

September 18, 1998

EA 98-207

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

SUBJECT: NOTICE OF VIOLATION (NRC INSPECTION REPORT NO. 50-390/98-03)

Dear Mr. Scalice:

Thank you for your response of July 20, 1998, to our Notice of Violation (Notice) issued on June 18, 1998, concerning activities conducted at your Watts Bar facility.

In your response, you state that TVA does not agree that the three failures cited in our Notice constitute violations of NRC regulatory requirements. In addition, you state that TVA does not agree that the examples warrant aggregation as a Severity Level III problem under NRC's Enforcement Policy.

Your response also provides comments on the process used by the NRC to arrive at the enforcement action in this case. Although the NRC does not address each TVA comment separately, a thorough review and evaluation of all information provided by TVA has been conducted by the NRC with respect to the regulatory requirements, the Physical Security Plan (PSP), the NRC Enforcement Policy, and existing NRC guidance. In addition, many of the issues brought forth by TVA were addressed in the NRC's letter transmitting the Notice of June 18, 1998.

After consideration of the basis for your denial of Violation A involving metal detectors, the NRC has determined that this issue does not constitute a violation of regulatory requirements. The NRC has determined, however, that Violations B and C, involving the performance of certain security detection systems (i.e., intruder assessment via closed circuit television cameras (CCTV) and microwave equipment) constitute violations as stated in our Notice. Upon review of the information provided in your July 20, 1998, response, the information provided at the pre-decisional enforcement conference, and the determination that Violation A should be withdrawn, the NRC has determined that Violations B and C should be individually categorized at Severity Level IV and do not warrant aggregation to a Severity Level III problem. The bases for these determinations are summarized in the enclosure to this letter.

Although your July 20, 1998, response did not address corrective actions for Violations B and C, you previously provided this information during the pre-decisional enforcement conference. The NRC described these actions in our June 18, 1998, letter accompanying the Notice. The NRC has determined that

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these corrective actions are adequate to comply with 10 CFR 2.201. The implementation of corrective actions will be examined during future NRC inspections.

If you have any questions regarding this decision, please contact Bruce Mallett or me at (404) 562-4601.

Sincerely,

Original Signed by  
L. A. Reyes

Luis A. Reyes  
Regional Administrator

Docket Nos. 50-390  
License Nos. NPF-90

Enclosure: Evaluations and Conclusions

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## EVALUATIONS AND CONCLUSIONS

### Background

On June 18, 1998, the NRC issued a Notice of Violation (Notice) to the licensee with three violations. The violations were aggregated into one Severity Level III problem. The licensee denied these violations (A, B, and C) in a response letter dated July 20, 1998. The following summarizes NRC's assessment of the licensee's denial:

### Restatement of Violation A:

Paragraph 5.5 of the Physical Security Plan (PSP), Revision 2, dated March 2, 1998, states that the metal detectors used for personnel search are walk-through type units and are capable of detecting a source located on an individual.

Contrary to the above, on March 25, 1998, two metal detectors failed on nine occasions to detect a test weapon located on an individual during a walk-through test. (01013)

### Summary of Licensee's Response to Violation A:

The licensee contends, "According to the specific terms of the PSP, the metal detectors used for personnel search are walk through type units and are capable of detecting a source located on an individual." The licensee agrees that the PSP makes a statement regarding the detection capability of the detectors. The licensee does not agree that this broad descriptive statement establishes the sole, perfect standard by which the performance of the metal detectors must always be judged. The licensee contends further that (1) the NRC has published specific testing criteria, found in NRC Review Guideline #3, "Performance of metal detectors", dated February 16, 1978, which addresses weekly and annual metal detector testing criteria, and (2) the criteria for testing in the guideline are less conservative than the licensee's testing procedure. The licensee also contends that the "kick through" test is beyond the definition of the "normal walk through."

### NRC Evaluation of Licensee's Response to Violation A:

The PSP does specify the overall performance criteria for the metal detectors (i.e., capable of detecting a weapon located on an individual during a walk-through test). This is the standard to which the metal detector capability is measured. This standard or overall criteria, however, does not specify details of performance such as the percentage of acceptable failures (i.e., failure rate). The referenced Guideline #3 does specify such details as failure rate, and the licensee tested the metal detectors to this standard or criteria. The NRC conducted testing that was not bounded by the licensee's testing, and the NRC's testing per the NRC inspection procedural guidance included attempts to defeat the system with a method that may be used by a potential adversary. Vulnerabilities were noted; however, these were identified by methods not used in the licensee's test procedures. Based on the fact that the licensee complied with the referenced Guideline #3 to test

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the metal detectors, the NRC has not advised the industry that NRC Review Guideline #3 is no longer applicable, and no additional clear guidance regarding performance criteria for metal detectors has been provided by the NRC, the NRC has determined that the licensee met the intent of the requirement stated in the PSP. Therefore, Violation A will be withdrawn.

With regard to the "kick through" test, the NRC agrees with the licensee that this test identified a vulnerability for the metal detectors. The test method, however, was not in the licensee's testing program and the NRC has not provided guidance to the industry which would include the performance of this type of testing. Based on this fact, the NRC has determined that Violation A will be withdrawn.

#### Restatement of Violation B:

Paragraph 6.2A of the PSP, Revision 2, dated March 2, 1998, states that Closed Circuit Television (CCTV) cameras provide visual surveillance of the perimeter barrier, the perimeter intrusion detection system, and those portions of the isolation zones necessary to enable assessment of alarm stimuli prior to a successful penetration of the protected area.

Contrary to the above, on March 23, 1998, CCTV cameras in nine zones failed to provide adequate visual surveillance of the perimeter barrier, the perimeter intrusion detection system, and those portions of the isolation zones necessary to enable assessment of alarm stimuli which prevented the alarm station operators from adequately assessing alarms and preventing successful penetration of the protected area. Also, in one of those zones, a degraded camera prevented the alarm station operators from assessing an alarm in the event of an intrusion. (01023)

#### Summary of Licensee's Response to Violation B:

The licensee states, "TVA does not agree that the CCTV cameras in nine zones failed to provide adequate visual surveillance of the perimeter barrier. To the contrary, the Central Alarm Station (CAS) operator was able to make correct assessments using the available CCTV system in the nine instances." In addition, the licensee contends that the NRC misread the PSP in claiming that the CCTV cameras provide visual surveillance, excluding use of the pan/tilt/zoom (PTZ) cameras.

#### NRC Evaluation of Licensee's Response to Violation B:

The NRC physically observed, during the testing, that adequate visual surveillances of the perimeter barrier were not made and that the CAS operators were not able to make assessments as required by the PSP (i.e., the CAS operators could not use CCTVs to detect an intruder prior to penetration of the protected area). This was confirmed through questions to the CAS operators at the time of the NRC's observation. The licensee disputes this observation; however, the licensee did not provide any evidence to indicate that the actual failures did not take place as observed by the NRC. Based upon this, the NRC has determined that a violation of regulatory requirements

occurred as stated in the Notice. The violation has been reclassified as a Severity Level IV as discussed further in the section of this Enclosure which addresses aggregation of the violations.

With regard to the use of the PTZ cameras, this use and the dispatch of an armed member of the security force are discussed in the PSP, and are important from an overall security standpoint. However, the PSP specifies that the CAS operators use CCTV cameras to provide adequate visual surveillance and assessment to detect an individual and prevent penetration of the protected area. A CAS operator, using a PTZ, which is not fixed on a zone, cannot perform the assessment in sufficient time to prevent penetration of the protected area. This performance criteria is supported in Regulatory Guide No. 5.44, "Perimeter Intrusion Alarm Systems", referenced in the licensee's response to Violation C.

#### Restatement of Violation C:

Paragraph 6.3 B1 of the PSP, Revision 2, dated March 2, 1998, states that each zone of microwave equipment is designed to detect an individual weighing a minimum of 35 kilograms crawling, jumping, walking, or running between the transmitter and receiver, or in front of the transmitter.

Contrary to the above, on March 24, 1998, when penetrated, the microwave equipment failed to detect an individual weighing in excess of 35 kilograms jumping between the transmitter and receiver, or in front of the transmitter. Specifically, the microwave equipment failed to generate an alarm six times in five locations. (01033)

#### Summary of Licensee's Response to Violation C:

The licensee contends that the NRC inspection team was not able to defeat the microwave system's overall capability without the team itself first being detected by the microwave system. Specifically, the testing methods used to defeat the microwave system were successful only after the NRC identified vulnerabilities by mapping specific zones. The licensee also contends that the methodology for testing used by the NRC was not described in the testing criteria (i.e., requirements in the PSP or guidance issued by the NRC). The licensee also indicated their position that pre-detection of zones should not be used as a basis for a violation in order to be consistent with the NRC's Enforcement Policy, which has examples of Level III violations where the failure occurred without insider knowledge.

#### NRC Evaluation of Licensee's Response to Violation C:

The NRC reviewed the video tapes that were taken during the testing and inspection to determine if the "premapping" of the microwave detection areas occurred. The NRC determined, as stated previously to the licensee, that alarms were generated prior to the conduct of microwave equipment testing. However, the alarms were not the result of preparation for the actual jumping tests but were generated by other personnel or the NRC conducting other than jumping tests in the zones by walking, crawling, etc. The licensee's response

indicates that premapping of specific microwave zones and/or "insider information" was necessary to defeat the microwave system, and as such a violation did not occur. The NRC recognizes the testing team chose certain areas that they believed would be most vulnerable to non-detection of jumping; however, this does not negate the fact that the microwave system was not able to detect an individual jumping as required by the PSP. The NRC's testing of the intrusion detection system was not bounded by established testing criteria, and the licensee's procedures did not define testing criteria. The objective of the NRC test was to defeat the system by methods that may be used by a potential adversary. The testing identified vulnerabilities, which the licensee acknowledged in the July 20, 1998 response. When testing to these standards, the NRC considers enforcement action when the testing methods identify a weakness that should have been detected by the licensee's testing procedures, had they been appropriately designed and/or implemented. Had the licensee established intrusion detection testing criteria, the NRC may have considered this issue differently. Based on this review, the NRC has determined that a violation of NRC regulatory requirements did occur as stated in the Notice. With regard to the examples in the Enforcement Policy, the use of insider knowledge is an example used to discriminate between Severity Levels of violations and not, as the licensee indicates, to determine whether to issue a violation.

Summary of Licensee's Response Regarding Aggregation of Violations to a Severity Level III Problem:

As discussed above, the licensee stated that the examples cited do not constitute violations of regulatory requirements. Notwithstanding this position, the licensee further contends that the issues, taken together, do not represent a significant weakness or programmatic failure to maintain security equipment. The licensee states that the many actions taken by the licensee to improve its overall security program cannot be taken by NRC to be a root cause indicator of a programmatic deficiency. In addition, the licensee states that the NRC's Enforcement Policy does not support aggregation of the violations as a Severity Level III problem, because the issues do not have the same underlying cause or programmatic deficiencies.

With respect to Violation C, the licensee stated that the example violations in the NRC Enforcement Policy focus on the ability of an intruder to easily gain undetected access to a protected area, or predictably circumvent the system without insider knowledge, or allow undetected access that was neither easily nor likely to be exploitable. The licensee further contends that given the manner in which the NRC inspection team defeated the microwave systems, none of the NRC Enforcement Policy examples are appropriate for a Severity Level III violation.

NRC Evaluation of Licensee's Response to Aggregation:

In contrast to the licensee's contention, the NRC initially determined that aggregation of the three violations into a Severity Level III problem was warranted based on multiple failures of the licensee's security systems when challenged within the bounds of the Commission approved PSP, and not on the

extent of the "improvements" or corrective action implemented by the licensee. As indicated in the NRC's June 18, 1998 letter, the NRC also based the decision to aggregate the violations on the failures appearing to indicate a common weakness affecting the effectiveness of three distinct portions of the security assessment capability - metal detection, visual surveillance through the use of CCTVs, and detection of an individual through the use of microwave equipment.

Based on the NRC's original assessment, the three violations were aggregated into a Severity Level III problem based on Supplement III.C.8 of the Enforcement Policy to emphasize the nature of NRC's concern, not Supplement III.C.3 as the licensee indicates. In this regard, the NRC recognized that the predictability and exploitability of these vulnerabilities were not the principle issues, particularly with respect to Violation C.

Based on the withdrawal of Violation A, the NRC has reassessed the Severity Level and aggregation of the remaining two violations. As such, the NRC has determined that Violations B and C are appropriately categorized, individually, at Severity Level IV.

As discussed in the June 18, 1998, letter, the NRC was concerned regarding an apparent weakness in assuring that the security systems' capabilities were maintained to an adequate level of sensitivity and did not degrade over time. Although the inspection findings indicate that vulnerabilities existed, the NRC has concluded that the vulnerabilities were not clearly tied to a program breakdown. Specifically, for the metal detectors, system performance was evaluated by the licensee utilizing methodologies which NRC previously accepted. For Violation C, the vulnerabilities and the lack of associated performance criteria were related to only one performance objective (i.e., jumping). Therefore, given these conclusions, the withdrawal of Violation A, and the fact that the vulnerabilities were identified during challenge testing and not in response to a potential adversarial situation, the NRC has concluded that Violations B and C do not warrant aggregation into a Severity Level III problem.