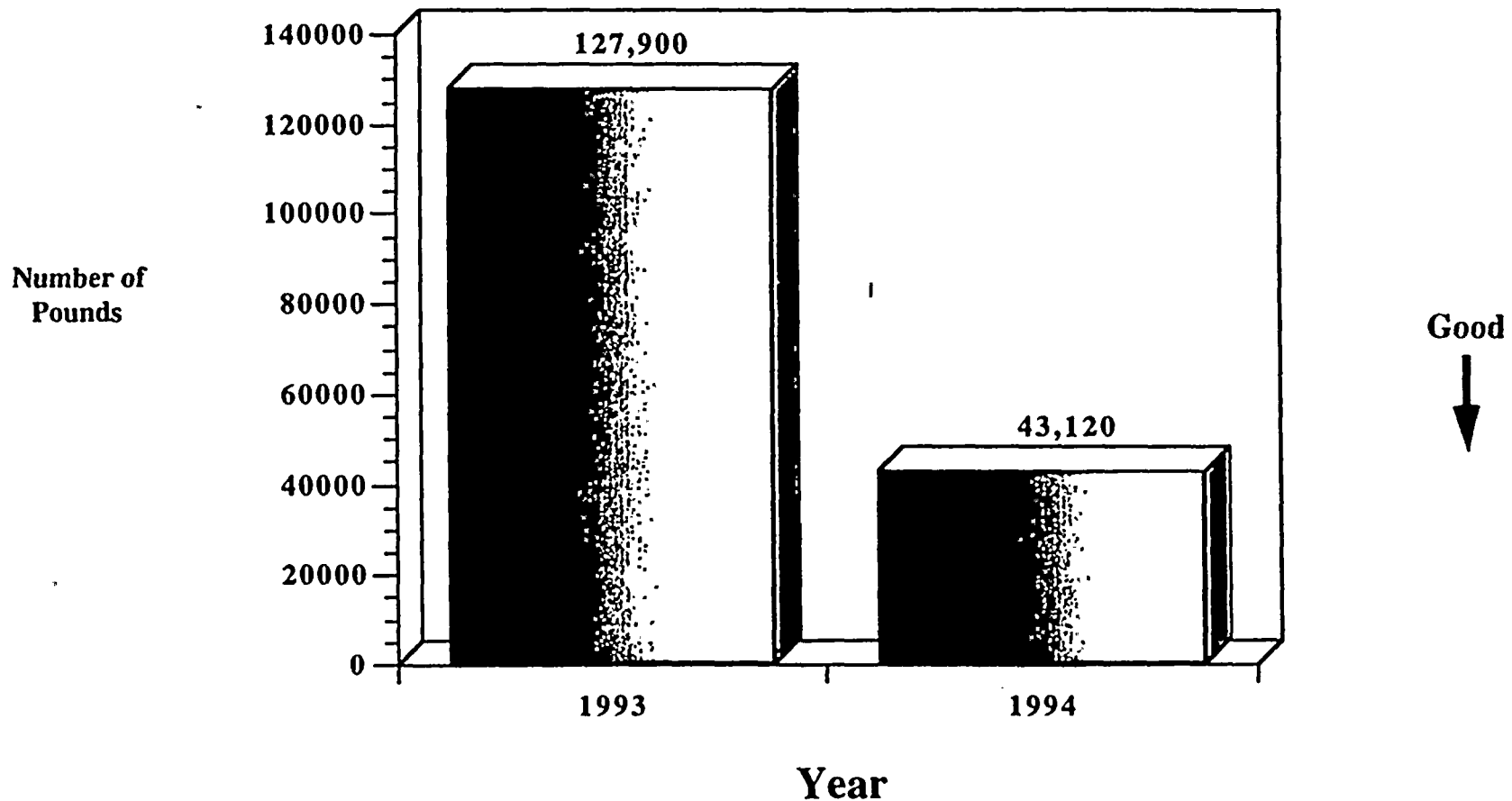


Figure 24

Radiological Controls

Current Initiatives

All-Electronic Dosimetry System by 1/1/96

Complete Integration of Technology Innovations

Prepare for Barnwell Closure

- Finalize/Build Resin Storage Facility
- Zero Rad-waste Inventory by 12/1/95

ALARA TEDE (Exposure Reduction)

- Explore Source Term Reduction Opportunities
- Increase Team Pre-job Planning Efforts

ALARA Rad-waste

- Non-depleting Incores
- New Training for Plant Staff
- Research New Technologies
 - Use of Water Dissolvable Material

Management Summary

Chris Burton
Plant General Manager

Management Summary

Current Initiatives

Depth of Root Cause Analysis Improved via Management Daily Review of STARs (St. Lucie Action Reports)

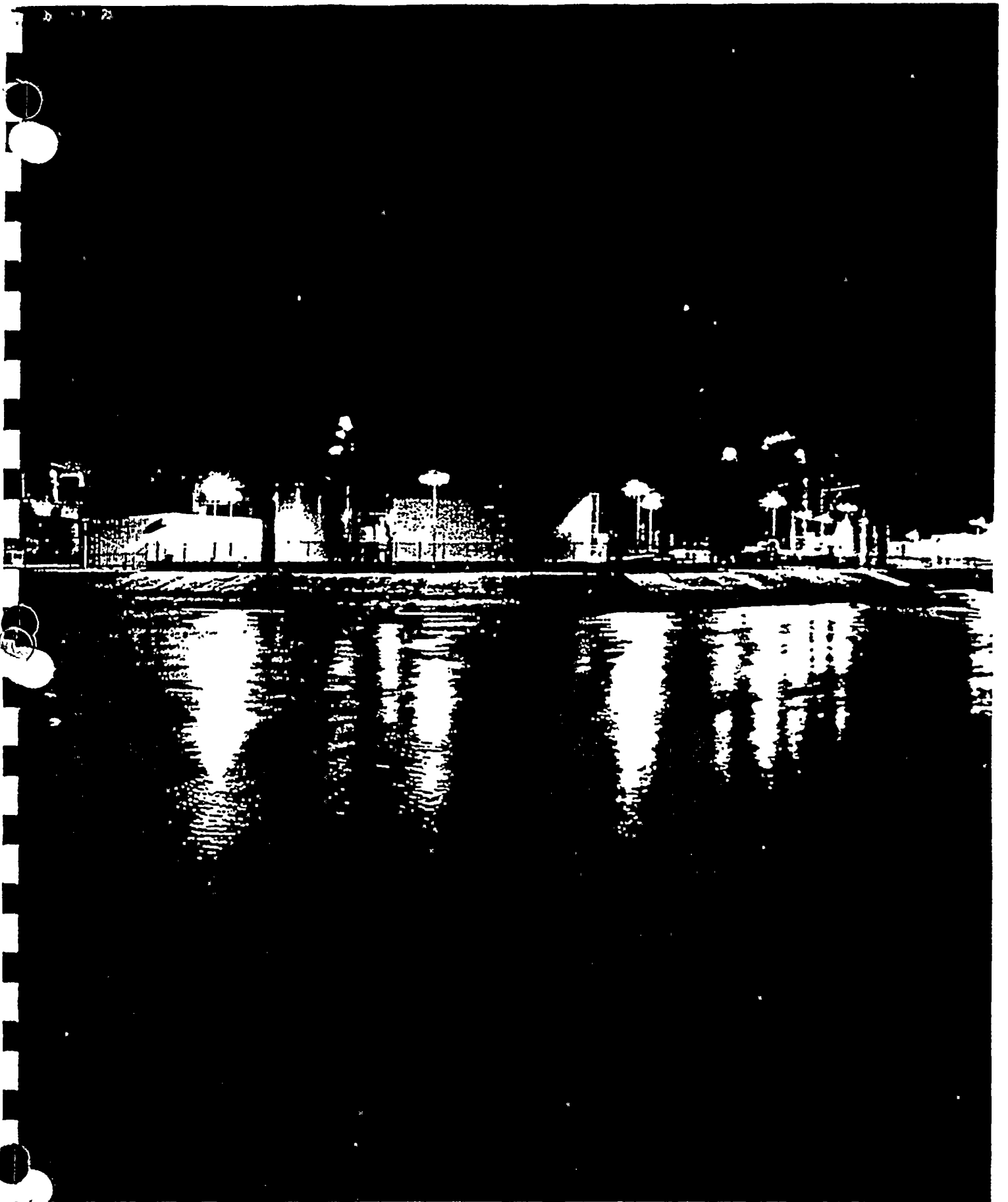
- Analysis Assigned to Appropriate, Dedicated Individual or Team
- Root Cause Reviewed by Management Team Prior to Determination of Corrective Actions

Increase Effective Trending and Follow-up on Event Causes

- Handled via Standardization of Cause Codes for LERs, IHEs, HPEs, STARs
- Quarterly Trend Reports Reviewed by Plant Management
- Assignments as Appropriate for Further Corrective Actions

Strengthen Corrective Actions

- Technical Subcommittee Probes any Technical Specification Issue and Reports Results to Facility Review Group



St. Lucie Nuclear Plant
(Figure 25)

Closing Remarks

Jerry Goldberg
President
Nuclear Division

Florida Power & Light Company

List of Participants

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