



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

June 27, 2013

CDR-50-391/2013-02  
U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

10 CFR 50.55(e)

Watts Bar Nuclear Plant, Unit 2  
NRC Docket No. 50-391

**Subject: WATTS BAR NUCLEAR PLANT (WBN) UNIT 2 - CONSTRUCTION  
DEFICIENCY REPORT 50-391/2013-02 - INSTRUMENT SENSE LINE SLOPE  
ISSUE - FINAL REPORT**

Reference: TVA letter to NRC dated April 29, 2013, "Watts Bar Nuclear Plant (WBN) Unit 2 -  
Construction Deficiency report 50-391/2013-02 - Instrument Sense Line Slope  
Issue - Interim Report"

The purpose of this letter is to provide a final report for Construction Deficiency Report (CDR) 391/2013-02 regarding a condition that TVA has identified as a significant (programmatic) breakdown in the instrument sense line installation program and, thus, a significant breakdown in a portion of TVA's quality assurance program. Walkdowns have been completed and have not identified examples where instrument line slopes as installed would have prevented the associated instruments from performing their intended safety function(s). Therefore, no substantial safety hazards have been identified. Initial notification was made on April 1, 2013, via Event Notification No. 48871.

The apparent cause of this condition involved a misinterpretation of construction procedure 25402-000-GPP-0000-N3401, "Instrument and Instrument Line Installation," which lacked proper detail to define the boundary of the sense line from the panel isolation valve to process connection including the root valve. Further details of this condition can be found in the CDR 391/2013-02 provided in the enclosure.

There are no new commitments contained in this letter.

DO30  
NRR

U.S. Nuclear Regulatory Commission  
Page 2  
June 27, 2013

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 27<sup>th</sup> day of June, 2013.

If you have any questions, please contact me at (423) 365-1260 or Gordon Arent at (423) 365-2004.

Respectfully,



Raymond A. Hruby, Jr.  
General Manager, Technical Services  
Watts Bar Unit 2

Enclosure:

Construction Deficiency Report (CDR) 391/2013-02, Instrument Sense Line  
Slope Issue - Final Report

cc (Enclosure):

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U.S. Nuclear Regulatory Commission  
Page 3  
June 27, 2013

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## ENCLOSURE

### WATTS BAR NUCLEAR PLANT (WBN) UNIT 2 REGARDING INSTRUMENT SENSE LINE SLOPE CONDITION 10 CFR 50.55(e) CONSTRUCTION DEFICIENCY REPORT (CDR) 50-391/2013-02 FINAL REPORT

#### DESCRIPTION OF DEFICIENCY

TVA has identified a condition that was a significant (programmatic) breakdown in the instrument sense line installation program and, thus, a significant breakdown in a portion of TVA's quality assurance program. Specifically, TVA determined that a condition existed where certain portions of the instrument line installations in multiple systems have not been completely inspected to ensure that proper slope requirements (1/4 inch per foot) were met. Inadequate sense line slope could result in the degradation of the associated safety-related instrument due to the effects of air entrapment which could adversely affect the accuracy or time response of the instrument or cause noise.

Walkdowns have been completed for those systems that contained the identified issue. Inspection results did not identify examples where instrument line slopes as installed would have prevented the associated instruments from performing their intended safety function(s). Therefore, no substantial safety hazards have been identified. Since this condition had the potential to be a significant (programmatic) breakdown in the instrument sense line installation program and, thus, a potential breakdown in TVA's quality assurance program, this condition was conservatively reported previously in accordance with 10 CFR 50.55(e). Initial notification was made on April 1, 2013, via Event Notification No. 48871.

The issues documented in CDR 50-391/2013-02 were captured in TVA's corrective action program as Problem Evaluation Report (PER) 680826.

#### CAUSE OF THE DEFICIENCY

The apparent cause for PER 680826 involved a misinterpretation of construction procedure 25402-000-GPP-0000-N3401, "Instrument and Instrument Line Installation." The construction procedure lacked proper detail to define the boundary of the sense line from the panel isolation valve to the process connection including the root valve.

The standard Engineering Document Construction Release (EDCR) work scope statement for defining the sense line boundary is "Sense line connection from the process connection (e.g. root valve) to the panel isolation valve." However, the manner in which construction procedure 25402-000-GPP-0000-N3401 was written could be interpreted to mean that the required slope inspection did not include the root valve.

TVA believes the misinterpretation was a more recent condition rather than a historical one. Early in the project, work was performed by Knowledge, Skill and Rule-based personnel. The Knowledge was developed through design review meetings that were conducted for the EDCRs prior to issuance. These meetings provided the expectations and level of detail needed to resolve the issues related to the Instrument Line corrective action plan through extensive walkdowns involving construction and design personnel. As the project progressed, the Skill and Rule base traits have remained. However, the Knowledge base has been diminished given the length of time that elapses between the issuance of design packages and the work that takes place to complete their implementation.

## ENCLOSURE

### WATTS BAR NUCLEAR PLANT (WBN) UNIT 2 REGARDING INSTRUMENT SENSE LINE SLOPE CONDITION 10 CFR 50.55(e) CONSTRUCTION DEFICIENCY REPORT (CDR) 50-391/2013-02 FINAL REPORT

#### **SAFETY IMPLICATIONS**

Walkdowns have been completed for those systems which contained the issue. Inspection results did not identify examples where instrument line slopes as installed would have prevented the associated instruments from performing their intended safety function(s). Therefore, no substantial safety hazards have been identified.

#### **CORRECTIVE ACTIONS**

1. Procedure 25402-000-GPP-0000-N3401, "Instrument and Instrument Line Installation," has been revised to identify the sense line boundary from the process connection through the root valve to the panel isolation valve.
2. Training to the above revised procedure has been provided to applicable Field Engineers, Planners, and Design personnel to eliminate any Knowledge gap.
3. The standard statement in the EDCRs discussed above has been removed from each EDCR through approved procedures for revising EDCRs.
4. TVA has revalidated instrument line slopes for the affected systems and has subsequently prepared and processed Field Change Requests to document changes requiring correction found during these walkdowns. None of these changes would have resulted in a substantial safety hazard had they remained uncorrected. For the remaining systems yet to be completed, TVA has corrected the program as described above to complete those systems as intended from this time forward.