

August 1, 1996

EA 96-199

Tennessee Valley Authority
ATTN: Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: NOTICE OF VIOLATION
(NRC Inspection Report Nos. 50-259, 50-260, and 50-296/96-05)

Dear Mr. Kingsley:

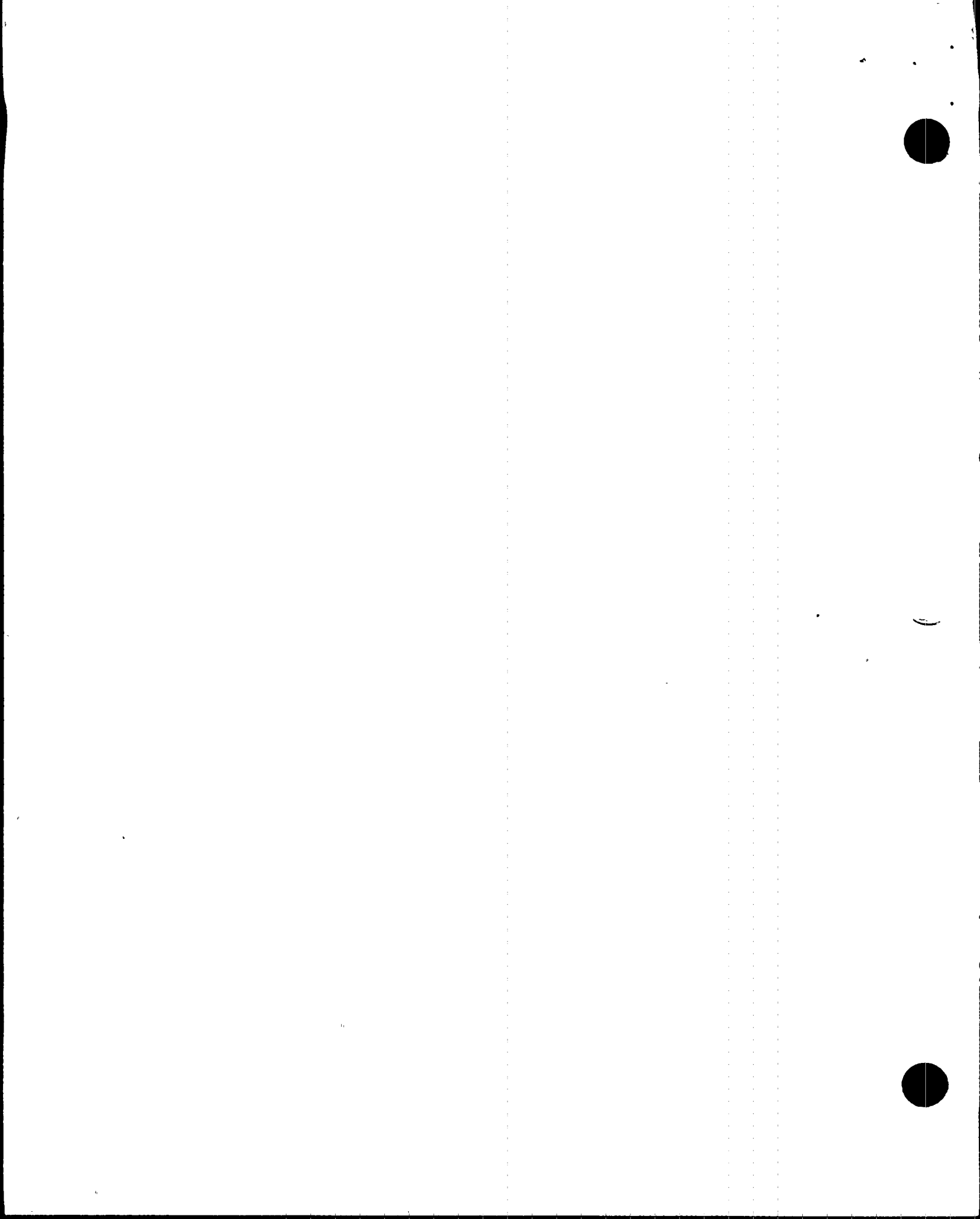
This refers to the inspection conducted on April 28 through June 8, 1996, at your Browns Ferry facility. The inspection included a review of the circumstances surrounding the response of the Unit 2 Reactor Core Isolation Cooling (RCIC) System following a reactor scram on May 10, 1996. The results of our inspection were sent to you by letter dated June 19, 1996. A closed, predecisional enforcement conference was conducted in the Region II office on July 11, 1996, with members of your staff to discuss the apparent violations, the root causes, and your corrective actions to preclude recurrence. A list of conference attendees, NRC slides, and a copy of your presentation materials are enclosed. Prior to the conference, you provided in a letter dated July 8, 1996, your views on the application of the Enforcement Policy in this case.

Based on the information developed during the inspection and the information that you provided during the conference, the NRC has determined that violations of NRC requirements occurred. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. Violation A involved the inoperability of the Unit 2 RCIC for a period greater than that allowed by Technical Specifications (TSs). Specifically, on May 10, 1996, in response to a feedwater transient and subsequent reactor scram, RCIC briefly initiated and then tripped on high turbine exhaust pressure which rendered the system inoperable. The root causes of the RCIC inoperability were determined to be inadequate design review and post-modification testing for the replacement of the turbine exhaust check valve during the 1996 refueling outage. Specifically, the engineering evaluation associated with the check valve replacement used improper steam flow inputs and failed to consider RCIC system startup transient behavior. Further, engineering failed to recognize and require the performance of an adequate post modification test to assure the equipment change did not affect full RCIC system performance. As a result of these deficiencies, the RCIC turbine exhaust peak pressure exceeded the

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turbine trip setpoint causing the system to fail when called upon to operate on May 10, 1996.

Although the inoperability of RCIC did not have a significant consequence to safety because RCIC was not needed to mitigate the May 10, 1996 transient, the violation is nonetheless of significant regulatory concern because multiple failures occurred in your engineering design, review, and testing programs which permitted the plant to operate under conditions in which RCIC could not perform its intended function in the automatic mode of operation. Although NRC recognizes that RCIC is not a 10 CFR Part 50, Appendix B safety system, it is important to safety, and your failure to ensure adequate design controls and conduct testing to verify the system was fully functional following system alterations resulted in a significant failure to comply with TS. Therefore, Violation A is classified in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, as a Severity Level III violation.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$50,000 is considered for a Severity Level III violation. Because your facility has been the subject of escalated enforcement actions within the last 2 years¹, the NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process described in Section VI.B.2 of the Enforcement Policy. In this case, the NRC concluded that it is not appropriate to give credit for *Identification* because the violation was discovered as a result of the May 10, 1996 event, and prior opportunities existed for you to identify the problem earlier. These opportunities included your initial engineering calculation and modification review processes; your designer/checker independent verification process; review of a previously issued General Electric Service Information Letter, that provided you information relative to a more appropriate setting for the RCIC turbine exhaust pressure trip setpoint; and conduct of testing following implementation of the check valve modification. With regard to consideration for *Corrective Action*, at the conference you stated that your actions included: (1) performance of a detailed root cause analysis; (2) implementation of higher turbine exhaust trip setpoints; (3) performance of an extent of condition review on previously issued and implemented design change notices; (4) counseling of involved employees and reinforcement of expectations and lessons learned for other engineering personnel; (5) establishment of an Engineering Review Board to independently review design changes and non-conformances; and (6) procedural revisions to effect improvements in design reviews, coordination between design and system engineering, the independent verification process, and designer testing

¹ A Severity Level II violation and proposed civil penalty of \$80,000 were issued on February 14, 1996 (EA 95-220) related to employee discrimination in Department of Labor Case No. 93-ERA-044.



program responsibilities. Based on the above, the NRC determined that your corrective actions were comprehensive, and credit was warranted for this factor.

In the application of the Enforcement Policy as described above, NRC considers previous escalated enforcement actions, and in this case, would normally result in a base civil penalty for this action. However, the purpose of this portion of the Policy is to reflect past licensee performance, including consideration of whether the current violation at issue is a relatively isolated Severity Level III violation. In this case, there has been a previous escalated enforcement action, which, although issued in 1996, occurred in 1993, and is greater than two years prior to the occurrence of this violation. This fact, in conjunction with the recent overall good performance at Browns Ferry warrants the exercise of discretion in accordance with Section VII.B.6 of the Enforcement Policy. Therefore, after consultation with the Director, Office of Enforcement, and the Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations and Research, no civil penalty is being proposed in this case. However, significant violations in the future could result in a civil penalty.

Violation B has been categorized at Severity Level IV and is also described in the enclosed Notice. It involved the failure to ensure that the post-modification testing required by your In-Service Testing Procedures were performed following the aforementioned RCIC turbine exhaust check valve replacement and the High Pressure Coolant Injection turbine exhaust valve replacement conducted during the 1996 refueling outage. Although conduct of such testing may not have prevented Violation A, Violation B is of concern because it was identified by the NRC, it revealed weaknesses in personnel knowledge and coordination of American Society of Mechanical Engineers Section XI testing requirements, and had the potential for impacting a safety system required for accident mitigation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include



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any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

Sincerely,

Original signed by L. A. Reyes

Stewart D. Ebnetter
Regional Administrator

Docket No. 50-260
License No. DPR-52

Enclosures: 1. Notice of Violation
2. List of Conference Attendees
3. NRC Slides
4. Licensee Presentation Material

cc w/encls:

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cc w/encls: (Cont'd on Page 5)



TVA

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Alabama Department of Public Health
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TVA

Burns
1 page
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Beth
EA 96-199

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NRC Senior Resident Inspector
 U. S. Nuclear Regulatory Commission
 10833 Shaw Road
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*for SEbnetter
 per Ann Bonland
 per E-mail*

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