UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 24, 2005

Tennessee Valley Authority
ATTN: Mr. K. W. Singer
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION REPORT 05000327/2004005 AND 05000328/2004005

Dear Mr. Singer:

On December 31, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Power Plant, Units 1 and 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 12, 2005 with Mr. D. Kulisek and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). This issue was determined to be a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest this non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Sequoyah facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Stephen J. Cahill, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket No.: 50-327, 50-328
License No.: DPR-77, DPR-79

Enclosure: Inspection Report 05000327/2004005 AND 05000328/2004005
w/Attachment: Supplemental Information

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REGION II

Docket Nos:	50-327, 50-328
License Nos:	DPR-77, DPR-79
Report No:	05000327/2004005 and 05000328/2004005
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Sequoyah Nuclear Plant
Location:	Sequoyah Access Road Soddy-Daisy, TN 37379
Dates:	September 26, 2004 - December 31, 2004
Inspectors:	S. Freeman, Senior Resident Inspector M. Speck, Resident Inspector B. Bearden, Senior Resident Inspector, Browns Ferry Unit 1 (Section 1R08) R. Carrion, Project Engineer (Section 4OA1) E. Lea, Senior Operations Engineer (Section 1R11) George Hopper, Senior Operations Engineer (Section 1R11) Steve Rose, Senior Operations Engineer (Section 1R11) S. Shaeffer, Senior Project Engineer (Section 4OA2) A. Vargas, Reactor Inspector (Section 4OA5)
Approved by:	S. Cahill, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000327/2004005, IR 05000328/2004005; 09/26/2004 - 12/31/2004; Sequoyah Nuclear Power Plant, Units 1 & 2; Refueling and Outage Activities.

The report covered a three-month period of inspection by resident inspectors, two project engineers, an operations engineer, and a region-based reactor inspector. The significance of most findings is indicated by the color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation of Technical Specification Limiting Condition for Operation 3.9.1 when communication failures between and within chemistry and operations resulted in Unit 1 reactor coolant system boron concentration dropping below the limit of 2000 ppm. Although chemistry analysis indicated the out-of-specification condition existed, the required actions of immediately borating to within specification were not taken for four hours.

  This finding was more than minor because it affected the human performance attribute of the initiating event cornerstone with the potential to challenge reactivity control during shutdown operations. This finding is of very low safety significance because the core remained subcritical by a large margin and the duration of the out-of-specification was less than the boron analysis frequency required by the Technical Specifications (Section 1R20).

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status:

Unit 1 began the period at 100% rated thermal power (RTP). On October 25, 2004, the unit was shutdown for a scheduled refueling outage. Outage activities were completed and the unit was taken critical on November 18, 2004. The unit returned to 100% RTP on November 24, 2004 and remained at or near 100% RTP through the end of the inspection period.

Unit 2 operated at or near 100% RTP during the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed design features and licensee preparations for protecting the essential raw cooling water (ERCW) intake structure and both Unit 1 and 2 refueling water storage tanks (RWSTs) from extreme cold and freezing conditions. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and Technical Specifications (TSs), reviewed and observed implementation of licensee freeze protection procedures, and walked down portions of the systems to assess the status of system deficiencies and the system readiness for extreme cold weather. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns. The inspectors performed a partial walkdown of the following two systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control systems components and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers, and entered them into the corrective action program. Documents reviewed are listed in the attachment.

- Unit 1 Safety Injection Train A during Train B Outage
- Unit 1 Turbine Driven and 1B Motor Driven Auxiliary Feedwater (AFW) Trains during Unavailability of the 1A Motor Driven Train

Complete System Walkdown. The inspectors performed a complete system walk-down of the Unit 2 Safety Injection System to verify proper equipment alignment and identify any discrepancies that could impact the function of the system and increase risk.

The inspectors reviewed the UFSAR, system procedures, system drawings, and system design documents to determine system design and configuration requirements and then examined system components and their configuration to identify any discrepancies between the existing system equipment and the requirements. In addition, the inspectors reviewed outstanding maintenance work requests and design issues on the system to determine whether any condition described in those work requests could adversely impact current system operability. The inspectors conducted a detailed walkdown of the system. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted a tour of the nine areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that combustibles and ignition sources were controlled in accordance with the licensee's administrative procedures, fire detection and suppression equipment was available for use; that passive fire barriers were maintained in good material condition; and that compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with the licensee's fire plan.

- Control Building Elevation 706 (Spreading Room)
- Control Building Elevation 669 (Corridor, Mechanical Equipment Rooms, Battery Rooms and Battery Board Rooms)
- Control Building Elevation 685 (Auxiliary Instrument Rooms)
- Control Building Elevation 734 (Shutdown Board Rooms, Battery Board Rooms, and Auxiliary Control Room)
- Auxiliary Building Elevation 714 (Corridor, Auxiliary Building Gas Treatment System Rooms, Penetration Rooms, Additional Equipment Building)
- Emergency Diesel Generator Building
- Auxiliary Building Elevation 690 (Corridor, Penetration Rooms)
- Emergency Raw Cooling Water Building
- Control Building Elevation 749 (Vital Battery Rooms)

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors observed performance of and reviewed the results of the following two activities to verify that the acceptance criteria and results appropriately considered differences between testing conditions and design conditions; that test results were appropriately categorized against pre-established acceptance criteria; that the frequency of testing was sufficient to detect degradation prior to loss of heat removal capability below design basis values; and that test results considered test instrument inaccuracies and differences.

- 1-PT-SFT-070-001.0, Performance Testing of Component Cooling Heat Exchangers 1A1, 1A2, Revision 8
- 0-PT-SFT-070-002.0, Performance Testing of Component Cooling Heat Exchangers 0B1, 0B2, Revision 6

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities

a. Inspection Scope

ISI Activities

The inspectors observed in-process ISI work activities, reviewed ISI procedures, and reviewed selected ISI records associated with risk significant structures, systems, and components (SSCs). The observations and records were compared to the requirements specified in the TSs and the ASME Boiler and Pressure Vessel Code, to verify compliance and to ensure that examination results were appropriately evaluated and dispositioned.

Specifically, non-destructive examination (NDE) activities were reviewed as follows:

Direct Observation

– Visual Inspection-2 (Enhanced VT-2): U1 Reactor Pressure Vessel (RPV) Closure Head Control Rod Drive (CRD) Penetration #78
– Ultrasonic Inspection (UT): Pressurizer Safety Nozzle, RCW-16, Pressurizer Relief Nozzle, RCW 17, RCW-19 & RCW 18

– Remote Visual Examination: SQN U1 RPV Closure Head CRD Penetration #78

Record Review

– Dye Penetrant Testing (PT): Weld RCF-24A & Draw Bead Weld RCF-24H, Dissimilar metal welds (Safety and Spray Nozzle) top of the Pressurizer
– Radiograph Testing (RT): Weld # OCV-5054F, Pressure Boundary, Class 2, CVCS, 3/4“ Reducer to Pipe
– Radiograph Testing (RT): Weld # OCV-5054E-1, Pressure Boundary, Class 2, CVCS, 2“ Reducer to Tee

Qualification and certification records for examiners, equipment and consumables, and NDE procedures for the above ISI examination activities were reviewed.

The inspectors reviewed RT films for Class 1 and 2 welds for the following two welds: Weld # OCV-5054F, Pressure Boundary, Class 2, CVCS, 3/4“ Reducer to Pipe and Weld # OCV-5054E-1, Pressure Boundary, Class 2, CVCS, 2“ Reducer to Tee. Inspectors also reviewed welding process and procedures used. Materials used along with welders’ qualifications were also verified to ensure compliance with ASME Code.

Reactor Vessel Head Inspection

The inspectors observed a visual examination of the periphery of the Reactor Vessel Head. Qualification of personnel performing the visual examination as well as procedures used were verified for compliance. RPV Closure Head CRD Penetration #78 was inspected in more depth due to the possible presence of boron being seen during the initial visual inspection. Inspectors observed an enhanced video VT that was performed. Information obtained from this enhanced VT was compared to the information obtained from the previous enhanced VT to ensure that no boric acid leakage existed. The inspectors viewed and compared results from both enhanced VTs to verify the determination that the NDE personnel had made.

In addition, the following work order (WO) of ISI issues in the licensee’s corrective action program was reviewed for adequacy: WO 04-782418-000, Unit 1 RPV Closure Head CRD Penetration 78.

Boric Acid Corrosion Control (BACC) Inspection

The inspectors reviewed implementation of the licensee’s BACC program to verify implementation of commitments made in response to GL 88-05 and Bulletin 2002-01. The inspectors reviewed the inspection records for a sample of BACC walkdown visual examination activities and verified that the examiners were adequately identifying and documenting boric acid leakage throughout the plant. The inspectors reviewed the inspection scope of the BACC program to ensure that it included locations where boric acid could cause degradation to safety-related components. The inspectors also reviewed associated corrective action documents to evaluate the engineering bases for conclusions regarding apparent cause and severity of discovered leaks, and justification for corrective actions.

The inspectors reviewed the following WOs to verify dispositioning of indications and defects in accordance with ASME Code requirements or an alternative approved by the U.S. Nuclear Regulatory Commission (NRC):

- WO 04-782172-000: Small amount of dry white boron leaking from packing of 1-VLV-68-575
- WO 04-782134-000: Packing Leak (dry white boron) from 1-RXB-693-R108

Unit 1 SG Inspection

The inspectors reviewed the licensee's scan plan, procedures, and selected inspection records for the eddy current examination (ET) for the Sequoyah Unit 1 Replacement Steam Generators (RSGs) which were installed in the Spring of 2003. The records were compared to the TSs, License Amendments and applicable industry established performance criteria to verify compliance. Qualification and certification records for examiners, equipment and procedures for the eddy current examination activities were reviewed. Available bobbin and rotating coil inspection ET data was reviewed to evaluate the adequacy of completed data analysis. In addition, the inspectors reviewed one Problem Evaluation Report (PER) associated with the RSG examinations.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Biennial Requalification Inspection

a. Inspection Scope

During the week of October 4, 2004, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of the operating tests and written examinations associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the licensee in implementing requalification requirements identified in 10 CFR 55, "Operators' Licenses." The evaluations were performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors reviewed and evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations. The inspectors observed three operator crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, licensed operator qualification records, selected watchstanding and medical records, the feedback process, and remediation plans. The inspectors also reviewed a sample of simulator performance test records (transient tests, malfunction tests, steady state test, and procedure tests), simulator modification request records, and the process for ensuring continued assurance of simulator fidelity

to ensure compliance with 10CFR 55.46, “Simulation Facilities.” Licensee documents reviewed during the inspection are listed in the attachment.

Following the completion of the annual operating examination testing cycle which ended on December 1, 2004, the inspectors reviewed the overall pass/fail results of the written examination, individual JPM operating tests, and the simulator operating tests administered by the licensee during the operator licensing requalification cycle. These results were compared to the thresholds established in Manual Chapter 609, Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings of significance were identified.

.2 Quarterly Inspection by Resident Staff

a. Inspection Scope

The inspectors observed just-in-time simulator training on October 19, 2004. The training involved real-time practice at the control room manipulations while collapsing the pressurizer bubble, establishing solid water plant pressure control, pressurizer cooldown, plant depressurization and initiation of pressurizer draining. The inspectors observed crew performance in terms of communications; ability to take timely and proper actions; prioritizing, interpreting and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high risk operator actions; oversight and direction provided by shift manager, including the ability to identify and implement appropriate TS actions; and group dynamics involved in crew performance. The inspectors also reviewed simulator fidelity to verify that it closely paralleled recent modifications.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following two maintenance activities to verify the effectiveness of the activities in terms of: 1) appropriate work practices; 2) identifying and addressing common cause failures; 3) scoping in accordance with 10 CFR 50.65(b); 4) characterizing reliability issues for performance; 5) trending key parameters for condition monitoring; 6) charging unavailability for performance; 7) classification in accordance with 10 CFR 50.65(a)(1) or (a)(2); 8) appropriateness of performance criteria for SSCs and functions classified as (a)(2); and 9) appropriateness of goals and corrective actions for SSCs and functions classified as (a)(1). Documents reviewed are listed in the attachment.

- Problem Evaluation Report (PER) 33980, Siemens Breakers in (a)(1) Status
- Availability and Reliability of the Emergency Diesel Generators

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the following three activities to verify that the appropriate risk assessments were performed prior to removing equipment for work. The inspectors verified that risk assessments were performed as required by 10 CFR 50.65 (a)(4), and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors verified the appropriate use of the licensee's risk assessment tool and risk categories in accordance with Procedure SPP-7.1, On-Line Work Management, Revision 5S1, and Instruction 0-TI-DSM-000-007.1, Risk Assessment Guidelines, Revision 8. Documents reviewed are listed in the attachment.

- Component Cooling Pump 1A Out of Service for Motor Filter Cleaning and Pump Section XI Test
- Component Cooling Pump C-S Out-of-Service for Breaker Replacement
- Removal of 1A Motor Driven AFW Train for Maintenance

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the two operability evaluations described in the PERs listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred. The inspectors reviewed UFSAR criteria to verify that the system or component remained available to perform its intended function. In addition, the inspectors reviewed compensatory measures implemented to verify that the compensatory measures worked as stated and the measures were adequately controlled. The inspectors also reviewed a sampling of PERs to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the attachment.

- PER 70344, Pipe Wall Thinning in 18-inch ERCW Pipe
- PER 72764, Residual Heat Removal (RHR) Discharge Pressure Increasing with Loss of Inventory from Number 3 Accumulator

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the two post-maintenance tests listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedure to verify that the procedure adequately tested the safety function(s) that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s). Documents reviewed are listed in the attachment.

- Work Order (WO) 03-008777-000, Rework Through-Seat Leakage on Valve 1-HCV-74-34
- WO 03-010832-001, Implement Stage 1 of DCN D21550 to Increase Actuator Capability of AFW Valves 1-LCV-003-164 and -156

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

For the Unit 1 refueling outage that began on October 25, 2004, the inspectors evaluated licensee activities to verify that the licensee considered risk in developing outage schedules, followed risk reduction methods developed to control plant configuration, developed mitigation strategies for the loss of key safety functions, and adhered to operating license and TS requirements that ensure defense-in-depth. The inspectors also walked down portions of Unit 1 not normally accessible during at-power operations to verify that safety-related and risk-significant SSCs were maintained in an operable condition. Specifically, between October 25, 2004 and November 20, 2004, the inspectors performed inspections and reviews of the following outage activities. Documents reviewed during the inspection are listed in the attachment.

- Outage Plan. The inspectors reviewed the outage safety plan and contingency plans to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth.

- Reactor Shutdown. The inspectors observed the shutdown in the control room from the time the reactor was tripped until operators placed it on the RHR system for decay heat removal to verify that TS cooldown restrictions were followed. The inspectors also toured the lower containment as soon as practicable after reactor shutdown to observe the general condition of the reactor coolant system (RCS) and emergency core cooling system components and to look for indications of previously unidentified leakage inside the polar crane wall.

- Licensee Control of Outage Activities. On a daily basis, the inspectors attended the licensee outage turnover meeting, reviewed PERs, and reviewed the defense-in-depth status sheets to verify that status control was commensurate with the outage safety plan and in compliance with the applicable TS when taking equipment out of service. The inspectors further toured the main control room and areas of the plant daily to ensure that the following key safety functions were maintained in accordance with the outage safety plan and TS: electrical power, decay heat removal, spent fuel cooling, inventory control, reactivity control, and containment closure. The inspectors also observed a tagout of the containment spray heat exchanger to verify that the equipment was appropriately configured to safely support the work or testing. To ensure that RCS level instrumentation was properly installed and configured to give accurate information, the inspectors reviewed the installation of the Mansell level monitoring system. Specifically, the inspectors discussed the system with engineering, walked it down to verify that it was installed in accordance with procedures and adequately protected from inadvertent damage, verified that Mansell indication properly overlapped with pressurizer level instruments during pressurizer draindown, verified that operators properly set level alarms to procedurally required setpoints, and verified that the system consistently tracked while lowering RCS level to reduced inventory conditions. The inspectors also observed operators compare the Mansell indications with locally-installed ultrasonic level indicators during entry into mid-loop conditions.

- Refueling Activities. The inspectors observed fuel movement at the spent fuel pool and at the refueling cavity in order to verify compliance with TS and that each assembly was properly tracked from core offload to core reload. In order to verify proper licensee control of foreign material, the inspectors verified that personnel were properly checked before entering any foreign material exclusion (FME) areas, reviewed FME procedures, and verified that the licensee followed the procedures. To ensure that fuel assemblies were loaded in the core locations specified by the design, the inspectors independently reviewed the recording of the licensee's final core verification.

- Reduced Inventory and Mid-Loop Conditions. Prior to the outage, the inspectors reviewed the licensee's commitments to Generic Letter 88-17. Before entering reduced inventory conditions the inspectors verified that these commitments were in place, that plant configuration was in accordance with those commitments, and that distractions from unexpected conditions or emergent work did not affect operator ability to maintain the required reactor vessel level. While in mid-loop conditions, the inspectors verified that licensee procedures for

closing the containment upon a loss of decay heat removal were in effect, that operators were aware of how to implement the procedures, and that other personnel were available to close containment penetrations if needed.

- Heatup and Startup Activities. The inspectors toured the containment prior to reactor startup to verify that debris that could affect the performance of the containment sump had not been left in the containment. The inspectors reviewed the licensee's mode change checklists to verify that appropriate prerequisites were met prior to changing TS modes. To verify RCS integrity and containment integrity, the inspectors further reviewed the licensee's RCS leakage calculations and containment isolation valve lineups. In order to verify that core operating limit parameters were consistent with core design, the inspectors also observed portions of the low power physics testing, including reactor criticality.

b. Findings

Introduction: The inspectors identified a green non-cited violation (NCV) of TS LCO 3.9.1 when communication failures resulted in a 4-hour delay in adding boron to the RCS after the concentration dropped below 2000 PPM shortly after entering Mode 6.

Description: On October 27, 2004, Unit 1 was in Mode 5 for a refueling outage and making preparations to enter Mode 6. At approximately 1000, Operations personnel signed Procedure 0-GO-9, Refueling Procedure, Revision 23, indicating that RCS boron concentration was within specification for the mode change based on earlier sample results of 2007 ppm. Later that day, a chemistry supervisor signed Procedure 0-GO-9 indicating their readiness for refueling operations, including adequate boron concentration. However, chemistry technicians were not aware of this. In addition, a hydrogen peroxide addition was performed at 0915 which required a minimum of 15 minutes of primary water flow after the addition. At 1400, the RHR system was aligned for hot leg injection which introduced the possibility that flow in this 12" diameter piping would move lower concentration borated water into the RCS and further reduce boron concentration. At 2023, chemistry personnel were directed by Procedure 0-GO-13, Reactor Coolant System Drain and Fill Operations, Revision 45, to conduct hourly RCS boron samples. At 2115, another hydrogen peroxide addition was made. Samples at 2015, 2110, 2210, and 2310 all showed a RCS boron concentration of 2000 ppm, the minimum required for Mode 6. The plant entered Mode 6 at 2357 but chemistry technicians were unaware of the mode change, even though the mode change was recorded in the chemistry log. Because of this, chemistry technicians did not know to notify the control room when the boron concentration was less than 2000 ppm. Subsequent samples at 0010, 0110, 0310 and 0410 on October 28 were 1999 ppm, but these results were not communicated to operations. The 0210 sample was 2002 ppm. After the 0410 sample, chemistry technicians entered all of these sample results into their database which had been updated by the chemistry shift supervisor to indicate Mode 6 had been entered. Chemistry personnel then realized the TS LCO limit had been exceeded and informed Operations personnel who then initiated TS 3.9.1 actions which included RCS boration.

Analysis: This finding is greater than minor because it affected the human performance attribute of the initiating event cornerstone with the potential to challenge reactivity control during shutdown operations. Control of reactivity is a critical safety function and compliance with the TS LCO ensures adequate control during shutdown operations. The inspectors determined that allowing boron concentration to drop below the TS limit potentially challenged the critical safety function. This finding is of very low safety significance (Green) because the core remained subcritical by a large margin, the duration of the out-of-specification period was less than the boron analysis frequency required by the Technical Specification, and once the out-of-specification condition was communicated to operations personnel, actions required by TS 3.9.1 were taken immediately.

Enforcement. TS LCO 3.9.1 requires that while in Mode 6, RCS boron concentration shall be maintained uniform and sufficient to achieve a K_{eff} of 0.95 or less or shall be greater than 2000 ppm, whichever is more restrictive. With this requirement not satisfied, the licensee is to immediately suspend all operations involving core alterations or positive reactivity changes and initiate and continue boration until boron concentration is restored to specification. Contrary to this, on October 28, 2004, the licensee delayed taking TS required actions for a period of approximately four hours after RCS boron concentration decreased below the 2000 ppm limit. The licensee otherwise satisfied the TS actions from the time of discovery; therefore, this violation was for failure to comply with the LCO only. Because this violation was determined to be of very low safety significance, it is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as NCV 05000327/2004005-01, Communications Problems Resulted in Failure to Meet TS LCO 3.9.1 for RCS boron. This violation is in the licensee's corrective action program as PER 70987.

1R22 Surveillance Testing

a. Inspection Scope

For the six surveillance tests identified below, by witnessing testing and/or reviewing the test data, the inspectors verified that the SSCs involved in these tests satisfied the requirements described in the TS surveillance requirements, the UFSAR, and applicable licensee procedures; and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the attachment. Those tests included the following:

- 1-SI-OPS-082-026.A, Loss of Offsite Power With Safety Injection - Diesel Generator 1A-A Test, Revision 32
- 1-SI-OPS-088-001.0, Phase A Containment Isolation Test, Revision 7
- 1-SI-SXV-063-201.0, Safety Injection System Hot Leg and Cold Leg Injection Check Valve Full Stroke Test, Revision 4*
- 0-SI-MIN-061-106.0, Ice Condenser Flow Passage Inspection, Revision 2**
- 0-SI-MIN-061-107.0, Ice Condenser Floor Drains, Revision 0**
- 1-SI-ICC-077-410.0, Channel Calibration of Reactor Building Auxiliary Floor and Equipment Drain Sump Level (1-L-77-410), Revision 7***

*This procedure included inservice testing requirements.
**This procedure included an ice condenser system surveillance.
***This procedure included a leak detection system surveillance.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification described in Temporary Alteration Control Form (TACF) 1-04-028-068, Reactor Coolant Pump (RCP) Shaft Cracking Monitoring System, Revision 1, and the associated 10 CFR 50.59 screening, and compared it against the UFSAR and TS to verify that the modification did not affect the operability or availability of any safety system. The inspectors walked down the TACF to ensure it was installed in accordance with the modification documents and reviewed post installation and removal testing to verify the actual impact on permanent systems was adequately verified by the tests. The inspectors also verified that permanent plant documents were updated to reflect the TACF to ensure that plant configuration control was maintained. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals for the three PIs listed below for the period referenced by each indicator. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, “Regulatory Assessment Indicator Guideline,” Revision 2, were used to verify the basis in reporting for each data element.

Cornerstone: Mitigating System

- Safety System Unavailability: Emergency Power (October 1, 2003 through June 30, 2004)

The inspectors reviewed portions of the operations logs and raw PI data developed from monthly operating reports and discussed the methods for compiling and reporting the PIs with cognizant engineering personnel. The inspectors also independently calculated selected reported values to verify their accuracy.

Cornerstone: Barrier Integrity

- Reactor Coolant System Leakage (April 1, 2003 through June 30, 2004)
- Reactor Coolant System Activity (April 1, 2003 through September 30, 2004)

The inspectors reviewed portions of the operator and chemistry logs to verify that the licensee had accurately determined the RCS activity and leakage during the periods referenced for both units. The inspectors also observed the performance of Procedure 0-SI-OPS-068-137.0, RCS Water Inventory, which determines the amount of RCS leakage. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Review

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This was accomplished by reviewing the description of each new PER and attending daily management review committee meetings.

.2 Semi-Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, the inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also included licensee trending efforts and licensee human performance results. The inspectors' review nominally considered the six-month period of July 2004 through December 2004, although some examples expanded beyond those dates when the scope of the trend warranted. Specifically, the inspectors consolidated the results of daily inspector screening discussed in Section 4OA2.1 into a log, reviewed the log, and compared it to licensee trend reports for the period from April 2004 through September 2004 in order to determine the existence of any adverse trends that the licensee may not have previously identified.

b. Findings and Observations

There were no findings of significance identified. The inspectors evaluated the licensee trending methodology and observed that the licensee had performed a detailed review. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their data. The inspectors compared the

licensee process results with the results of the inspectors' daily screening and did not identify any discrepancies or potential trends that the licensee had failed to identify.

.3 Focused Sample Review of Foreign Material Exclusion (FME) Issues

a. Inspection Scope

The inspectors reviewed PER 62996, which identified a number of issues related to FME in order to determine if a negative trend existed in this area. This issue was identified during a Nuclear Assurance Maintenance Audit SSA0405. Additional FME issues have been reviewed by the resident inspectors, including reactor coolant system foreign material similar to material discussed in NRC IR 327,328/2003-004. The PER was reviewed to ensure that the full extent of the issue was identified; an appropriate evaluation was performed; and appropriate corrective actions were specified, prioritized, and completed. The inspectors review also included corrective actions for Level A PER 31083, which involved the identification of a cloth rag located in the inlet side of the 1B main feedwater pump turbine. The inspectors evaluated the PERs against the requirements of the licensee's corrective action program as specified in SPP-3.1, Corrective Action Program, 10 CFR 50, Appendix B, and the licensee's foreign material control Procedure SPP-6.5. In addition, the inspectors completed a number of additional PER database searches since the initiation of the subject PERs in order to determine if corrective actions for the individual issues and any adverse trends were being effective in minimizing FME issues at the site. The inspector discussed FME practices, trending, and training with various managers and FME program owners to evaluate the licensee's overall approach to identifying and eliminating FME concerns.

b. Findings and Observations

There were no findings of significance identified. The inspector's review of PER 62996 which evaluated 52 individual PERs associated with FME, concluded that the licensee adequately examined each PER, evaluated the apparent cause, and looked for common cases and trends. The overall conclusion of the licensee's review was a lack of personnel, ownership and responsibility, on the part of both plant and contractor personnel, to support a successful FME program. Training deficiencies were also identified regarding a lack of effective re-training on FME for workers, FME monitors, and supervisors. Overall, the inspectors concluded that the licensee's evaluation of the 52 PERs was adequate and corrective actions were initiated for each of the identified apparent causes. The majority of the corrective actions for the FME issues were focused on long-term improvement. The cause and corrective actions for PER 62996 encompassed the same areas as those for Level A PER 31083. Corrective actions taken to address these issues included:

- Lessons learned from latest operating experience reports incorporated into Procedure SSP-6.5
- Issuance of an FME pocket handbook to supervisors
- New training course developed for Procedure SSP-6.5 changes
- Monitor and Supervisor training developed for Procedure SSP- 6.5 changes
- Develop and planned periodic FME program refresher training

- The incorporation of FME scenarios into the licensee's Dynamic Learning Center to reinforce expectations for FME to both full time employees and transient contractors.
- Incorporated a formalized FME data sheet into the work process

The inspectors verified that the corrective actions were implemented or completed as planned. One exception was noted, in that, all desired training was not completed for all personnel prior to the Unit 1 Cycle 13 refueling outage. The licensee did provide some compensatory actions for this which involved increased emphasis on FME during outage pre-job briefings and additional supervisor oversight focusing on FME controls. The inspectors noted an increase in the number of PERs during the outage related to the stopping of work activities due to a lack of FME controls, indicating the licensee was effective in increasing the general awareness for FME.

Based on the inspectors' review of FME-related PERs since June 2003 to date, the inspectors observed that the overall significance of each issue has been reduced. Although the number of PERs has not substantially decreased, when the inspector analyzed each PER, there was a significant increase in the number of PERs involving self-identification of a lack of FME barriers which resulted in the stopping of work to correct as opposed to the initiating of a PER due to the identification of foreign material found in an undesired location. One additional conclusion was that the majority of the actual FME events and near misses continued to be associated with the secondary plant systems, frequently involving the control of contractor personnel. The licensee has taken additional measures to improve FME controls for secondary plant components, based on the last refueling outage.

The inspectors determined that the licensee's corrective actions adequately addressed the subject PERs. The corrective actions appear to have raised the short-term awareness of FME controls and stressed to personnel the importance of properly adhering to established FME program requirements. The inspectors concluded that the recently developed training and improved monitoring appeared to be adequate to address the root and contributing causes for the identified FME issues.

Most of the corrective actions were considered continuous in nature and will rely on continued management oversight, coaching, and involvement in order to be fully effective in minimizing FME issues at the site.

4OA3 Event Followup

.1 (Closed) Licensee Event Report (LER) 05000328/2004-001-00, Failure of Loop Calculation Processor (LCP) within the Reactor Protection System.

On July 1, 2004, the LCP in Protection Set 4, Rack 13, of Unit 2 failed to the tripped condition. The licensee attempted to reset the processor but was unsuccessful. They then left the processor in the electronic trip condition until maintenance personnel were prepared to replace the processor. It was at that point that the processor was manually tripped. The inspectors reviewed this issue and previously issued a NCV against TS 3.3.1. This was documented in IR 05000327,328/2004-004, Section 1R15. The inspectors reviewed this LER and no new issues were identified. This LER is closed.

.2 (Closed) LER 05000327/2004-002-00, Failure to Initiate an Immediate Boration of the RCS when the Boron Concentration Was Determined To Be below the TS Limit.

This event is discussed in Section 1R20 of this report. The inspectors reviewed this LER and no new issues were identified. This LER is closed.

4OA5 Other Activities

.1 (Closed) Unresolved Item (URI) 05000327,328/2001-006-02, Residual Heat Removal System Venting Methodology.

The inspectors reviewed PER 01-006158-000 and PER 01-006149-000 which documented a measured gas accumulation of 15.8 cubic feet (ft^3) in July 2001, and 18.8 ft^3 in September 2001, identified in the Unit 1 RHR system discharge piping. The inspectors also examined previous corrective actions for gas accumulation in the Unit 1 RHR system piping downstream of the RHR pumps due to leakage through SI accumulators and test header valves. These included:

- A licensee-identified NCV (50-327,328/00-08-03) of 10 CFR Part 50, Appendix B, Criterion XVI, issued in NRC Inspection Report 50-327,328/00-08 on March 31, 2001, for inadequate corrective actions in addressing a 1995 water hammer event which failed to preclude lifting a relief valve in 2000.

- A licensee-identified NCV (50-327,328/00-07-01) of 10 CFR Part 50, Appendix B, Criterion XVI, issued in NRC Inspection Report 50-327,328/00-07 in January of 2001, for failure to identify and correct inadequacies in the venting procedure.

The URI was identified to review these previous issues as they could be related to the more recent identification of gas as identified in PER 01-006158-000 and PER 01-006149-000. The primary concern for gas in this piping is associated with the

potential for water hammer events. Following identification of the URI, the licensee determined that their existing process for venting the RHR discharge piping was not fully effective in removing all of the gas in the accessible and inaccessible RHR discharge piping. Some of the areas retaining gas did not have local vents. Other issues were identified concerning the venting procedure in which certain vents did not provide an adequate vent if the RHR pumps were not running during the venting process. Based on the licensee's additional reviews, additional corrective actions were implemented to maximize the effectiveness of the venting process for the RHR discharge piping. These included revisions to the venting procedure to require running of the RHR pumps during venting, the addition of a number of vents on the discharge piping to facilitate a more thorough system vent, and closure of numerous test header valves which could have been a source of gas. In addition, during the subsequent refueling outage, numerous valves which could have been potential leakage paths to the RHR discharge piping were rebuilt. Other improvements were implemented regarding venting techniques, including the addition of visible hoses to better enable operators to identify a steady stream of water absent of air bubbles.

The licensee had previously determined that the integrity of the system, due to water hammer, would not be affected as long as the amount of gas in the system did not exceed 22 ft^3. The inspectors and an Office of Nuclear Reactor Regulation (NRR) technical contact reviewed the piping analysis which established this limit and did not identify any significant concerns which would question the past operability of the system. The licensee also developed a method for estimating and monitoring the amount of gas in the system. This method, based on flow rate measurement, appeared to provide assurance in addition to periodic system venting that any residual gas in the system was not significant. The licensee was actively trending this information on a periodic basis to not only establish steady state gas, but also to look for unanticipated gas ingress into the RHR system from maintenance or system operating parameter changes.

The inspectors considered that at the time of the identification of the additional gas in the RHR discharge piping, the licensee was still in process of improving their venting methodology, monitoring, and techniques for minimizing gas build up in the RHR discharge piping. The licensee is continuing to review trend data to determine the need for additional vents, adjustments to established venting frequencies, and enhancements to their ability to detect and eliminate undesired gas in the RHR discharge piping. The inspectors did not identify any new violation of NRC requirements. Therefore, based on this review, this URI is closed.

.2 (Closed) NRC Temporary Instruction (TI) 2515/152, Revision 1, Reactor Pressure Vessel Lower Head Penetration Nozzles (NRC Bulletin 2003-02)

a. Inspection Scope

The inspectors reviewed the Unit 1 bare metal visual examination performed by the licensee in response to the NRC Bulletin 2003-02, Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity, dated August 21, 2003.

The inspection guidelines were provided in TI 2515/152, Revision 1. Documents are listed in the attachment.

b. Findings and Observations

No findings of significance were identified. Per the reporting requirements of TI 2515/152, Revision 1, the following attributes were observed:

Verification that visual examination was performed by qualified and knowledgeable personnel

Two teams of three individuals performed the examination of the Unit 1 lower head. One team worked the day shift and one team worked the night shift. One individual on each shift was a licensee Level III Non-Destructive Examination (NDE) qualified to perform VT-2 inspections. The inspectors reviewed the qualification records and verified that these individuals were certified as Level III VT-2 inspectors. The other members of each team were vendor employees that operated the remote video camera equipment. Several of these individuals had performed the same examinations on the Unit 1 upper and lower heads in the spring of 2003 and the Unit 2 lower head in the fall of 2003. The inspectors interviewed all of the individuals and noted that they were knowledgeable of the criteria to determine leakage.

Verification that visual examination was performed in accordance with demonstrated procedures

The inspectors reviewed Procedure N-VT-17, Visual Examination for Leakage of Pressurized Water Reactor (PWR) Head Penetrations, Revision 4. The inspectors observed that the examination was done using this procedure. The inspectors verified by direct observation and discussions with examination personnel that the approved acceptance criteria for lower head leakage were applied in accordance with the procedures.

Verification that the licensee was able to identify, disposition, and resolve deficiencies

The licensee's examination plan included a VT-2 examination using a remote crawler with attached video cameras in the front and rear. In addition, the examination used the resolution level of a VT-3. The licensee recorded all examinations of the nozzles. Any suspected leakage observed by the visual examination was noted and reviewed by materials engineers. The inspectors verified that the examination results for each nozzle were individually documented.

Verification that the licensee was capable of identifying the pressure boundary leakage as described in the bulletin or RPV lower head corrosion

The inspectors visually observed the Unit 1 lower head during the licensee's examination; observed the licensee conduct the examination; discussed the examination with the licensee examiners prior to, during, and following the examination; and verified the qualifications of the licensee examination personnel. The inspectors concluded that

the licensee's visual examination was adequate to identify potential pressure boundary leakage lower head corrosion.

Evaluate ability for small boron deposits, as described in the bulletin, to be identified and characterized

The licensee examined the lower head with a remote crawler equipped with cameras to allow examination of each nozzle. The licensee drove the crawler directly below each row of the head in two directions, up and back. This provided two opposing views of each nozzle so that each nozzle was examined 360° around its circumference. The cameras on the crawler allowed examiners to zoom in close enough to see the annular region on each nozzle. The inspectors noted that this method allowed the licensee to adequately identify and characterize any small boric acid deposits.

Determine how the visual examination was conducted (video camera or direct visual by examination personnel)

The examination was done using a remote crawler with video cameras attached in the front and rear and a third camera that could tilt and zoom directly overhead. The licensee removed peripheral portions of insulation surrounding the lower head and placed the crawler on top of the remaining flat insulation below the lower head. The crawler traversed this insulation, below the lower head and nozzles, and the licensee used the tilt and zoom camera to examine the nozzles overhead. If necessary, the licensee NDE examiner could perform a direct visual examination. This was done for two nozzles on Unit 1.

Verify that the visual examination covered 360° around the circumference of all nozzles

As noted above, the visual examination did cover 360° around the circumference of each nozzle.

Evaluate the physical condition of the lower head (debris, insulation, dirt, boron from other sources, physical layout, viewing obstructions)

The inspectors viewed the condition of the Unit 1 lower head via remote video and performed a direct observation of portions of the head. The head was covered with a fair amount of surface rust in the general areas and there were rust deposits or buildup in the annular area of several of the penetrations themselves. The nozzles showed no evidence of boron leakage, no debris, and no viewing obstructions. There was some evidence of boric acid leakage trails from above, but these did not seem to mask any potential penetration leakage.

Determine extent of material deficiencies (associated with the concerns identified in the bulletin) which were identified that required repair

The licensee found no deficiencies that needed repair.

Determine any significant items that could impede effective examinations

The inspectors observed no examples of significant items that could impede the visual examination process.

Verify that the licensee performed appropriate follow-on examinations for indications of boric acid leaks from pressure-retaining components above the lower head

The licensee found minimal evidence on the Unit 1 lower head of boric acid leaks from pressure retaining components above the lower head.

Determine if the licensee was planning to clean the lower head

The licensee had plans to clean any boron deposits found during the examination. Because none were found, the Unit 1 lower head was not cleaned.

Document the licensee's conclusions and rationale regarding the origin of any deposits present

The licensee concluded that there was no degradation indicative of boron leakage on the Unit 1 lower head. They also determined that a large percentage of nozzles showed evidence of minor corrosion and coating degradation. This was attributed to surface corrosion.

.3 (Closed) NRC TI 2515/153, Reactor Containment Sump Blockage (NRC Bulletin 2003-01)

a. Inspection Scope

The inspectors completed the evaluation of licensee compensatory measures in response to NRC Bulletin 2003-01, Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors, to verify that they were properly implemented on Units 1 and 2. The inspectors previously reviewed the licensee response to NRC Bulletin 2003-01 in IR 05000327,328/2003006, however, the TI remained open at that time pending review of the final results of licensee walkdowns of Unit 2.

In this continuation of the review, the inspectors reviewed the licensee response to the Bulletin, dated August 8, 2003, the licensee response to a request for additional information, dated October 27, 2004, a draft of the report on walkdowns done on Unit 2 during the refueling outage of the fall of 2003, procedures for walkdown of Unit 1 during the recent refueling outage of October 24 to November 20, 2004, and the NEI guidance for these walkdowns. The inspectors also reviewed training records, reviewed EOP and

AOP changes, observed licensee walkdowns of Unit 1, and physically inspected the containment sump to further verify that licensee interim actions were implemented or properly planned to be implemented. Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings of significance were identified. As directed by the reporting requirements of TI 2515/153, the following observations were included:

Containment walkdown to quantify potential debris sources

The inspectors reviewed Procedure TVA/SQN-CWD-Proc-02, Containment Walkdown Procedure for Potential Sump Screen Debris Sources at Sequoyah Nuclear Plant, Revision 0, and compared it to the guidance of NEI 02-01 to verify that the procedure implemented the guidance in the NEI document for Unit 1. The procedure provided instructions to perform coatings walkdowns, insulation walkdowns, and sump area walkdowns with the objective of identifying the type, location and extent of various types of debris sources inside containment. It included potential debris sources such as: fixed debris, i.e., permanent materials that can become transportable after a high energy line break; transient debris, i.e., foreign material; and latent debris, i.e., degraded materials, and coatings. The inspectors determined that the licensee procedure was consistent with the NEI guidance.

The inspectors performed this same comparison for Unit 2 during the refueling outage of the fall of 2003. At that time, this TI was left open pending the availability of the final report on the walkdown of Unit 2. The inspectors reviewed a draft copy of that report to determine if it quantified potential debris sources inside containment. The report contained several detailed lists of different potential debris: including coatings, with approximate quantities by room location, and insulation, with approximate quantities listed by location. If the final report for Unit 2 were to reflect the draft and the final report for Unit 1 were similar, the inspectors determined that the licensee walkdowns of Units 1 and 2 would quantify potential debris sources inside containment.

Check for gaps in the sump screen flowpath and for major obstructions in containment upstream of the sump

The inspectors reviewed procedures for post-outage containment cleanup, containment sump inspection, and refueling cavity drain inspection for Unit 1. These procedures contained instructions to verify that the sump piping was free from foreign objects, that structural members of the sump were free from structural distress or corrosion, that the sump screen was intact with uniform openings and no broken strands, and that the internal drains from upper containment to lower containment were open and free from debris. In addition, the inspectors observed the licensee's inspection of the containment sump and internal drains and performed a separate independent inspection of the sump and internal drains. No gaps were identified in the sump screened flowpath and no major obstructions were identified in the internal containment drains or the emergency sump.

Advanced Preparations to Expedite Sump-Related Modifications

The licensee indicated that there were no pending advanced preparations to expedite the performance of sump-related modifications and no sump-related modifications had yet been identified.

.4 NRC TI 2515/160, Pressurizer Penetration Nozzles and Steam Space Piping Connections in U.S. Pressurized Water Reactors (NRC Bulletin 2004-01)

a. Inspection Scope

The inspectors reviewed the licensee's 60-day response to NRC Bulletin 2004-01, dated July 27, 2004. The inspectors verified that the licensee's examinations conducted during October 27 - November 1, 2004 were consistent with the licensee's response to BL 2004-01.

The inspectors observed the Bare Metal Visual (BMV) examination performed on a sample of the welds that fall under the scope of BL-2004-01. BMV examinations were observed for the following welds: RCW-25-SE, RCW-16, RCW-17, RCW-19, and RCW-18.

The inspectors reviewed the BMV examination documentation for the above welds as well as the verification of personnel qualifications of individuals performing the visual exams to ensure compliance with ASME Section XI, VT-2.

The inspectors also reviewed the licensee qualified procedure "Procedure N-VT-19, Visual Inspection of Alloy 600/82/182 Pressure Boundary Components, Revision 1, used for the BMV examination to ensure that it contained specific instructions related to the identification, disposition, and problem resolution.

The inspectors accompanied Sequoyah Visual Examiners to the top of the pressurizer to ensure that the physical conditions of the pressurizer nozzle to safe end connections were clean and accessible for the prescribed inspections. The inspectors also verified that there were no issues with debris, insulation, dirt, boron from other sources, physical layout, or viewing obstructions which could have interfered with the identification of relevant indications.

The VT-2 BMV examinations did not result in any indications in the area of interest. However, during the initial visual inspection and removal of insulation from the relief valve RCW-17, the presence of boron was found on the pipe which connects with the nozzle. The licensee made the decision to perform a Dye Penetrant Test and an Ultrasonic Test even though the boron was found in an area that was outside of the inspection scope. After performing both non-destructive examinations, no indications were found. Samples from the found boron were also taken and the results indicated that the boron was approximately one year old, which coincides with a boron leakage from valve 43-1 identified during a Mode 3 walk-down of the top of the pressurizer. The inspectors also reviewed the examination documentation to verify conformance to commitments made in response to BL 2004-01.

b. Findings and Observations

No findings of significance were identified.

.5 (Closed) Violation (VIO) 50-327, 328/01-02-01, TVA Corporate Employee Discrimination

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that TVA did not select a former employee to a competitive position in a corporate organization in 1996, due, at least in part, to his engagement in protected activities. In addition two Severity Level II violations of 10 CFR 50.5, Deliberate Misconduct, were issued to the individual TVA managers involved in the employment discrimination. On January 22, 2001, TVA denied the violation. On May 4, 2001, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, 2001, TVA appealed the case to the Atomic Safety and Licensing Board (ASLB). From April to September, 2002, a hearing was held before the ASLB. On June 26, 2003, the ASLB upheld the Nuclear Regulatory Commission (NRC) staff's finding that TVA discriminated against its former employee. The decision of the ASLB was appealed to the Commission by TVA. On August 18, 2004, the Commission affirmed in part and reversed in part the ASLB decision and remanded the case back to the ASLB. On October 29, 2004, a Settlement Agreement was signed by TVA and the NRC staff. In the Agreement, the NRC withdrew the two individual violations, dropped the civil penalty, and agreed not to pursue a related individual case, while TVA agreed not to further contest the violation against the company and submit to a review by the NRC of recently completed TVA audits in the area of safety conscious work environment (SCWE) and the training of managers. The Settlement Agreement was subsequently signed by the ASLB on November 10, 2004. On November 30, 2004, the NRC Office of Enforcement (OE) conducted a review at the TVA Nuclear (TVAN) offices in Chattanooga, Tennessee, and at TVA's Sequoyah Nuclear Power Plant to verify TVA's corrective actions relative to the Settlement Agreement. In a letter dated January 12, 2005, OE concluded that the corrective actions were appropriate and adequately implemented and that TVA appears to actively support a SCWE. On December 20, 2004, the Commission declined to review the ASLB's decision; thereby, making the ASLB's decision the final agency action. This violation is therefore closed.

4OA6 Meetings, including Exit

Exit Meeting Summary

On January 12, 2005, the resident inspectors presented the inspection results to Mr. D. Kulisek and other members of his staff, who acknowledged the findings.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee personnel:

J. Bajraszewski, Licensing Engineer
H. Cothran, Steam Generator Manager
R. Douet, Site Vice President
M. Gillman, Operations Manager
K. Jones, System Engineer Manager
D. Kulisek, Plant Manager
J. Laughlin, Assistant Plant Manager
P. Pace, Licensing and Industry Affairs Manager
K. Parker, Maintenance and Modifications Manager
R. Rogers, Site Engineering Manager (Acting)
A. Smith, Maintenance Manager
J. Smith, Site Licensing Supervisor
J. Traister, Security Manager

NRC personnel:

R. Bernhard, Region II, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000327/2004005-01	NCV	Communications Problems Resulted in Failure to Meet TS LCO 3.9.1 for RCS Baron. (Section 1R20)

Closed

50-328/2004-001-00	LER	Failure of Loop Calculation Processor (LCP) within the Reactor Protection System. (Section 4OA3.1)
50-327,328/2001-006-02	URI	Residual Heat Removal System Venting Methodology. (Section 4OA5.1)
50-327/2004-002-00	LER	Failure to Initiate an Immediate Boration of the RCS when the Boron Concentration Was

		Determined To Be below the TS Limit. (Section 4OA3.2)
05000327,328/2515/152, Revision 1	TI	Reactor Pressure Vessel Lower Head Penetration Nozzles. (Section 4OA5.2)
05000327,328/2515/153	TI	Reactor Containment Sump Blockage. (Section 4OA5.3)
05000327,328/2515/160	TI	Pressurizer Penetration Nozzles and Steam Space Piping Connections in U.S. Pressurized Water Reactors. (Section 4OA5.4)
05000327,328/2001002-01	VIO	TVA Corporate Employee Discrimination. (Section 4OA5.5)

LIST OF DOCUMENTS REVIEWED

Section R01: Adverse Weather Protection

1-PI-EFT-234-706.0, Freeze Protection Heat Trace Functional Test, Revision 25
2-PI-EFT-234-706.0, Freeze Protection Heat Trace Functional Test, Revision 17

Section R04: Equipment Alignment

1,47W811-1 Safety Injection System Flow Diagram, Revision 60
2,47W811-1 Safety Injection System Flow Diagram, Revision 53
1-SO-63-5 Attachment 1, Emergency Core Cooling System Power Checklist, Change 15
1-SO-63-5 Attachment 2, Emergency Core Cooling System Valve Checklist, Change 22
2-SO-63-5 Attachment 1, Emergency Core Cooling System Power Checklist, Change 14
2-SO-63-5 Attachment 2, Emergency Core Cooling System Valve Checklist, Change 25
2-SO-63-5, Emergency Core Cooling System Operating Instruction, Revision 36

Section R08: Inservice Inspection Activities

Procedure N-VT-19, Visual Inspection of Alloy 600/82/182 Pressure Boundary Components, Revision 1
Procedure N-UT-64, Generic Procedure For the Ultrasonic Examination of Austenitic Pipe Welds, Revision 7
Procedure O-PS-SLT-068-200.0, Reactor Building Post Shutdown Leakage Examination, Revision 0
Sequoyah Nuclear Plant - Unit 1 Steam Generator Eddy Current Examination Guidelines, Inconel 690, Revision 2
Sequoyah Nuclear Plant - Unit 1 Cycle 13 (U1C13) Replacement Steam Generator Tubing Examination Scan Plan, Revision 0
Sequoyah Nuclear Plant - Unit 1 Cycle 13 Degradation Assessment, Revision 2
Sequoyah Nuclear Plant - Unit 1 Steam Generator Eddy Current Examination Data
Problem Evaluation Report (PER) 71565, Wear indications discovered in area of tubing U-bend support structures during ET examination of RSGs

Section R11: Licensed Operator Requalification

TDM-S.1, Simulator Review Board, Revision 1
TDM-S.2, Problem Reports and Design Change Requests, Revision 2
TDM-S.3, Preventative Maintenance, Revision 3
TDM-s.4, Examination Security, Revision 4
TDM-S.9, Core Model Evaluation, Revision 2
TDM-S.10, Configuration Control, Revision 0
TDM-S.11, Simulator Testing Program, Revision 1
TDM-S.14, Plant Event Evaluation, Revision 1
“Test Taking Fundamentals”, Revision 7
JPMs: 42-2AP, 98, 78AP, 19AP2
Simulator Scenarios
Simulator Steady-State Test for 100% power level
Simulator Transient Performance Tests:
Transient Test #1, “Manual Reactor Trip”

Transient Test #4, “Trip of any Single Reactor Coolant Pump”
Transient Test #9, “ Maximum Size Unisolable Main Steam Line Rupture”
Simulator Review Board Meeting Minutes
Open Simulator Problem Reports
Closed Simulator Problem Reports (1 year)
Written exams for weeks 1, 2, & 3

Section R12: Maintenance Rule Implementation

0-MI-EBR-202-000.0, Siemens 6900V Vacuum Breaker Inspection, Revision 12
0-GO-10, Electrical Apparatus Operation, Revision 22
WO 04-774452-000, 6.9-kV Siemens Breaker Hardware Inspection
WO 04-778499-004, Washer Replacement on ERCW P-B (A003)
WO 04-778568-000, Replace Siemens Breaker for 2A Pressurizer Heater with ABB Type HK Breaker
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Section R13: Maintenance Risk Assessments and Emergent Work Evaluation

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Section R20: Refueling and Outage Activities

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0-GO-15, Containment Closure Control, Revision 17
0-GO-6, Power Reduction From 30% to Hot Standby, Revision 25
0-GO-7, Unit Shutdown From Hot Standby to Cold Shutdown, Revision 34
0-TI-OXX-068-001.0, Reactor Coolant System Hot Leg Vents and Generic Letter 88-17 Issues, Revision 13

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