

ENCLOSURE 1

NOTICE OF VIOLATION

Tennessee Valley Authority  
Sequoyah Nuclear Plant Unit 1

Docket No. 50-327  
License No. DPR-77  
EA 92-006

During an NRC inspection conducted on December 8, 1991 - January 4, 1992 a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1591), the violation is identified below:

Technical Specifications (TS) 6.8.1 requires that written procedures be established, implemented and maintained for applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Quality Assurance Program Requirements, Revision 2, February 1978. Appendix A to Regulatory Guide 1.33 requires that administrative procedures be established to ensure that maintenance that can affect the performance of safety-related equipment be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

Contrary to the above, on or before December 15, 1991 procedures were not properly established or implemented as indicated by the following examples:

- (1) Administrative Instruction AI-37, Independent Verification, Revision 6, section 2.2.2 states that independent verification is not required if a second-party verification and a functional test are performed in accordance with approved work requests. Section 2.2.2 further notes that care should be taken to ensure that testing does, in fact, verify each component under consideration. The functional test assigned to be performed with second party verification was not adequate to ensure Main Steam Isolation Valve (MSIV) operability. This resulted in a failure to adequately conduct single train testing to verify the proper removal of the jumpers.
- (2) Administrative Instruction AI-37, Independent Verification, Revision 6, section 6.2, details specific qualification requirements for those individuals assigned to perform an independent verification. AI-37 was inadequate in that it did not specify any qualification requirements for those personnel performing second party verifications. Individuals involved in the jumper removal evolution were unsure what actions or requirements were associated with second party verification.
- (3) Site Standard Practice, SSP-6.25, Maintenance Management System Performance of Work Orders, Revision 0, Section 3.2.B, requires that the individuals assigned to perform maintenance maintain work instructions at the work location when maintenance activities are being performed. On November 16, 1991, the individuals who were assigned to remove the jumpers failed to maintain work instructions at the job location as required by SSP-6.25.

- (4) Site Standard Practice, SSP-6.25, Maintenance Management System Performance of Work Orders, Revision 0, section 3.2.C, requires that individuals performing maintenance activities follow work instructions. On November 16, 1991, the individuals who removed the jumpers did not perform the work in accordance with the work order instruction in that they failed to remove the specific jumpers identified on the four configuration control log sheets.

The preceding violations of Technical Specification 6.8.1 resulted in a violation of Technical Specification 3.3.2.1, Action b for the Main Steam Isolation Valves A train Engineered Safety Features Actuation System from December 11 at 1046 hours until December 15 at 0009 hours.

This is a Severity Level IV (Supplement 1) Violation applicable to Unit 1 only.

Pursuant to the provisions of 10 CFR 2.201, the Tennessee Valley Authority (Licensee) is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector, Sequoyah within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an order or demand for information may be issued as to why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Where good cause is shown, consideration may be given to extending the response time.

Dated at Atlanta, Georgia  
this 6th day of February, 1992

ENCLOSURE 2

**TVA/NRC ENFORCEMENT CONFERENCE**

**SEQUOYAH NUCLEAR PLANT**

**IR 50-327, 328/91-31**

**January 29, 1992**

# TVA/NRC ENFORCEMENT CONFERENCE

## AGENDA

- |      |                                   |               |
|------|-----------------------------------|---------------|
| I.   | INTRODUCTION/OVERVIEW             | D. A. NAUMAN  |
| II.  | MANAGEMENT INVOLVEMENT            | J. L. WILSON  |
| III. | DISCUSSION OF THE EVENT           | R. J. BEECKEN |
| IV.  | DISCUSSION OF SPECIFIC VIOLATIONS | R. J. BEECKEN |
|      | A. SCOPE OF VIOLATIONS            |               |
|      | B. ROOT CAUSE(S)                  |               |
| V.   | CORRECTIVE ACTIONS                | R. J. BEECKEN |
| VI.  | ASSESSMENT OF VIOLATIONS          | M. O. MEDFORD |
| VII. | CONCLUSIONS                       | J. L. WILSON  |

## I. INTRODUCTION / OVERVIEW

- Failure To Remove The MSIV Jumpers Installed On The A Train Was The Result Of Individuals' Noncompliance With Plant Procedures And Processes
- Performance Was Unacceptable
- TVA Is Obligated To Control Its Workforce
- Overall Accountability, Effectiveness And Oversight Must Be Further Strengthened
- Overall Site Personnel Performance Improvements Are Showing Results
- A Maintenance Supervisor Performance Program Based On Browns Ferry Results Is Being Developed
- Questioning Attitude And Aggressive Licensee Actions Led To Discovery

## II. MANAGEMENT INVOLVEMENT

### PRIOR TO DISCOVERY OF JUMPERS

- Extensive, Early Management Involvement Prior To Discovery of MSIV Jumpers Re: The Initial Problem (Increased Stroke Time Under Dual Train Testing)
- Operability Issues Promptly Addressed
- Management/Operations Plan Developed
- Plant Not Allowed To Go To Mode 2 Until The Issue Was Resolved
- TVA Exhibited A Questioning Attitude And Followed Through Until The Underlying Deficiency Had Been Assessed And Resolved

## II. MANAGEMENT INVOLVEMENT (CONT'D)

### SUBSEQUENT TO DISCOVERY OF JUMPERS

- Management Promptly Informed Of Problem
- Hold On Mode 2 Established
- Incident Investigation Initiated
- Senior Management On-Site
- Assessment of Whether Broader Problems Existed
  - Review Of Dual Train PMT Component Adequacy
  - Electrical Maintenance Safety-Related Work Activities
  - Interim Direction Provided To Prevent Recurrence
- Maintenance Manager Briefings Held With Oncoming Shifts

Management Actions Were Prompt, Prudent, And Focused On Safety



### III. DISCUSSION OF THE EVENT

#### CHRONOLOGY

- 10/28/91 Work Order (WO) Approved To Change The Packing Of The Unit 1 MSIV. (Unit 1 Was In Mode 6, Refueling)
- 11/13/91 WO Was Replanned To Open The MSIVs Locally By Installing Electrical Jumpers In The Circuit
- 11/14/91 Unit 1 Entered Mode 5, Cold Shutdown  
2000 EST
- 11/14/91 Work Began On WO. Eight Jumpers Were Installed; One In Each MSIV A and B Train Circuit
- 11/16/91 Four B Train Jumpers Were Removed, And The Valves Stroked. The WO Was Signed Off As Complete
- 12/6/91 The PMT Was Performed To Verify The MSIV Valve Stroke Time In Accordance With Technical Specification 3.7.1.5

Packing Adjusted/Replaced; Vent Ports Adjusted

Final Stroke Times Were Greater Than Those Experienced In The Past -- Close To 5 Seconds



### III. DISCUSSION OF THE EVENT (CONT'D)

#### CHRONOLOGY (CONT'D)

- 12/11/91 Unit 1 Entered Mode 3, Hot Standby  
1046 EST
- 12/11/91 Shortly After The Unit Entered Mode 3, A Problem Evaluation Report (PER) Was Presented To Management; Hold Established On Mode 2 Pending Resolution
- 12/14/91 A Special Test Was Performed And Showed That The B Train Transfer Switches Resulted In Valve Closure, But The A Train Transfer Switches Did Not Result in Closure Of The Valves
- 12/14/91 Operations Was Notified; All Four MSIVs Declared Inoperable. Action Statements for  
2239 EST LCOs 3.7.1.5 and 3.0.3 Were Entered
- 12/15/91 The Jumpers Were Removed, And Testing Completed. LCO 3.0.3 Exited  
0009 EST
- 12/15/91 LCO 3.7.1.5 Exited  
0120 EST
- 12/15/91 NRC Notified Pursuant To 10 CFR 50.72(B)(2)(i) of Condition Found While Shutdown ....  
0125 EST
- 12/15/91 Hold Established On Mode 2 Pending Results of Investigation

## IV. DISCUSSION OF SPECIFIC VIOLATIONS

### VIOLATION I

#### Part A - Procedures

##### SSP-6.25 - Maintenance Management System

- Failure To Have Work Instruction At The Work Location
- Failure To Follow Work Instructions

##### AI-37 - Independent Verification

- Incorrect Verification Type Specified For PMT
  - PMT Application Is Issue, Not Verification
- Qualification For Second Party Verification Not Specified
  - Individuals' Noncompliance Is Issue, Not Qualification

#### Part B - Technical Specifications

##### Technical Specification 3.3.2.1 And 3.7.1.5

- Train A Actuation Circuitry Of MSIVs Was Not Operable And Was Not Restored Operable Within The LCO

## IV. DISCUSSION OF SPECIFIC VIOLATIONS (CONT'D)

### VIOLATION II

#### Corrective Actions Taken For Previous Events Did Not Prevent This Event

- Corrective Actions For Subject LERs Were Reasonable And Appropriate
- Event Resulted From Failure To Follow Procedures And Incorrect Application Of PMT

## IV. DISCUSSION OF SPECIFIC VIOLATIONS (CONT'D)

### VIOLATION II (CONT'D)

#### LER 1-91005, D/G CO<sub>2</sub> Rolled Leads

- Event Occurred In April 1990; Discovered In March 1991
- Permanent And Temporary Personnel Involved
- Ineffective Verification Contributed Because Error Was Not Identified
- AI-37 Reviewed And Determined Not To Have Contributed To The Event
- Event And Importance Of Verification Reviewed
  - With Involved Individuals
  - Electrical Maintenance
  - Site Population Via Site Dispatch

## IV. DISCUSSION OF SPECIFIC VIOLATIONS (CONT'D)

### VIOLATION II (CONT'D)

#### LER 1-91017, Inoperable Containment Radiation Monitor

- Event Occurred And Discovered In July 1991
- Chemistry Personnel Did Not Correctly Verify Valve Position
- Task Was Considered To Be Frequent And Routine; Therefore Procedure Not Required In Field
- Incorrectly Installed Filter Prevented PMT From Identifying Valve Problem
- Chemistry Approach To Work Activities Revised
  - Involved Personnel Counseled on Self-Verification
  - Chemistry Procedures Revised
- Broader Performance Improvements Pursued As Part Of "C54" Activities

## IV. DISCUSSION OF SPECIFIC VIOLATIONS (CONT'D)

### Root Cause

- Failure To Follow Procedures

### Contributing Factors

- Inadequate Attention Given To The Additional Amount Of Information And Additional Attention That Must Be Provided To Temporary Workers
- Inadequate Assessment Of The Technical Characteristics Of The MSIV Dual Train Features During Development And Assignment Of The PMT
- Human Factors Weaknesses In The Work Order In That One Entry Was Listed For Multiple Jumpers

## V. CORRECTIVE ACTIONS

### IMMEDIATE CORRECTIVE ACTIONS

- Jumpers Removed From Train A
- Inspected Unit 2 MSIVs For Jumpers
- Preliminary Incident Investigation Performed Before Unit Taken To Criticality
  - Review Of Dual Train PMT Component Adequacy
  - Electrical Maintenance Safety-Related Work Activities
  - Interim Direction Provided To Prevent Recurrence
- Briefings On The Event Presented To Oncoming Maintenance Shifts
- Reinforced Ramifications Of Failing To Satisfy Job Requirements



## V. CORRECTIVE ACTIONS (CONT'D)

### SHORT-TERM CORRECTIVE ACTIONS

- Appropriate Disciplinary Actions Taken For Personnel Involved
- Additional Briefing Of Maintenance Personnel On (1) Attention To Detail, (2) Procedure Compliance, and (3) Pre-Job Briefings
- Reinforcement Of Expectation That Foremen And General Foremen Understand The Event And Its Cause

## V. CORRECTIVE ACTIONS (CONT'D)

### ONGOING/LONG-TERM CORRECTIVE ACTIONS

#### Administrative

- Prohibit Temporary Workers From Approving/Verifying Work Performed
- Develop Long-Term Controls For Temporary Staff Augmentation Personnel
- Implement Professional Contract Management For Staff Augmentation
- Supervisory And Personnel Development Training
- Communicate Employee Responsibilities and Accountabilities
- Provide Cascading Training On Verification Requirements And Configuration Control Enhancements To Reinforce Staff Performance
- Enhance Clarity of AI-37

#### Technical

- Strengthen Testing For Dual Train Actuation Devices
- Implement Specific Lifted Lead/Jumper Log Controls
- Review Procedures To Ensure That Appropriate PMT And Verification Is Specified

## V. CORRECTIVE ACTIONS (CONT'D)

### PREVIOUS/ONGOING PERFORMANCE IMPROVEMENT INITIATIVES

#### Related

- Management Effectiveness Initiatives (Including Maintenance)
  - Sitewide Communications Campaign
  - Employee Recognition Program
- Team Training In Maintenance
- Professional Contract Management

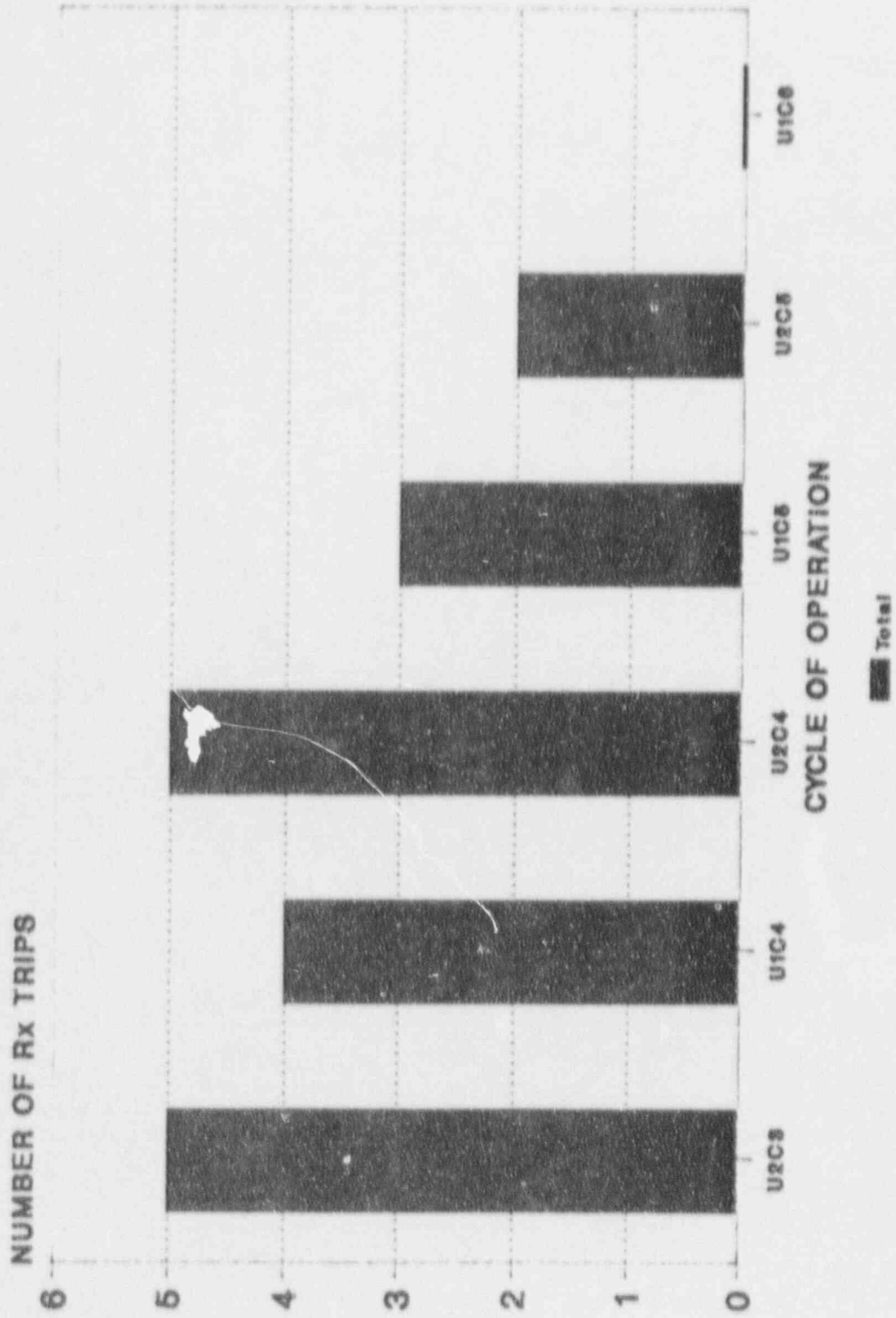
#### Other

- Operations Performance Improvements
- Reactor Engineering Upgrade

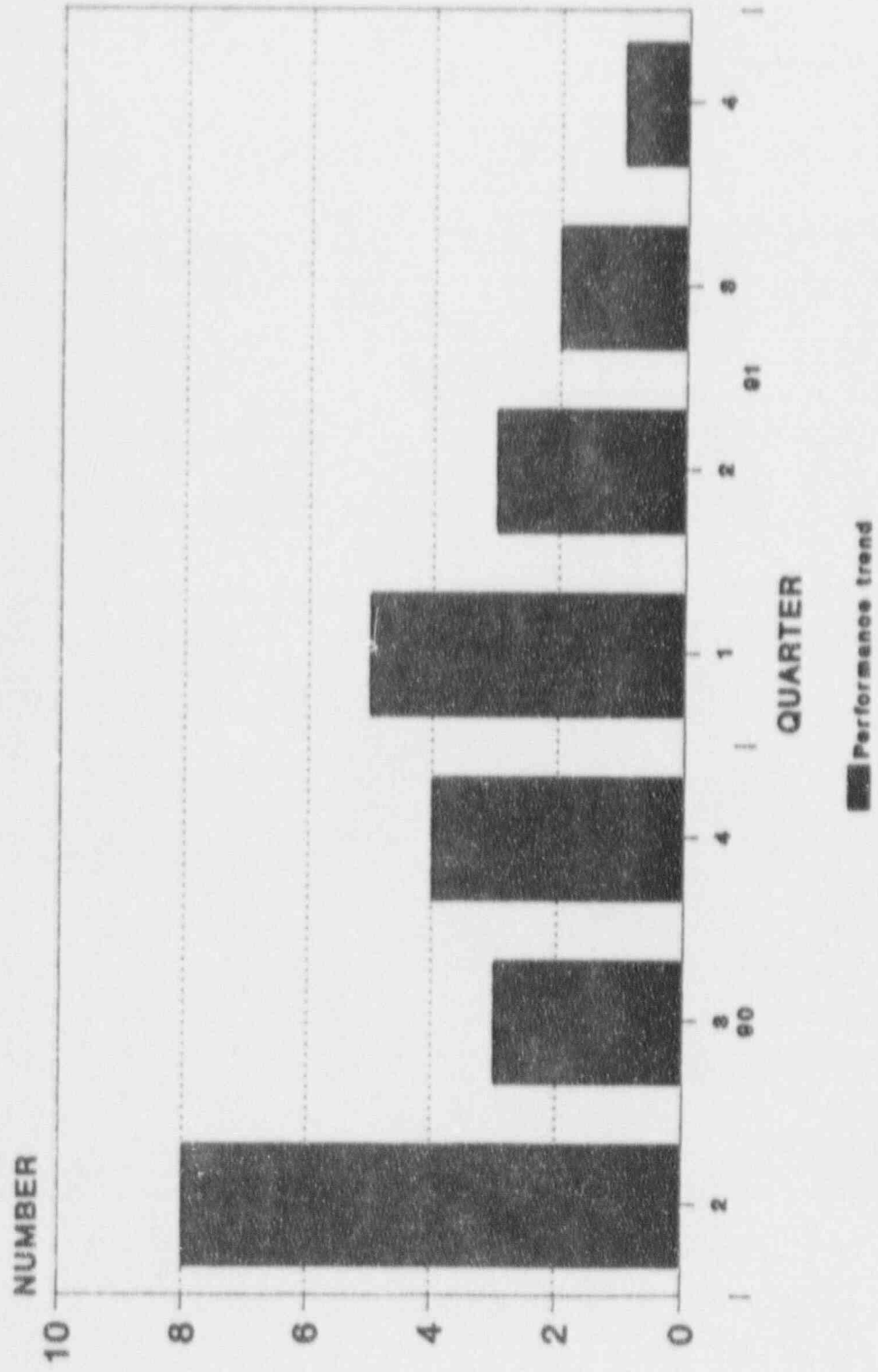
#### Results to Date

- Reduction In Reactor Trips And Reactivity Mismanagement Events
- Reduction In Reportable Events Related to Performance
- Improved Operations Performance
- Overall Personnel Performance Improvements

# SQN REACTOR TRIP PERFORMANCE



# SQN LERS ATTRIBUTED TO PERSONNEL PERFORMANCE PROBLEMS



## V. CORRECTIVE ACTIONS (CONT'D)

### AREAS OF NEAR TERM FOCUS

- Supervisory And Personnel Development Training
- Contract/Temporary Personnel Controls
- Nonlicensed Operator Performance
- Process Human Factors Enhancements

## VI. ASSESSMENT OF VIOLATIONS

### SAFETY SIGNIFICANCE

- Presence Of Jumpers Made The Plant Vulnerable To One Specific Scenario - Failure Of Train B SSPS Coincident With MSLB
- MSLB Evaluated Using Actual Conditions
  - BOL Core Conditions - Borated - Mode 3
  - Limiting Single Failure (Train B SSPS Failure)
  - Conclusions Were Acceptable - Within FSAR Analysis
  - Core Would Remain Subcritical - DNBR Limit Not Exceeded
- Operator Actions To Manually Isolate MSIVs Would Have Reasonably Been Taken And Would Further Limit Event
- Event Has Limited Safety Significance, But Regulatory Significance Recognized



## VI. ASSESSMENT OF VIOLATIONS (CONT'D)

### REGULATORY SIGNIFICANCE

- The Failure To Comply With Tech Specs Was Direct Result Of Failure To Follow Procedures
- Aggressive Licensee Actions Point To Improvements In Site Performance Standards
- Failures Are Not Considered Representative Of Site Performance Standards; The Ongoing Site Performance Improvement Efforts Are Showing Improvements
- Previous Corrective Action Issue Is Not Supported By The Facts, Should Not Result In Escalated Enforcement, And Should Be Considered Separate From The Procedure And Tech Spec Issues
- Notwithstanding The Above, This Type Of Performance Cannot And Will Not Be Tolerated By TVA

## VII. CONCLUSIONS

- Event Resulted From Individuals' Failure To Follow Procedures
- Regulatory Significance Recognized
- Event Identified, Reported and Promptly Acted On By TVA
- Underlying Issues Aggressively Pursued By TVA
- TVA Is Committed To Continued Performance Improvement

ENCLOSURE 3

LIST OF ATTENDEES

Nuclear Regulatory Commission

Regional Administrator  
Director, Division of Reactor Projects, (DRP)  
Project Directorate II-4  
Director, Enforcement and Investigation  
Staff, (EICS)  
E. W. [redacted], Deputy Director, Division of Reactor Safety  
J. R. [redacted], Deputy Director, DRP  
B. A. [redacted], Branch Chief, DRP  
C. A. [redacted], Acting Section Chief, DRP  
E. Holland, Senior Resident Inspector, DRP  
D. F. [redacted] Barge, Senior Project Manager  
C. [redacted] Evans, Regional Counsel  
B. Uryc, Senior Enforcement Specialist, EICS  
R. D. McWhorter, Resident Inspector, DRP

By telephone:

W. Troskoski, Acting Deputy Director, Office of Enforcement

Tennessee Valley Authority

D. A. Nauman, Senior Vice President, Nuclear Power  
J. R. Bynum, Vice President, Nuclear Operations  
M. O. Medford, Vice President, Nuclear Assurance, Licensing and Fuels  
J. L. Wilson, Vice President, Sequoyah  
R. J. Beecken, Plant Manager, Sequoyah  
M. A. Cooper, Site Licensing Manager  
R. L. Lumpkin, Site Quality Manager  
J. P. Maciejewski, Quality Manager  
R. H. Bryan, Manager, NSSS & Analysis  
L. Bryant, Maintenance Manager  
D. McKinley, Reactor Operator  
J. R. Willis, Section Supervisor  
J. Symonds, Modifications Field Supervisor  
S. Emert, Planning Supervisor  
F. H. Amburn, General Foreman