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U. S. Nuclear Regulatory Commission  
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Gentlemen:

In the Matter of the Application of ) Docket Nos. 50-390  
Tennessee Valley Authority ) 50-391

WATTS BAR NUCLEAR PLANT (WBN) - TVA RESPONSE TO NRC QUESTIONS ON WORK CONTROLS DURING AND AFTER HOT FUNCTIONAL TESTING (HFT)

On March 25, 1994 TVA met with members of NRC to discuss the status of Hot Functional Testing (HFT) at WBN. During the meeting TVA committed to provide a written response to questions raised by NRC regarding work controls. The questions as restated here, were: 1) How will TVA control ongoing work to ensure Preoperational Test results are not compromised? and 2) How will the Nuclear Assurance (NA) organization ensure that those controls are successfully implemented?

TVA recognizes that the potential for system degradation exists both during and after HFT and has established programmatic work controls to prevent such an occurrence. Essentially these work controls are the same type controls used in operating nuclear power plants, i.e., defined work processes, with built-in controls to ensure proper implementation, and several layers of oversight to provide additional assurances of proper implementation. Enclosure 1 to this submittal, is a graphic depiction of the work processes used at WBN, along with associated controls and oversight.

Line Work Control

Work control is the responsibility of all personnel associated with the work (for the purpose of this submittal, work is defined as maintenance, testing, or modification activities performed on plant equipment or structures).

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At WBN those organizations authorized to perform work on systems undergoing, or that have undergone HFT or other preoperational testing are Modifications, Startup and Test, Startup Support, and Maintenance. Modifications implements approved design changes utilizing the workplan process and in some circumstances can perform work by the work order process. Startup and Test, Startup Support, and Maintenance perform work utilizing the work order process (Startup and Test may also correct minor deficiencies identified and documented during testing under the test deficiency process). Training on these work processes has been provided to personnel responsible for implementing the work. As depicted in the enclosure, several controls have been built into these processes to detect possible problems. These controls consist of multiple levels of review and approval during the planning, implementation, and completion stages, and daily discussions (plan of the day meetings, plant daily work schedule review meeting, and pre-job conferences) held on upcoming work which could impact HFT testing now or in the future. Work performed by Modifications, which would impact transferred systems and components or preoperational test results is also discussed in these daily meetings.

To ensure successful implementation of the work processes at WBN a number of management review and oversight levels are built into the system. As depicted in the enclosure, these include self-checking by the workers themselves, supervisory oversight in the form of pre-work briefings and post-work inspections, Operations oversight through their knowledge of plant systems interaction, routine inspections and the plant clearance procedure, and NA oversight as described below.

In addition to the work controls described above. TVA has taken measures to ensure successful implementation of HFT. These measures include reviewing and documenting both unit and organizational performance throughout HFT. The results of the review are presented to the Plant Operations Review Committee for their approval prior to entering the next planned phase (plateau) of HFT. The review critiques the work control process as well as emergent and backlog test issues. Training has been provided to all organizations involved with HFT. Training consisted of access to controlled areas, what to expect in an operational environment, HFT organizational structure, proper work authorization on systems or structures undergoing or which have undergone HFT. Radiation control technicians are physically controlling access to predetermined areas of the plant. This access control is designed to ensure worker safety and equipment/test integrity, by ensuring proper work authorization. The level of access control imposed after HFT will balance remaining work facilitation with potential impact on completed testing.

#### Nuclear Assurance Oversight

Nuclear Assurance utilizes a program of audits, assessments, Quality Engineering (QE), and Inspector of the Day (IOD) reviews and inspections to assess normal work activities including activities following HFT. The audits and assessments review and evaluate the management controls established to assure only authorized work is performed in the plant.

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This review assures that these controls are defined in written, approved, and issued procedures and that personnel are appropriately trained to these requirements. Audits and assessments also review the implementation of each aspect of these controls including work scheduling, work planning, work approvals, work implementation, and post work activities. These reviews include documentation and extensive observations of field work.

QE reviews completed work documentation. QE identified weaknesses are evaluated for cause and appropriate preventative measures are implemented to prevent repeat occurrences, deficient conditions are corrected.

The IOD reviews look at work being performed in the plant to ensure that the work being performed is on the correct component or structure, the work document is properly approved (including SOS authorization if applicable), and the work is approved on the Plan of the Day. This aspect of the IOD review is normally performed at least once a week.

During HFT, the level of NA effort has been increased due to the concentration of testing activities and operating conditions of the plant. Special controls, such as access control, have been added to the scope of the NA oversight of work control during HFT. IOD reviews are being performed at least daily checking for work authorization, housekeeping, and weekly checks of configuration control status. Additionally, a special assessment of HFT is being performed 24-hours-a-day, seven-days-a-week, through HFT. The scope of that assessment includes conduct of test, conduct of operations, performance of support groups, and work authorizations.

The following are some of the objectives of the special HFT assessment that relate to work authorizations:

- Work Planning/Prioritization
- Procedure Compliance
- Self checking by the craft/foremen
- Supervisory Involvement
- Access Control
- Authorized Work Activities
- Configuration Management

Conclusion

In summary, TVA will control ongoing work both during and after HFT to ensure tests and subsequent plant operations are not compromised by utilizing; 1) defined work processes implemented by trained and cognizant personnel, 2) appropriate review and approval of ongoing work throughout completion, and 3) additional oversight to ensure proper implementation of these work processes.

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If you have questions concerning this submittal, please telephone  
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Very truly yours,



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Enclosure

cc (Enclosure):

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## ENCLOSURE 1

<u>PROCESS</u>	<u>CONTROLS</u>
1. Work Scheduling	Operations/Planning & Scheduling review for impact on 1) HFT Systems/Areas (during HFT) 2) Plan of the Day & Daily Work Schedule Meetings/Work Authorizations 3) Required Organizational Interface Support
2. Work Planning	1) Responsible Engineer/Technical Reviewer Evaluates for need and adverse impacts. 2) Materials Control 3) Clearance Requirements 4) Determine Post Maintenance Test Requirements
3. Work Approvals	1) Startup & Test Review for Impact to Testing 2) Access Control (during HFT) a) Physical (i.e., containment) b) Limited Access (SRO permission required) 3) Pre-job conferences/Walkdowns 4) Task Manager Oversight (MODS) 5) Applicable Operations Approval (SRO)
4. Work Implementation	1) Startup & Test Review for Impact on Testing (WP/WO) 2) Operations Notification
5. Post Work	1) Foreman/Engineer Reviews 2) Notification of Operations 3) Post Maintenance Testing 4) QE Review (Sampling) 5) Housekeeping

<u>OVERSIGHT</u>
Self Checking
Supervisory - Pre-work Briefings - Post-work Inspections
Operations - Routine Inspections - Clearance/Boundaries
QA Oversight - Programmatic Assessments - Sampling Review - Inspector of the Day - Monitoring - Additional Shift Coverage during HFT