U.S. NUCLEAR REGULATORY COMMISSION

REGION II

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License Nos:	DPR-77, DPR-79
Report No:	50-327/99-07, 50-328/99-07
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Sequoyah Nuclear Plant, Units 1 & 2
Location:	Sequoyah Access Road Hamilton County, TN 37379
Dates:	October 10 through November 20, 1999
Inspectors:	R. Gibbs, Senior Resident Inspector D. Starkey, Resident Inspector R. Telson, Resident Inspector C. Smith, Team Leader and Engineering Specialist (Section 1R02) J. Coley, Engineering Specialist R. Gibbs, Senior Reactor Inspector (Sections 1R12, 4OA2.7, .8, and .9) D. Thompson, Team Leader and Safeguards Inspector (Sections 3PP3, 4OA2.10, .11, and .12) L. Hayes, Safeguards Inspector J. Kreh, Emergency Preparedness Specialist (Sections 4OA2.13, .14, and .15) E. Testa, Senior Radiation Specialist (4OA2.16, and .17)
Approved by:	P. Fredrickson, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

Sequoyah Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-327/99-07, 50-328/99-07

The report covers a 6-week period of resident inspection. In addition, it includes the results of announced region-based inspections in the reactor safety and safeguards strategic performance areas.

Inspection findings were assessed according to potential risk significance and were assigned colors of Green, White, Yellow, or Red, based on the NRC's Significance Determination Process (SDP). Green findings are indicative of issues that, while not necessarily desirable, represent little risk to safety. White findings would indicate issues with some increased risk to safety, which may require additional NRC inspections. Yellow findings would be indicative of more serious issues with higher potential risk to safe performance and would require the NRC to take additional actions. Red findings represent an unacceptable loss of margin to safety and would result in the NRC taking significant actions that could include ordering the plant shut down. The findings, considered in total with other inspection findings and performance indicators, will be used to determine overall plant performance.

Mitigating Systems

- Green. During a performance test of the Unit 1 turbine driven auxiliary feed water (TDAFW) pump, the outboard bearing oil sight glass completely drained into the pump bearing oil reservoir. Operations stopped the pump when the sight glass was observed to be empty. A determination was made that a proper bearing oil reservoir oil level existed prior to starting the pump, the pump bearings were adequately lubricated, and the licensee was following the vendor's recommendation for pump oil changes. However, the inspectors questioned the licensee's practice of not running the pump immediately following an oil change to verify oil level. This practice caused the operators to question the adequacy of bearing oil level and the subsequent unnecessary stop and restart of a risk significant system. However, the decrease in TDAFW pump bearing oil level following an oil change does not result in the loss of a safety function of the pump (Section 1RO9).

Event Follow-up

- Green. A non-cited violation was identified for failure to properly pre-plan a preventive maintenance activity involving the replacement of a Unit 1 protection system rack power supply. The failure of maintenance and operations personnel to thoroughly review, brief, and perform the work order for the power supply replacement resulted in an unanticipated steam generator (SG) level transient of about 16 percent in all four SGs. Operators initiated manual actions in sufficient time to restore SG levels to normal prior to reaching the SG low-low level reactor trip setpoint. This event would not have increased the likelihood of an uncomplicated reactor trip (Section 4OA3.1).

- Green. The Unit 2 2A-A shutdown board momentarily lost power on September 16, 1999 due to an electrical fault, which was caused by a Thermo-Lag worker who inadvertently penetrated the insulation on the electrical cabling supplying the 2A-A shutdown board with a Thermo-lag board cutting knife. Use of the knife in this particular work activity was caused by ineffective work oversight and lack of job specific pre-job briefing. However, all mitigating systems functioned as designed and no increase in any initiating event frequency or impact on the reactor coolant barrier integrity was evident (Section 4OA3.2).

Report Details

Units 1 and 2 operated at or near 100 percent power for the entire inspection period.

1. REACTOR SAFETY

1R02 Changes to License Conditions and Safety Analysis Report

a. Inspection Scope

The inspectors screened the licensee's 10 CFR 50.59 and 10 CFR 50.71(e) change evaluation report submittals for 1998 and 1999 and identified changes to risk significant structures, systems and components (SSCs) using licensee's risk information matrix. Independent technical reviews were then performed for 15 10 CFR 50.59 and 10 CFR 50.71(e) evaluation reports along with the associated plant modification packages, calculations of record, and one special test instruction. The changes implemented by the licensee were evaluated in order to verify that the following requirements had been satisfied:

- That the licensee obtained NRC approval prior to implementing changes to licensing bases that result in a more than minimal increase in risk.
- That reduction in design margins for risk significant SSCs did not degrade the capability of the SSCs from performing their design functions.
- That the changes were made in accordance with the requirements of 10 CFR 50.59.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R04 Equipment Alignment

Partial Walkdown of Auxiliary Control Air System

a. Inspection Scope

The inspectors conducted a partial walkdown of the auxiliary control air system train 1A-A to verify its operability while train 1B-B was out of service for scheduled maintenance. The walkdown included a review of the system configuration and a discussion with the work week manager regarding the increased risk to the plant with one train of auxiliary control air out of service.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R05 Fire Protection

250 Volt Battery Rooms, 250 Volt Battery Board Rooms, and High Pressure Fire Pump Rooms

a. Inspection Scope

The inspectors conducted tours of the 250 volt battery rooms and 250 volt battery board rooms to assess the adequacy of the licensee's fire protection program implementation for these areas. Both areas were high risk areas according to the licensee's probabilistic fire risk analysis. The inspectors also toured the high pressure fire pump rooms. The inspectors checked for the control of transient combustibles and the condition of the fire detection and fire suppression systems.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R09 Inservice Testing of Pumps and Valves

.1 Turbine Driven Auxiliary Feed Water (TDAFW) Pump Performance Test

a. Inspection Scope

The inspectors observed inservice testing of the Unit 1 TDAFW to evaluate the effectiveness of the testing program. Test instructions were examined for compliance with Technical Specification (TS) 4.0.5 and American Society of Mechanical Engineers (ASME) Section XI requirements. Historical trending information was also reviewed to determine if pump operating data showed any negative trend.

b. Observations and Findings

On October 20, the inspectors observed the successful performance of 1-SI-SXP-003-201.S, Turbine Driven Auxiliary Feed Water Pump 1A-S Performance Test, Revision 4. During the test, the inspectors observed that the oil levels in the pump inboard and outboard bearings sight glasses were decreasing. The control room subsequently stopped the pump when the outboard pump bearing sight glass completely emptied into the bearing oil reservoir. Maintenance personnel subsequently added oil to both the inboard and outboard sight glasses to their normal levels.

Maintenance and engineering personnel informed the inspectors that decreasing oil level was an expected occurrence during the first pump run following an oil change and that adequate oil reservoir levels existed using the oil change method recommended by the pump vendor. The oil had been changed following the previous ASME Section XI test approximately 90 days earlier. The inspectors verified that the licensee was following the vendor guidance for oil changes and that neither the vendor manual nor the preventative maintenance (PM) instruction specified that the pump be run immediately following an oil change to verify oil level. However, the inspectors questioned the licensee's practice of not running the pump immediately following an oil change to verify oil level. This practice can cause, as it did in this case, the operators to question the adequacy of bearing oil level and the subsequent unnecessary stop and restart of a risk significant system.

This issue was entered into the licensee's corrective action program as PER 99-010470-000. The corrective actions for the PER, in part, recommended installing larger capacity sight glasses and establishing a baseline amount of oil contained in each bearing housing to ensure that the correct amount of oil is added following an oil change.

Since the decrease in TDAFW pump bearing oil level following an oil change did not result in the loss of a safety function of the TDAFW, this event screened out of the SDP in Phase 1 as a Green finding.

.2 TDAFW Suction Check Valve Test

a. Inspection Scope

The inspectors observed inservice testing of the Unit 2 TDAFW pump suction check valve to assess the check valve operability and to evaluate the effectiveness of the testing program. Test instructions were examined for compliance with TS 4.0.5 and ASME Section XI requirements.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R12 Maintenance Rule Implementation

.1 Licensee's Periodic Assessment of Maintenance Rule Activities

a Inspection Scope

The inspectors reviewed the licensee's periodic assessment issued in accordance with paragraph a(3) of the Maintenance Rule (10 CFR 50.65). The inspectors verified that the assessment was issued in accordance with the time restraints of the Maintenance Rule, and also that the assessment included all required areas including balancing reliability and unavailability, review of a(1) activities, review of a(2) activities, and consideration of industry operating experience.

b Observations and Findings

No findings were identified and documented through this inspection.

.2 Control Air System

a. Inspection Scope

The inspectors reviewed the control air system to evaluate the effectiveness of the licensee's maintenance rule program implementation. The inspectors checked for proper system scoping, monitoring, and categorization as required by the maintenance rule.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected technical operability evaluations (TOEs) to assess the technical adequacy of the evaluations to confirm that continued system operability was warranted and to verify that the problem was included in the licensee's corrective action program. The inspectors also verified that compensatory measures, if applicable, were appropriate and that no unrecognized increase in plant risk had occurred.

- TOE 0-98-030-0167-00, Replacement Residual Heat Removal (RHR) Room Coolers Not Identical to Originals, dated February 19, 1998
- TOE 2-99-067-5180-00, External Leakage from 2A-A Safety Injection Pump (SIP) Room Cooler, dated June 9, 1999
- TOE 2-99-063-1585-00, Excessive Moisture in Lubricating Oil for the 2A-A SIP, dated February 26, 1999

b. Observations and Findings

No findings were identified and documented through these inspections.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the status of Operator Workaround (OWA) SQ99003WA. This OWA relates to actions required by operators to manually drain the steam dump valve header to prevent water hammer. The action is required before the steam dump valves are placed in service after they have been isolated while the condensate system has been in a recirculation pathway back to the main condenser. The inspectors reviewed the OWA, the associated procedure, and discussed the OWA with the program coordinator to determine the OWAs impact on plant operations.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R19 Post Maintenance Testing (PMT)

a. Inspection Scope

The inspectors reviewed the PMT activities following the removal of the lube oil circulating pump for the 1B-B EDG. The pump was removed from service to replace the pump spider couplings in accordance with Work Orders (WOs) 99-010927-000 and 99-001854-000. The inspectors reviewed the PMT to confirm the pumps were properly returned to service.

b. Observations and Findings

No findings were identified and documented through this inspection.

1R22 Surveillance Testing

.1 Reactor Coolant System (RCS) Leakage Calculation

a. Inspection Scope

The inspectors observed a routine performance of a Unit 2 RCS water inventory balance, 0-SI-OPS-068-137.0, and reviewed the test data to verify that the total identified and unidentified RCS leakage did not exceed TS requirements. The results of RCS leakage calculations provides the data for the RCS Identified Leakage Performance Indicator (PI).

b. Observations and Findings

No findings were identified and documented through this inspection.

.2 RCS Chemistry Sample

a. Inspection Scope

The inspectors observed a chemistry technician perform a routine RCS grab sample and analysis. The purpose of the observation was to verify that the sample and analysis were accomplished according to the guidance in Procedure 0-TI-CEM-000-016.3, Sampling Methods-Primary Systems. The analyzed value of dose equivalent iodine from such RCS samples provided the data for the PI involving RCS specific activity.

b. Observations and Findings

No findings were identified and documented through this inspection.

3. SAFEGUARDS

3PP3 Response to Contingency Events

a. Inspection Scope

The inspectors reviewed the licensee's current protective strategy including the target set analysis and response force procedures. The protected area intrusion detection system was evaluated to determine if vulnerabilities could be identified. Identified potential vulnerabilities were tested by two NRC contractors to determine if they were exploitable. The inspectors toured the vital areas, the defensive positions, and evaluated the training of the central and secondary alarm station operators. The inspectors, with the assistance of two NRC contractors, conducted four table top exercises with security supervisors and selected three individuals to demonstrate tactical firing at the range with handguns and contingency weapons. The quality of the assessment aids was evaluated to determine if the alarm station operators could clearly recognize a threat in the intrusion detection zones.

b. Observations and Findings

No findings were identified and documented through this inspection.

4 OTHER ACTIVITIES

4OA2 Performance Indicator (PI) Verifications

Initiating Events Cornerstone

.1 Unplanned Scrams per 7,000 Critical Hours

a. Inspection Scope

The inspectors verified the accuracy of the PI for the number of unplanned automatic or manual reactor trips while the Units 1 and 2 reactors were critical which were reported to the NRC. The inspectors reviewed data applicable to four quarters of operation beginning with the fourth quarter of 1998 and ending the fourth quarter of 1999. The inspectors reviewed licensee event reports (LERs) to verify the number of reactor trips that had occurred and monthly operating reports to determine the number of reactor critical hours. The inspectors also independently calculated the reported values to verify their accuracy.

b. Observations and Findings

The inspectors determined that the PI value remained in the Green band of operation in that the indicator value was less than 3.0. The highest reported value was 1.7. No findings were identified and documented through this inspection.

.2 Scrams with Loss of Normal Heat Sink

a. Inspections Scope

The inspectors reviewed the number of automatic and manual reactor trips while Units 1 and 2 reactors were critical in which the normal heat removal path through the main condenser was lost. The inspectors reviewed LERs and plant operating logs to confirm whether the normal heat sink was available following reactor trips that had occurred from the period beginning second quarter of 1997 through the fourth quarter of 1999.

b. Observations and Findings

The inspectors verified that the PI for Units 1 and 2 remained in the Green band of operation in that there were less than 4.0 losses of normal heat sink for the period observed. No findings were identified and documented through this inspection.

.3 Unplanned Power Changes per 7,000 Critical Hours

a. Inspection Scope

The inspectors verified the accuracy of the PI for the number of unplanned power changes greater than 20% for Units 1 and 2. The inspectors reviewed data applicable to four quarters of operation beginning with the fourth quarter of 1998 and ending the fourth quarter of 1999. The inspectors reviewed monthly operating reports to determine the number of reactor critical hours and the average daily megawatt outputs for both units.

b. Observations and Findings

The inspectors verified that the PI for Units 1 and 2 remained in the Green band of operation for the periods examined. The PI value was less than eight for a four-quarter-rolling sum. No findings were identified and documented through this inspection.

Mitigating Systems Cornerstone

.4 Reactor Coolant System Leak Rate

a. Inspection Scope

The inspectors verified the accuracy and completeness of the PI for RCS identified leakage by comparing the licensee's PI data to operating logs and other plant records for the period from June through September 1999. The PI reports the maximum RCS identified leakage in gpm each month expressed as a percentage of the TS limit of 10 gpm.

b. Observations and Findings

The PI remained in the Green band at less than 50% of the TS limit. No findings were identified and documented through this inspection.

.5 Containment Leakage

a. Inspection Scope

The inspectors verified the accuracy and completeness of the PI for containment leakage by comparing the licensee's PI data to containment leakage surveillance data for the period from June through September, 1999. The PI reports the monthly maximum value of the "as found" leak rates of Type B (penetrations) and Type C (valves) test results as a percentage of La (0.25% of the primary containment air weight per day which at Sequoyah is 225 scfh).

b. Observations and Findings

The PI remained in the Green band at less than 60% of La. No findings were identified and documented through this inspection.

.6 Safety System Unavailability - Emergency Diesel Generators

a. Inspection Scope

The inspectors verified the accuracy of the PI for safety system unavailability for the EDGs by comparing the reported PI data to plant operating logs from August through September 1999. The licensee's corrective action program was reviewed to determine if any problems with the collection of the PI data had been identified.

b. Observations and Findings

The PI remained in the Green band of operation in that there was less than 2% unavailability. No findings were identified and documented through this inspection.

.7 Safety System Functional Failures

a. Inspection Scope

The inspectors verified the accuracy of the PI for safety system functional failures by comparing the reported PI data to failures identified in all LERs for the past four quarters.

b. Observations and Findings

The inspectors verified that the PI remained in the Green band of operation for the periods examined. No findings were identified and documented through this inspection.

.8 Safety System Unavailability - Residual Heat Removal

a. Inspection Scope

The inspectors verified the accuracy of the PI for RHR safety system unavailability by comparing the reported PI data to plant operating logs from June and July 1999.

b. Observations and Findings

The inspectors verified that the PI remained in the Green band of operation for the periods examined. No findings were identified and documented through this inspection.

.9 Safety System Unavailability - High Pressure Injection

a. Inspection Scope

The inspectors verified the accuracy of the PI for high pressure injection safety system unavailability by comparing the reported PI data to plant operating logs from June and July 1999.

b. Observations and Findings

The inspectors verified that the PI remained in the Green band of operation for the periods examined. No findings were identified and documented through this inspection.

Physical Protection Cornerstone

.10 Protected Area Security Equipment Performance

a. Inspection Scope

The inspectors reviewed the licensee's program for the collection and submittal of data for the protected area security equipment performance index. Specifically, a random sampling of the licensee's tracking, trending, and analysis of perimeter security equipment problems coupled with alarm history logs and problem identification reports were reviewed.

b. Observations and Findings

The inspectors verified that based on the review of the compensatory measures hours during four quarters that the PI remained in the Green band. No findings were identified and documented through this inspection.

.11 Personnel Screening

a. Inspection Scope

The inspectors reviewed the licensee's program for the collection and submittal of data for the personnel screening program performance PI. Specifically, a random sampling of logged events relating to the access authorization personnel screening program were reviewed.

b. Observations and Findings

The inspectors verified that based on a review of the documentation that the PI remained in the Green band. No findings were identified and documented through this inspection.

.12 Fitness For Duty Program Performance (FFD)

a. Inspection Scope

The inspectors reviewed the licensee's program for the collection and submittal of date for the semiannual FFD program performance PI. Specifically, laboratory error reports and a random sampling of logged events relating to the FFD program were reviewed.

b Observations and Findings

The inspectors verified that based on a review of the documentation that the PI remained in the Green band. No findings were identified and documented through this inspection.

Emergency Preparedness Cornerstone

.13 Emergency Response Organization (ERO) Drill/Exercise Performance

a. Inspection Scope

The inspectors assessed the accuracy of the PI for ERO drill and exercise performance (DEP) through review of documentation relative to the annual exercise, conducted on July 21, 1999, and a quarterly ERO drill, held on September 24, 1999. In addition, the inspectors reviewed and discussed the licensee's methodology for calculating the DEP PI.

b. Observations and Findings

The inspectors questioned the legitimacy of the licensee's methodology for calculating this PI because of the following issues: (1) the complete absence of data from ERO drills conducted during the first three quarters of 1998 and the first two quarters of 1999, and (2) the inclusion in the PI calculation of opportunities (approximately 150) from the licensed-operator requalification training cycle in the fourth quarter of 1998. This approach skewed the licensee's PI calculation in a manner not intended by the NRCendorsed guidance found in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline." The inspectors learned through discussions with licensee representatives that the licensee had recently identified concerns similar to the two issues delineated above. The inspectors noted that changes in the methodology for calculating the DEP PI were being developed for Sequoyah, and that the licensee planned to implement these changes at both the Browns Ferry and Watts Bar facilities.

On November 22, 1999 (after the onsite review), the licensee provided information to the inspectors on the revised methodology and calculation for this PI. For both the original and the revised calculations, the inspectors verified that the DEP PI value remained in the Green band in that more than 90 percent of the opportunities for emergency classification, notification, and protective action decision-making were successful (the percentage of successful opportunities decreased slightly in the revised calculations). No findings were identified and documented through this inspection.

.14 Emergency Response Organization Readiness

a. Inspection Scope

The inspectors assessed the accuracy of the PI for ERO drill participation through review of source records for selected individuals (approximately 10 percent) from the ERO roster as of September 30, 1999.

b. Observations and Findings

The inspectors verified that the PI value for ERO drill participation remained in the Green band in that more than 80 percent of designated ERO personnel had participated in a drill during the previous eight quarters. No findings were identified and documented through this inspection.

.15 Alert and Notification System Reliability

a. Inspection Scope

The inspectors assessed the accuracy of the PI for alert and notification system (ANS) reliability through review of the licensee's records of monthly full-scale tests, biweekly silent tests, and annual growl tests of its siren system in the 10-mile radius around the site. Records from January 1, 1998 to the present were selectively reviewed, with a focus on test results since June 1, 1999.

b. Observations and Findings

The inspectors verified that the ANS PI value remained in the Green band in that more than 94 percent of the siren tests were successful. No findings were identified and documented through this inspection.

Occupational Radiation Safety Cornerstone

.16 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors verified PIs for the occupational exposure control effectiveness. The inspectors reviewed data reported to the NRC and sampled plant records in the corrective action program.

b. Observations and Findings

The inspector's review of data reported to the NRC historically and monthly since June 1999 did not identify any discrepancies. Materials reviewed included corrective action reports, shift health physics logs, radiation work permits, worker dose records, and high radiation areas. The PI remained in the Green band. No findings were identified and documented through this inspection.

Public Radiation Safety Cornerstone

.17 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed data reported to the NRC, corrective action program records, plant calculations and selected independent offsite dose calculations.

b. Observations and Findings

The inspector's review of data reported to the NRC historically and monthly since June 1999 did not identify any discrepancies. The review of corrective action reports, environmental release data and doses to the public did not identify any unreported PIs. The PI remained in the Green band. No findings were identified and documented through this inspection.

4OA3 Event Follow-up

.1 Unit 1 Steam Generator Level Transient During Maintenance Activity

a. Inspection Scope

The inspectors reviewed circumstances related to the Unit 1 unanticipated loss of automatic steam generator (SG) level control which occurred during a planned maintenance activity to change out a protection rack power supply.

b. Observations and Findings

A non-cited violation (NCV) was identified for failure to properly preplan a maintenance activity affecting safety-related equipment which resulted in an unplanned steam generator level transient of approximately 16 percent in all four Unit 1 SGs.

On September 29, 1999, with Unit 1 at 100% power, a power supply change-out was performed using WO 97-009076-004. This preventive maintenance activity was not expected to adversely affect any plant equipment or operating parameters. Several similar power supply change-outs had been previously performed with the unit at power with no adverse effect. The WO directed technicians to perform specific sections of Procedure 0-MI-IPM-099-001.0, Replacement of Eagle 21 Loop Calculation Processor (LCP), LCP NVRAM Module, Test Sequence Processor (TSP), Rev. 6. Step 6.3.3[1] of 0-MI-IPM-099-001.0 directed the technician to remove channels from service in accordance with the appropriate surveillance instruction (SI) listed in Appendix 0-MI-IPM-099-001.0. In this case, the appropriate SI was 1-SI-ICC-001-073.1, Channel Calibration of Turbine Impulse Chamber Pressure Channel I, Rack 4 and 18 Loop P-1-73 (P-505), Rev. 5. The technician performed what he believed to be the appropriate sections of SI 1-SI-ICC-001-073.1 to remove the channel from service and marked those sections which did not apply as not applicable (N/A). Since the technician was not performing a channel calibration, he N/A'ed Section 6.3, Protection Rack Calibration. However, step [1] of Section 6.3 directed the placement of the SG level program setpoint controller to manual. The failure to place the controller to manual resulted in a SG level transient.

The operators observed the level indicators for all four SGs decreasing from their program level of 44%. Operators also observed that the turbine impulse pressure indicator had failed low, the SG level program setpoint indicator was decreasing and the annunciator for Tref/Tauct high-low was lit. Because operators believed that these symptoms indicated a turbine impulse pressure instrument malfunction, they entered AOP- I.08, Turbine Impulse Pressure Instrument Malfunction, Rev. 1, and based on its guidance, and from their simulator training, expected SG level control program to fail low to 33% and stabilize at that level. However, within approximately two minutes, SG levels had decreased to 33% and continued to decrease. At approximately 28% SG level, operators took manual control of the feedwater regulating valves and manually restored levels to 44% as directed by AOP-S.01, Loss of Normal Feedwater, Rev.1. The duration of the event was approximately 8 minutes.

The inspectors reviewed the WO and the associated procedures used during this maintenance activity and reviewed the licensee's investigation report. The inspectors determined that the level transient was the result of inadequate preplanning and review of the evolution by both maintenance and operations personnel. SI 1-SI-ICC-001-073.1 provided the necessary step to ensure the SG level setpoint controller was placed in manual, however, the step was N/A'd because it was located in a section of the procedure not being performed. The licensee noted in their investigation that there was no formal pre-job brief between the foreman and technicians and that the general foreman was also not involved in the brief. The N/A'd section was N/A'd by one individual with no independent review by a second qualified individual. Additionally, the sensitive activities brief in the control room prior to the evolution did not identify the effects of removing the turbine impulse pressure instrument from service.

Based on the findings and associated assumptions that this event would not have increased the likelihood of an uncomplicated reactor trip, this event screened out of the SDP in Phase 1 as a Green finding.

TS 6.8.1.a requires, in part, that procedures shall be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, "Quality Assurance Program Requirements (Operations)." Appendix A of Regulatory Guide 1.33, Section 9, requires procedures for maintenance that can affect performance of safety-related equipment should be properly preplanned and performed in accordance with documented instructions. Failure to properly preplan the change out of the protection rack power supply is a violation of TS 6.8.1.a. This violation is being treated as a non-cited violation, consistent with the Interim Enforcement Policy for pilot plants of the NRC's Revised Oversight Process and is identified as NCV 50-327/99007-01, Failure to Properly Plan the Maintenance Activity Related to the Change Out of a Protection Rack Power Supply. This item is in licensee's corrective action program as PER 99-009057-000.

.2 Momentary Loss of Power to the Unit 2 2A-A Shutdown Board

a. Inspection Scope

On September 16, 1999, the Unit 2 2A-A shutdown board momentarily lost power due to an electrical fault, which was caused by a Thermo-Lag worker who inadvertently penetrated the insulation on the electrical cabling supplying the 2A-A shutdown board with a Thermo-lag board cutting knife. The inspectors reviewed circumstances associated with the momentary loss of power to the Unit 2 2A-A shutdown board. The inspectors toured the control room and the area where the Thermo-Lag work had occurred shortly after the event, discussed the event with plant personnel, and reviewed associated documentation and the plant's TS to confirm the facts associated with the event and to confirm that TS requirements were satisfied.

b. Observations and Findings

The inspectors determined that all EDGs automatically started as designed. In addition, the 2A-A shutdown board was stripped of its loads as designed with its respective EDG re-energizing the shutdown board. The undervoltage condition was caused by an electrical fault which was initiated by the Thermo-Lag installer who inadvertently penetrated the 6.9KV insulation of the electrical cable which fed the 2A-A shutdown board. The fault was sensed by fault protection circuitry which automatically opened the feeder breaker to the shutdown board causing the undervoltage condition. The worker was in the process of tying off the previously installed Thermo-Lag board with wire for the final step of the Thermo-Lag installation. In order to wrap the Thermo-Lag board with the wire, the worker used a Thermo-Lag board cutting knife to penetrate "fillet" material which had been used during the installation.

There were no findings identified with respect to how the plant and licensee responded to the event. The inspectors reviewed the licensee's corrective actions documented in PER 99-008854-000. The licensee determined that the root cause of the event was ineffective work oversight which included a non-job specific pre-job briefing. A briefing was held, but it was not directly related to the work activity on that particular day. In addition, the licensee determined that the worker, who was performing the activity under the skill of the craft guidance, failed to properly self-check before using the knife to penetrate the fillet material. The inspectors confirmed the licensee's conclusions. The licensee's corrective actions primarily included the replacement of the damaged cable and increased emphasis on task based pre-job briefings.

The inspectors screened the momentary loss of power of the 2A-A shutdown board as Green using Phase 1 of the SDP because all mitigating systems functioned as designed and no increase in any initiating event frequency or impact on the reactor coolant barrier integrity was evident.

4OA4 Other

.1 Year 2000 (Y2K) Readiness Program Review

By letter dated September 20, 1999, TVA notified the NRC that the remaining Y2K open items had been closed for all TVA nuclear sites. On October 18, 1999, the inspector reviewed the licensee's Y2K certification documentation and physically observed operation of the three closed items in accordance with applicable portions of Temporary Instruction (TI) 2515/141, "Review of Year 2000 (Y2K) Readiness of Computer Systems at Nuclear Power Plants."

The inspector determined the certification documentation and operation of the three systems, listed below, to have adequately demonstrated Y2K compliance.

1. Health Physics Information Management System (HIS-20)
2. Nuclear Operations Management System (NOMS)
3. Security Check-In Process Software (CHIPS)

.2 (Closed) Licensee Event Report (LER) 50-327/99002-00: Diesel generator start as a result of a cable being damaged during installation of Thermo-Lag for implementation of the Kaowool project. The inspectors determined that the licensee properly reported the event in accordance with regulatory requirements. The LER was factual and timely. Reference Section 4OA3 for additional discussion of the event.

4OA5 Management Meetings

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on October 29, November 5 and 19, and December 1, 7 and 17, 1999.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Bajestani, Site Vice President
H. Butterworth, Operations Manager
E. Freeman, Maintenance and Modifications Manager
J. Gates, Site Support Manager
C. Kent, Radcon/Chemistry Manager
D. Koehl, Plant Manager
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R. Eckenrode, Senior Human Factors Specialist, Nuclear Reactor Regulation

ITEMS OPENED AND CLOSED

Opened

50-327/99007-01	NCV	Failure to Properly Plan the Maintenance Activity Related to the Change Out of a Protection Rack Power Supply (Section 4OA3.1).

Closed

50-327/99002-00	LER	Diesel Generator Start as a Result of a Cable Being Damaged During Installation of Thermo-Lag for Implementation of the Kaowool Project (Section 4OA4.2).
50-327/99007-01	NCV	Failure to Properly Plan the Maintenance Activity Related to the Change Out of a Protection Rack Power Supply (Section 4OA3).