

APR 23 1992

official copy

Docket Nos. 50-259, 50-260, and 50-296
License Nos. DPR-33, DPR-52, and DPR-68

Tennessee Valley Authority
ATTN: Dr. Mark O. Medford, Vice President
Nuclear Assurance, Licensing and Fuels
3B Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Gentlemen:

SUBJECT: MEETING SUMMARY - BROWNS FERRY NUCLEAR PLANT SELF
ASSESSMENT

This refers to the meeting conducted at your request in the Region II office on April 17, 1992. The purpose of the meeting was for you to present your self assessment of activities at your Browns Ferry Nuclear Plant.

It is our opinion that this meeting was beneficial to us in aiding our understanding of your ongoing programs and areas for future improvement.

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
BRUCE A. WILSON

Original Signed By
BRUCE A. WILSON

Bruce A. Wilson, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosures: (See page 2)

9205120033 920423
PDR ADOCK 05000259
P PDR

IE01

Tennessee Valley Authority

2

Enclosures:

1. Meeting Summary
2. List of Attendees
3. License Handouts

cc w/encls 1 and 2

w o/encl 3:

Mr. John B. Waters, Director
Tennessee Valley Authority
ET 12A
400 West Summit Hill Drive
Knoxville, TN 37902

Mr. O. J. Zeringue, Vice President,
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Decatur, AL 35602

TVA Representative
Tennessee Valley Authority
Rockville Office
11921 Rockville Pike
Suite 402
Rockville, MD 20852

Mr. M. J. Burzynski, Manager
Nuclear Licensing and
Regulatory Affairs
Tennessee Valley Authority
5B Lookout Place
Chattanooga, TN 37402-2801

General Counsel
Tennessee Valley Authority
ET 11H
400 West Summit Hill Drive
Knoxville, TN 37902

Claude Earl Fox, M. D.
State Health Officer
State Department of Public Health
State Office Building
Montgomery, AL 36130

Chairman, Limestone County
Commission
P. O. Box 188
Athens, AL 35611

State of Alabama

bcc w/encls: (See page 3)

Mr. J. R. Bynum, Vice President
Nuclear Operations
Tennessee Valley Authority
3B Lookout Place
101 Market Street
Chattanooga, TN 37402-2801

Mr. R. R. Baron, Site Licensing Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Decatur, AL 35602

APR 23 1992

Tennessee Valley Authority

3

bcc w/encls 1 and 2

w o/encl 2.

S. D. Ebnetter, Fil

L. A. Reyes, RII

J. R. Johnson, RII

G. C. Lainas, NRR

F. J. Hebdon, NRR

P. J. Kellogg, RII

T. Ross, NRR

NRC Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Route 12 Box 637
Athens, AL 35611

bcc w/encls:

NRC Document Control Desk

RII/DRP

[Signature]
PKellogg
4/21/92

RII/DRP

[Signature]
RBernhard
4/21/92

~~RII/DRP~~

~~BWilson
4/21/92~~

ENCLOSURE 1

MEETING SUMMARY

The meeting opened with the Director Division of Reactor Projects welcoming the members of the licensee staff and noting that the meeting called for an open and frank discussion of the licensee's performance.

The Vice President of Nuclear Operations then introduced his staff and the function areas to be addressed.

The Plant Manager then addressed the licensee's major accomplishments and areas for further improvements in the areas of Plant Operations, Radiological Controls and Maintenance/Surveillance. Areas for further improvement included implementation of the equipment performance monitoring program, long-term equipment labeling program, improving drywell leakage identification, Auxiliary Operator performance improvements, cobalt source term reduction, use of closed circuit television, training and control of contractors, craft team building and implementation of reliability centered maintenance.

The Vice President of Operations then addressed the major accomplishments and areas for further improvement in the areas of Emergency Preparedness and Security. Areas for further improvement included implementation of bulletin 79-18, revising Emergency Action Levels, upgrading radiological emergency responses capability and the security upgrade project.

The Manager of Engineering and Modifications then addressed the area of engineering/technical support noting the major accomplishments and areas for further improvements. Areas for improvements included control of contractors, material availability, and system engineer program improvements.

The Vice President of Operations then summed up the meeting with their assessment of the safety assessment and quality verification area. Future improvements in these areas include implementation of the new standard Technical Specifications, Quality Assurance staff qualifications upgrades and enhanced performance trending. He then concluded the presentation by stating that the site had made great strides in each area, but there was still work to be done and each area required constant vigilance.

ENCLOSURE 2

LIST OF ATTENDEES

NRC

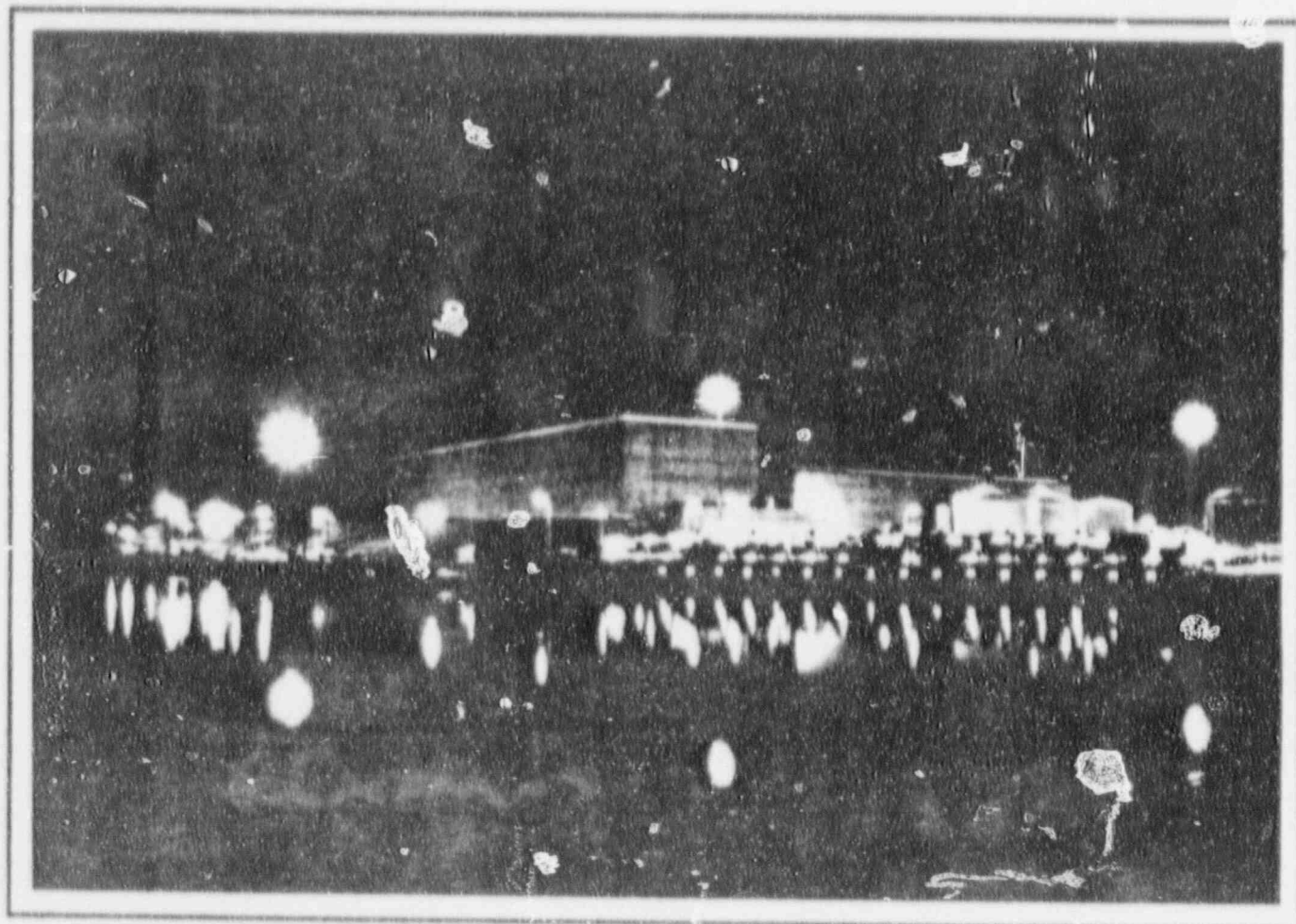
S. D. Ebnetter, Regional Administrator, Region II, (RII)
L. A. Reyes, Director, Division of Reactor Projects (DRP), RII
A. F. Gibson, Director, Division Of Reactor Safety (DRS), RII
J. P. Stohr, Director, Division of Reactor Safety and Safeguards (DRSS), RII
J. R. Johnson, Deputy Director, DRP, RII
B. A. Wilson, Chief, DRP Branch 4, RII
F. J. Hebdon, Director, Project Directorate II-4, Nuclear Reactor Regulation (NRR)
P. J. Kellogg, Chief, DRP Section 4A, RII
C. A. Patterson, Senior Resident Inspector, DRP, RII
T. M. Ross, Senior Project Manager, NRR
J. F. Williams, Project Manager, NRR
D. C. Payne, Senior License Examiner, DRS, RII

TVA

J. R. Bynum, Vice President, Nuclear Operations
O. J. Zeringue, Vice President, Browns Ferry Operations
J. A. Scullice, Plant Manager
R. R. Baron, Site Licensing Manager
G. G. Turner, Site Quality Manager
J. R. Rupert, Engineering and Modification Manager
J. P. Maciejewski, Quality Assurance Manager
P. Salas, Compliance Manager

ENCLOSURE 3

SELF-ASSESSMENT



Tennessee Valley Authority
Browns Ferry Nuclear Plant

April 17, 1992

AGENDA

INTRODUCTION

J. R. BYNUM

DISCUSSION OF FUNCTIONAL AREAS

I. PLANT OPERATIONS

J. A. SCALICE

II. RADIOLOGICAL CONTROLS

J. A. SCALICE

III. MAINTENANCE/SURVEILLANCE

J. A. SCALICE

IV. EMERGENCY PREPAREDNESS

O. J. ZERINGUE

V. SECURITY

O. J. ZERINGUE

VI. ENGINEERING/TECHNICAL
SUPPORT

J. R. RUPERT

VII. SAFETY ASSESSMENT/
QUALITY VERIFICATION

O. J. ZERINGUE

CONCLUSION

O. J. ZERINGUE

I. FUNCTIONAL AREA - PLANT OPERATIONS

Background

- Previous SALP Rating: Category 2

- Due to Plant Status at the Time, SALP Assessed Functional Area of Shutdown Operations

- Weaknesses
 - Response to control room instrumentation during normal shift operations

 - Compensatory fire protection measures

I. FUNCTIONAL AREA - PLANT OPERATIONS
(CONT.)

Major Accomplishments

- Plant Performance Since Startup
 - Low number of operational events
 - High capacity factor
 - Only two unplanned automatic scrams

- Control Room Performance
 - Response to alarms
 - Repeat-back responses
 - Further enhancement through installation of human factored work stations
 - Implement flow chart EOIs

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Major Accomplishments (Cont.)

- Fire Protection Performance
 - No missed fire watches
 - 1/91: Developed and implemented a computerized fire protection compensatory measure tracking program
 - Developed and submitted to NRC the BFN Fire Protection Report (report submitted 1/15/92)

- Successful Power Ascension Test Program
 - 20 plant integrated tests
 - Detailed pre-test briefing packages
 - Extensive management involvement, including review of power ascension tests and around-the-clock coverage
 - Program completed in 75 days (2 days ahead of schedule) without an unplanned automatic scram

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Major Accomplishments (Cont.)

- Additional Shift Support
 - Additional shift staffing exceeds TS requirements
 - Shift work control supervisor (SRO) to review shift work activities
 - SRO in work control organization
 - Hiring 45 AUOs for long-term operation of plant
- Increased Management Involvement In and Improved Training for Startups and Planned Shutdowns
 - Initiated use of simulator for better preparation
 - 24-hour shift coverage provided by Operations management for startups and planned shutdowns
- Continued Excellent Performance on Operator License Examinations
 - 23 of 23 operators passed initial or requalification examinations since 5/91; 61 of 64 since 1/90
 - 03/02/92: Developed management review team to assist operators in preparing for examinations

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Major Accomplishments (Cont.)

- Implementation of Reactivity Management Program
 - Sensitize personnel to reactivity concerns
 - Implemented specific procedure
 - Reactivity manager on-shift during startups
 - Monitoring and monthly trending of reactivity events
 - Special training film developed for plant technical personnel based on Commonwealth Edison's
 - Sensitivity towards reactivity issues resulted in identification on 7/31/91 of potential problem with HPCI power ascension test and subsequent revision of initial plant conditions for conducting test

- Effective Communications Between Management and Staff
 - Face-to-face meetings between Operations management and staff
 - QA involvement - independent communication/verification

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Major Accomplishments (Cont.)

- Preplanning and Management Involvement
 - Plan-of-the-day (POD) meeting addresses all phases of plant operations, including plant status, priority work activities, control room instrument status, and integrated schedule/system outages
 - Management review of fragnets prepared for work activities (includes name and phone number of responsible individual)
 - Operations expertise integrated throughout BFN organizations
 - Team concept emphasized throughout all levels of activity
 - Improve morale through individual awards and incentives

- Implemented Computerized Hold Order System
 - 8/91: Implemented computerized hold order system
 - 2/11/93: Upgrade computerized system status capabilities

I. FUNCTIONAL AREA - PLANT OPERATIONS
(CONT.)

Major Accomplishments (Cont.)

- Management Observation Enhancements
 - Upgraded Operations management checklists
 - Initiated continuing self-assessment program for plant organizations

- Nuisance Alarm Management
 - High visibility through management review in POD meetings
 - Efforts have resulted in zero lit annunciators on 3/13/92
 - Management attention focused on common annunciators

- Preparation of Timely and Self-Critical Reviews
 - Status of incident investigations reviewed daily at POD meeting
 - Forced outage and power reduction critiques

I. FUNCTIONAL AREA - PLANT OPERATIONS
(CONT.)

Major Accomplishments (Cont.)

- Out of Specification Readings
 - Monitored daily at POD meeting

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Areas for Further Improvement

- Implement Equipment Performance Monitoring Program
 - Formal program established
 - Designed to provide early indication of degradation of systems and components important to safety and efficiency
 - Reviewed daily by plant management
 - Program has been recommended to other utilities by INPO

- Complete Long-Term Equipment Labeling Program
 - 12/91: Established dedicated labeling group
 - Group is re-verifying and identifying discrepancies in labeling of non-critical systems (critical system labeling addressed in return to service activities)
 - Targeted completion date - 4/93

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Areas for Further Improvement (Cont.)

- Develop Systematic Approach to Identifying Drywell Leakage
 - Two voluntary shutdowns during assessment period
 - Objective: Better identification of drywell leakage
 - Procedure being developed

- AUO Performance
 - Continue AUO quality meetings with Operations management
 - Rotate AUOs to ensure AUOs maintain proficiency in each assigned AUO position
 - AUO performance routinely monitored by Operations management
 - Deficiencies identified in AUO performance are documented on management observation checklists

I. FUNCTIONAL AREA - PLANT OPERATIONS (CONT.)

Areas for Further Improvement (Cont.)

- Improvements to the Temporary Alteration Program
 - Engineering now reviews proposed temporary alterations
 - Temporary alterations reviewed weekly by management during POD meeting
 - Management requests initiation of design changes if temporary alterations are not promptly resolved

- Increasing Self-Critical Nature of Incident Investigations

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS

Background

- Previous SALP Rating: Category 1

- Independent Initiatives to:
 - Develop generic shield tables

 - Minimize collective radiation exposure

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS (CONT.)

Major Accomplishments

- Development and Use of Shield Tables
 - Completed 8/22/91
 - Lead shielding installed to date has resulted in estimated exposure savings of 14 person-rem

- Source Term Reduction
 - Implemented several chemical decontamination projects (e.g., fuel pool cooling heat exchangers for Units 1, 2, and 3)
 - Hot spot tracking, trending, and reduction program (27 have been eliminated to date)
 - Spent fuel pool cleanup has resulted in removal of over 35,000 curies of irradiated hardware

- Developed and Implemented Computerized Radiation Exposure Tracking System
 - 9/91: Radiation Exposure System (REXS) implemented
 - Phasing in use of electronic digital dosimeters to supplement REXS

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS (CONT.)

Major Accomplishments (Cont.)

- ALARA Reviews of Design Changes and Work Tasks
 - Design changes and workplans are reviewed to ensure ALARA incorporation
 - Site procedures have been revised to ensure ALARA is considered during project development
 - In-process job reviews are performed when dose accrued reaches 25, 50 and 75% of estimated exposure levels

 - Management Attention To and Involvement With The ALARA Program
 - Included ALARA goals in FY 1992 management performance standards
 - Restructured ALARA/Radwaste Committee (ARC) to require chairmanship by Plant Manager or Site Vice President
 - Special reviews of planned work activities when estimated exposure exceeds predetermined limits
- | | |
|-----------------------------------|-----------------|
| Site Radcon and Task Leader | > 1 person-rem |
| ARC subcommittee
Nuclear Power | > 5 person-rem |
| ALARA Committee | > 50 person-rem |

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS (CONT.)

Major Accomplishments (Cont.)

- Chemistry Water Quality

- Chemistry Performance Index

INPO Median	- 0.33
INPO 1995 goal	- 0.30
BFN goal	- 0.29
BFN 1991 average	- 0.26
BFN current	- 0.18

- Chemistry parameters monitored daily at POD meeting

- Power ascension rate limited to ensure fuel integrity (no leaking fuel rods)

- Flow limited to 100% to ensure fuel integrity

- Effective Utilization of Power Reductions

- Since startup have taken advantage of 10 power reductions

- At least 5 performed solely for ALARA purposes

- Total dose savings to date estimated at 24 person-rem

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS (CONT.)

Major Accomplishments (Cont.)

- Heightened Awareness of Departmental Dose Goals
 - Implemented use of exposure goals for each site organization
 - Performance towards goals and dose accrued during previous 24-hour period discussed during POD meeting
 - High visibility through display on site video information network
 - Actions taken if goal is exceeded or exhibits adverse trend

- Improved Radioactive Waste Management
 - Contaminated area reduced from 4.0 to 3.3 percent with a goal of 2.0 percent by 9/30/92
 - Reduced radioactive material storage areas
 - Assigned SRO full time to radwaste
 - Daily waste generation approximately 50 percent of average BWR

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS (CONT.)

Major Accomplishments (Cont.)

- Use of Nitrogen Generator
 - Provides continuous nitrogen supply to gas chromatograph and total organic carbon analyzer
 - Reduces instrument downtime and minimizes time required to recalibrate instruments after gas supply changeout
 - Implementation recognized by INPO as a strength

- Installation of New Continuous Air Monitors (CAMs)
 - State-of-the-art CAMs installed 5/91 to support restart
 - Problems experienced with CAMs due to installation difficulties and personnel lack of familiarity with new monitors
 - Aggressive TVA corrective actions resolved operational problems

II. FUNCTIONAL AREA -
RADIOLOGICAL CONTROLS (CONT.)

Major Accomplishments (Cont.)

- Radiological Control (Radcon) Training
 - Radcon shift supervisors and engineering staff qualified as INPO-certified training instructors
 - Ability of Radcon shift supervisors to recognize and correct technician problems considered a strength by INPO
 - Encourage technician certification by the National Registry of Radiation Protection Technologists (30 certified to date)
 - ALARA Awareness Training for plant personnel

II. FUNCTIONAL AREA - RADIOLOGICAL CONTROLS (CONT.)

Areas for Further Improvement

- Use of Closed Circuit Television (CCTV)
 - Hand-held cameras
 - Implementation will result in reduced radwaste generation through fewer required dressouts and improved radiological surveillance capability
 - Estimated annual exposure savings of 33 person-rem

- Cobalt Source Term Reduction
 - Instituted stellite reduction program
 - Identifying contributors for potential replacement

- Improve use of the Post Accident Sampling System (PASS)

- Modifications to the Condensate Demineralizers
 - Equipment upgrades
 - Expected 50% reduction in radwaste generated by demineralizers

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE

Background

- Previous SALP Rating: Category 3, Improving
- Performance of Modifications Identified as a Weakness
- Problems Noted With Respect to Surveillances

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE (CONT.)

Major Accomplishments

● Modifications Performance

- Restructured organization from direct hire to contractor management organization
- Established TVA task manager position responsible for ensuring proper implementation of work (e.g., procedures are followed, hold orders are in place, paperwork is closed)
- 11/91: Developed contractor interface manual which specifies divisions of responsibility for both TVA and contractor personnel
- 3/92: Developed human performance enhancement system seminar which addresses all phases of the work process (e.g., proper work practices, proper use of procedures)

● Performance of Surveillances

- Implemented divisionalized surveillance testing program
- Surveillance testing schedule reviewed at POD meeting and daily Maintenance meeting
- Over 2800 TS surveillances successfully performed since restart

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE (CONT.)

Major Accomplishments (Cont.)

- Improvements in the Work Planning Process
 - Implementation of MPAC
 - Software upgrade streamlines work process
 - Text editing and work order history retrieval capabilities added

- Significant Reduction of Maintenance Backlog
 - Corrective maintenance backlog reduced from over 7200 items in May 1989 to 636 by startup to the current level of approximately 250
 - Preventive maintenance backlog reduced from over 1000 late items in February 1989 to approximately 20 by startup to the current level of zero
 - Maintenance rework reduced from nearly 4.5% shortly after startup to the current level of 1.9%
 - Daily Maintenance meeting to review work activities conducted during the previous 24 hours
 - Weekly review of backlog at POD meeting
 - Management attention and aggressive efforts maintain low number (e.g., goals consistently lowered, weekly review of oldest work orders)

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE (CONT.)

Major Accomplishments (Cont.)

- Maintenance Peer Evaluation Program
 - Developed and implemented program
 - Corporate support
 - Performance against criteria trended

- Maintenance Supervisory Development Program
 - Developed during self-assessment of containment breach event
 - 6-Week training course to focus on team building, problem solving, supervisory skills, etc.
 - Approximately 60 individuals have completed - program to be completed 6/15/92
 - TVA assessing plant and company-wide implementation of this program

!!!. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE (CONT.)

Major Accomplishments (Cont.)

- Forced Outage Schedule
 - Developed and implemented forced outage schedule
 - Lists specific work activities that can be performed during all types of outages (from short duration power reductions to cold shutdown)
 - Demonstrates significant preplanning and coordination among BFN organizations
 - Reduces outage time and ensures efficient and safe performance of outage work
 - Utilized during 10/91 and 2/92 voluntary shutdowns with positive results
 - 2/92: Enhanced schedule by implementing newly approved NUMARC guidelines to reduce shutdown risk
 - Recognized by INPO as a strength

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE
(CONT.)

Major Accomplishments (Cont.)

- Maintenance Trending Program
 - Prompt identification and evaluation of repeat items
 - Trend evaluation packages generated monthly
 - Trends evaluated by Maintenance & Systems Engineering

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE (CONT.)

Areas for Further Improvement

- Training and Control of Contractors
 - Proceduralized requirements and responsibilities for contractors
 - Unit separation training for incoming personnel
 - Welder qualification upgrades for new hires, including full certification and destructive examination of test welds

- Craft Team Building Training Program
 - Programmatic enhancement to supplement maintenance supervisory development program
 - Emphasizes team building and reviews concepts of supervisory program
 - First round of training to be completed 3/93
 - Reduced use of contractors as instructors

- Reliability Centered Maintenance (RCM) and Preventive Maintenance (PM) Programs
 - PRA-based system implementation
 - Will begin loading first systems by June 16, 1992

III. FUNCTIONAL AREA - MAINTENANCE/SURVEILLANCE (CONT.)

Areas for Further Improvement (Cont.)

- Increasing Self-Critical Nature of Incident Investigations

- Continue Management Focus on Personnel Performance
 - Continued vigilance on attention to detail
 - Reductions in administrative errors

IV. FUNCTIONAL AREA - EMERGENCY PREPAREDNESS

Background

- Previous SALP Rating: Category 2, Improving
- Weakness Noted in Timeliness of Response to IE Bulletin 79-18, Audibility Problems Encountered on Evacuation of Personnel From High-Noise Areas

IV. FUNCTIONAL AREA - EMERGENCY PREPAREDNESS (CONT.)

Major Accomplishments

- **Enhanced Training During Drills by Initiating Use of Simulator, Safety Parameter Display System (SPDS), and Mockups**
 - Use of simulator implemented 3/25/92 - enhances emergency response training
 - Plant conditions displayed on interim SPDS
 - SPDS data provided by simulator
 - Mockups first used 9/11/91 - enhances emergency exercise scenario

- **Improved Communications Between Emergency Response Centers**
 - Hardware enhancements - electrical and mechanical emergency center status boards, automatic dialing telephones, 911 terminal
 - MPAC computer terminals added
 - Added team manager position 2/12/92
 - Conducted 3 additional practice drills in January and February 1992 to focus on communications

FUNCTIONAL AREA - EMERGENCY PREPAREDNESS (CONT.)

Major Accomplishments (Cont.)

- Corporate and Plant Management Involvement in Site Activities
 - Monitor and maintain preliminary notification system - 99 percent operability during assessment period
 - Develop and implement challenging emergency exercise scenarios for graded exercises and dress rehearsals
 - Periodic site meetings for information exchange and joint problem resolution

- Increased Attention on Emergency Response Performance
 - Implementation of simulator, emergency center communications upgrades and 3 additional practice drills
 - Weekly pager tests initiated 6/91 and results reviewed at POD meeting
 - Will perform off-hours augmentation drills for all 3 emergency response teams

IV. FUNCTIONAL AREA - EMERGENCY PREPAREDNESS (CONT.)

Major Accomplishments (Cont.)

- Community Relations
 - REP manager chairman of Morgan County Industrial Emergency Association
 - Continued quarterly meetings with Alabama Emergency Management Agency, Alabama Radiological Health Department, and 4 counties in 10-mile emergency planning zone
 - BFN routinely conducts plant tours and briefings for area business, professional, civic, customer and governmental groups
 - Established working relationship with broadcast and print media

IV. FUNCTIONAL AREA - EMERGENCY PREPAREDNESS (CONT.)

Areas for Further Improvement

- Complete Implementation of Response to IE Bulletin 79-18
 - Phase I complete - 4 radio repeaters, improved 2-way communications, expanded capability of radio system
 - Will be completed during Cycle 6 outage - includes installation of strobe lights, alarm bells, improved speakers, and electronic sirens
 - Modifications work will begin in accessible areas prior to the refueling outage

- Implementation of Revised Emergency Action Levels (EALs)
 - New EALs will be based on NUMARC methodology and guidance contained in NRC draft Regulatory Guide
 - New EALs will provide updated information to be used to classify emergencies, potentially reducing number of unusual events declared
 - TVA will implement new EALs following NRC approval

IV. FUNCTIONAL AREA - EMERGENCY PREPAREDNESS (CONT.)

Areas for Further Improvement (Cont.)

- Upgrading Radiological Emergency Response Capability
 - Purchased upgraded radiation monitoring van
 - Recognized as a program strength by NRC in Inspection Report 91-30, dated 9/25/91
 - Human factored design - larger working area, buffer zone between contaminated area, upgraded counting equipment, cellular telephones, built-in electrical generators
 - Displayed at the American Nuclear Society's 1991 annual emergency preparedness conference
 - Second van will be purchased to replace existing unit by 5/11/93

V. FUNCTIONAL AREA - SECURITY

Background

- Previous SALP rating: Category 2
- Problems Identified in Control of Special Nuclear Material Inventories

V. FUNCTIONAL AREA - SECURITY (CONT.)

Major Accomplishments

- Special Nuclear Material Accountability
 - Complete spent fuel pool cleanup by 7/1/92

- New Detection Equipment
 - Perimeter cameras, improved metal detectors and X-ray machines, and upgraded perimeter detection systems
 - New hand-held metal detectors first used 4/92

- Weapon Upgrades
 - 12/91: Completed transition from 6-shot revolvers to 15-round semi-automatic handguns for armed response personnel
 - 6/91: Transitioned from Ruger Mini-14 to Colt M16A2 rifles

- Organizational Improvements and Heightened Management Interaction
 - Initiated straight shifts (terminated rotating shifts)
 - Initiated weekly and monthly round table sessions between management and staff

V. FUNCTIONAL AREA - SECURITY (CONT.)

Major Accomplishments (Cont.)

- Programmatic and Administrative Improvements
 - Reassigned contractor information system to security
 - 6/91: Established formal training records audit program to review security force task qualification records

- Security Procedure Upgrade
 - 3/92: Procedure upgrade to reduce the number of Security site instructions from seventeen to three
 - Internal security procedure audit

- Improvements in Safeguards/Compliance
 - 8/91: Established designated classifiers for safeguards information to reduce potential for erroneous classification of such information
 - Reduced the number of safeguards information storage containers
 - Installed vendor-manufactured locking bars on safeguards information cabinets

V. FUNCTIONAL AREA - SECURITY (CONT.)

Major Accomplishments (Cont.)

- Security Personnel Training
 - Security officer training in the use of Sig-Sauer 9 MM handguns and M16A2 rifles
 - Security supervisors trained on requirements and processes for handling drugs and suspect substances found onsite
 - 4/91: Completed precision marksmanship training
 - 3/92: Conducted local law enforcement agency seminar

- New Badging Process
 - Established new employee check-in/check-out requirements and contractor access control procedure
 - Additional training on employee and contractor access control requirements
 - Provide security access control instruction bulletin to employees upon initial check-in
 - Capability to electronically store picture and other vital data and also improves ability to handle large numbers of contractors and transient workers

V. FUNCTIONAL AREA - SECURITY (CONT.)

Major Accomplishments (Cont.)

- Fitness for Duty Program Improvements
 - Revised layout of testing facility to preclude non-test personnel from accessing the testing area thereby improving control of specimens
 - Revised procedures to require notification of the employee Relations and Development organization when an individual's blood alcohol level falls into the 0.02 to 0.039 range
 - Added procedural requirements for the handling of drugs and suspect substances found onsite

V. FUNCTIONAL AREA - SECURITY (CONT.)

Areas for Further Improvement

- Security Upgrade Project
 - \$24M project to upgrade hardware and software
 - 11/91: Established security project coordinator position to coordinate transition requirements
 - Installation of state-of-the-art security equipment (e.g., CCTV, microwave/infrared detection system)
 - Installation of security computer system simulator
 - On-going review of plans, procedures, and site instructions

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT

Background

- Previous SALP Rating: Category 2

- Limited Number of Problem Areas Identified in June 1990 Report:
 - Simulator fidelity

 - Large number of drawing deviations (discrepancies)

 - Emergency Operating Instructions (EOIs) not considered to be user-friendly

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Major Accomplishments

- Simulator Upgrade Project
 - 12/91: Certification of BFN plant-referenced simulator in accordance with 55.45(b)(5)
 - Project involved complete software upgrade and new computers
 - Simulator features state-of-the-art modeling, reactor core and thermal hydraulics monitoring, extensive electronics modeling and updated instructor's station
 - Simulator to be upgraded by implementing control room design review changes and installation of integrated computer system software

- Drawings
 - Drawing discrepancies reduced from 1575 in June 1990 to zero at startup
 - No backlog of primary and critical drawings
 - Program to upgrade and maintain secondary drawings
 - Backlog of secondary drawings reduced from approximately 22,000 at startup to 6101 on 4/8/92

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Major Accomplishments (Cont.)

- EOI Improvements
 - Implementing Revision 4 of the BWROG Emergency Procedure Guidelines
 - Development of procedures complete
 - Training on revised EOIs initiated 9/30/91
 - Procedures utilize flow-chart format
 - Due to startup of Unit 2 and the manpower needed to support restart, full implementation of the revised EOIs will be completed by 6/15/92

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Major Accomplishments (Cont.)

- Engineering Support of the Plant
 - Formation of dedicated group within site engineering organization to support plant operations
 - NE participates in the Plant Operations Review Committee (PORC) and is a member of the Management Review Committee
 - Daily support activities; e.g., outage planning, evaluation of safety significance of potential adverse conditions
 - Timely and technically accurate engineering evaluations

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Major Accomplishments (Cont.)

- Comprehensive Design Closure Process
 - Primary and critical drawings issued prior to closure
 - Unverified assumptions removed from calculations
 - Required post-modification tests evaluated
 - Plant acceptance and retu... to service
 - Final paper closure

- Design Changes
 - High quality design changes
 - "Workable" design change packages through close coordination with Modifications personnel
 - 8/91: Implemented menu-driven software program to assist in writing workplans for installing design changes

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Major Accomplishments (Cont.)

- Vendor Manual Program
 - Nuclear Engineering responsible for maintaining the vendor manual program
 - Recognized as a strength by INPO

- Research and Development Involving the Control Room Emergency Ventilation System
 - Initiated research and development project
 - Resulted in development of technically innovative solution which limits impact on control room activities

- System Engineering Support
 - Support for Operations and Maintenance activities
 - Troubleshooting and repair of plant systems

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Major Accomplishments (Cont.)

- Motor-Operated Valve (MOV) Testing Program
 - Clear ownership of program and dedicated organization to support program implementation
 - Dedicated engineering and maintenance personnel for MOV activities
 - Aggressive corporate involvement
 - Strong industry interface

- Maintaining and Enhancing Training Program Quality
 - 12/91: Initiated programmatic enhancements to INPO accredited training programs (e.g., periodic self-assessments)
 - Participation in BWR Owners Group ad hoc committee on licensed operator requalification
 - Implemented entry level trainee programs for electrical and mechanical Maintenance craftsmen (6/91 and 9/91, respectively)
 - Further enhancement will be accomplished by implementing entry level trainee program for instrumentation & control Maintenance craftsmen (11/92)

VI. FUNCTIONAL AREA - ENGINEERING/TECHNICAL SUPPORT (CONT.)

Areas for Further Improvement

- Control of Contractors
 - Programmatic upgrades to strengthen control of contractors at BFN
 - Restructured Modifications organization by assigning task managers within the organization

- Material Availability During the Upcoming Refueling Outage
 - Established dedicated section in the Materials and Procurement organization to assist in work planning and ensure material availability
 - Established preferred materials list for use by design engineering
 - Dedicated individual in Modifications responsible for reviewing design changes to ensure material availability
 - Staging materials in the warehouse

VI. FUNCTIONAL AREA -
ENGINEERING/TECHNICAL SUPPORT
(CONT.)

Areas for Further Improvement (Cont.)

- System Engineer Program Improvements
 - Develop backup system engineers - program to be completed 6/94
 - System engineer meetings with GE system engineers
 - System engineer certification to be completed 7/94

VII. FUNCTIONAL AREA - SAFETY ASSESSMENT/ QUALITY VERIFICATION

Background

- Previous SALP Rating: Category 3, Improving

- Weaknesses
 - Timeliness and thoroughness of submittals and responses

 - Failure to correct previously identified deficiencies

VII. FUNCTIONAL AREA - SAFETY ASSESSMENT/ QUALITY VERIFICATION (CONT.)

Major Accomplishments

- Quality and Timeliness of Submittals
 - Significant improvement in timeliness and quality of submittals during assessment period
 - Submittals reviewed weekly during POD meeting
- Licensee Event Report (LER) Improvement Efforts
 - Initiated TVA LER improvement project which was spearheaded by BFN
 - Completely revamped format of LERs to achieve step change in simplicity of preparation, accuracy and clarity
- Improved Communications With NRC Staff
 - Biweekly conference calls with NRR and Senior Resident
 - Daily meetings with NRC resident inspectors

VII. FUNCTIONAL AREA -
SAFETY ASSESSMENT/
QUALITY VERIFICATION (CONT.)

Major Accomplishments (Cont.)

- Timely Resolution and Closure of Open Inspection Items, LERs and Corrective Action Items

<u>Type</u>	<u>With TVA</u>	<u>Cycle 6</u>	<u>With NRC</u>	<u>Total</u>
Violations	5	0	4	9
URIs	0	0	6	6
IFIs	3	1	2	6
LERs	<u>3</u>	<u>4</u>	<u>5</u>	<u>12</u>
Total	11	5	17	33

- Improvements in the Incident Investigation Process
 - Revised incident investigation program
 - Program now emphasizes evaluation of previous events/industry experience
 - Status of incident investigations reviewed daily at POD meeting
 - Incident investigations reviewed by Plant Evaluation Review Panel

VII. FUNCTIONAL AREA - SAFETY ASSESSMENT/ QUALITY VERIFICATION (CONT.)

Major Accomplishments (Cont.)

- Improved Root Cause Analysis Training Program
 - Expanded root cause analysis training for event managers and analysts
 - Program now includes training in use of Human Performance Enhancement System (HPES) methodology

- Nuclear Safety Review Board (NSRB)
 - Improved utilization of outside members
 - Better plan for in-house membership

- Improved Assessment Capabilities of the BFN QA Organization
 - "Inspector of the Day" program
 - Augmentation of in-house expertise with outside specialists for specific audit and inspection activities

VII. FUNCTIONAL AREA - SAFETY ASSESSMENT/ QUALITY VERIFICATION (CONT.)

Major Accomplishments (Cont.)

- Improved QA Communications with Plant Organizations
 - Standardized quarterly assessment format
 - Monthly focus meetings between QA Audit and Monitoring section and line organization management

- Restructuring the B3N QA Organization and Re-Focusing on Performance-Based Audits and Monitoring
 - Broad-based evaluation of overall audit and inspection program to better focus on operational activities
 - 2/92: Combined Quality Engineering and Quality Control functions
 - Reorganized Audit and Monitoring functions
 - 2/92: Established dedicated group to oversee Unit 1 and 3 recovery activities

VII. FUNCTIONAL AREA - SAFETY ASSESSMENT/ QUALITY VERIFICATION (CONT.)

Areas for Further Improvement

- Implementation of Improved Standard TS (ISTS)
 - Completed preliminary screening of Unit 2 TS to identify requirements to be retained or relocated
 - 6/92: Begin first draft of Unit 2 ISTS (start Units 1 and 3 approximately 3 months later)
 - 10/93: Anticipated submittal of Unit 2 ISTS to NRC (Units 1 and 3 approximately 6 months later)
 - Plan to implement all three units at the same time

- Increasing Self-Critical Nature of Incident Investigations

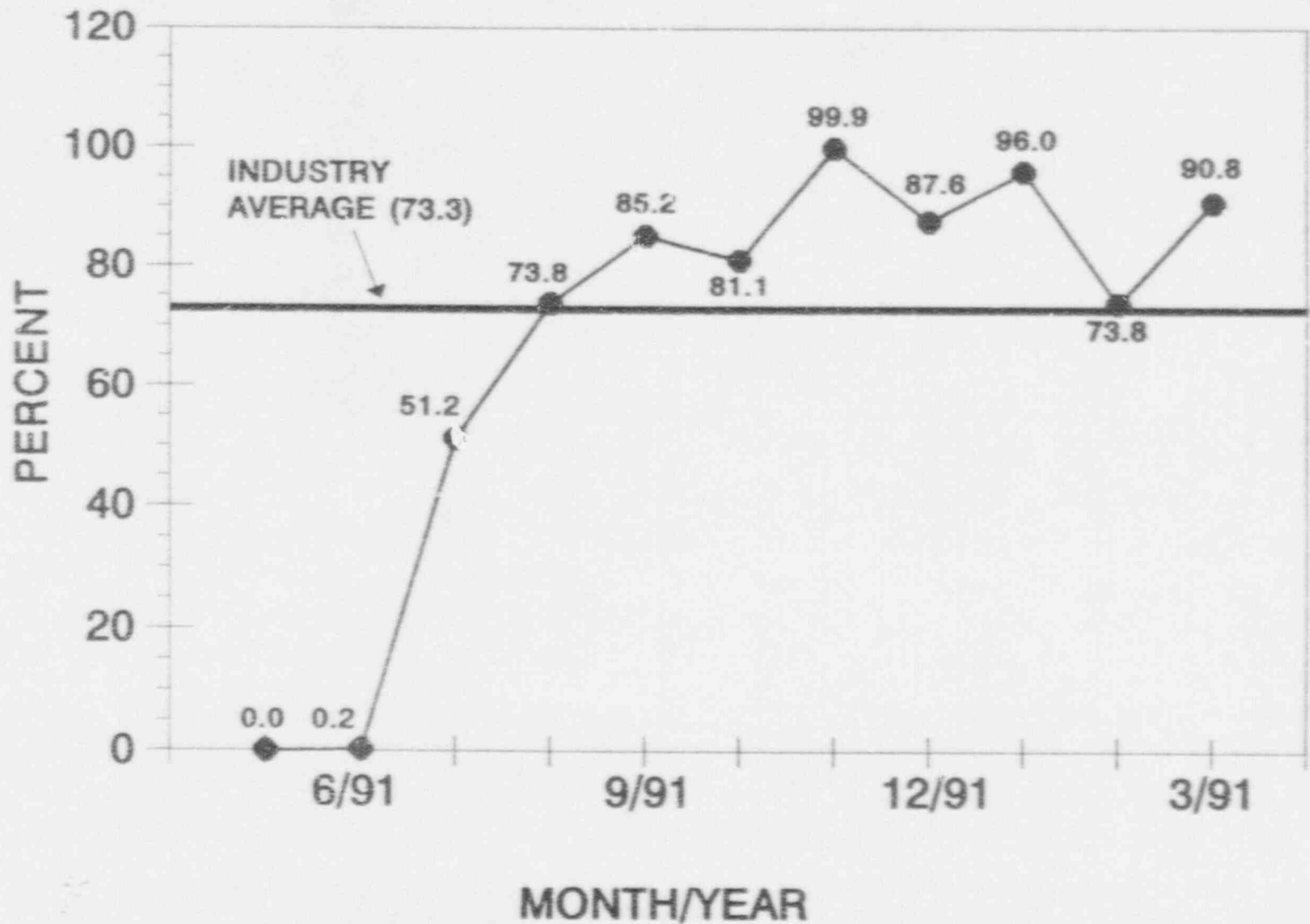
- QA Staff Qualification Upgrades
 - Programmatic improvements to enhance training, qualification, and objectivity of site QA personnel
 - Rotational assignment program
 - Cross-training
 - Observational training program

VII. FUNCTIONAL AREA -
SAFETY ASSESSMENT/
QUALITY VERIFICATION (CONT.)

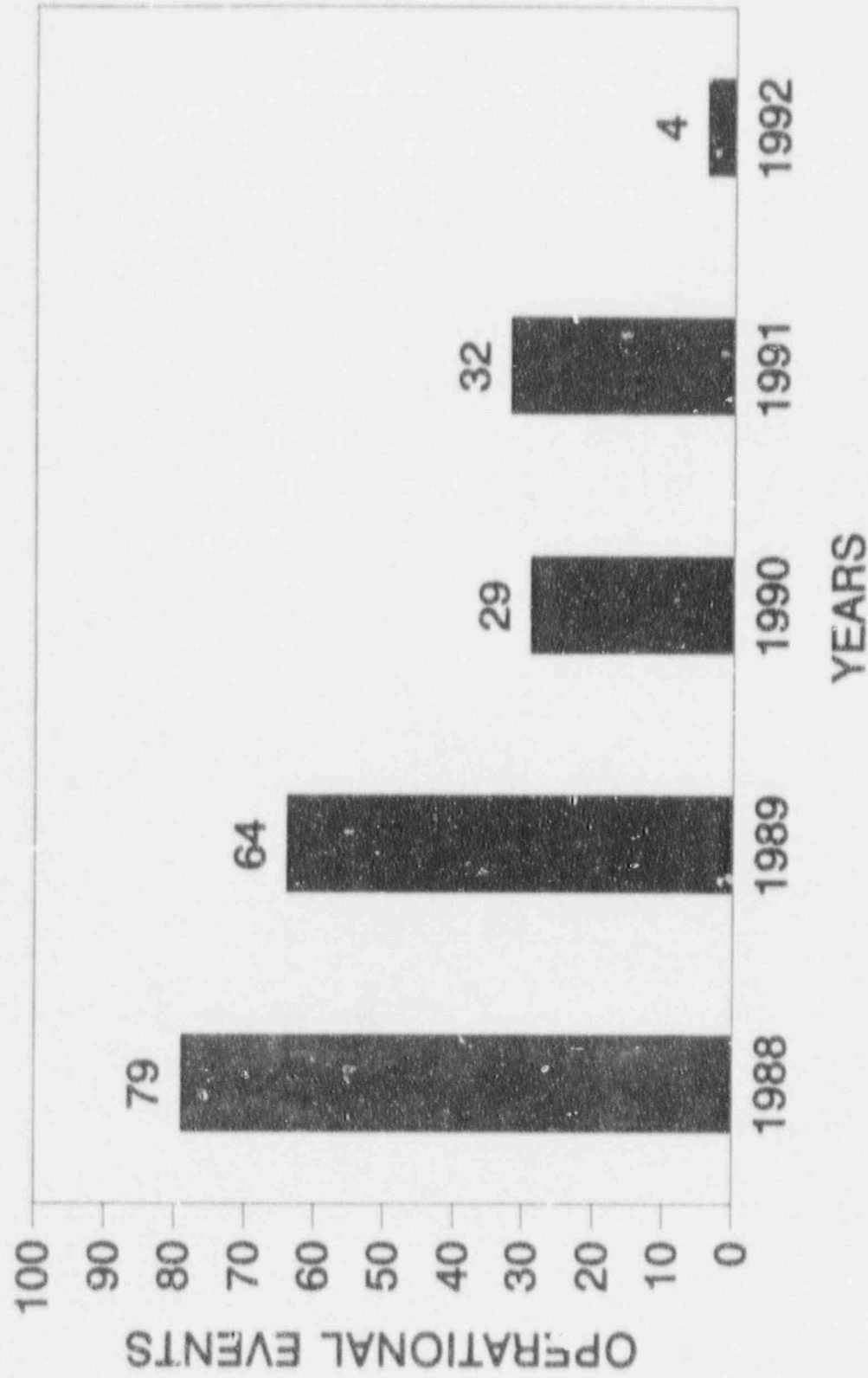
Areas for Further Improvement (Cont.)

- Enhance Performance Trending
 - Trend report using SALP functional area format and standardized evaluation criteria has been developed
 - Performance against each criteria, and overall performance in each functional area, is evaluated as a significant weakness, needing improvement, satisfactory, or a significant strength
 - Cooperative effort between corporate and site QA
 - First trend report issued 3/92
 - Will allow better trending of performance

BROWNS FERRY NUCLEAR PLANT EQUIVALENT AVAILABILITY FACTOR

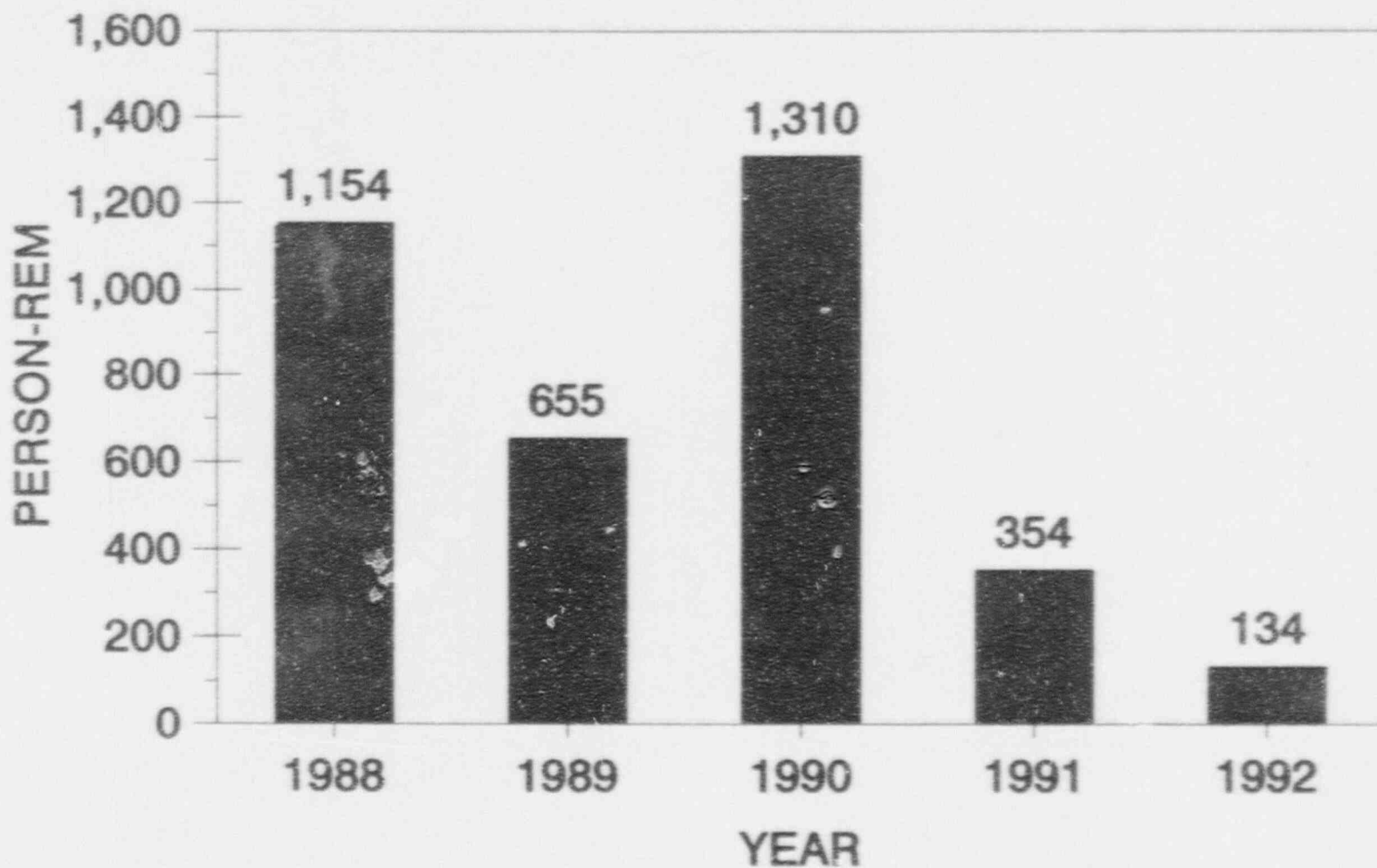


BROWNS FERRY NUCLEAR PLANT OPERATIONAL EVENTS



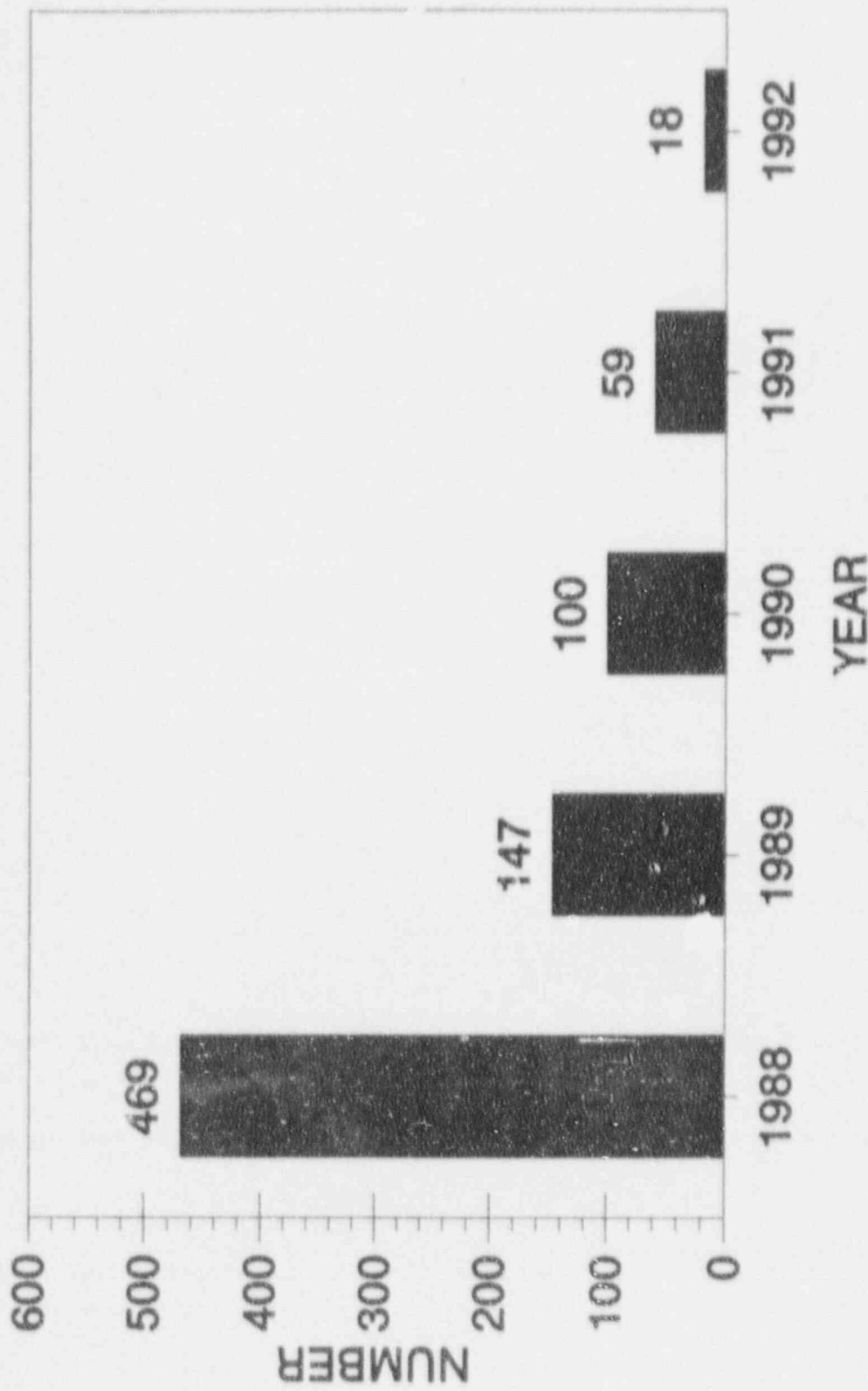
1992 DATA THROUGH MARCH 31, 1992

BROWNS FERRY NUCLEAR PLANT PERSON-REM EXPOSURE



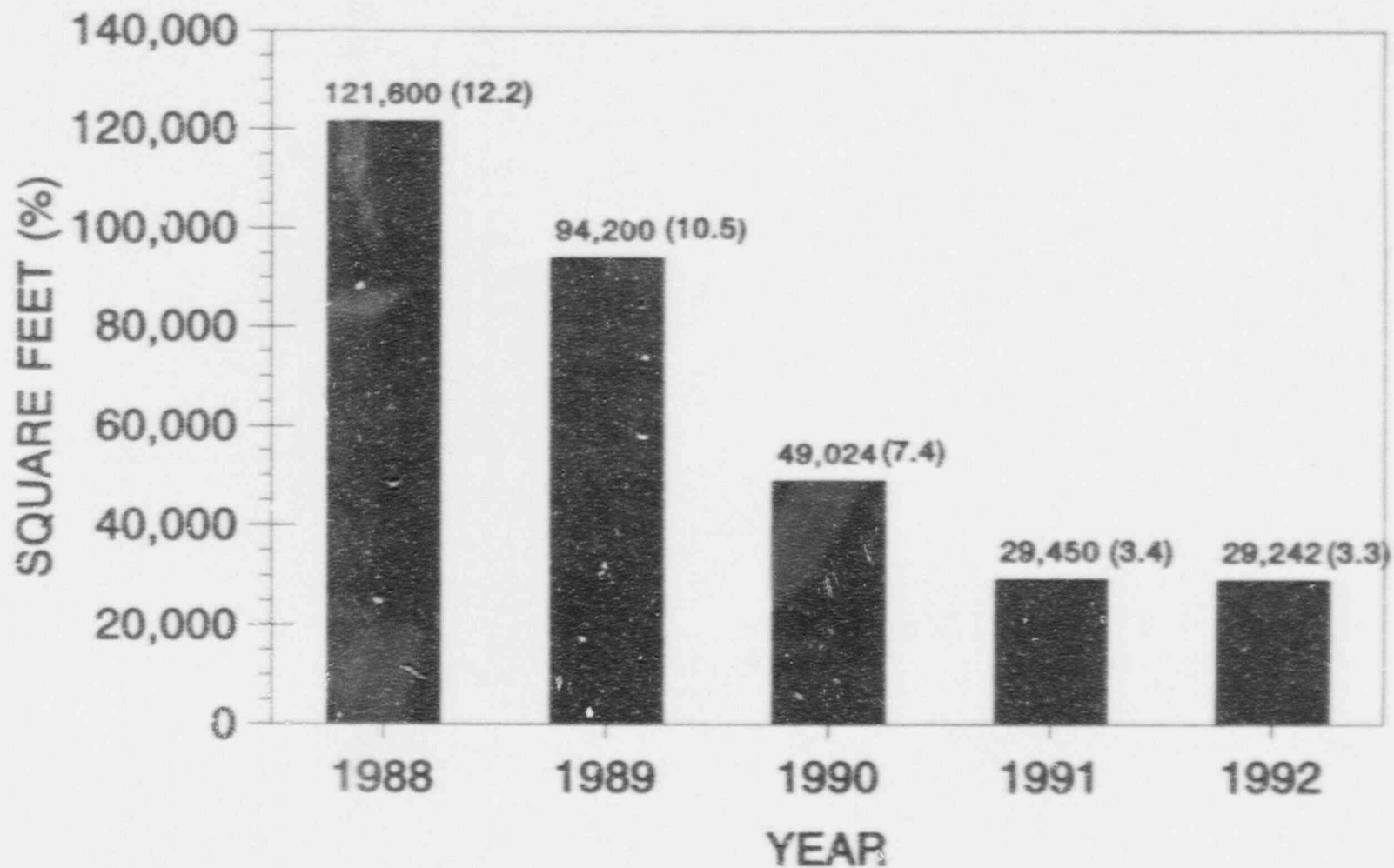
1992 DATA THROUGH MARCH 31, 1992

BROWNS FERRY NUCLEAR PLANT PERSONNEL CONTAMINATIONS



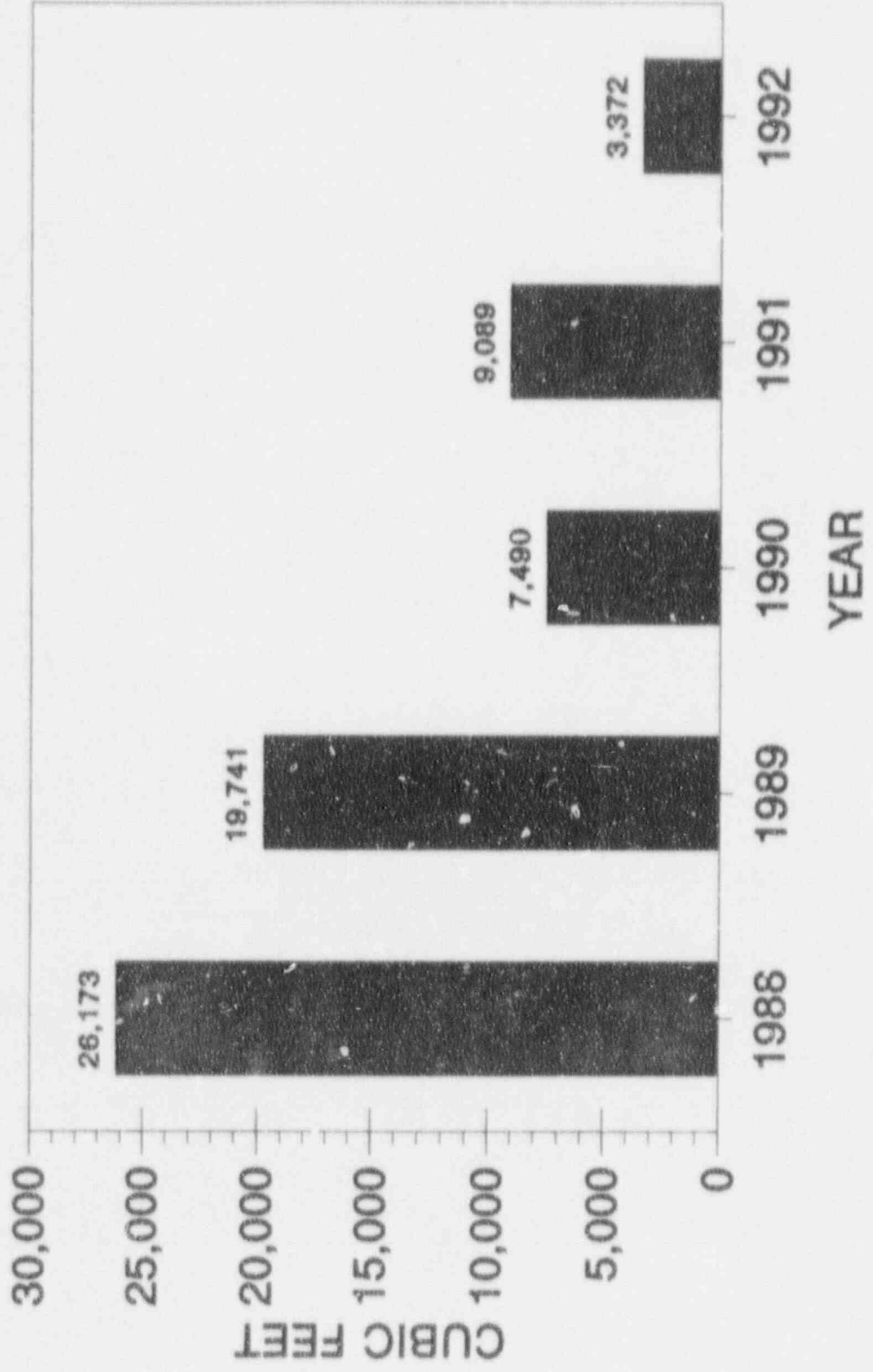
1992 DATA THROUGH MARCH 31, 1992

BROWNS FERRY NUCLEAR PLANT CONTAMINATED AREA



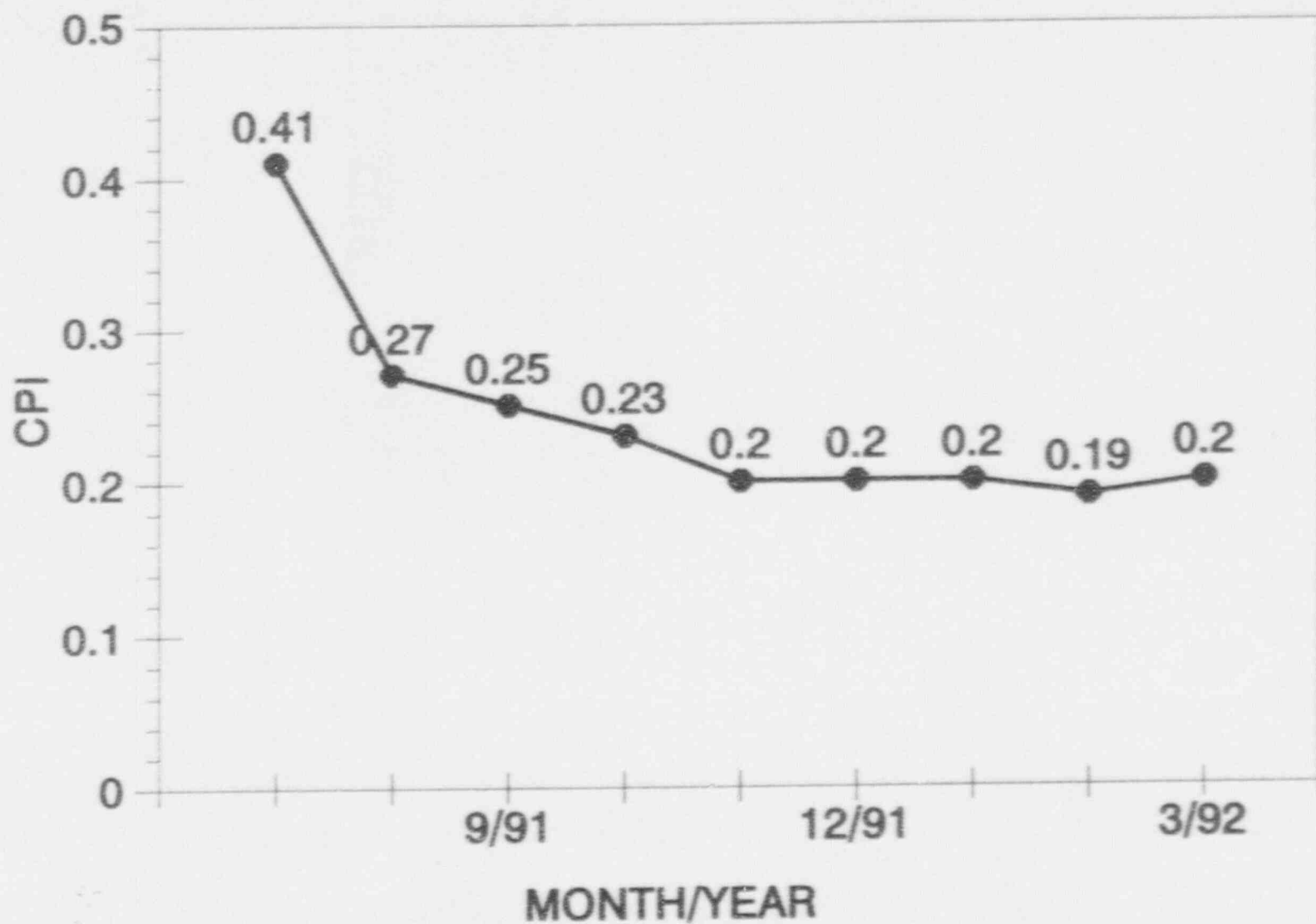
1992 DATA THROUGH MARCH 31, 1992

BROWNS FERRY NUCLEAR PLANT RADIOACTIVE WASTE SHIPPED OFFSITE

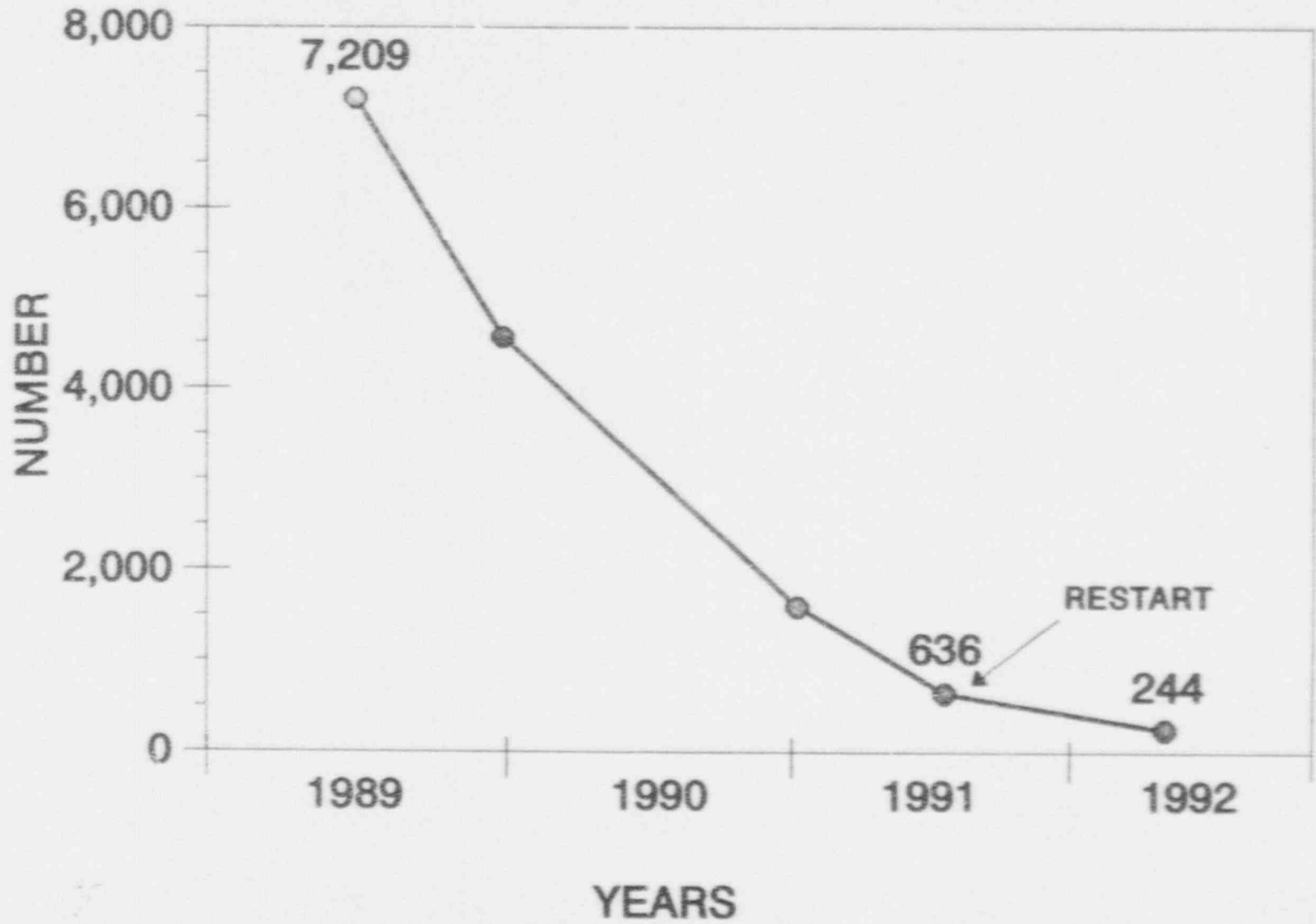


1992 DATA THROUGH MARCH 31, 1992

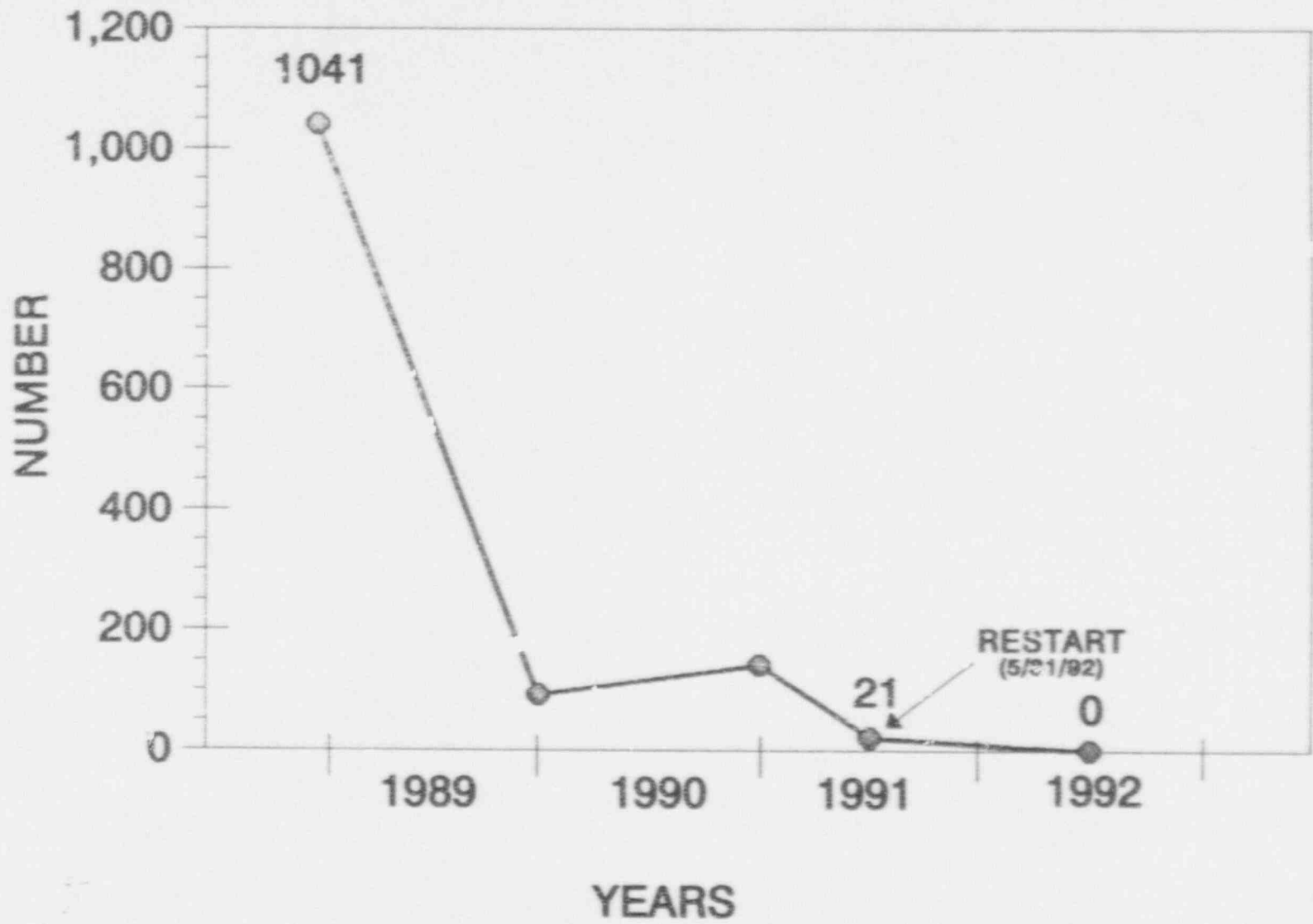
BROWNS FERRY NUCLEAR PLANT CHEMISTRY PERFORMANCE INDEX (CPI)



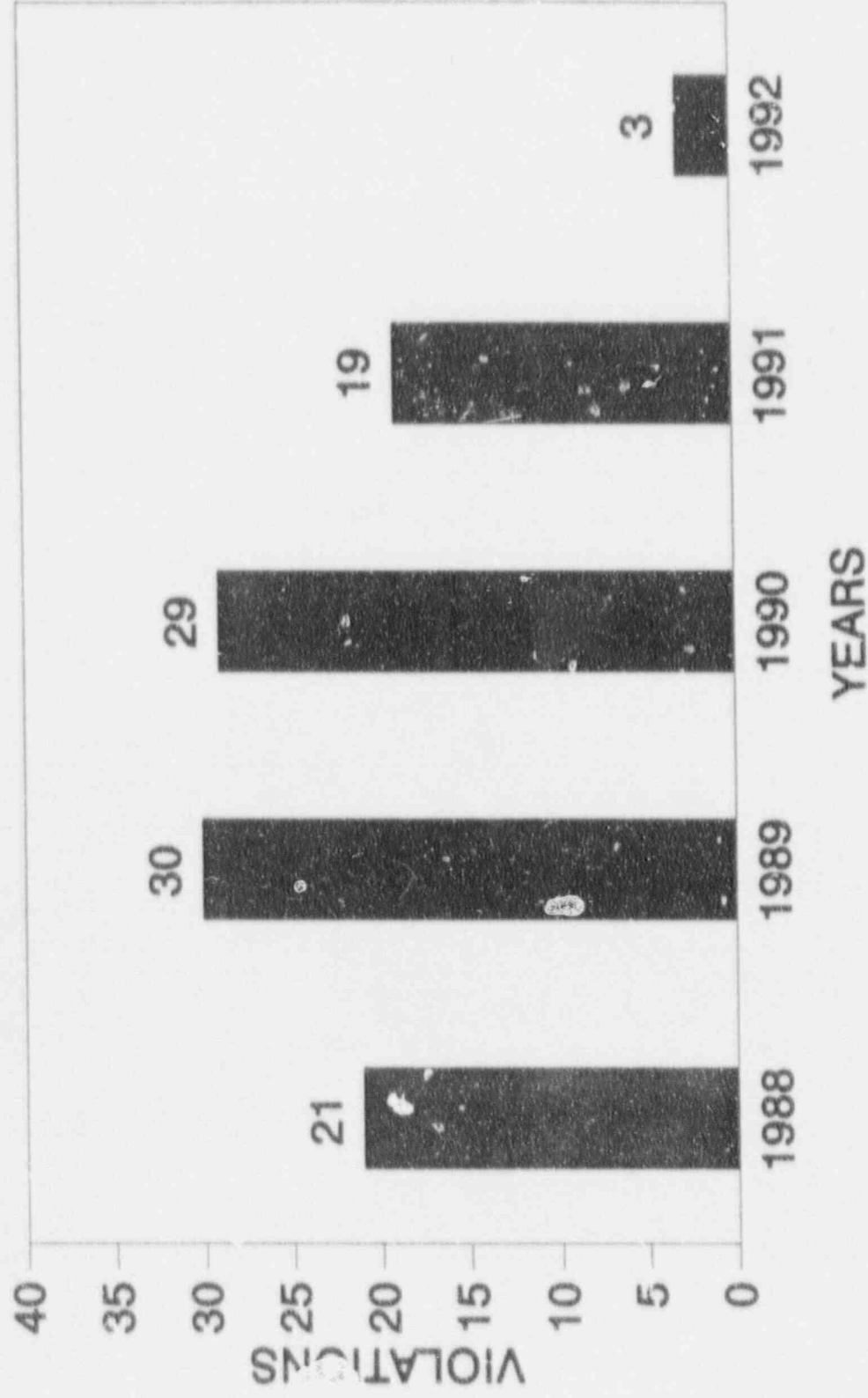
BROWNS FERRY NUCLEAR PLANT CORRECTIVE MAINTENANCE BACKLOG



BROWNS FERRY NUCLEAR PLANT LATE PREVENTATIVE MAINTENANCE ITEMS

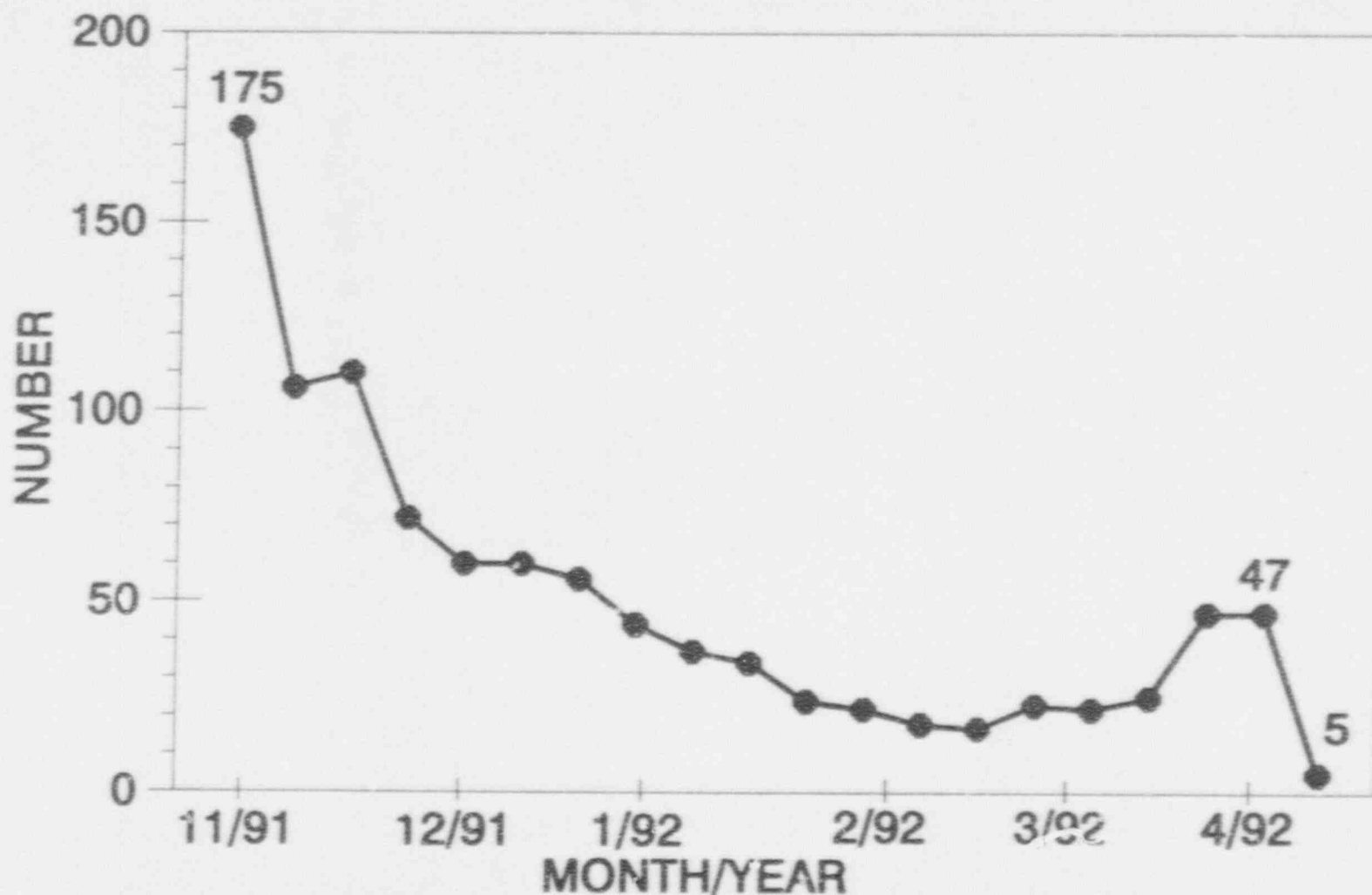


BROWNS FERRY NUCLEAR PLANT VIOLATIONS



1992 DATA THROUGH MARCH 31, 1992

BROWNS FERRY NUCLEAR PLANT SITE ADMINISTRATIVE SCHEDULE - LATE ITEMS



SCHEDULE INCLUDES CORRECTIVE ACTIONS, INCIDENT INVESTIGATIONS, COMMITMENTS, OPEN ITEMS, NUCLEAR EXPERIENCE REVIEW ITEMS, AND OTHERS.