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

Report Nos.: 50-327/92-27 and 50-328/92-27

Licensee: Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

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

Facility Name: Sequoyah Units 1 and 2

Inspection Conducted: August 2 through August 29, 1992

Lead Inspector: Paul Kellogg for 9/2/92
W. E. Holland, Senior Resident Inspector Date Signed

Inspectors: S. M. Shaeffer, Resident Inspector
S. E. Sparks, Resident Inspector

Approved by: Paul Kellogg 9/2/92
Paul D. Kellogg, Chief, Section 4A Date Signed
Division of Reactor Projects

SUMMARY

Scope:

This routine resident inspection was conducted on site in the areas of plant operations, plant maintenance, plant surveillance, evaluation of licensee self-assessment capability, licensee event report closeout, and followup on previous inspection findings. During the performance of this inspection, the resident inspectors conducted several reviews of the licensee's backshift or weekend operations.

Results:

In the area of Operations, good operator response and control of post trip conditions to the August 21, Unit 2 reactor trip/safety injection was identified (paragraph 3.a).

In the area of Operations, a weakness was identified due to a lack of proper management oversight and control which resulted in a plant transient. The event resulted from an inadequately planned and executed evolution during turbine steam inlet valve testing. (paragraph 3.b).

In the area of Operations, an apparent violation was identified with regard to the identification of falsification of plant records contrary to 10 CFR 50.9 (paragraph 9).

In the area of Maintenance/Surveillance, a procedural weakness was identified associated with procedural information not providing adequate guidance for required system conditions (paragraph 5.e).

In the area of Safety Assessment/Quality Verification, a weakness was identified in which the licensee had not fully implemented successful corrective actions in a timely manner. The issue was associated with flooding of manholes and handholes containing safety-related diesel generator cables (paragraph 8.a).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Wilson, Site Vice President
*R. Beecken, Plant Manager
*L. Bryant, Maintenance Manager
M. Cooper, Site Licensing Manager
*T. Flippo, Site Quality Assurance Manager
J. Gates, Technical Support Manager
*C. Kent, Radiological Control Manager
M. Lorek, Operations Superintendent
*P. Lydon, Operations Manager
*J. Maciejewski, Nuclear Assurance Manager
R. Rausch, Modifications Manager
*R. Rogers, Acting Technical Support Manager
*J. Smith, Regulatory Licensing Manager
*R. Thompson, Compliance Licensing Manager
*P. Trudel, Nuclear Engineering Manager
J. Ward, Engineering and Modifications Manager
N. Welch, Unit Manager

NRC Employees

B. Wilson, Chief, DRP Branch 4
P. Kellogg Chief, DRP Section 4A

*Attended exit interview.

Other licensee employees contacted included control room operators, shift technical advisors, shift supervisors and other plant personnel.

Acronyms and initialisms used in this report are listed in the last paragraph.

On August 4 through 6, 1992, the NRR Senior Project Manager for Sequoyah, Mr. David LaBarge, visited the TVA corporate offices in Chattanooga and the Sequoyah Nuclear Plant. The Chattanooga visit included a tour of the Central Emergency Control Center. During his visit at Sequoyah, Mr. LaBarge reviewed several procedures, monitored control room activities and held discussions with licensee management personnel. Additional discussion of Mr. LaBarge's activities are included in paragraph 3.d.

On August 26 through 28, 1992, Ventzislav Miliovsky, a Bulgarian nuclear safety expert for the Committee On The use of Atomic Energy For Peaceful Purposes, visited the Resident Inspector's office. Mr. Miliovsky attended the daily planning and turnover meetings, toured the facility, and discussed the regulatory process and safety inspection techniques with the inspectors.

2. Plant Status

Unit 1 began the inspection period at approximately full power. Unit 1 experienced an unplanned power reduction to approximately 70% on August 4 during the performance of turbine inlet valve testing. This transient is discussed in paragraph 3.b. The unit returned to rated power on August 5. The unit operated at approximately full power for the remainder of the inspection period.

Unit 2 began the inspection period at approximately full power. The unit operated at approximately full power until August 21, when the unit experienced an automatic reactor trip/safety injection. The trip/safety injection is discussed in paragraph 3.f.2. The unit was restarted on August 22 and resumed power operation on August 23. The unit operated at approximately full power until August 28, when power was reduced to approximately 56% to conduct repairs to the main feedwater pumps. The maintenance activities were completed the next day and the unit was made available for full power operation. Unit 2 ended the inspection period at approximately 60% power.

3. Operational Safety Verification (71,07)

a. Daily Inspections

The inspectors conducted daily inspections in the following areas: control room staffing, access, and operator behavior; operator adherence to approved procedures, TS, and LCOs; examination of panels containing instrumentation and other reactor protection system elements to determine that required channels are operable; and review of control room operator logs, operating orders, plant deviation reports, tagout logs, temporary modification logs, and tags on components to verify compliance with approved procedures. The inspectors also routinely accompanied plant management on plant tours and observed the effectiveness of management's influence on activities being performed by plant personnel.

On August 21, 1992 Unit 2 experienced a safety injection/reactor trip event from approximately full power. The inspectors responded to the control room and monitored operator response to the event. Operation's control of the post trip conditions was noted to be excellent. ASOS control of the evolutions pertaining to emergency procedure compliance and progression through the event was also well executed. The determination that the SI signal was not valid was made in a timely manner and the evolutions up to that determination were performed based on the premise of a valid SI. Control room communication during the event between all licensed and non-licensed personnel was good and equipment abnormalities were being adequately evaluated. This event is further discussed in paragraphs 3.f.2 and 6.b.

Weekly Inspections

The inspectors conducted weekly inspections in the following areas: operability verification of selected ESF systems by valve alignment, breaker positions, condition of equipment or component, and operability of instrumentation and support items essential to system actuation or performance. Plant tours were conducted which included observation of general plant/equipment conditions, fire protection and preventative measures, control of activities in progress, radiation protection controls, missile hazards, and plant housekeeping conditions/cleanliness.

On August 4 at approximately 9:30 a.m., the licensee was performing O-PI-OPS-047-002.0, STEAM INLET VALVE TESTING, in conjunction with WR C074466. The purpose of these activities was to troubleshoot a Unit 1 main turbine EHC cycling problem. By isolating each set of reheat and intercept valves, the licensee could identify individual servo valves with excessive leakage and potentially correct the EHC cycling problem. A pre-test briefing was held. A control room RO was assigned the duty of test director, and delegated this authority to another RO. A third non-licensed RO was also in the control room, and was assigned the responsibility of performing the actual valve manipulations from the bench boards in the control room. AUOs and operations management supervision were stationed locally at the intercept valve (IV) and reheat valve (RV) off the right side of the 'A' low pressure turbine, and were in radio communication with the control room RO. The control room RO was given the signal to proceed with the test, and told the non-licensed RO to depress the right 'test' pushbutton. This activity dumps IV and RV EHC fluid located on the right side of the 'A' low pressure turbine. The non-licensed RO mistakenly depressed the 'test' pushbutton for the left side of the 'A' low pressure turbine IVs and RVs. The AUOs and operations supervision positioned locally did not visually observe IV/RV closure (both valves close when the CR 'test' pushbutton is depressed and EHC fluid pressure is decreased). The AUOs proceeded in accordance with the WR to isolate EHC fluid to the IV/RH valve on the right side of the 'A' low pressure turbine. This EHC fluid isolation caused an isolation of main steam to the 'A' low pressure turbine, which caused the 1-B1 and 1-C2 moisture separator reheater (MSR) safety valves to lift. The impingement of steam from the 1-B1 MSR safety valve damaged the insulation on the 1-C1 MSR steam supply line routed to the 'C' low pressure turbine. The licensee concluded that the isolation of the 'A' low pressure turbine and subsequent reopening of the IV and RV caused a pressure fluctuation to the remaining Unit 1 low pressure turbines. This transient resulted in a turbine runback to approximately 75% power as a result of a high level bypass of the #3 heater drain tank. Following the runback, the plant was stabilized at 72% power.

Unit 1 remained at approximately 70% rated power while the licensee initiated Incident Investigation II-S-92-64 to review this event. The licensee verified that equipment functioned as designed during the runback, and verified no other equipment damage had occurred. Power increase began at approximately 8:30 p.m. on August 4, and 100% rated thermal power was achieved early on August 5.

The licensee concluded that the cause of this event was a lack of proper management oversight and control. This resulted in an inadequately planned and executed evolution. Multiple examples identified by the licensee of lack of proper management oversight and control included:

- No approved procedure to incorporate all actions necessary for performance of this evolution. Instead, the work was performed using an PI and a WR.

- No individual was assigned as lead to ensure ownership and control.

- The test director did not effectively supervise the performance of activities and control of a trainee operating plant equipment.

- An adequate pre-test brief was not held with all individuals involved.

- Inadequate communications between the CR and the field AUOs.

Part of the licensee's corrective actions included the initiation of an evaluation program to observe control room and field activities. The intent of this evaluation is to assess and counsel plant personnel in those areas that need improvement. Attributes to be reviewed include conduct of testing, communication, use of procedures and self-verification, professional conduct, teamwork, and supervision of trainees. The two teams will be in place at least four weeks, at which point site management will decide on continuance.

The inspectors reviewed the licensee's activities associated with this event. The licensee exercised appropriate caution and reviews immediately following the event and in their decisions to resume full power operations. The inspectors concluded that the licensee's root causes of the event were appropriate. The inspectors also considered that discussion of potential consequences of problems incurred during high risk evolutions or special tests as part of pre-test briefing activities was weak during this activity.

c. Biweekly Inspections

The inspectors conducted biweekly inspections in the following areas: verification review and walkdown of safety-related tagouts in effect; review of the sampling program (e.g., primary and secondary coolant samples, boric acid tank samples, plant liquid and gaseous samples); observation of control room shift turnover; review of implementation and use of the plant corrective action program; verification of selected portions of containment isolation lineups; and verification that notices to workers are posted as required by 10 CFR 19.

d. Other Inspection Activities

Inspection areas included the turbine building, diesel generator building, ERCW pumphouse, protected area yard, control room, vital 6.9 KV shutdown board rooms, 480 V breaker and battery rooms, and auxiliary building areas including all accessible safety-related pump and heat exchanger rooms. RCS leak rates were reviewed to ensure that detected or suspected leakage from the system was recorded, investigated, and evaluated; and that appropriate actions were taken, if required. The inspectors routinely independently calculated RCS leak rates using the NRC RCS leak rate computer program specifically formatted for Sequoyah. RWPs were reviewed, and specific work activities were monitored to assure they were being accomplished per the RWPs. Selected radiation protection instruments were periodically checked, and equipment operability and calibration frequencies were verified.

On August 5 and 6, 1992 the NRC Senior Project Manager visited the Sequoyah Nuclear Plant and reviewed selected licensee activities. The following areas, with appropriate observations, were reviewed:

- Reviews of selected procedures to determine requirements that must be followed to return TS related equipment to operable status indicated that controls were adequate. However, one area, with regard to a lack of requiring operational checkout of safety-related pumps after breaker racking evolutions, was identified as being weak.

- Review of SSP 12.1, OPERATIONS DEPARTMENT RESPONSIBILITIES, was determined to be unclear in defining license requirements for management personnel as required by TS.

- Reviews of preventive and predictive maintenance programs with licensee personnel indicated that the programs appeared well organized and would provide for trending of a large number of important primary and secondary plant parameters.

- Reviews of control room activities indicated operations were being conducted in a professional manner. However, some use of operator daily journals was inconsistent.

e. Physical Security Program Inspections

In the course of the monthly activities, the inspectors included a review of the licensee's physical security program. The performance of various shifts of the security force was observed in the conduct of daily activities to include: protected and vital area access controls; searching of personnel and packages; escorting of visitors; badge issuance and retrieval; and patrols and compensatory posts. In addition, the inspectors observed protected area lighting, and protected and vital area barrier integrity.

f. Licensee NRC Notifications

(1) On August 10, 1992 the licensee made a call to the NRC as required by 10 CFR 50.72 concerning a condition that placed Unit 1 outside its design basis. The issue involved identification, during ASME Section XI testing, of a condition where the 1B safety injection pump would not start due to a failure of the 6.9 KV electrical breaker. The breaker failure was determined to be associated with a cover plate interference condition causing one of the breaker trip buttons to be locked in the "trip" position. Investigation by the licensee indicated that the last maintenance activity which could have caused the as found condition occurred on July 31, 1992. Between July 31 and August 10, other opposite A train ECCS components had been taken out of service for scheduled maintenance and/or testing, placing Unit 1 in LCO 3.0.3 during those periods of time, which is outside of the design basis of the plant. The licensee convened an incident investigation team to review the event. Immediate action by the licensee was to visually verify that the discovered condition did not affect any of the other 6.9 KV safety-related breakers. This event was further discussed in NRC Inspection Report 327, 328/92-29.

(2) On August 21, 1992, the licensee made a call to the NRC as required by 10 CFR 50.72 concerning entry into the emergency plan for a NOUE due to a safety injection from approximately full power. At approximately 1:22 p.m., during normal plant operation, Unit 2 experienced a safety injection and reactor trip. Emergency core cooling systems responded as designed and charging pumps injected for approximately 25 minutes prior to being secured in accordance with emergency procedures. Plant response was normal for the transient with the exception of some minor secondary plant components. Initial trip reviews concluded that the reactor trip/safety injection was caused by spiking of all four channels of the pressurizer pressure instrumentation. Approximately 4 hours after the trip, the licensee completed restoration from the safety injection condition and returned safety systems to normal lineup. The NOUE condition was terminated at

5:22 p.m.. Unit 2 remained in MODE 3 (RCS pressure of 2235 psi, RCS temperature of 547 degrees) with decay heat being removed by steaming to the main condenser through the steam dump valves.

After the trip, the licensee convened a post trip review panel to review the safety injection/reactor trip event and determine corrective actions prior to unit restart. Additional discussions with regard to operator performance are addressed in paragraph 3.a. Discussions of the conclusions of the post trip review panel are contained in paragraph 6.b.

Within the areas inspected, no violations were identified.

4. Maintenance Inspections (62703 & 42700)

During the reporting period, the inspectors reviewed maintenance activities to assure compliance with the appropriate procedures and requirements. Inspection areas included the following:

a. During the inspection period, the inspectors monitored modification activities related to workplan (WP) 267-01. This WP controlled a modification to the 'A' and 'B' train of the Control Room Emergency Ventilation System (CREVS) suction/isolation dampers, 0-FCO-31A-09 and 0-FCO-31A-11, respectively. The CREVS actuates primarily on a Safety Injection (SI) signal and/or high radiation in the control room to allow operators to remain in the area during these accident scenarios. The dampers had been previously evaluated as routinely leaking through and had an adverse affect on the downstream charcoal filters. The dampers are normally configured in the closed position to preclude exhaustion of the charcoal filters. The leakage required increased testing frequency of the charcoal filters and subsequently increased unavailability of the system to perform its safety function in the event of an accident.

The inspectors reviewed the workplan to control the work activities. The licensee determined that it was necessary to install sheet metal air flow blocks to separate the train under modification from the operable train of CREVS. TS LCO 3.7.7 requires that both trains of CREVS are required at all times with either unit in Mode 1 through 4. The WP called for two planned entries into LCO 3.0.3 per train. One TS 3.0.3 was to install airflow blocks on the train to be worked and one entry for removal of the block. LCO 3.0.3 was only applicable during the actual installation and removal of the blocks due to the possibility that a CREVS actuation could result in the block and/or equipment being drawn into the "operable" train during installation/removal from the "inoperable" train. The preplanned entries into LCO 3.0.3 were regarded as conservative by the inspectors. In addition, a contingency plan was developed for each train in the event that a

failure should occur on the operable CREVS train while work activities are being accomplished (blocks installed) on the opposite train. Mock up training equipment was developed for t'e crew performing the work to enable the required actions to be performed in a timely manner. In addition, good FME practices were noted by the inspectors during the work activities. Discussions with craft and modifications supervision and review of the activities in process indicated that the training was thorough and resulted in timely executions of the work activities. The inspectors concluded that the subject modification was well coordinated and safely performed.

b. During the inspection period, a visiting inspector informed the resident inspectors that the Unit 2 annulus access door on the 690 foot elevation was not properly secured in that air was allowed to leak by the seal. The resident inspectors discussed this condition with the control room SOS, who initiated PER No. SQPER920285. Operations verified that the annulus pressure was holding at -6 inches with only one annulus fan operating. Operations concluded that this indicated that the emergency gas treatment system (EGTS) was operable, in that the EGTS fans have a greater capacity and would thus be capable of achieving a design pressure of -0.5 inches. The inspectors reviewed the work package associated with work request WRC126112, which identified that the latching mechanism on the lower right corner of door A-078 would not close. The work package included O-MI-MXX-410-003.3, REPAIR AND MAINTENANCE OF FIRE DOORS, FRAMES AND VARIOUS FIRE DOOR HARDWARE, and O-SI-FIN-410-001.0, VISUAL INSPECTION OF TECHNICAL SPECIFICATION FIRE DOORS ON A PERIODIC BASIS. The post-maintenance test consisted of a visual and functional test of the latching mechanism per the requirements of O-SI-FIN-410-001.0. The inspectors concluded that the licensee properly evaluated and performed corrective maintenance activities on the above condition in a timely manner.

Within the areas inspected, no violations were identified.

5. Surveillance Inspections (61726 & 42700)

During the reporting period, the inspectors reviewed various surveillance activities to assure compliance with the appropriate procedures and requirements. The inspection included a review of the following procedures and observation of surveillances:

a. The inspectors observed the performance of 1-SI-SXP-062-002.B, Boric Acid Transfer Pump 1B-B Quarterly Operability Test, Rev. 2. The licensee generally performs ASME Section XI pump tests during day shift using AUOs in conjunction with control room RO support. Typically, one specific AUO performs most of these tests. The performance of the above SI lead to unacceptable test results. Specifically, the pump differential pressure was greater than the required action value. The test personnel appropriately contacted

the control room as specified by procedure. The SI was re-performed using different inlet and outlet pump pressure instrumentation, which is permitted by the ASME Section XI Code. The re-test also provided unacceptable results. The licensee declared the pump inoperable, and wrote a PCF along with an engineering evaluation. The licensee could not definitively determine why pump performance had slightly increased, and indicated that a re-baselining of the pump is anticipated, consistent with Section XI.

The inspectors also reviewed pump vibration monitoring. The licensee obtained vibration monitoring as required by the ASME Section XI Code, Subsection IWP. The AUO was familiar with the use of vibration instrumentation, and was consistent with the location on the pump where the measurements were to be taken. From discussions with licensee personnel, Section XI vibrational analysis using displacement measurements is performed on all safety related pumps. In addition, periodic vibrational analysis using more sophisticated equipment measuring vibration velocity is performed on all important balance of plant pumps, and on the centrifugal charging pumps and the residual heat removal pumps. These measurements are performed as part of the predictive maintenance program, and are separate from the Section XI tests. Upon special requests, component cooling water pumps, auxiliary feedwater pumps, and other safety related pumps as needed, are also evaluated using the more sophisticated vibrational analysis (velocity). The licensee stated that periodic vibrational analysis using velocity measurements was not performed on the safety injection pumps, the containment spray pumps, and the emergency raw cooling water pumps. Discussions with licensee personnel from the predictive maintenance group indicated that additional pump vibrational analyses using velocity measurements would be an improved indicator of pump degradation as compared to the Section XI tests.

The inspectors noted that pump tests in general were scheduled for the day shift. The above test was delayed a few hours while support from the control room could be provided. In addition, an additional test of a safety injection pump was rescheduled for the following day. The inspectors concluded the scheduling and performance of pump tests during the day shift appeared to be satisfactory. Discussions with several SOSs indicated that an overall effort is underway to decrease the administrative burden and other work activities during the day shift. The inspectors will continue to monitor the licensee's activities in this area.

b. The inspectors also witnessed locally and from the control room the performance of SI-130.1.1, TDAFWP 1A-S Quarterly Operability Test, Rev. 2. The pre-test briefing between the test coordinator and the control room ROs was effective, and clearly delineated the test requirements and major procedural steps. Control room ROs

were knowledgeable in the status of the TDAFWP during all phases of the test. All SI test acceptance criteria were satisfied.

c. The inspectors also reviewed the licensee's process of documenting and resolving test deficiencies during the conduct of tests. SSP-8.1, Conduct of Tests, specifies the licensee's requirements for implementing this process. The inspectors reviewed Deficiency Numbers (DNs) associated with the following SIs and PIs:

- 0-PI-OPS-000-633.0, Auxiliary Control Room Switch Alignment Verification. The DN was written because there was no sealing mechanism for switch no. 2-XS-63-172A, 480V Reactor MOV 2B1-B Compartment 1C. Work request no. B793584 was appropriately written.

- 2-SI-OPS-000-0003.M, Monthly Shift Logs. The DN was written because the RHR heat exchanger outlet temperature instrument 2-TR-74-14 was inoperable. Work requests C127129 and C127134 were written.

- 0-PI-OPS-047-760.0, Main Turbine Overspeed and Oil System Tests. A DN was written because the overspeed trip mechanism tripped at 50 psig instead of within the acceptance criteria of 64-72 psig, as indicated on 2-PI-47-78. This was a non-TS PI. The licensee recommended to revise the procedure, as the 50 psig reading has been the expected pressure at which the overspeed lever moves to the trip position. The DN also noted that this condition would be discussed with Westinghouse.

The inspectors concluded that the above DNs were appropriately documented and satisfied the requirements of SSP-8.1.

d. On August 25, the inspectors reviewed the results of 0-SI-NUC-000-044.0, AXIAL FLUX DIFFERENCE, Revision 2. The original performance of the SI was to verify compliance with axial flux difference (AFD) limits after restart of Unit 2 following the reactor trip on August 21. All SI test acceptance criteria were satisfied. Operators continued monitoring the AFD limits up to approximately 100% power due to other problems encountered which affected operability of the AFD monitor alarm. The inspector verified compliance with the applicable TS and general operating instruction requirements throughout the activity until the AFD alarm condition was corrected.

e. On August 25, the inspectors witnessed performance of selected portions of SQN-SI-129.5, EMERGENCY CORE COOLING SAFETY INJECTION PUMP 2B-B QUARTERLY OPERABILITY TEST, Revision 0. After completion of the test, the inspectors reviewed the completed test procedure. The inspectors consider that the test accomplishment was completed in a good manner with pump operability being properly verified in accordance with requirements. The inspector

also was informed by the operators of one deficiency identified with regard to step 6.1 [15] which incorrectly identified SIS Pump 1A-A in lieu of SIS PUMP 1B-B. The operators correctly recorded proper data for the step and instituted a request to correct the procedure.

During the inspector's review of the completed procedure, two discrepancies and one area requiring clarification were noted. One discrepancy, noted in step 6.1 [21] involved a requirement to verify partial stroking of check valve 2-63-526. This requirement was not able to be accomplished in accordance with this procedure. Discussions with system engineering indicated that this deficiency had been recognized and a procedure change was being processed. The second discrepancy involved the operators breaching open the pump room door during testing. Discussions with engineering and licensing personnel determined that the breach was properly implemented; however, the inspectors concluded that an incorrect interpretation of a procedural annotation by operators resulted in the breaching action, which was not required. The inspectors will review this area of the procedure during future inspections. The area requiring clarification was the performance of step 6.1 [7] of the procedure. The step required that the operator "Record SIS Pump 2B-B Inlet Pressure using installed Inlet Pressure Test Gage". The operator correctly recorded the inlet pressure as 29.8 psig (205 kPa). However, the next part of the step provided an acceptable pressure range of > or = to -1.0 psig (-6.9 kPa). The inspector noted that if 0 psig had been recorded, the acceptance pressure could be met. It was also determined that minimum pressure for the SI pump, based on location in the plant, would be greater than 20 psig (137.9 kPa) if system alignment was proper. The inspector identified this concern to the licensee engineering and operations management, and stated that the operator could record a condition in the procedure which would possibly indicate that the pump suction was dry, yet the acceptance criterion would be met. Starting of some pumps with no water could damage the component in a short period of time. Licensee management recognized the inspector's concern and instituted immediate actions to correct the procedural discrepancy. The licensee also conducted reviews of other procedures and informed the inspectors that the problem was generic to other procedures. The inspectors considered that the licensee's actions were proper; however, the inspectors concluded that the identified acceptance criteria could potentially result in pump damage if run in this system configuration. This is identified as a weakness with regard to procedural information not being appropriate to provide adequate guidance for required system conditions.

Within the areas inspected, no violations were identified.

6. Evaluation of Licensee Self-Assessment Capability (40500)

During this inspection period, selected reviews were conducted of the licensee's ongoing self-assessment programs in order to evaluate the effectiveness of these programs. The inspectors specifically focused on several of the licensee's incident investigations during the inspection period.

a. On August 11, 1992 the inspectors attended a PERP meeting which discussed Incident Investigation (II) S-92-063. The subject of the II was painting problems which affected operation of safety-related equipment. Also discussed were the affects of dust and debris created by the floor recoating project on operable equipment in the work area. The licensee concluded that inattention to detail and a lack of implementation of various procedures led to the identified problems. The inspectors agreed with the root cause determination of the II team and will review the corrective actions for the problems in the licensees response to a violation issued on the problems in NRC Inspection Report 327, 328/92-22.

b. On August 22, 1992 the inspectors attended a PORC meeting which discussed the findings and conclusions of the post trip review panel for the Unit 2 reactor trip/safety injection that occurred on August 21 (see paragraph 3.f.2). The panel reviewed the post trip information and determined that the cause of the trip and safety injection was a spurious signal generated on all four pressurizer pressure channels which initiated a low pressurizer pressure reactor trip and an automatic safety injection. The panel concluded that the most probable cause of the event was an inadvertent radio transmission in the seal table area similar to an event that occurred on Unit 1 in 1981. No actual plant parameter changes associated with pressurizer pressure or level preceded this event.

After PORC review and approval of the post trip report and findings, the plant manager authorized unit restart and return to power operations. The inspectors reviewed the licensee's post trip review report and noted that although the conclusion as to the cause of the trip was logical, the individual who had taken the radio into containment in the vicinity of the seal table did not believe that he had keyed the radio to cause the trip. Licensee reviews of all other parameters supported their conclusion as to the cause of the trip.

Within the areas inspected, no violations were identified.

7. Licensee Event Report Review (92700)

The inspectors reviewed the LERs listed below to ascertain whether NRC reporting requirements were being met and to evaluate initial adequacy

followup on implementation of corrective action and/or review of licensee documentation that all required corrective action(s) were either complete or identified in the licensee's program for tracking of outstanding actions.

a. (Closed) LER 327/92-05, Containment Air Lock Door Discovered With the Interlock Mechanism Defeated. The issue involved a door interlock mechanism which was identified as defeated on the upper personnel air lock. The defeated interlock would allow the outer door to be opened when the inner door was already open. This condition was a result of actions to expedite personnel traffic during the Unit 1 Cycle 5 refueling outage. The licensee determined the cause of the event to be inappropriate use of configuration logs, inadequate inspection before returning the air lock doors to normal, and lack of performance of designated post-maintenance testing. Corrective actions for the event included additional training of personnel on configuration log usage, development of a specific procedure for approved breaching methods for the doors, and additional training on changing or deleting PMTs. The inspectors also noted improvements which were incorporated in SQM-66, MAINTENANCE MANAGEMENT SYSTEM PRE- OR POST -MAINTENANCE TESTING. The procedure was revised to require the performance of PMTs when practicable and, to perform independent verification of configuration changes which do not receive post-maintenance testing. The inspectors are continuing to review licensee corrective actions in this area and will address additional corrective actions as part of closeout of violations addressing similar problems.

Within the areas inspected, no violations were identified.

8. Action on Previous Inspection Findings (92701, 92702)

a. (Open) VIO 327, 328/91-08-01, Failure to Correct a Condition Resulting in Continued Flooding of Manholes for 1E Cables. This violation was issued due to the licensee's failure to take corrective actions for continued problems associated with flooding of manholes containing safety-related diesel generator cables. These problems occurred from 1989 to May 1991. The licensee's response, dated 8/14/91, included commitments to relocate power receptacles to the highest elevation possible, installation of additional curbs around manholes, monthly PMs to measure water level, localized grading to improve drainage, and a safety assessment of possible cable damage. The licensee also committed to performance of an effectiveness review of corrective actions by 1/15/92. The inspectors reviewed the licensee's safety assessment for prolonged flooding of MH/HH and the effect on cables, and had no concerns in this area. The inspectors reviewed QA report No. QSQ-P-92-011, Manhole/Handhole Effectiveness Review, performed 1/14/92. This report identified that corrective actions for the above violation were not adequately implemented to prevent water from standing in manhole/handholes (MH/HH) for long periods of

time. Specifically, scheduling and performance of PMs were not done as required when standing water was identified, PMs were not performed monthly and were performed incorrectly. The licensee issued SQFIR920006 to further monitor completion of activities. The preliminary results of the licensee's second effectiveness review, performed during this report period, indicated that implementation of the original corrective actions is still unacceptable. Specifically, followup PMs were not scheduled for several of the identified MH/HHs with standing water, and PMs were not completed in a timely manner.

The inspectors concluded that this issue is an example of a weakness in which the licensee had not fully implemented successful corrective actions in a timely manner. This issue will remain open pending the licensee's close-out of SQFIR920006, and additional NRC review.

b. (Closed) VIO 327, 328/91-17-01, Failure to Implement the Requirements of Site Standard Practice 8.1, CONDUCT OF TESTING. The violation involved an event on July 22, 1991, where two AUOs performed valve manipulations to facilitate testing of the 2 B-B fire pump. During the evolutions, procedural steps in the applicable test instruction (SI-73.4) were performed out of order. These actions resulted in the plant fire protection suppression system becoming inoperable for approximately 5 hours. Corrective actions taken for the event included disciplinary action for the involved personnel, reinforcement of the role of test directors for operations personnel, and issuance of a memorandum directing ROs and SROs to ensure that a pre-test briefing is performed in the MCR by the test director for tests performed by the operations section that involve the manipulation of plant equipment. The inspector reviewed the corrective actions taken for the violation and concluded that they addressed the root cause of the event. The licensee is continuing to evaluate and implement corrective actions for other events which may supplement corrective actions taken for this event in their ongoing operations improvement efforts.

c. (Closed) VIO 327, 328/91-26-03, Failure to Provide for Adequate Design of Control Room Annunciation for Safety-Related Parameters. The violation involved a licensee identified condition which affected operation of 20 alarm functions on the temporary annunciator system during the Unit 1 cycle 5 outage, which included the annunciator upgrade. The root cause of the violation was determined to be the failure to adequately address the interface between plant equipment and the new annunciator system. During the procurement process, the licensee's or vendor's original evaluations of the field inputs to the system did not account for a triac device which has significant leakage currents. These currents adversely affected the operation of the alarm functions and led to the event. Subsequent licensee evaluation revealed that the intent for the vendor to address interfaces with

plant equipment was not clearly delineated and was considered to be an example of inadequate management oversight of the development of the modification. Immediate corrective actions included the posting of additional operators on Unit 1 to increase monitoring of operational parameters and equipment modification were performed to ensure impedance values were adequate for proper system operation. Corrective actions for the root cause of the issue included revisions to procurement procedure SSP-10.5, TECHNICAL EVALUATION FOR PROCUREMENT OF MATERIALS AND SERVICES, Revision 1. These changes were initiated to ensure that interface evaluation responsibilities are clearly delineated in future specifications. In addition, the event was reviewed with management personnel of the contract design firm utilized at the facility to convey expectations of management oversight of work activities with respect to site requirements. The inspectors considered the corrective actions adequate to address the violation.

Within the areas inspected, no violations were identified.

9. TI 2515/115 Verification of Plant Records

In response to recent NRC concerns and industry information about falsified plant logs, the licensee conducted a QA audit to determine if similar problems existed at Sequoyah. The NRC issued Information Notice 92-30, Falsification of Plant Records, on April 23, 1992, to alert licensees of this potential problem.

The inspector reviewed the licensee's audit process on the subject and concluded that the sample was comprehensive and adequately investigated the potential for falsification of plant records. The licensee's audit was conducted in the areas of the EDG building, ERCW building, and Intake Pumping Station, during an approximate ten week period beginning in May of 1992. The review included the fifty-nine AUOs which were eligible to perform operator rounds in the plant areas. A comparison of a computer printout of security door key card entries to operator round logs was conducted. A typical period of three to six months was reviewed. Eighteen initial discrepancies were identified involving nine individuals. Based on these QA indications, an operations investigation team eliminated eleven of the discrepancies. The final results identified seven cases involving three AUOs. Operations expansion of the audit review did not reveal any further discrepancies. In the seven cases which were validated, security tapes, independent door alarms, and other intruder alarms indicated that no operator had entered the area in which the AUO(s) had indicated an inspection was performed.

The licensee issued SCAR SQSCA920007 to document the findings and corrective actions associated with the discrepancies identified during the QA audit and subsequent operations review and investigation. Disciplinary action was taken against three AUOs due to the results of the audit. Licensee corrective actions for the operator performance issues were ongoing at the end of the inspection period which included

operations management discussions with the AUOs and training on the NRC Information Notice. Future corrective actions to alleviate the subject problems include the possible implementation of electronic round sheets with bar code identification and an internal clock mechanism.

The inspectors reviewed the licensee's administrative requirements regarding operator rounds. O-PI-OPS-000-035.0, OUTSIDE AUO DUTY STATION SHIFT RELIEF AND ROUND SHEETS, Rev. 2, contain the routine outdoor operator round sheets. TS 6.8.1 requires that written procedures shall be established, implemented, and maintained covering the applicable procedures in Appendix A of Regulatory Guide 1.33, Revision 2, dated February, 1978. PIs are procedures required in RG 1.33. 10 CFR 50.9 further requires, in part, that information required by the Commission's regulations, orders, or license conditions shall be complete and accurate in all material respects. This finding is being reviewed as an apparent violation of 10 CFR 50.9 concerning the completeness and accuracy of information and will be identified as 327, 328/92-27-01, Apparent Violation for Falsification of Plant Records. The inspector's review in this area meets the inspection requirements for TI 2515/115. This TI is closed.

10. Exit Interview

The inspection scope and results were summarized on September 1, with those individuals identified by an asterisk in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. Although proprietary material was reviewed during the inspection, proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

Item Number	Described and Reference
327, 328/92-27-01,	Apparent Violation for Falsification of Plant Records.

Strengths and weaknesses summarized in the results paragraph were discussed in detail.

Licensee management was informed of the items closed in paragraphs 7 and 8.

11. List of Acronyms and Initialisms

AFW - Auxiliary Feedwater
AI - Administrative Instruction
ALARA - As Low As Reasonable Achievable
ASME - American Society of Mechanical Engineers
ASOS - Assistant Shift Operations Supervisor
AUO - Auxiliary Unit Operator
CAQR - Condition Adverse to Quality Report
CCP - Centrifugal Charging Pump

CECC - Central Emergency Control Center
CFR - Code of Federal Regulations
CR - Control Room
CREVS - Control Room Emergency Ventilation System
CVI - Containment Ventilation Isolation
DCN - Design Change Notice
DRP - Division of Reactor Projects
EDG - Emergency Diesel Generator
EHC - Electro-hydraulic Control
ERCW - Essential Raw Cooling Water
ESF - Engineered Safety Feature
FME - Foreign Material Exclusion
FSAR - Final Safety Analysis Report
GPM - Gallons per Minute
IFI - Inspection Follow-up Item
ISI - Inservice Inspection
kPa - Kilo Pascals
KV - Kilovolt
LCO - Limiting Condition for Operation
LER - Licensee Event Report
MDAFW - Motor Driven Auxiliary Feed Water
MCR - Main Control Room
MSIV - Main Steam Isolation Valve
NRC - Nuclear Regulatory Commission
NRR - Nuclear Reactor Regulation
ODCM - Offsite Dose Calculation Manual
PCF - Procedural Change Form
PER - Problem Evaluation Report
PERP - Plant Evaluation Review Panel
PI - Periodic Instruction
PMT - Post-maintenance Test
PORC - Plant Operations Review Committee
RCS - Reactor Coolant System
RHR - Residual Heat Removal
RPI - Rod Position Indication
RWP - Radiation Work Permit
SG - Steam Generator
SI - Surveillance Instruction
SOS - Shift Operating Supervisor
SRO - Senior Reactor Operator
SSP - Site Standard Practice
SSPS - Solid State Protection System
TI - Test Instruction
TS - Technical Specifications
TVA - Tennessee Valley Authority
URI - Unresolved Item
USAR - Updated Safety Analysis Report
VCT - Volume Control Tank
WP - Work Plan
WR - Work Request