



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

Report Nos.: 50-327/93-01 and 50-328/93-01

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

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

Facility Name: Sequoyah Units 1 and 2

Inspection Conducted: January 3 through 30, 1993

Lead Inspector: William E. Holland 2-5-93
W. E. Holland, Senior Resident Inspector Date Signed

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

Approved by: Paul J. Kellogg 2/5/93
Paul J. Kellogg, Chief, Section 4A Date Signed
Division of Reactor Projects

SUMMARY

Scope:

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

Results:

During a review of operator aid usage, the inspectors noted that several hundred operator aids were in place which indicated that additional management attention was warranted in this area to provide for appropriate corrective actions to minimize the need for high usage of operator aids (paragraph 3.b).

In the Engineering/Technical Support functional area, a weakness was identified with regard to the licensee's monitoring program for erosion of piping in the secondary plant. The weakness involved not identifying target tee components for monitoring based on past component failure history (paragraph 4.b).

In the Surveillance functional area, the inspectors observed good communications between operators and other testing personnel during performance of two test activities (paragraph 5).

In the Engineering/Technical Support functional area the inspectors noted a relatively high number of outstanding JCOS that were active in the operator's log which required documentation to justify operability for safety-related systems, structures, and components (paragraph 6).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. Fenech, Site Vice President
- *R. Beecken, Plant Manager
- *J. Baumstark, Operations Manager
- *L. Bryant, Maintenance Manager
- *L. Bush, Acting Operations Manager
- *M. Cooper, Site Licensing Manager
- *R. Drake, Project Management and Controls Manager
- *T. Flippo, Site Quality Assurance Manager
- *J. Hanson, INPG
- C. Kent, Radiological Control Manager
- *D. Lundy, Nuclear Engineering Site Support Manager
- *J. Maciejewski, General Manager Nuclear Assurance
- *M. Palmer, Radiological Protection Manager
- *R. Poole, Mechanical Instrument Group Manager
- *R. Proffitt, Licensing Engineer
- R. Rausch, Modifications Manager
- H. Rogers, Acting Technical Support Manager
- J. Smith, Regulatory Licensing Manager
- *R. Thompson, Compliance Licensing Manager
- *P. Trudel, Nuclear Engineering Manager
- J. Ward, Engineering and Modifications Manager
- N. Welch, Operations Superintendent
- *K. Whittenburg, Public Relations

NRC Employees

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

*Attended exit interview.

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

On January 6, and 7, 1993, Mr. Paul Kellogg, NRC, RII, DRP visited the Sequoyah site. Mr. Kellogg met with resident inspectors and reviewed ongoing plant issues, attended the resident monthly exit, met with licensee management, and toured the plant with the resident inspectors.

On January 27, 1993 plant management announced the following immediate management and organizational changes for Sequoyah Nuclear Plant.

- In Operations, Mr. Jim Baumstark was named as the Operations Manager. The Fire Protection group was placed directly under the Operations Manager in order to better focus management attention in that area.

- A full-time Outage Manager position for the outage organization was created reporting directly to the Plant Manager. Mr. John Gates was named as the Outage Manager.
- The Chemistry and Radiological Controls organizations were merged into one organization. Mr. Charles Kent was named as manager of the organization.

In addition, Mr Dennis Lundy was named as the new Manager of Technical Support effective April 5, 1993.

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

2. Plant Status

Unit 1 began the inspection period in MODE 3. The unit was taken critical on January 3, returned power operation on January 4 and resumed full power operation on January 6, 1993. The unit operated at approximately full power for the duration of the inspection period.

Unit 2 began the inspection period in MODE 1 with preparations being made to connect the turbine generator to the grid. The unit was shut down to MODE 3 on January 7 in order to perform additional testing on VCT and RWST isolation valves. The unit was taken critical on January 9 and returned to power operation on January 10. Power operation continued until January 29, when the unit was shut down to conduct maintenance on secondary plant components. The unit was taken critical on January 30 and was continuing with the startup when the inspection period ended.

3. Operational Safety Verification (71707)

a. Daily Inspections

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

b. Weekly Inspections

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

During a plan-of-the-day meeting on January 22, 1993 the inspectors observed that operations supervision identified that several hundred operator aids were in use throughout the plant and that this was too high a number. The inspectors noted that the quarterly operator aids review was ongoing at this time.

The inspectors obtained a copy of the current operator aid log sheets from operations management and made the following observations:

- There was a total of 433 active operator aids located throughout the plant. Most of the aids had been installed by operations personnel.
- Aids were used for assistance in equipment operation, safety information, as part of corrective actions for PERs, for identification of abandoned equipment, as cautionary information during equipment operation, and for notification of others during evolutions.

The inspectors consider that an operator aid process, when used as a short term interim action, was useful. However, the inspectors agreed with licensee operations management that too many operator aids were in use throughout the plant. They also noted the aggressive attitude that operations was taking to reduce the number of aids. However, the fact that several hundred aids were in place indicated that additional management attention was warranted in this area to provide for appropriate corrective actions to minimize the need for high usage of operator aids.

c. Biweekly Inspections

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

d. Other Inspection Activities

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

e. Physical Security Program Inspections

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

Within the areas inspected, no violations were identified.

4. Maintenance Inspections (62703 & 42700)

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

- a. During the inspection period, the inspectors reviewed activities associated with identified leakage through steam generator blowdown sample isolation valves. The inspectors noted that the licensee had identified that 6 of the 8 sample valves (3 on each unit) were leaking which required operators to declare the valves inoperable and enter TS LCO ACTION 3.6.3.c. The licensee subsequently replaced two of the leaking valves (one on each unit) with new valves. The inspectors determined that the licensee intends to rebuild the replaced valves and use them for replacement after refurbishment. At the end of the inspection period, 4 sample valves were considered inoperable.

The inspectors held additional discussions with engineering and licensing personnel with regard to the problem resulting in the

valve leakage and were informed that this issue had been identified in a significant corrective action report. The inspectors were provided a copy of the SCAR No. SQSCA910017. The SCAR identified that various Target Rock Valves, which were being used to perform a containment isolation function, were experiencing leakage due to buildup of corrosive products on the valve internals. The licensee discussed the problem with the vendor and they stated that they could provide a new seat design which should eliminate the problem. The licensee was considering the vendors proposal when the inspection period ended. The inspectors will continue with review of this area during the next inspection period.

- b. On January 27, 1993 at the licensee's morning plan-of-the-day meeting, the inspectors observed discussions about a secondary plant piping leak that had been identified on Unit 2 during the last 24 hours. The leak was identified to be on the operating vent line for the 2A2 moisture separator reheater low pressure drain tank. The inspectors toured the turbine building after the meeting and noted the leak location. The leak was in a location which could not be isolated from extraction steam being supplied by the high pressure main turbine. The leak area on turbine building elevations 685 and 706 had been roped off due to the hazard of steam blowing out of the pipe. The leak was described as a pipe blowout at an target tee due to erosion of the minimum radius portion of the tee elbow. The inspectors discussed the deficiency with plant management and noted that the plant had experienced similar leaks during past operation.

On January 28, 1993 the licensee determined that a temporary repair could not be made at full power and commenced a power reduction on Unit 2 to reduce the steam blowdown through the leak. After reducing power and making preparations for a temporary repair, an unrelated problem on the main generator resulted in a management decision to shut down and make a permanent repair.

The Unit entered MODE 3 on January 29, and the leaking target tee was cut out and replaced. The licensee also inspected similar piping configurations and determined that an additional target tee required replacement. The licensee determined that adequate margin existed for restart on all other tees inspected. Unit 2 was returned to power operation on January 31, 1993.

The inspectors questioned licensee management with regard to whether the failed target tee was in the licensee's program for monitoring for detection of erosion which would allow for identification of repair need prior to failure. The licensee stated that the failed component had not been included in the monitoring program. The inspectors consider that the licensee's failure to have not included the target tee in their monitoring program prior to failure was a program weakness.

Regional management was briefed on the licensee's ongoing actions to correct the target tee leakage problem on Unit 2 by the inspectors. Regional management decided to send a region based specialist to review the licensee's corrective actions and monitoring programs commencing February 1, 1993.

Within the areas inspected, no violations were identified.

5. Surveillance Inspections (61726 & 42700)

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

- a. On January 8, 1993 the inspectors observed the performance of special test instruction STI-152, VERIFICATION OF VCT/RWST VALVE OPERATION FOR CVCS CHARGING PUMP, Revision 0. This test was performed on Unit 2 in order to verify proper operation of the CVCS charging pump suction valves 2-LCV-62-132, 133, 135, AND 136 with regard to coordination logic designed into the valves control circuitry. The inspectors noted good test control, including constant communication between the test director in the control room and personnel involved in the test in the Unit 2 auxiliary instrument room. No deficiencies were noted.
- b. On January 26, 1993 the inspectors observed the performance on surveillance instruction 2-SI-SXP-074-128.B, RESIDUAL HEAT REMOVAL PUMP 2B-B QUARTERLY OPERABILITY TEST, Revision 1. The inspectors verified that required test equipment was installed in accordance with procedure and that calibrations were current. The inspectors noted that good communication was being maintained between the operators in the control room and at the pump location. The inspectors reviewed the completed surveillance package after reviews were completed by the operating crew. No deficiencies were noted.

Within the areas inspected, no violations were identified.

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

During this inspection period, selected reviews were conducted of the licensee's ongoing self-assessment programs in order to evaluate the effectiveness of these programs.

On January 21, 1993 the inspectors reviewed the log of active engineering evaluations/JCOs which was being maintained in the control room as required by SSP-12.14, JUSTIFICATION FOR CONTINUED OPERATION/WAIVERS OF COMPLIANCE, Revision 0. The stated purpose of SSP-12.14 was, in part, to provide guidance for determining and formally

documenting the operability of nonconforming safety-related systems, structures, and components and preparing a justification for continued operation with the nonconforming SSC. The inspectors determined that 57 outstanding engineering evaluations were contained in the logs, some of which required operator actions to compensate for the identified deficiencies. The inspectors selected a sample of 7 evaluations from the log and reviewed these with licensee personnel on January 26. The following evaluations were reviewed:

- SQJCO-92-009, Rev. 0 dated June 12, 1992. This issue was discovered during licensee review of a locked snubber condition.
- SQJCO-92-010, Rev. 1 dated July 22, 1992. This issue involved potential for non-conservative uncertainty calculations for steam generator level instrumentation.
- SQJCO-92-014, Rev. 0 dated August 6, 1992. This issue involved main steam valve vault temperatures which exceeded design values.
- SQJCO-92-016, Rev. 0 dated August 6, 1992. This issue involved identification of problems with calculations used in 10CFR50.49 design output documents.
- SQJCO-92-018, Rev. 0 dated August 6, 1992. This issue involved calculations which had not been maintained current to reflect as-constructed plant changes.
- SQJCO-92-019, Rev. 0 dated August 6, 1992. This issue involved a problem associated with the letdown heat exchanger outlet temperature exceeding its analysis value.
- SQJCO-92-020, Rev. 0 dated August 6, 1992. This issue involved a problem with non-seismically qualified cartridge filter conversion kits.

The inspectors discussed each of the preceding JCOs with licensee personnel in order to understand the general status of each item in the review process. The inspectors determined that each issue was being addressed; however, they could not determine the priority of review based on safety-significance. The licensee also identified an additional 8 items to be added to the logs making a total of 65. The inspectors concluded that most of the JCOs did not require operator action as a compensatory measure. However, they also concluded that the number of outstanding JCOs appeared to be a relatively high number of items which required documentation to justify operability for safety-related systems, structures, and components.

Within the areas inspected, no violations were identified.

7. Licensee Event Report Review (92700)

The inspectors reviewed the LERs listed below to ascertain whether NRC reporting requirements were being met and to evaluate initial adequacy of the corrective actions. The inspector's review also included followup on implementation of corrective action and/or review of licensee documentation that all required corrective actions were either complete or identified in the licensee's program for tracking of outstanding actions.

(Closed) LER 327/92-16, Planned Entries into LCD 3.0.3 When Both Control Room Emergency Ventilation Trains Were Removed From Service to Facilitate Damper Replacement. The issue involved removal of both trains of the control room ventilation system from service for planned periods of less than 20 minutes per period in order to conduct maintenance for replacement of two dampers in the system. The inspectors were aware of the planned maintenance activities, noted that the licensee had instituted comprehensive planning and contingency measures, and noted that all activities were completed as planned in minimum time.

Within the areas inspected, no violations were identified.

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

(Closed) URI 327, 328/91-02-02, Evaluation of Design Basis for the EDG Starting Air System. The issue was identified in inspection report 91-02 and further discussed in inspection report 92-19. The 92-19 report indicated that the licensee's position was being reviewed by the NRC staff with regard to the 5 start requirement specified in NUREG 0800 and FSAR 9.5.6 and whether operator actions to accomplish this requirement was acceptable.

The NRC staff review, which was completed in December 1992, determined that, although the licensee's system does not meet the guidance for air start volume, Sequoyah's decision to maintain the "save start" feature by manual isolation is preferable from a safety standpoint to establishment of an on-line five-start capability by aligning both sets of air receivers for automatic operation.

Within the areas inspected, no violations were identified.

9. Exit Interview

The inspection scope and results were summarized on February 4, 1993 with those individuals identified by an asterisk in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

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

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

10. List of Acronyms and Initialisms

CVCS	-	Chemical and Volume Control System
ESF	-	Engineered Safety Feature
JCO	-	Justification for Continued Operation
KV	-	Kilovolt
LCO	-	Limiting Condition for Operation
LCV	-	Level Control Valve
LER	-	Licensee Event Report
PER	-	Problem Evaluation Report
RCS	-	Reactor Coolant System
RWP	-	Radiation Work Permit
RWST	-	Refueling Water Storage Tank
SI	-	Surveillance Instruction
SOS	-	Shift Operating Supervisor
SRO	-	Senior Reactor Operator
SSP	-	Site Standard Practice
TS	-	Technical Specifications
URI	-	Unresolved Item
VCT	-	Volume Control Tank