

May 3, 2012

MEMORANDUM TO: R. William Borchardt
Executive Director for Operations

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SUBJECT: OPEN DOOR POLICY IN THE MATTER OF
WATTS BAR NUCLEAR PLANT, UNIT 1 - SAFETY CONCERN
REGARDING HYDROLOGY/FLOODING (TAC NO. MD7169)

Purpose

We invoke the NRC's Open Door Policy to inform you that:

1. Based on the information currently available to the NRC staff from the Tennessee Valley Authority (TVA) regarding the potential flooding event at Watts Bar Nuclear Plant (WBN) Unit 1, the staff does not have reasonable assurance of adequate safety of the plant and public.

TVA's calculations show there is less than 1 inch of margin to flooding the thermal barrier booster pump motor, which is safety-related and required to be operable for flood mitigation during a flooding event. Other limiting flood mitigation equipment with less than 1 foot of margin to flooding includes the essential raw cooling water flow control valves, spent fuel cooling pumps, and intake pumping station. TVA continues to discover additional potential adverse information to its analysis and is performing additional calculations which are anticipated to further eliminate or erode these margins.

2. The staff has proposed to issue a 10 CFR 50.54(f) letter to obtain additional information under oath and affirmation, provide TVA the opportunity to demonstrate that the plant is operating safely, and allow the staff to verify reasonable assurance of adequate safety.
3. We have discussed these issues extensively with TVA and with our senior management in NRR/DORL and the Watts Bar Unit 2 Reactivation Assessment Group (WRAG). Our discussions are documented in the enclosures to this memorandum.

4. Our management is not in alignment with us. The primary rationale for their disagreements involves the following:
 - a. Management proposes that the recent Fukushima 50.54(f) letter is sufficient and will address this issue. Therefore, a plant-specific 50.54(f) letter is not warranted.

The staff disagrees, because most of the information sought by the Fukushima 50.54(f) has already been obtained by TVA for its operating license application for WBN Unit 2. The available information does not provide reasonable assurance of adequate safety. The difference between WBN Unit 1 and the other plants that received the Fukushima 50.54(f) letter is that we have information *now* that WBN Unit 1 does not have reasonable assurance of adequate safety.

In addition, we have no documented basis *now* to assure safe operation of the plant. We need information *now* in order to make a determination. Otherwise, we do not believe that we are proceeding in accordance with either the Davis-Besse Lessons-Learned, or the NRC rules and regulations.

- b. Management proposes that it is not uncommon for a plant to be in nonconformance with the licensing basis, and any nonconformance at WBN Unit 1 should be resolved via an operability determination commensurate with a risk-based evaluation.

The staff disagrees. Management appears to be focused on operability concerns and risk, rather than with reasonable assurance of adequate safety of the plant. Reasonable assurance of adequate safety is a licensing basis concern; operability concerns then follow. Without a credible licensing basis, you cannot determine operability. Also, it is not acceptable to use a risk-based determination to establish a licensing basis and a reasonable assurance finding.

Further, the burden of proof of safe operation resides with the licensee, not the regulatory authority. The licensee has not provided information that would allow the staff to verify that TVA is in compliance with its current licensing basis or GDC 2.

- c. Management proposes that a 50.54(f) letter is a “big tool” and should be used only under extreme circumstances. The staff may obtain necessary information through discussions between senior TVA and NRC management.

The staff disagrees. Based on the current available information, the staff does not have reasonable assurance of adequate safety for WBN Unit 1. This is a significant safety concern, and justifies a 50.54(f) letter in accordance with NRC regulations and procedures and the enforcement policy. Seeking information through senior level management discussions is not an established, legal, public process.

- d. Management proposes that there are several other operating facilities (e.g., Sequoyah, Turkey Point, and Diablo Canyon), where the flooding or seismic concerns are more critical than at WBN Unit 1. Since the NRC has not issued plant-specific 50.54(f) letters to these facilities, it should be consistent and not issue one to TVA for WBN Unit 1.

The staff does not agree with management's logic. The logic does not address the safety concern at WBN Unit 1, where the staff does not at this time have reasonable assurance of safe operation. The situation at other facilities only justifies the need to document the NRC safety bases for concluding that it is safe for these facilities to operate while the issues are being resolved.

Accordingly, this memorandum documents our concerns to you so that you may ensure that appropriate NRC actions are taken. We are available to discuss these issues at your convenience.

Issue

In a public meeting on March 29, 2012, TVA informed the NRC that its design basis probable maximum flood (PMF) calculations show that there is less than 1 inch of margin to a flood mitigation component and limited margins of less than 11 inches to several other flood mitigation components. Furthermore, TVA relies on compensatory measures (e.g., sand baskets) in determining the PMF level. TVA also acknowledged that its PMF calculations have not accounted for uncertainties, and that it is performing additional calculations that could adversely impact the already low margins to safety components.

Based on TVA's calculations, we do not have reasonable assurance of safe operation of WBN Unit 1. To ensure that the staff gets all the necessary information on the docket from TVA under oath and affirmation and to provide an opportunity to TVA to implement immediate appropriate actions and demonstrate safe operation of the facility, we proposed to issue a demand for information pursuant to 10 CFR 50.54(f). We have met with TVA and with our NRC management on several occasions to resolve this issue. Thus far, our NRC management appears to be focused on operability concerns and risk, rather than with reasonable assurance of adequate safety of the plant. Reasonable assurance of adequate safety is a licensing basis concern; operability concerns then follow. Without a credible licensing basis, you cannot determine operability. We believe that our management's actions have been slow and inadequate to address the safety concern in a prompt manner consistent with the safety significance of this issue.

Background Information and Facts

A summary of the facts relating to this issue follows. More details are provided in the enclosures to this memorandum.

1. TVA's most recent calculations indicate that there is not adequate design margin (less than 1 inch in the worst case and less than 11 inches in other cases) to several safety related systems and components (flood mitigation equipment) required to be operable during the PMF event. Because flooding of the auxiliary building is assumed by TVA in the scenario, which results in loss of the normal design-basis decay heat removal equipment, TVA relies on certain system cross-ties and use of alternate components to maintain the unit stable during and after the flood. Thus, the margins presented by TVA in its analysis are those that maintain the viability of the alternate (flood mitigation) components. Because of the very limited margin currently presented by TVA, along with the fact that there are no further contingencies for loss of the flood

mitigation equipment, it is very important that they be adequately protected from loss during a flood.

2. TVA has modified its licensing basis for flooding and hydrology several times, pursuant to 10 CFR 50.59, since 1995 when the basis was reviewed and approved by the staff in the safety evaluation report (SER) for operation of WBN Unit 1. In addition to modifications to some input assumptions and methodologies, TVA made physical changes to dams and embankments, and also modified several of the flood-causing scenarios from those described in the SER at the time of Unit 1's licensing. None of these changes were reviewed by the NRC staff prior to implementation by TVA. TVA has reduced the safety margin since 1995 from 3.2 feet to less than 1 inch.
3. TVA has acknowledged that their PMF calculations have sizeable uncertainties, which may not be fully accounted for, and noted that additional information available to TVA may adversely affect even more of these already low design margins. In our opinion, the current design margins are questionable and may not be adequate for assuring safe operation of the facility.
4. TVA's already low design margins are also based on implementation of temporary compensatory actions (i.e., sand baskets to prevent overtopping and loss of dam embankments). In a recent letter dated January 25, 2012, the NRC staff informed TVA of its concerns relating to the stability and capability of the sand baskets during a flood. TVA has not addressed this issue to date, and the NRC staff has not taken any further actions to require TVA to address this issue. The staff's lack of confidence in TVA's compensatory measures adds to our concern that there is a low design margin available until safety components are flooded.
5. The staff has raised concerns on TVA's approach in its ongoing structural evaluations of upstream dams and their ability to withstand seismically-induced forces and ground motion. These are key evaluations for acceptance of the UFSAR assumptions regarding the ability of the dams to withstand a seismic event without failure. TVA expects to complete its calculations in the next 7 years. During this time, the staff has no basis with which to determine adequate safety of the facility.
6. Therefore, the NRC does not have adequate information to conclude that WBN Unit 1 continues to meet our reasonable assurance finding.
7. We presented hydrology and PMF information to the ACRS as part of the staff's operating license review effort on WBN Unit 2, and the ACRS raised several concerns regarding design input assumptions, dam and river operations, and WBN Unit 1 plant-specific mitigation strategies. The staff currently does not have sufficient information available to address the ACRS issues.
8. We have raised these concerns and the need for prompt resolution of these issues with our division and NRR senior management. We drafted a 50.54(f) letter to TVA to obtain information sought to verify compliance with the current licensing basis of the facility, and so that the staff could document its safety basis for continued safe operation of the facility, in accordance with the Davis-Besse Lessons-Learned. Our management does not agree that a WBN Unit 1 specific 50.54(f) is required. We believe a plant-specific

50.54(f) letter is necessary for the following reasons:

- a. The staff has current information provided by TVA, beyond the information requested by the Fukushima 50.54(f) letter, which indicates a lack of adequate margin to several safety-related components that are required to be operable to mitigate the consequences of the design basis PMF event. In our opinion, the current information does not demonstrate adequate protection to the health and safety of the public. Additional information from TVA is necessary for the staff to determine that there is reasonable assurance of adequate safety.
- b. Because TVA has modified its licensing basis for flooding and hydrology several times since 1995, when WBN Unit 1 was licensed, and made physical changes to dams and embankments and modified several of the flood-causing scenarios, the NRC does not know the current licensing basis at WBN Unit 1. The NRC has no current information available to demonstrate that the plant continues to satisfy the NRC's original reasonable assurance finding. Given this lack of information, the NRC has not documented its safety basis for continued operation of WBN Unit 1 during the time period provided by the Fukushima letter for resolution of flooding issues. This is not consistent with the Davis-Besse Lessons-Learned.
- c. The 50.54(f) process is the established, legal, public process provided to get information from the licensee in the absence of a request for a licensing action from the licensee. There is not an otherwise established, legal, public process by which senior management can require the information from the licensee and have it submitted under oath and affirmation in this situation. A senior management discussion with TVA is not a public process established in the regulations.
- d. Our management named several other facilities, including Sequoyah, Turkey Point, and Diablo Canyon, where the PMF or seismic concerns could be or are more significant than at WBN Unit 1, and where staff has not documented a safety basis for continued operation. Management's logic appears to be that since NRC has not addressed these plants' situations, it is okay to delay addressing the WBN Unit 1 issues. Instead, management's recognition of the issues at other facilities, in addition to WBN Unit 1, further justifies the need for more immediate action by the NRC to resolve the issues at these facilities and to document our safety bases for these facilities' continued operation while the issues are being resolved.
- e. There is no documented safety basis from the staff concluding that WBN Unit 1 is safe to operate during the time until the licensing basis is established and approved by the staff. This is not consistent with the Davis-Besse Lessons-Learned. Should the public become aware of these issues, we believe that the NRC would be subject to significant negative publicity (e.g., MMS - Deepwater Horizon explosion, MSHA - Massey mine disaster, SEC - Lehman Brothers collapse).

Conclusion

In conclusion, with the information currently available to the staff, the staff does not have reasonable assurance of adequate safety at WBN Unit 1. Without additional information, as requested by the proposed WBN Unit 1 50.54(f) letter, the staff no longer has reasonable assurance of safe operation of WBN Unit 1. The long response time and general information requested by the Fukushima 50.54(f) letter does not address the existing safety concern at WBN Unit 1.

Docket No. 50-390

Enclosures:

1. Summary of March 29, 2012, Pre-Application Meeting with TVA on Changing the Licensing Basis for Hydrologic Engineering, ADAMS Accession No. ML12097A293 (package).
2. E-Mail from F. Lyon to M. Evans, "RE: WBN1 draft 50.54(f) letter re: hydrology," dated April 10, 2012, ADAMS Accession No. ML121010030 (package).
3. E-Mail from F. Lyon to M. Evans, "Safety Concern Regarding WBN Unit 1 and OCWE," dated April 10, 2012, ADAMS Accession No. ML121010062.
4. Memorandum from F. Lyon to File, "Watts Bar Nuclear Plant, Unit 1 - Summary of Meeting to Discuss Safety Concern Regarding Hydrology/Flooding," dated April 20, 2012, ADAMS Accession No. ML12110A313 (package).
5. Memorandum from F. Lyon and P. Milano to E. Leeds, "Watts Bar Nuclear Plant, Unit 1 - Follow-Up to Safety Concern Regarding Hydrology/Flooding," dated April 24, 2012, ADAMS Accession No. ML12115A165.
6. E-Mail from F. Lyon to M. Evans and A. Howe, "Clarification of Safety Concern at WBN Unit 1," dated April 30, 2012, ADAMS Accession No. ML121210319.

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Enclosures: ML12097A293, ML121010030, ML121010062, ML12110A313, ML12115A165, ML121210319

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