September 24, 1996

Tennessee Valley Authority
ATTN: Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: MEETING SUMMARY - SEQUOYAH NUCLEAR PLANT, DOCKET NOS. 50-327, 50-328

Dear Mr. Kingsley:

On September 18, 1996, the NRC staff met at the Sequoyah Nuclear Plant with representatives of the Tennessee Valley Authority's Sequoyah Nuclear Plant staff. The purpose of this meeting was for the NRC to present the results of the Systematic Assessment Licensee Performance report. Enclosure 1 is a list of the individuals who attended the meeting, and Enclosure 2 contains a copy of the material supplied by the NRC at the meeting.

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,

Original Signed by
M. S. Lesser

Mark S. Lesser, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos. 50-327, 50-328
License Nos. DPR-77, DPR-79

Enclosures: 1. List of Attendees
2. Handout Material

cc w/encls: (See page 2)

030041

IE45

cc w/ encl:
Mr. O. J. Zeringue, Senior Vice President
Nuclear Operations
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dr. Mark O. Medford, Vice President
Technical Services
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. R. J. Adney, Site Vice President
Sequoyah Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Soddy Daisy, TN 37379

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

Mr. R. R. Baron, General Manager
Nuclear Licensing
4G Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Ralph H. Shell
Site Licensing Manager
Sequoyah Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Soddy Daisy, TN 37379

TVA Representative
Tennessee Valley Authority
One Massachusetts Avenue
Suite 300
Washington, DC 20001

Mr. Michael H. Mobley, Dir.
Div., of Radiological Health
3rd Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1532

County Judge
Hamilton County Courthouse
Chattanooga, TN 37402-2801

Distribution w/encls: (See page 3)

Distribution w/encls:
E. W. Merschoff, RII
M. S. Lesser, RII
S. E. Sparks, RII
F. J. Hebdon, NRR
R. W. Hernan, NRR
H. L. Whitener, RII
C. F. Smith, RII
D. H. Thompson, RII
J. H. Moorman, RII
D. W. Jones, RII
PUBLIC

NRC Resident Inspector
U. S. Nuclear Regulatory Commission
2600 Igou Ferry
Soddy-Daisy, TN 37379

NRC Resident Inspector
U. S. Nuclear Regulatory Commission
1260 Nuclear Plant Road
Spring City, TN 37381

OFFICE	DRP/RII					
SIGNATURE	SSparks					
NAME	SSparks.vyg					
DATE	09 / 19 / 96	09 / / 96	09 / / 96	09 / / 96	09 / / 96	09 / / 96
COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\BR6.SQ\SALPPRES.SUM

LIST OF ATTENDEES

NRC

S. D. Ebneter, Regional Administrator, Region II (RII)
J. R. Johnson, Acting Director, Division of Reactor (DRP), RII
M. S. Lesser, Branch Chief, Reactor Project Branch 6, DRP, RII
M. C. Shannon, Senior Resident Inspector, Branch 6, DRP, RII
R. D. Starkey, Resident Inspector, Branch 6, DRP, RII
F. J. Hebdon, Director, Project Directorate II-3, Office of Nuclear Reactor Regulation (NRR)
R. W. Hernan, Senior Licensing Project Manager, NRR
K. M. Clark, Public Affairs Officer, RII

Licensee Attendees:

O. D. Kingsley, President, TVA Nuclear and Chief Nuclear Officer
M. O. Medford, Vice President, Engineering and Technical Services
R. J. Adney, Site Vice President
R. R. Baron, General Manager, Nuclear Assurance and Licensing
W. Lagergren, Acting Operations Manager
R. Rausch, Maintenance and Modifications Manager
R. F. Driscoll, Training Manager
M. J. Fecht, Nuclear Assessment and Licensing Manager
M. Burzynski, Engineering and Materials Manager
R. H. Shell, Site Licensing Manager
K. E. Meade, Compliance Licensing Manager
J. Smith, Regulatory Licensing Manager
J. Summy, Assistant Plant Manager
N. Catron, Emergency Planning Manager
J. R. Rupert, Engineering and Site Support Manager
J. Reynolds, Operations Supervisor
D. R. Cooper, Outage Management
L. Bryant, Outage Management
C. Kent, RadChem Manager
R. W. Harrington, Electrical Maintenance Manager
K. W. Whittenburg, Communications

Other Attendees:

J. M. Cannon, Hamilton County Emergency Services
T. Holden, Tennessee Emergency Management Agency
J. Cannon, Tennessee Emergency Management Agency

Enclosure 1

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP)

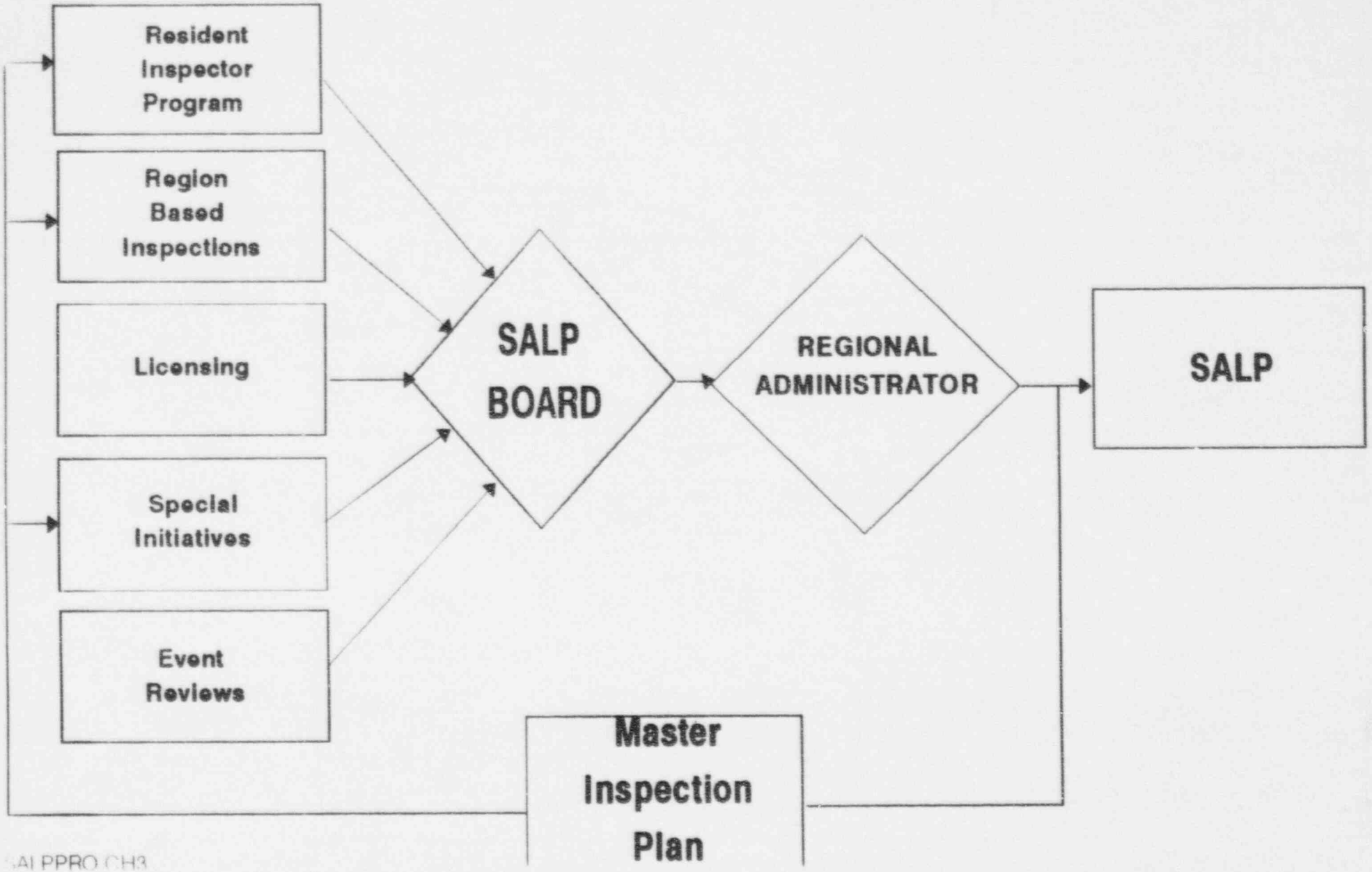
SEQUOYAH NUCLEAR PLANT - UNITS 1&2

APPRAISAL PERIOD: January 8, 1995 through July 27, 1996

PRESENTATION
September 18, 1996

Enclosure 2

SALP PROCESS



SEQUOYAH NUCLEAR PLANT
SALP BOARD MEMBERS

- JON JOHNSON: Acting Director
  Division of Reactor Projects
  Region II

- AL GIBSON: Director
  Division of Reactor Safety
  Region II

- FRED HEBDON: Director
  Project Directorate II-3
  Office of Nuclear
  Reactor Regulation

PERFORMANCE CATEGORY RATINGS

Category 1. Licensee attention and involvement have been properly focused on safety and resulted in a superior level of performance. Licensee programs and procedures have provided effective controls. The licensee's self-assessment efforts have been effective in the identification of emergent issues. Corrective actions are technically sound, comprehensive, and thorough. Recurring problems are eliminated, and resolution of issues is timely. Root cause analyses are thorough.

Category 2. Licensee attention and involvement are normally well focused and resulted in a good level of safety performance. Licensee programs and procedures normally provide the necessary control of activities, but deficiencies may exist. The licensee's self-assessments are normally good, although issues may escape identification. Corrective actions are usually effective, although some may not be complete. Root cause analyses are normally thorough.

Category 3. Licensee attention and involvement have resulted in an acceptable level of safety performance. However, licensee performance may exhibit one or more of the following characteristics. Licensee programs and procedures have not provided sufficient control of activities in important areas. The licensee's self-assessment efforts may not occur until after a potential problem becomes apparent. A clear understanding of the safety implications of significant issues may not have been demonstrated. Numerous minor issues combine to indicate that the licensee's corrective action is not thorough. Root cause analyses do not probe deep enough, resulting in the incomplete resolution of issues. Because the margin to unacceptable performance in important aspects is small, increased NRC and licensee attention is required.

PLANT OPERATIONS

CATEGORY 2

STRENGTHS:

- OPERATOR RESPONSE TO PLANT TRANSIENTS AND FORCED OUTAGES
- SAFETY SENSITIVITY DURING OUTAGES AND REDUCED INVENTORY
- PROBLEM IDENTIFICATION

CHALLENGES:

- TOLERANCE OF DEFICIENT PROCEDURES
- ROOT CAUSE EVALUATIONS; SELF ASSESSMENT
- EMPHASIZING AND PRIORITIZING WORKAROUND BURDEN
- CONTROLLING INFREQUENTLY PERFORMED EVOLUTIONS AND TESTS

MAINTENANCE

CATEGORY 2

STRENGTHS:

- SAFETY-RELATED EQUIPMENT RELIABILITY
- ATTENTION TO BACKLOG REDUCTION
- STEAM GENERATOR PRESERVATION PROGRAM
- ONLINE MAINTENANCE PLANNING
- PROBLEM IDENTIFICATION

CHALLENGES:

- BALANCE OF PLANT EQUIPMENT PERFORMANCE
- RECURRING EQUIPMENT FAILURES
- MANAGEMENT EXPECTATIONS DURING CONDUCT OF MAINTENANCE
- SWITCHYARD MAINTENANCE

ENGINEERING

CATEGORY 2

STRENGTHS:

- DRAWING CONTROL PROGRAM
- MOTOR OPERATED VALVE DIAGNOSTIC TESTING
- LICENSE AMENDMENT SUBMITTAL QUALITY
- SYSTEM STATUS REPORTS

CHALLENGES:

- SUPPORT TO OPERATIONS AND MAINTENANCE
  - EQUIPMENT RELIABILITY
  - OPERATOR WORKAROUND REDUCTION
- CORRECTIVE ACTION IMPLEMENTATION

PLANT SUPPORT

CATEGORY 2

STRENGTHS:

- RADIOLOGICAL CONTROL PROGRAM
- EFFLUENT CONTROLS
- SECURITY EQUIPMENT UPGRADE
- PRIMARY AND SECONDARY COOLING WATER QUALITY

CHALLENGES:

- EFFLUENT MONITOR AVAILABILITY
- EMERGENCY PLANNING PROGRAM MAINTENANCE
- SECURITY WEAPONS QUALIFICATION
- RESOLUTION OF LONG TERM FIRE PROTECTION ISSUES

SEQUOYAH NUCLEAR PLANT - UNITS 1&2

SALP RATING SUMMARY

FUNCTIONAL AREA	RATING THIS PERIOD	RATING LAST PERIOD
PLANT OPERATIONS	2	2
MAINTENANCE	2	2
ENGINEERING	2	2
PLANT SUPPORT	2	2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

SEP 6 1996

Tennessee Valley Authority
ATTN: Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP) SEQUOYAH NUCLEAR PLANT (REPORT NOS. 50-327/96-99 AND 50-328/96-99)

Dear Mr. Kingsley:

The NRC Systematic Assessment of Licensee Performance (SALP) has been completed for your Sequoyah facility. The facility was evaluated for the period of January 8, 1995, through July 27, 1996. The results of the evaluation are documented in the enclosed SALP report. This report will be discussed with you at a public meeting to be held at the Sequoyah site at 1:00 p.m., on September 18, 1996.

The SALP process assesses licensee performance in four functional areas: Operations, Maintenance, Engineering and Plant Support.

The overall performance of the Sequoyah Nuclear Plant was assessed as good. Since the last assessment, performance remained good in all functional areas. Plant performance was characterized by an excessive number of reactor trips and transients early in the assessment period, primarily due to balance of plant equipment failures, with an improving trend toward the end of the period. Operations performance continued to be good in plant transient response, safety sensitivity and problem identification. Improvement was noted in shutdown operations and personnel error reduction. Weak areas were found in root cause evaluation and controls for infrequently performed evolutions.

Maintenance performance continued to be good with effective backlog reduction, online maintenance planning and safety-related equipment reliability. Improved performance was achieved in outage effectiveness and problem identification. Challenges remain in improving balance of plant equipment performance and in enforcing management expectations during the conduct of maintenance.

Engineering performance continued to be characterized by good design controls, backlog reduction and hardware modifications to improve reliability. The high number of equipment failures and operator workarounds indicated weaker performance in corrective actions and support of operations and maintenance.

Plant Support performance was good, particularly in radiological and effluent controls and security. Weaknesses were found in emergency planning program maintenance while resolution of long term fire protection issues continued to be slow.

The effectiveness of Quality Verification and Self Assessment capability was mixed. While self assessments and independent reviews continued to identify areas for improvement, corrective action was untimely and not fully effective in many cases.

In accordance with Section 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room. Should you have any questions or comments, I would be pleased to discuss them with you. I look forward to discussing this assessment with you on September 18, 1996.

Sincerely,

Stewart D. Ebneter
Regional Administrator

Docket Nos.: 50-327, and 50-328
License Nos: DPR-77 and DRP-79

Enclosure: Sequoyah SALP Report

cc w/encl: (See page 3)

cc w/ encl:
Mr. O. J. Zeringue, Senior Vice Pres.
Nuclear Operations
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dr. Mark O. Medford, Vice President
Technical Services
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. R. J. Adney, Site Vice President
Sequoyah Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Soddy Daisy, TN 37379

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

Mr. R. R. Baron, General Manager
Nuclear Licensing
4G Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Ralph H. Shell
Site Licensing Manager
Sequoyah Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Soddy Daisy, TN 37379

TVA Representative
Tennessee Valley Authority
One Massachusetts Avenue
Suite 300
Washington, DC 20001

Mr. Michael H. Mobley, Dir.
Div., of Radiological Health
3rd Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1532

County Judge
Hamilton County Courthouse
Chattanooga, TN 37402-2801

INPO
700 Galleria Parkway
Atlanta, GA 30339-5957

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE REPORT

SEQUOYAH NUCLEAR PLANT

50-327/96-99 AND 50-328/96-99

I. BACKGROUND

The SALP Board convened on August 14, 1996, to assess the nuclear safety performance of Sequoyah Nuclear Plant for the period January 8, 1995, through July 27, 1996. The Board was conducted in accordance with Management Directive 8.6, "Systematic Assessment of Licensee Performance." Board members were J. R. Johnson (Board Chairperson) Acting Director, Division of Reactor Projects; A. F. Gibson, Director, Division of Reactor Safety; and F. J. Hebdon, Director, Project Directorate II-3, Office of Nuclear Reactor Regulation. This assessment was reviewed and approved by the Regional Administrator.

II. PLANT OPERATIONS

This functional area addresses the control and execution of activities directly related to operating the facility. It includes activities such as startup, power operation, plant shutdown, and response to transients. It also includes initial and requalification training programs for licensed operators.

Overall performance in the plant operations area during the assessment period was good. The early part of this period was characterized by multiple reactor and turbine trips, transients and forced outages. Balance of plant equipment reliability problems continued to affect stable plant operation and frequently challenged operators. Plant operations in the latter six months was markedly improved with few transients. Several challenges, which were identified during the previous SALP regarding personnel errors and management expectations, remained, although an improving trend was observed. Some improvement was noted in the adequacy of abnormal situation response, but weaknesses persisted regarding a tolerance of deficient procedures.

Performance by plant operators in response to a significant number of transients and forced outages was excellent. Responses were decisive and conservative. Manual actions were appropriately taken in anticipation of automatic plant response, demonstrating good attentiveness and good knowledge of emergency procedures and system response. Although not observed during actual plant evolutions, requalification training weaknesses were observed in simulated steam generator tube rupture events as well as control of auxiliary feedwater flow.

Operator performance in identifying plant problems and initiating corrective action requests was good. Root cause evaluations were satisfactory with the exception of clearance issues, which did not effectively identify existing tagging or operator workaround problems. While degraded equipment had been identified, the operations staff had not fully emphasized the integrated burden that it caused, especially with balance of plant equipment; therefore, the effectiveness of the operator workaround program was not fully realized. A dark annunciator panel policy continued and greater management attention was paid to control room instrumentation deficiencies.

The safety focus during the last two refueling outages was consistently applied by both operators and management. Excellent safety sensitivity was displayed during preparations for outages, the shutdowns, core off load, and reduced inventory operations. This demonstrated improvement over problems responding to infrequently performed refueling evolutions early in the period.

While operator personnel errors continued, the number and consequences were less significant. Communication with and coordination of outside-of-control room activities challenged plant operations. Log book entries were, on occasion, weak and operators did not always report to management equipment parameter trends. Problems with implementation of the clearance program indicate that self assessment or quality verification activities have not resolved complexities in some processes.

Programs and procedures for handling emergencies and abnormal operations, were effective. Ineffectiveness was demonstrated in controlling infrequently performed evolutions and special plant conditions involving surveillance testing and plant modifications.

Weaknesses in review committee effectiveness, early in the period, were addressed. Plant operations management intensified initiatives near the latter part of the period to improve the rigor of plant operations and communication of expectations.

The Plant Operations area is rated Category 2.

III. MAINTENANCE

This functional area addresses activities associated with diagnostic, predictive, preventive, and corrective maintenance of structures, systems, and components. It also includes all surveillance testing, inservice inspection and other tests associated with equipment and system operability.

Plant management provided sufficient oversight to reduce non-outage corrective maintenance backlogs and to address many balance of plant (BOP) deficiencies. At the same time, TVA management lowered the threshold for identifying equipment problems and took aggressive action to correct equipment problems once they were identified. The reliability

of safety-related equipment was maintained at a high level and the plant responded well to transients.

Despite the attention and resources devoted to correcting BOP problems, many plant transients and operator challenges still occurred because of BOP equipment failures. At least three of these transients were caused by equipment failures in the electrical switchyard and offsite power distribution system. Some of these failures could have been avoided by a more effective corrective action program for past equipment failures on the same or similar types of equipment. The trend in plant transients improved during the last several months of the SALP period, although emergent equipment problems continued.

Maintenance performance during the Unit 1 and Unit 2 refueling outages was good. Major work was satisfactorily completed. Weaknesses in reactor coolant pump maintenance resulted in a number of problems. TVA took a proactive approach to preserving steam generator tube integrity. The program included chemically cleaning the secondary sides of all steam generators for both units and conducting eddy current testing of all steam generator tubes during the refueling outages. The main condenser tubes were replaced in Unit 2 to remove copper from the secondary system. The number of tubes plugged in all steam generators is well below the conservative limit established by TVA.

On occasion, maintenance workers used poor judgement when confronted with conflicting or vague information in the work procedures and related documents. Management expectations to stop the work and obtain clarification in these situations needed increased emphasis. Cases were observed where maintenance personnel were not performing to standards and first line supervision was not reinforcing performance expectations. Electrical maintenance in the switchyard required upgraded standards and oversight.

Online maintenance activities were generally effectively preplanned and scheduled with an appropriate consideration given to risk. Better contingency planning and more effective troubleshooting would have reduced the amount of time that some components remained in a technical specification action statement.

The threshold for identifying problems was lower than in the past. Evaluations identified common causes and management attention began to focus on these issues. Generally self-assessments of licensee performance by TVA were objective and identified areas for improvement.

The Maintenance area is rated Category 2.

IV. ENGINEERING

Activities assessed in this area include the design of plant modifications and engineering support for operations, maintenance, surveillance, and licensing.

Overall performance in the area of design engineering was good. Design Change Notices resolved the problems they were intended to address. A good drawing control program was maintained and the backlog of drawing changes was reduced. Good performance was noted implementing the program for 10 CFR 50.59 changes. Exceptions to good design performance were primarily due to failures to follow processes or procedures. Good engineering support was provided for license amendment requests.

The engineering staff took steps to improve plant reliability. A Plant Reliability Study performed in 1995 identified hardware and programmatic initiatives to improve performance and several of these initiatives were implemented. An effective program was maintained for diagnostic testing of motor operated valves and a program was developed and implemented for testing and maintaining air operated valves. Several modifications were made to improve reliability of the balance-of-plant.

Although the engineering staff provided support to operations and maintenance, this effort was not sufficient to provide needed improvement in balance-of-plant reliability or needed reduction in the high number of operator workarounds. Equipment failures challenged operators by causing several trips and forced shutdowns. Many operator workarounds were identified which required engineering support for resolution. Continued equipment reliability problems indicate improvement is needed in this area.

Overall performance of system engineers was good. Engineers maintained good knowledge of their assigned systems and produced system health reports that enabled management to focus attention on system deficiencies. Twenty-four hour onsite engineering support was provided during refueling outages.

Engineering performance in the areas of identification and root cause analysis of major plant equipment problems was adequate; however, corrective actions were not always timely and effective in precluding recurrence. Self-assessments of engineering performance by Nuclear Assurance were effective in identifying areas for improvement and appropriate actions were initiated to address findings.

The Engineering area is rated Category 2.

V. PLANT SUPPORT

This functional area addresses all activities related to the plant support function, including radiological controls, radioactive effluents, chemistry, emergency preparedness, security, fire protection, and housekeeping.

The radiological control program was implemented well in protecting the health and safety of the plant workers and members of the public. Overall the program was effective in that both the internal and external

radiation exposures were maintained well below regulatory limits and continued to decline. The As Low As Reasonably Achievable program was aggressive; however, emergent work during outages resulted in additional dose.

The effluent control program was effective in limiting exposure to members of the public by maintaining radionuclide concentrations in liquid and gaseous effluents at a small percentage of their regulatory limits. The effectiveness of the effluent controls was confirmed by the results of the environmental monitoring program. Good quality assurance for analyses of environmental samples was demonstrated by the results of the licensee's participation in the EPA cross-check program. Shipments of radioactive materials were properly prepared for transport.

The chemistry control program functioned well in maintaining high quality primary and secondary cooling water. Some effluent monitors were inoperable for extended periods which necessitated compensatory sampling. Additional sampling during monitor malfunctions and transients represented a challenge to chemistry personnel.

The emergency preparedness program was generally effective in maintaining site readiness to respond to emergencies. The exercise objectives were met during 1995 annual drill. Late in the assessment period, performance declined in routine program maintenance.

Installation of new security equipment has increased the capability to detect, assess and respond to alarms. Installation of the new computer system has enhanced the capability to receive and process perimeter and door alarms. The security force was capable of supporting the site during contingencies. Weapons qualification was found to be weak.

Material condition of some fire protection systems was weak and corrective actions for longstanding problems continued to be slow. Compensatory measures for long-term inoperable or degraded fire protection features were tolerated. Comprehensive audits of the fire protection program by the quality assurance organization identified a number of problems but resolution of these problems was not completed in a timely manner.

The Plant Support Area is rated Category 2.