



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37331-2000

John A. Scalice  
Site Vice President, Watts Bar Nuclear Plant

JAN 23 1997

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

In the Matter of ) Docket No. 50-390  
Tennessee Valley Authority )

WATTS BAR NUCLEAR PLANT (WBN) - COMMENTS RELATED TO SYSTEMATIC  
ASSESSMENT OF LICENSEE PERFORMANCE (SALP) REPORT 50-390/96-99

On December 19, 1996, NRC SALP Report 50-390/96-99 was issued for the period of November 9, 1995, through November 9, 1996. In that report, Maintenance and Engineering were rated superior and Operations and Plant Support were rated as good. On January 7, 1997, NRC and TVA met to discuss the SALP Report. The open forum in which these ratings were discussed was both beneficial and appreciated by TVA.

While TVA accepts most of the comments in the SALP report related to our performance in Plant Support, we believe that the overall performance in Plant Support merited a superior rating, particularly when considering the performance throughout the SALP period. The basis for this conclusion was discussed with the NRC during the January 7, 1997 meeting. NRC indicated that if TVA had relevant information supporting TVA's conclusion, the information would be reviewed and if necessary, reconvene the SALP board to reevaluate the rating.

TVA considers the Plant Support area to be a significant strength and an asset to WBN plant operations. The Plant Support

9701300202 970123  
PDR ADDCK 05000390  
G PDR

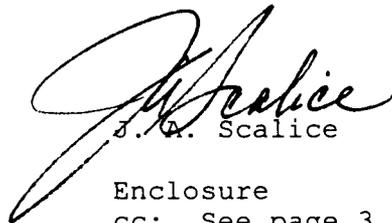
1/23/97

area exemplifies superior performance when the individual areas are assessed and considered in the aggregate. In addition, we believe that certain significant accomplishments that were not addressed in the SALP report summary are indicative of superior performance. Several of the areas such as Radiological Control, Emergency Preparedness, and Fire Protection are setting new performance benchmarks for the industry and these programs should weigh heavily in the overall determination of the Plant Support performance level.

Challenges early in the period have been addressed and improvements have been observed. In the areas of chemistry and security in particular, challenges have been documented and detailed corrective actions for these challenges have been implemented and improvements are evident. Accordingly, TVA requests NRC reconsider the rating in the Plant Support area. The enclosed information concerning the Plant Support processes and performance is provided for your consideration in reviewing the overall rating of Plant Support.

If you should have any questions, please contact P. L. Pace at (423) 365-1824.

Sincerely,

  
J. A. Scalice

Enclosure  
cc: See page 3

U.S. Nuclear Regulatory Commission  
Page 3

cc (Enclosure):

NRC Resident Inspector  
Watts Bar Nuclear Plant  
1260 Nuclear Plant Road  
Spring City, Tennessee 37381

Mr. Robert E. Martin, Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

ENCLOSURE  
PLANT SUPPORT  
SALP FUNCTIONAL AREA

The information contained in this enclosure is presented in outline form providing each sub-area's (within the Plant Support functional area) major accomplishments, challenges, and the basis for TVA's SALP rating conclusion for each sub-area based on the information provided.

I. Radiological Controls

A. Major Accomplishments During SALP Period

1. Occupational Radiation Safety

a. Radiation exposure maintained well below regulatory limits.

- Lowest site exposure for large new unit.
- Met fiscal year 1996 goal of less than 3.4 person-rem.
- Calendar year 1996 site exposure 19.9 person-rem (electronic dosimeter) (10-15 percent lower based on TLD readings).

b. Mid-Cycle Outage

- Approximately 90 percent of mid-cycle outage containment entries (14,700) were made in street clothes.
- Outage exposure was less than 18 person-rem.
- Sludge lancing performed in street clothes.
- RCP seal replacement, up to actual system breach, in street clothes.

2. Radioactive Waste Management

a. Contamination Control

- Essentially no contaminated floor space (including containment) maintained since startup.

- Aggressive leak identification/mitigation program.

b. ALARA Initiatives

- EPRI guidelines used for mid-cycle outage crud burst.
- Installed permanent shielding on containment crane wall doors.
- Installed additional penetration shielding in containment.
- Extensive use of remote telemetry, video surveillance.

c. Radwaste Minimization

- Less than 18 cubic meters of unprocessed dry active waste produced since startup, including mid-cycle outage.
- No radwaste generated during "dress out" activities.

3. Radiological Effluent Control and Monitoring

- a. Radiation monitoring system availability consistently greater than 95 percent since plant startup.
- b. Liquid and gaseous effluents are a very small fraction of technical specification limits.
- c. Procedures are continually enhanced based on user experience and input to improve ease of use, simplify and enhance processes, and strengthen work group interfaces.
- d. Chemistry software program has been successfully implemented. The program has been evaluated during several assessments with no identified deficiencies.
- e. Countroom VAX computer system is well designed to support critical gamma spectroscopy and effluents management applications with a high degree of reliability. The system has been configured to maximize redundancy, accessibility and ease of use.

#### 4. Transportation of Radioactive Materials

WBN has a program in place for the transportation of radioactive materials which implements the latest Department of Transportation and NRC regulations. Due to the low amount of radwaste generated at WBN since fuel load, there was only a limited amount of radioactive material shipped during the SALP period resulting in the burial of 1.3 cubic feet of material.

#### B. Challenges During SALP Period

There have been no significant challenges in this area during the period.

#### C. TVA Conclusion for SALP Period

TVA concludes that the radiological control area merits a "superior" rating based on effective personnel exposure controls, the minimization of radwaste, and the monitoring of radioactive effluents being effectively implemented.

## II. Emergency Preparedness

### A. Major Accomplishments During SALP Period

#### 1. Drill Performance

- a. Difficulty of drills exceeds that of most plants in the industry. NRC recognized this after the 1995 exercise and in the 1996 SALP report.
- b. NRC has recognized that WBN has the best Operations Support Center (OSC) facility in NRC Regions 1 and 2.
- c. WBN has drilled its emergency response organization more than most plants in the industry with 56 drills conducted since initial 1993 exercise including:
  - 29 drills in 1995.
  - 15 drills in 1996.
- d. Every operations crew is periodically exposed to REP drills on the simulator requiring exercising of the emergency plan beyond traditional licensed operator requalification training.
- e. Shift managers and Technical Support Center (TSC) Site Emergency Directors are provided practice classification scenario problems throughout the year to ensure proficiency in event classification.

- f. WBN EP conducts intensive operator EP training.
  - g. WBN EP has conducted on-shift dose assessment training since 1991.
  - h. WBN EP's Radiological Emergency Procedure (REP) training program has been recognized as a strength several times containing dose assessment training, emergency response facility data system training and special OSC training.
2. Interactions with onsite and offsite emergency response organizations during exercises and actual events.
- a. Drill performance with onsite and offsite emergency response organizations have been excellent during the period. Enhancements are constantly being made via drill critiques.
  - b. WBN is a recognized leader in the industry as many plants have requested copies of selected WBN EIPs, including "Emergency Action Levels" (WBN EPIP-1), "Termination Procedure" (WBN EPIP-13 ), and "Initial Dose Assessment Procedure" (WBN EPIP-16).
  - c. The WBN radiological monitoring van is recognized throughout the industry as being superior in radiological field monitoring equipment.

B. Challenges During SALP Period

There have been no major challenges to this program within the SALP period.

C. TVA Conclusion for SALP Period

TVA concludes that the emergency preparedness area merits a "superior" rating due to the quality of WBN's program and the drill performance within the SALP period.

### III. Security

A. Fitness for Duty (FFD)

- 1. The FFD Program has experienced no non-compliance issues since lockdown.
- 2. A new initiative was established between security and medical to provide round the clock call in for administering alcohol and drug tests.
- 3. TVA considers performance in this functional area as "superior."

B. Access Authorization

1. Plant Access Section has significantly reduced the time required for security background check, fingerprinting, badgecard production, security questionnaire, and other related paperwork helping the plant to reduce the time required for new-hire processing from over five days to less than a day and a half.
2. Pro-active steps taken to strengthen access control measure in the enabling/disabling of badgecards.
3. TVA considers performance in this functional area as "superior".

C. Physical Security

TVA considers that performance in the Physical Security sub-area for the 1996 SALP rating period meets the criteria for a "good" rating. This conclusion is predicated on the following comparisons to the SALP criteria for a "good" rating.

Criteria:

1. *Licensee attention and involvement are normally well focused and resulted in a good level of safety performance.*

In the Physical Security sub-area, the primary safety issues are to prevent acts of terrorism or sabotage and prevent the theft of special nuclear materials. These functions are accomplished primarily by preventing the unauthorized access of personnel and material to the plant protected and vital areas and by demonstrating the ability to neutralize the design basis threat. In order to discharge these responsibilities the Security unit uses a system of barriers, intrusion detection equipment, search equipment, surveillance and assessment equipment, and a trained cadre of officers. A detailed assessment of performance in these functions is as follows:

a. Unauthorized Access Function

- Hardware reliability has been satisfactory with Maintenance providing good support. With few exceptions, equipment has been repaired on the same day it was reported.
- WBN was one of the first plants in the region to utilize hand telemetrics in conjunction with the access control program. Security identified a single discrepancy (WBPER960947) with the hand

geometry readers, but even then, the hand geometry system functioned within the specifications of the vendor and the Physical Security Plan. The Security unit saw this as an opportunity to enhance access control capabilities and install updated hand geometry software.

- Personnel and vehicle search functions have performed well, not permitting the introduction of any unauthorized materials into the protected area. These functions have been self-assessed by Nuclear Assurance and inspected by NRC without any adverse findings.
- Personnel and vehicle escort programs have functioned well with no violations, no Inspector Follow-up Items (IFIs), and no recommendations.
- The WBN plant access program has been inspected by Nuclear Assurance and NRC and received positive comments. No violations, no IFI's, and no recommendations were identified.
- Though computer reliability has been cited as a problem area, there has been only one occasion that resulted in system unavailability and that period of unavailability was limited to 31 minutes. The event was the result of human error rather than system failure. (Note: Doors and hand geometry continued to function and compensatory measures consistent with other stations were implemented. No security events occurred during this small window.) Other reliability issues with individual system components have been thoroughly investigated and resolved.
- Security hardware failures are conservatively logged in the Safeguard Events Log. NRC Inspection Report Nos. 50-390/96-12 and 50-391/96-12 documented this area: "A review of the Safeguard Events Log revealed judicious tracking of security events and the effective responsiveness of site management to act upon the problems identified." The inspector also indicated in the exit that the number of events was not unusual.
- In a recent inspection, a security inspector expressed a concern regarding the potential for an authorized individual to allow an unauthorized individual access into the protected area, but noted that the likelihood of this event was low. Security responded immediately with a short-term compensatory measure, initiated a corrective action document (WBPER960948), and after training officers on anti-

passback contingencies, activated the anti-passback feature of the system (badge enabling at PA entry turnstiles and disabling at exit turnstiles).

- TVA considers performance in this functional area as "good".

b. Design Basis Threat Function

- Extensive training was continued in 1996 with local law enforcement agencies. This training had been previously praised in the NRC Operational Safeguards Response Evaluation (OSRE) team review prior to fuel load. This review had evaluated the WBN Security unit's ability to neutralize the design basis threat with positive remarks to offer regarding the tabletop drills, the target set analysis, and the defensive shell concept WBN had developed to deal with the threat.
- In drills evaluated by Nuclear Assurance during 1996, the unit continued to perform well defeating the threat in all of the scenarios conducted. Nuclear Assurance commented that WBN's drill performance was very good.
- The WBN unit has conducted documented monthly drills during 1996.
- One corrective action document, WBP961138, was initiated by the Security unit as a proactive step to further refine and update target sets. The PER did not result from discovered deficiencies, but rather from an opportunity to document enhancements.
- Considering all areas of response capability (i.e., weapons and equipment disposition, training, local law enforcement agency (LLEA) training and support, response philosophy and strategy, target set analysis, tabletop performance, actual drill performance to include briefings and critiques) performance in this functional area is considered "superior".

Criteria:

2. *Licensee programs and procedures normally provide the necessary control of activities, but deficiencies may exist.*
  - Security procedures have been reviewed and found satisfactory by various organizations. However, procedure deficiencies have been found related to

system failures not previously anticipated, and as the deficiencies were discovered, correction were made.

- In the Region II NRC report covering the inspection during April 29 to May 3, 1996. WBN security program plans and procedures were reviewed with the following comment, "Security plans implemented the necessary regulatory requirements. Security procedures were found to be detailed and they implemented the physical security plan requirements."
- TVA considers performance in this area "good."

Criteria:

3. *The licensee's self-assessments are normally good, although issues may escape identification.*
  - Using the NRC security inspection modules as guidelines, comprehensive self-assessments were conducted in 1995 and 1996. The 1995 assessments were within the SALP rating period. The NRC Inspection Report 390;391/95-62 comments as follows: "NRC was very pleased with the self-assessment that was performed. No significant deficiencies were identified in the assessments."
  - TVA QA Audit Report SSA9601 noted successful completion of self-assessments performed based on twenty-five NRC security inspection modules. WBN Nuclear Assurance had also completed an extensive assessment of the operational readiness of the security program (NA-WB-95-0139). Issues identified in the assessment had been satisfactorily resolved with the exception of a permanent correction for a communication problem which was subsequently corrected.
  - In February 1996, TVA identified an unsecured grating outside the protected area. This grating had been missed on the self-assessment walkdown. Security performed a second intensive walkdown and initiated corrective action document WBP960203 and although the site management review committee was not satisfied with the initial corrective action plan, the approved plan included a thorough root cause analysis and corrective actions.
  - Security self-assessments were detailed and thorough. The assessment effort was validated by reviews performed by both site and corporate Nuclear

Assurance and inspections performed by the NRC. Although some issues initially escaped identification, TVA considers performance in this area "good".

Criteria:

4. *Corrective actions are usually effective, although some may not be complete. Root cause analyses are normally thorough.*
  - Nuclear Assurance performed a review of 33 security problem evaluation reports and 596 safeguard event reports during the SALP period. That review determined that corrective actions were usually effective. Only one corrective action plan required additional work before Nuclear Assurance approval and only a few plans required clarifications.
  - Improvement in the evaluation of security problems was noted by NRC in Inspection Reports 390/96-11 and 390/96-12.
  - TVA considers performance in this area "good".

D. TVA Discussion

The SALP report for Physical Security provides two specific comments as follows:

- "Security management and supervisors were not pro-active during plant licensing in determining whether security plans and procedures would be effective for an operating nuclear plant. This resulted in the security section failing to meet regulatory requirements during emergency contingencies, barrier degradations, and normal day to day security personnel performance."
  - "After equipment failures, Security management was not sensitive to the need to analyze events to determine the root cause and to implement long-term corrective actions."
1. Regarding the first comment, TVA believes that security management was extremely pro-active during plant licensing to ensure that the Security unit was prepared to support the licensing effort and that an approved security plan was completed and in place as required by regulations. In support of its position, NRC reports document positive comments regarding the lock and key program, training and training records, LLEA interface and training,

transition plans, protected and vital area searches, self-assessments, procedures, and contingency response. Additionally, the WBN Windows Report shows security with predominately green windows denoting "significant strength" through the entire pre-licensing and up to the commercial milestone periods.

2. Regarding the second comment, TVA agrees that after July 2, 1996, when a momentary loss of communication between the Local Intelligence Units (LIU's) at the doors and the security computer, a Problem Evaluation Report (PER) was not immediately initiated. Security did, however, initiate a Safeguards Event Report which did identify the cause of the problem. Security management recognized that they did not take advantage of the event to learn about potential security response problems and have since corrected this by assuring that for these events a PER is generated which addresses the cause, evaluates security personnel performance and identifies security system issues.
3. Security management could have been more aggressive in obtaining the skills needed to effectively use the corrective action program. Consequently, Security relied on another plant section for an analysis and corrective action recommendation. Since recognition of this deficiency, security management has become sensitive to initiating event investigations with personnel trained in root cause analysis and continued improvement has been observed.

#### E. TVA Conclusion

TVA concludes that the security sub-area merits a "good" rating based on the fact that plant entries have been well controlled, corrective actions are usually effective, and improvements in the self-assessment and root cause evaluation have been noted, and fitness for duty and access control program have been effectively implemented.

### IV. Chemistry

#### A. Major Accomplishments During SALP Period

##### 1. Primary Chemistry Strengths

- a. Successful completion of every scheduled Surveillance Instruction, Offsite Dose Instruction, and Technical Requirements Instruction since fuel load (847 total performances).

- b. Excellent RCS lithium control. Elevated RCS pH has been maintained throughout the fuel cycle. This reduces the buildup of radiation levels on steam generators and other out of core surfaces which impacts site radiation exposure.
- c. Programmatic sampling frequencies that exceed the recommendations of EPRI guidelines aided in the early detection of a potential fuel defect.
- d. RCS impurities have been below technical requirements and station limits for the entire fuel cycle.
- e. Primary chemistry shutdown and startup programs were successfully implemented during the mid-cycle outage.
- f. Primary chemistry limits meet or exceed EPRI guideline recommendations.
- g. Extensive effort and attention to detail has been expended by chemistry technicians to minimize contamination in laboratory spaces. This effort has assisted in maintaining chemistry technician radiation exposures as low as reasonably achievable.

## 2. Secondary Chemistry Strengths

- a. Condensate dissolved oxygen has been reduced from approximately 15 ppb during startup to approximately 2 ppb at the present.
- b. Secondary on-line instrument availability has improved from an average of 55 percent during startup to an average of 96 percent in November and December 1996.
- c. Secondary steam generator blowdown (SSBD) sodium has been reduced from an average of 11 ppb during startup to approximately 1 ppb at the present. SGBD sulfate has been reduced from an average of 12 ppb during startup to approximately 3 ppb at the present.
- d. Timely detection and repair of condenser tube leaks.
- e. Successful implementation of steam generator molar ratio control program (i.e., sodium reduction and ammonium chloride addition).
- f. Successful implementation of secondary side steam generator boric acid hot soak following mid-cycle outage.

- g. Enhanced operation of steam cycle and raw water chemical addition programs as a result of innovative vendor ownership of equipment.
- h. Successful implementation of major secondary system on-line instrument upgrade.
- i. Successful design/installation of new hydrazine, ethanolamine, ammonium chloride, and boric acid chemical addition skids.
- j. Successful startup of new hydrazine chemical addition skid.
- k. Successful startup of new ethanolamine chemical addition skid.
- l. Secondary laboratory analysts have successfully completed the training described in the secondary training matrix and are beginning the cross-training process.
- m. Implementation of condensate demineralizer optimization plan is in progress.

B. Challenges During SALP Period

1. Chemistry Sample Valve Issue

This issue involved the discovery of a sample valve for the reactor coolant system (RCS) accumulators that had not been closed. It was determined that no technical specification RCS leakage limits were exceeded. The cause was determined to be personnel performance that did not meet our expectation in task performance. This issue was addressed with the individual and lessons learned were provided to the entire organization. Additionally, to ensure no further recurrence, the applicable procedures were enhanced to require independent verification on Reactor Coolant System (RCS) sampling activities. The issue demonstrated good operator awareness to notice extremely small changes in volume control tank makeup (no visible flow existed) to discover the problem. Once discovered, prompt action to isolate the flow was taken. The addition of independent verification was recognized as appropriate due to the sensitivity of the RCS sampling systems.

## 2. Oxygen/Hydrogen Analyzer issues

This issue involves the failure to sufficiently monitor oxygen and hydrogen limits to ensure compliance with FSAR commitments. This issue was identified after the end of the SALP period, however it occurred during the period. Once discovered, aggressive steps were taken to ensure proper monitoring until more permanent corrective actions could be taken. Although this issue did not render any safety system inoperable, its implications have been fully recognized by TVAN management. Steps have been taken to identify and to correct other deficiencies, if necessary.

### C. TVA Conclusion for SALP Period

TVA concludes that the chemistry sub-area merits a rating between "superior" and "good" based on aggressive chemistry control performance and thorough resolution of a limited number of identified issues.

## V. Fire Protection

### A. Major accomplishments during SALP period

1. Total program ownership acknowledged by Fire Protection Manager.
  - a. Receives a high level of management attention.
  - b. Responsible for emergency response (fire, medical, hazardous materials), testing, and maintenance of all fire protection related systems and components, the implementation of the fire protection administrative control program, and fire protection engineering.
2. The fire protection systems availability/operability [high pressure fire protection, CO<sub>2</sub> fire suppression, fire doors, fire detection, emergency light battery packs, fire barriers (seals, wrap)] has been maintained to a high level such that minimal compensatory actions such as fire watches are needed. (The actual need for fire watches during the SALP period was very low.)
  - a. Testing and corrective maintenance receive top priority thereby reducing out of service time.
  - b. Uses dedicated fire protection "fix-it now" team.
  - c. Minimizes fire risk to plant systems due to maximum system operability.
  - d. Maintains minimum maintenance backlog.

- e. Maintenance and testing performed by personnel cross-trained for systems.

3. Quality Technical Staff

- a. Technical support for testing and corrective maintenance ensures top priority.
- b. Qualified fire protection engineers provide technical support for fire protection activities.
- c. Qualified fire protection specialist ensures quality training and administrative control program implementation.

4. Dedicated Highly Skilled Response Team

- a. Fire - trained and equipped to handle expected fire scenarios. Quarterly and annual training ensures standards of performance remain high.
- b. Medical - emergency medical technicians certified by State of Tennessee.
- c. Hazardous materials - qualified to technician level.

B. Challenges During SALP Period

There have been no significant challenges to the fire protection program during this period.

C. TVA Conclusion for SALP Period

TVA concludes that the fire protection area merits a "superior" rating based on quality of program and performance during SALP period.

VI. Housekeeping

A. Major Accomplishments During SALP Period

- 1. Maintained plant in excellent material condition while undergoing operation and a mid-cycle outage.
- 2. Essentially no contaminated floor space including containment.
- 3. Very small amount of radwaste generated.

B. Challenges During SALP Period

The challenge of maintaining the plant in excellent material condition was met during the past year and during the mid-cycle outage.

C. TVA Conclusion for SALP Period

TVA concludes that housekeeping merits a "superior" rating based on the excellent material condition of the plant and maintaining that condition during the mid-cycle outage.

Overall Conclusion

Overall, TVA considers the Plant Support area to be a significant strength and an asset to WBN plant operations. The Plant Support area has the characteristics of "superior" performance when all sub-areas are assessed and considered in the aggregate. Some significant accomplishments as discussed were not addressed in SALP report summary which would seem to indicate superior performance. Early challenges have been addressed and improvement observed. Initiatives were developed for continued emphasis and improvement where necessary. In the area of security, challenges have been documented and detailed corrective actions have been implemented with improvement observed. Therefore, TVA requests NRC reconsider the rating in the Plant Support area, and respectfully requests that NRC upgrade its assessment from "good" to "superior".