



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

January 26, 2000

EA 99-199

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: FINAL SIGNIFICANCE DETERMINATION FOR SEQUOYAH FLOODING  
EVENT AND NOTICE OF VIOLATION (NRC INTEGRATED INSPECTION  
REPORT NO. 50-327/99-04 AND 50-328/99-04)**

Dear Mr. Scalice:

The purpose of this letter is to provide you with the final results of our significance determination of the Sequoyah turbine building flooding event which occurred on June 30, 1999. This event, which was caused by water from a heavy rainfall entering the turbine building railroad bay near the 6.9kv unit switchboards, created the increased potential for a loss of offsite power (LOOP). Our evaluation of the event was forwarded to you on August 13 in Inspection Report 50-327/99-04 and 50-328/99-04. On September 7, after reviewing your initial risk assessment of this event, we forwarded to you our preliminary position on the risk associated with this flooding event, indicating that it was in the increased regulatory response (White) band. White findings represent issues with some increased risk to safety and which may require additional NRC inspections. On September 27, your staff submitted a second risk evaluation of this event that indicated performance in the licensee response (Green) band. Our review of your second risk evaluation, as documented in our letter to you dated October 7, did not result in a change in our position. At your request, a meeting was conducted with members of your staff on October 21, to further discuss your views on this issue. A summary of this meeting was provided to you on October 28.

During the October 21 meeting, your staff provided the results of a third risk evaluation which differed from the two earlier risk evaluations. Although the third risk evaluation used a conservative initiating event frequency, the probabilistic risk assessment (PRA) model's failure probabilities were changed to credit the longer-term survivability of the reactor coolant pump seals without forced cooling. With this modeling change, your estimate of the mean core damage frequency (CDF) for this event indicated performance in the Green band. After re-evaluating your September 27, risk determination letter and considering the supplemental information presented in the October 21 meeting, our final determination is that performance for this event was in the White band.

As we indicated in our previous correspondence to you and during discussions with your staff on this matter, the primary differences between the NRC and TVA risk evaluations involve the uncertainties associated with establishing a flood-induced LOOP initiating event frequency. The challenges associated with establishing a flood-induced LOOP initiating event frequency involve estimating (at an acceptable confidence level) the storm drain system failure frequency in its "design" state as well as its June 30, 1999, "degraded" state, establishing the length of time the "degraded" state existed, and understanding how the position of the turbine building roll-up door affected water intrusion into the turbine building. In addition, the modeling changes involved in your third risk evaluation introduced a different set of uncertainties which have a direct bearing on the confidence of the CDF estimate, including the likelihood and timing of recovery of the steam driven auxiliary feedwater pump, and the likelihood and timing of recovery of emergency electrical power and offsite power.

In light of the performance of the storm drain system during a previous 1994 heavy rainfall event and the uncertainties described above, the information you have provided did not sufficiently alter our evaluation of this event to allow it to be characterized in the Green band.

NRC Inspection Report 50-327/99-04 and 50-328/99-04 documented three findings related to this flooding event. These findings are:

- An apparent violation for failure to incorporate the storm drain system into the Maintenance Rule program.
- Improper correction of identified deficiencies, following a July 1994 rain storm, that could have prevented the June 1999 event.
- A deficient temporary modification to the storm drain system which contributed to the June 1999 flooding event.

In this report, and as further discussed in NRC IR 50-327/99-05 and 50-328/99-05, we informed you that subsequent to completing the SDP for the flooding event, these three issues would be evaluated for risk significance commensurate with the significance of the event. Based on our review we have determined that several of the corrective action deficiencies and the temporary design change contributed significantly to the flooding event. As such the flooding event itself, the corrective action deficiencies and the deficient temporary design change are identified as a single White finding.

Our review of the failure to include the storm drain system in the Maintenance Rule has determined that this finding, by itself, contributed minimally to this event. As such, this finding has been screened out of the SDP process as a Green finding. We have also determined that this failure to include the storm drain system in the Maintenance Rule is a low risk significant violation of NRC requirements. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is of concern because the NRC concluded that, based on a previous flooding event on July 11, 1994, the storm drain system had the potential to cause a reactor trip or actuation of a safety-related system. Therefore, the storm drain system should have been included within the scope of the Maintenance Rule in 1996. This violation does not meet the criteria in the Interim Enforcement Policy for Use During the NRC Power Reactor Oversight

Process Pilot Plant Study, as described in NUREG-1600, for being dispositioned as a non-cited violation. The violation is being cited because you failed to restore compliance, by scoping the storm drain system into the Maintenance Rule, within a reasonable time after identification of the violation. In addition, based on our understanding of your disposition of this issue in your corrective action system, there are no efforts underway to restore compliance in the near future. Accordingly, a response to this violation is necessary.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Because plant performance for this event has been determined to be in the increased regulatory response band, we used the NRC Action Matrix, as described in SECY-99-007A, "Recommendations for Reactor Oversight Process Improvements," to determine the most appropriate NRC response for this event. As a result, we will conduct a supplemental inspection at Sequoyah, using Inspection Procedure 95001, Supplemental Inspection for One or Two White Inputs in a Strategic Performance Area, to review your problem identification, root cause and extent of condition evaluation, and any proposed corrective actions. We understand that you have completed your root cause analysis and have developed your corrective actions for this event. As such, we will coordinate with you and schedule the inspection in the near future.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Sincerely,

//RA//

Loren R. Plisco, Director  
Division of Reactor Projects

Docket Nos. 50-327, 50-328  
License Nos. DPR-77, DPR-79

Enclosure: Notice of Violation

cc w/encl:  
Karl W. Singer, Senior Vice President  
Nuclear Operations  
Tennessee Valley Authority  
Electronic Mail Distribution

cc w/encl continued: See page 4

TVA

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cc w/encl: Continued  
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County Executive  
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Chattanooga, TN 37402-2801

TVA

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Distribution w/encl:  
R. W. Hernan, NRR  
H. N. Berkow, NRR  
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## NOTICE OF VIOLATION

Tennessee Valley Authority  
Sequoyah Nuclear Plant

Docket Nos. 50-327 and 50-328  
License Nos. DPR-77 and DPR-79  
EA 99-199

During an NRC inspection conducted on June 1, 1999 through July 17, 1999, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

10 CFR 50.65(a)(1) requires, in part, that the holders of an operating license shall monitor the performance or condition of structures, systems, or components within the scope of the rule as defined by 10 CFR 50.65(b) against licensee-established goals, in a manner sufficient to provide reasonable assurance that such structures, systems, or components are capable of fulfilling their intended functions. Such goals shall be established commensurate with safety. When the performance or condition of an structure, system, or component does not meet established goals, appropriate corrective action shall be taken.

10 CFR 50.65(b)(2) requires, in part, that the holders of an operating license shall include, within the scope of the monitoring program specified in 10 CFR 50.65(a)(1), non-safety related structures, systems, or components whose failure could cause a reactor scram or actuation of a safety-related system.

Contrary to the above, as of July 10, 1996, the licensee failed to include the storm drain system in the Maintenance Rule Program. A July 11, 1994, flooding event of the turbine building railway bay area provided the licensee sufficient operating experience to support the possibility that failure of the Storm Drain System, a non-safety related system, could cause a reactor scram or actuation of a safety-related system, due to wetting of the 6.9kv unit boards which were in the flooded area.

Pursuant to the provisions of 10 CFR 2.201, Tennessee Valley Authority is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with

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the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 26th day of January 2000

Enclosure