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JAN 31 2006

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Gentlemen:

In the Matter of the
Tennessee Valley Authority

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Docket No. 50-390

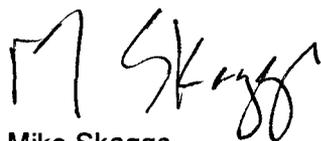
**WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 – HUMAN PERFORMANCE
CROSSCUTTING ISSUE CLOSURE**

This letter provides information regarding the human performance crosscutting issue discussed in NRC's letter to TVA dated August 30, 2005, "Mid-Cycle Performance Review and Inspection Plan." Provided in the enclosure is a summary of the issue and the actions taken by TVA to address the issue.

TVA has determined that this information should be adequate for the NRC staff to conclude WBN's scope of efforts and programs are sufficiently robust to address the performance deficiency. Accordingly, TVA requests the substantive crosscutting issue be closed.

There are no regulatory commitments in this letter and should there be questions, please contact Paul Pace at (423) 365-1824.

Sincerely,



Mike Skaggs

Enclosure
cc: see page 2

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U.S. Nuclear Regulatory Commission

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Enclosure

cc (Enclosure):

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ENCLOSURE

TENNESSEE VALLEY AUTHORITY WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 DOCKET NUMBER 50/390

HUMAN PERFORMANCE CROSSCUTTING ISSUE CLOSURE

1.0 Background:

Reference:

NRC Letter to TVA dated August 30, 2005, "Mid-Cycle Performance Review and Inspection Plan – Watts Bar Nuclear Plant."

In the referenced letter, NRC documented that a substantive crosscutting issue had been identified in the area of human performance associated with procedure compliance. The specific examples cited included inadequate oversight during a rod drop event; diesel fans removed from service without implementing an associated Technical Specification surveillance requirement; inadequate post-maintenance testing for a Residual Heat Removal system pump seal; failure to establish a risk contingency plan for an outage electrical maintenance activity; failure to follow work control procedures that resulted in an impact on a pressurizer relief valve operability; and failure to implement solid plant operational procedures that caused pressurizer relief valve actuations.

A public meeting was held with the Region II staff on October 18, 2005, to outline TVA's Human Performance Improvement Plan (HPIP), the operations department improvement plan, the cause of the human performance findings and to identify the areas where improvement had been achieved. A second meeting was held with the Region II staff on December 5, 2005, to address outage related issues and to present a basis for closure of the crosscutting issue.

2.0 Human Performance Improvement Plan (HPIP):

2.1 Scope and Intent of HPIP:

TVA's HPIP initially identified the areas where clarification and simplification of the human performance tools and processes were needed. Unnecessary burden in the use of the human performance tools and processes were eliminated to encourage stronger buy-in by the workforce. Other elements of the strategy include vigorously enforcing strict compliance with the rules and regulations while providing the workers added flexibility in their use of applicable error prevention tools. This initiative re-defined which of the current human performance error reduction tools constitutes an absolute rule that must be followed with no exception and which is a tool used at the worker or supervisor's discretion to improve the probability that a job will be done correctly and safely.

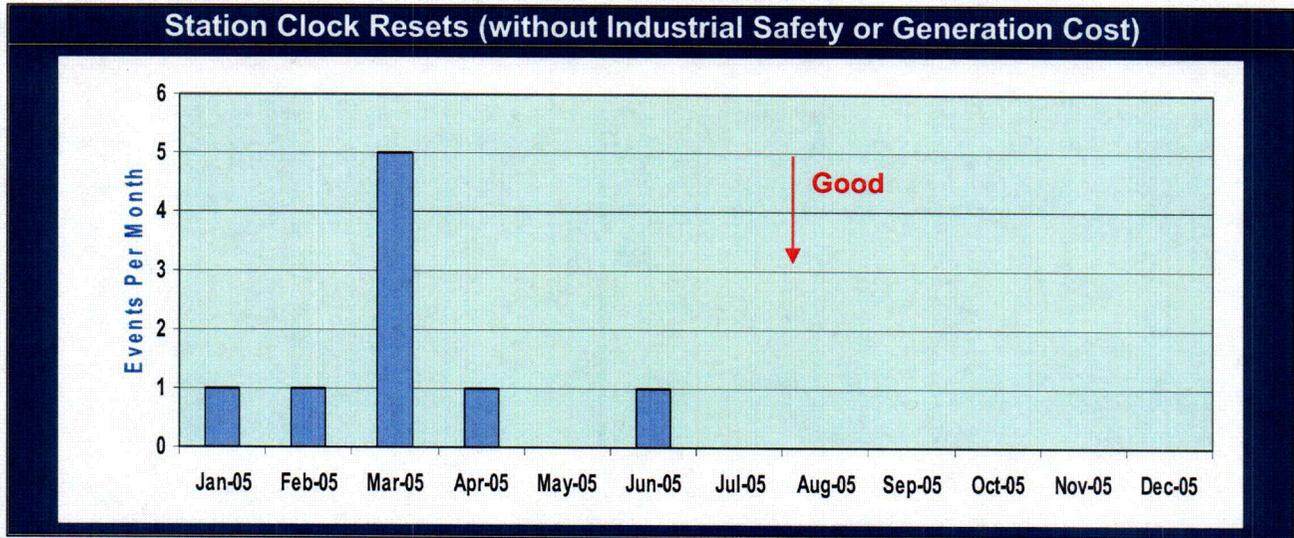
Key actions included in TVA's HPIP initiative are to:

- Clarify and simplify human performance error prevention tools and human performance processes including revisions to the human performance business practice and pocket guide to align to the strategy of rules and tools.
- Clarify and communicate the essential rules required to perform work and implement a disciplinary matrix that consistently reinforces strict compliance with those rules.
- Establish a compelling need for employees to learn and understand those rules required for their job and facilitate that learning.
- Identify and correct errors and inefficiencies found in station technical procedures and clarify confusing, conflicting, or unrealistic rules imbedded in administrative procedures.
- Improve the human performance indicators, observation criteria, and monitoring expectations to reinforce compliance with the rules and differentiate between behaviors and results.
- Establish an effective means to provide positive reinforcement for employees who consistently comply with the rules and practice solid error prevention techniques.

One indicator that measures human performance improvement is the time between station and department human performance errors (clock resets). A department clock reset occurs whenever an error is determined to be human performance related. Improvement in the departmental level clock resets are as follows:

| Department: | Average Days Between Resets | |
|----------------------|-----------------------------|----------------------|
| | April to June 2005 | July 2005 to Present |
| Operations | 3.5 | 13.7 |
| Maintenance | 5.4 | 5.7 |
| Engineering | 3.3 | 4.5 |
| Radiation Protection | 22.3 | 26.4 |
| Chemistry | 25.3 | 50.8 |

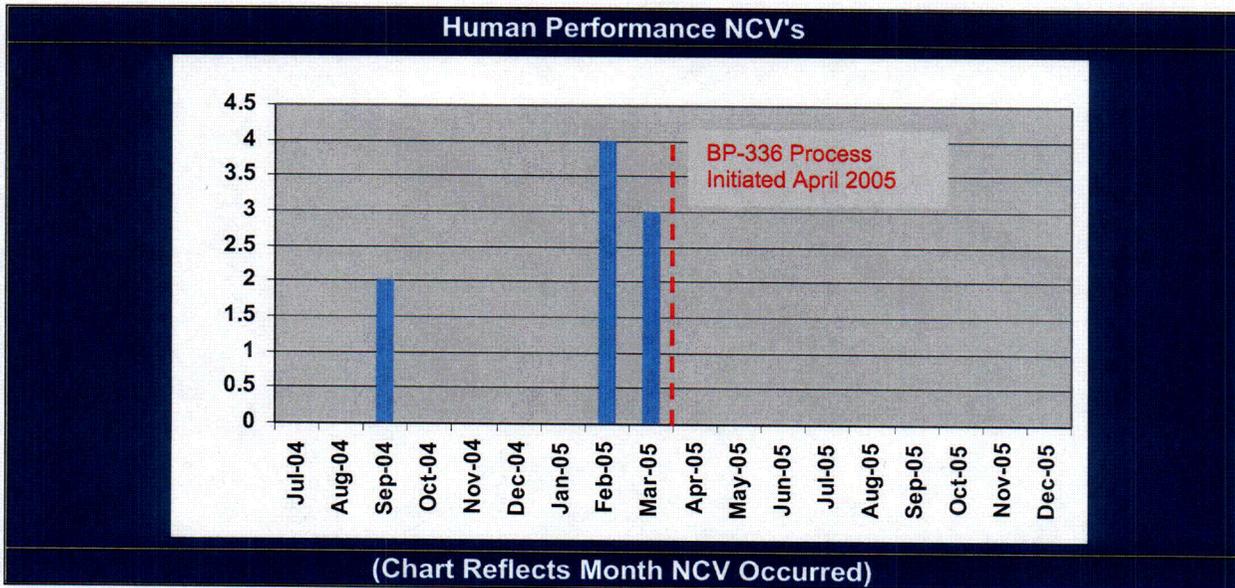
In the October and December 2005 meetings, TVA presented the Station Human Performance event clock indicator. The data provided in the meetings excluded resets associated with Industrial Safety and Generation Cost. The basis for excluding this data was that Generation Costs events primarily address economic considerations and Industrial Safety events are normally not associated with regulatory compliance or nuclear safety. The current reset data for this indicator for calendar year 2005 is as follows:



2.2 Corrective Actions for Human Performance Findings:

The examples cited in the crosscutting issue involved six human performance related Non-cited Violations (NCVs). The corrective actions established for five of the six violations have been completed. The corrective actions that remain are associated with the pressurizer relief valve actuations and include procedure enhancements and a design change to improve the control of charging flow to the Reactor Coolant System. Implementation of the design change will be contingent on the availability of the required materials.

The data depicted below indicates that no human performance NCVs have been identified since the completion of the Cycle 6 outage on March 31, 2005. This data also includes one NCV that was dispositioned after the completion of the outage but occurred during the outage. The corrective actions for this NCV include a design change which will be implemented later this year:



TVA's assessment of the human performance errors resulted in the implementation of Business Practice (BP) 336, "Nuclear Safety/Generation Risk Analysis," on April 3, 2005. This process was described in some detail in the public meeting at Region II on October 18, 2005. BP-336 established additional processes for review and control of site work activities that potentially may impact nuclear safety or unit generation. The BP is intended to enhance the established processes for the control of online work and does not circumvent any directions provided under those processes.

The BP-336 process directly impacts human performance in that the principal intent of the process is the avoidance of errors. However, should an error occur, the process outlined in the BP serves to minimize the consequences of the error so that the error does not turn into an event. Elements of the BP-336 process include a formalized screening review of the work activity with concurrence by a Senior Reactor Operator (SRO). Those work items that "screen-in," require a review by a management team to ensure the work activity is clearly understood, cross-department coordination is complete, the appropriate human performance error reduction tools are targeted for use, and that measures to address applicable contingencies are established.

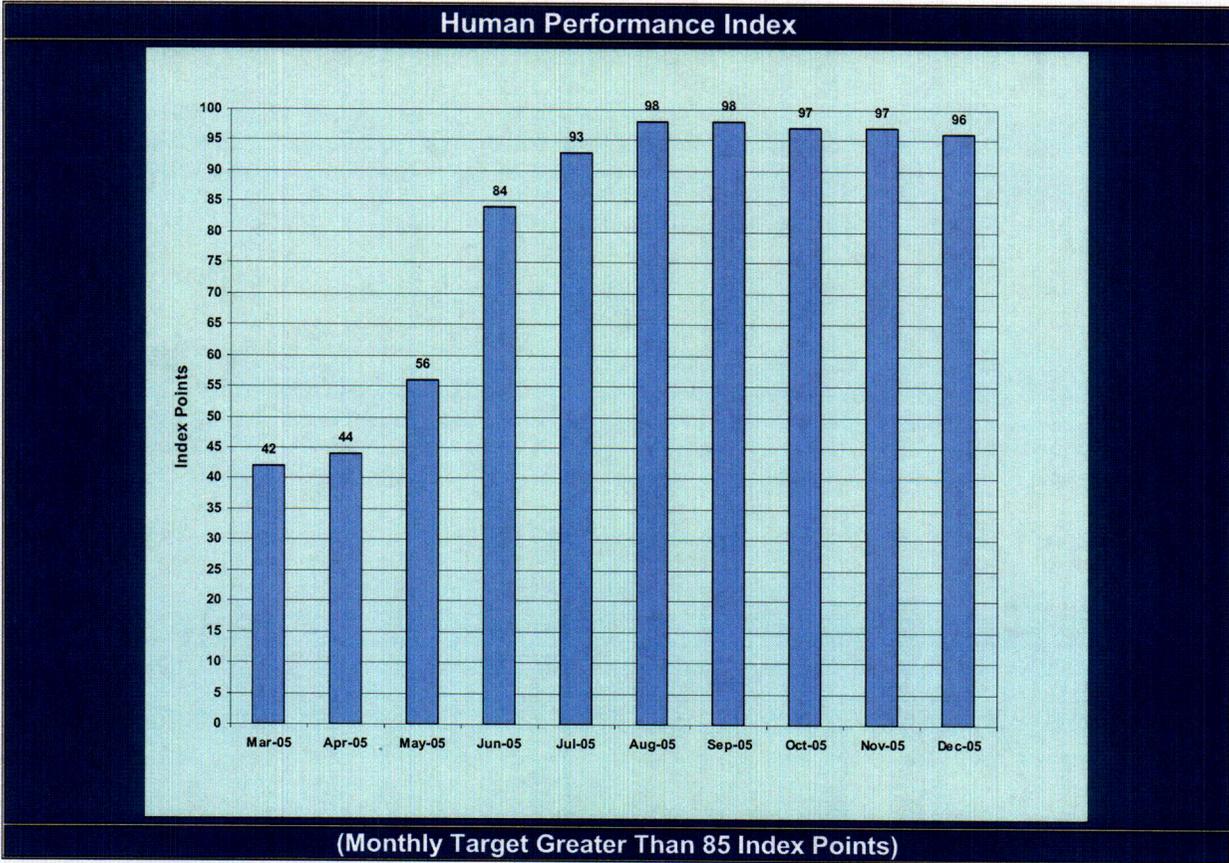
Some of the human performance findings cited in the crosscutting issue occurred during the Cycle 6 refueling outage. As discussed in the December 5, 2005, public meeting, WBN's strategy to improve human performance during the upcoming refueling outage is based on vigorous adherence to planning milestones which provide for early identification of work activities, work planning, and walkdowns. To confirm the effectiveness of these improvements, TVA is planning an independent review of a sample of the work packages prior to implementation during the outage to identify package quality shortfalls, including review of the specified post-maintenance tests (PMT).

3.0 Human Performance Monitoring and Management Oversight:

A key part of TVA's improvement plan for procedure compliance is the enhanced management oversight of performance in this area. As discussed in the October 18, 2005 public meeting, the WBN Human Performance Index tracks progress in multiple indicators designed to improve human performance. Two of the most important measures are the tracking of management field observations of procedure use and adherence and the measure of critical comments in those observations. WBN has met its goal of over 150 observations per month with greater than 90 percent with critical comments for every month since July 2005.

INPO's site evaluation in October 2005, identified WBN's key process indicators (including this human performance index) as a beneficial practice. This review concluded the indices monitor performance trends, improvement actions, emerging issues, and that performance thresholds are periodically adjusted to encourage achievement of higher performance levels. They also concluded that tangible improvements have been implemented as a result of performance-indicator-driven management assessments, trending, and decision-making.

Overall WBN has sustained improvement in this index as shown in the following figure:



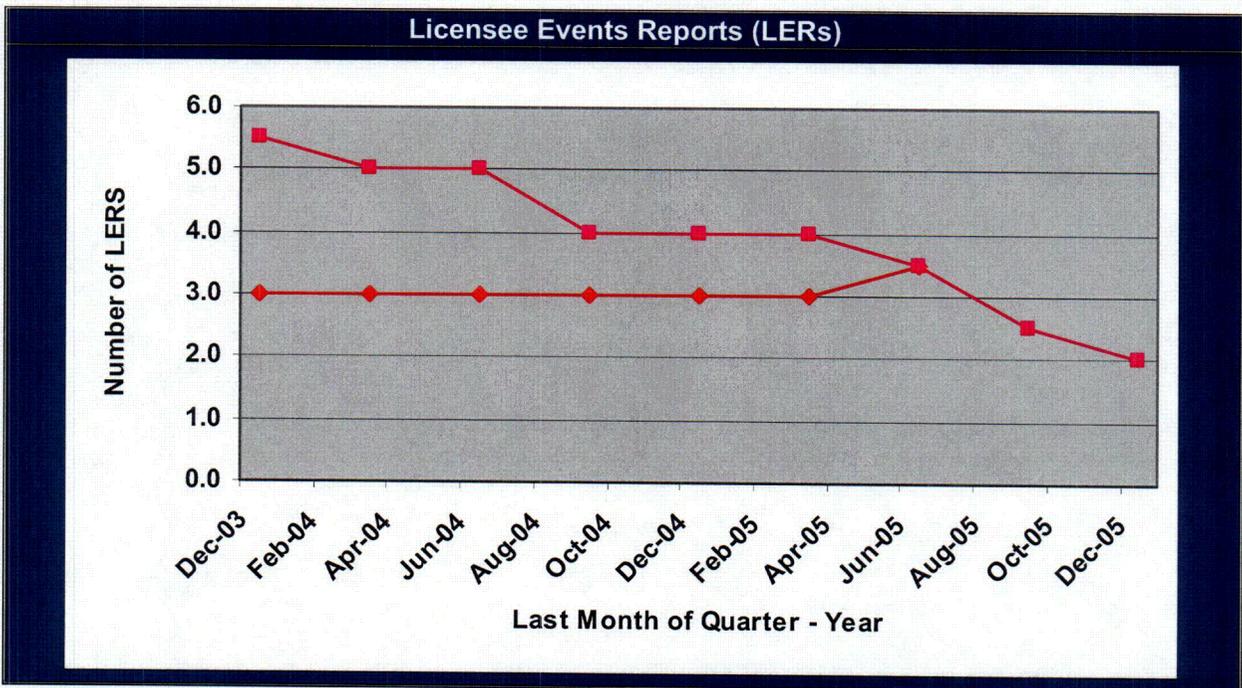
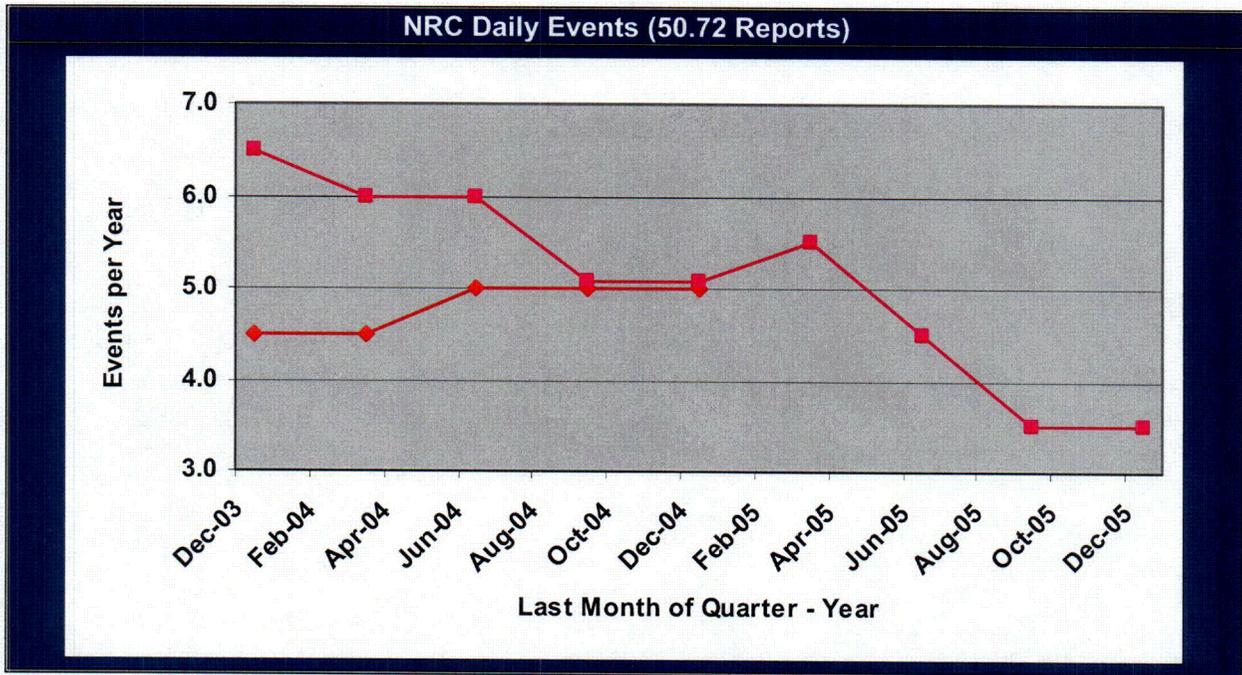
4.0 Basis for Closure:

4.1 Performance Comparison with Industry

NRC's concern expressed in the referenced Mid-Cycle Performance Review and Inspection Plan is that human performance issues may result in increased challenges to plant equipment from preventable transients and events. During the December 5, 2005, meeting, TVA presented a comparison of WBN's performance in four key areas to that of the top quartile of the industry that provided a quantifiable picture of event precursors. The four areas included NRC Daily Events (50.72 reports), Licensee Event Reports (LERs), Unplanned Automatic Scrams, and Operating Transients.

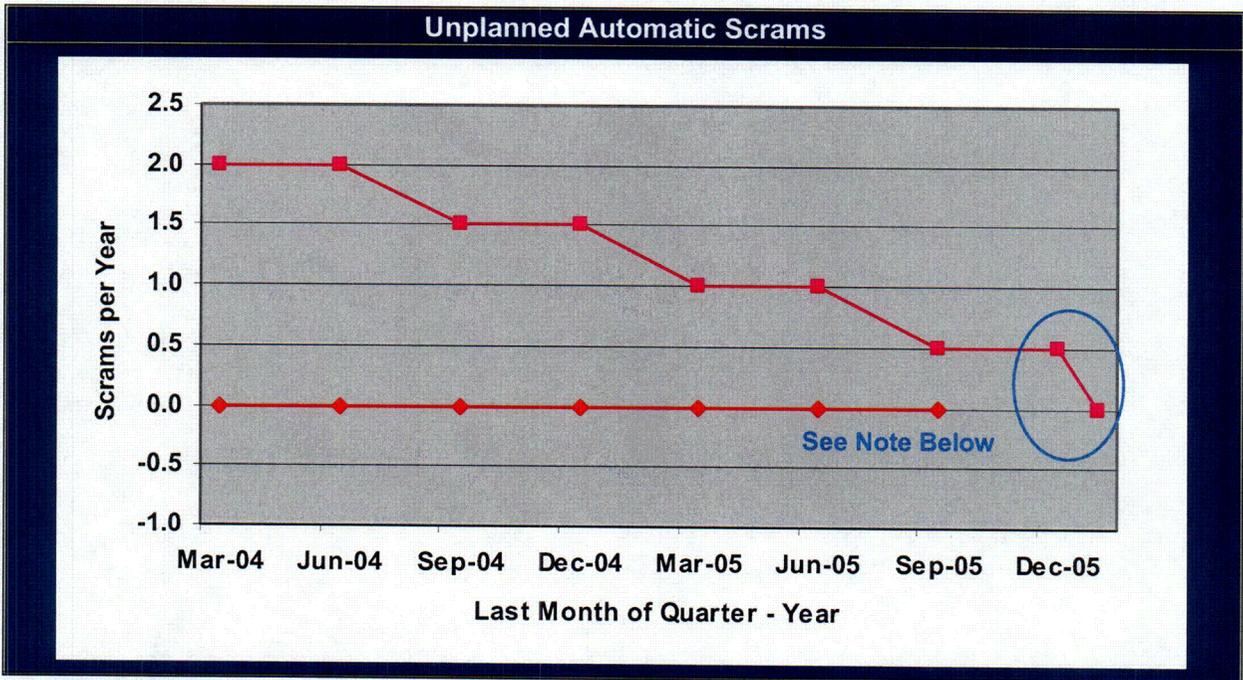
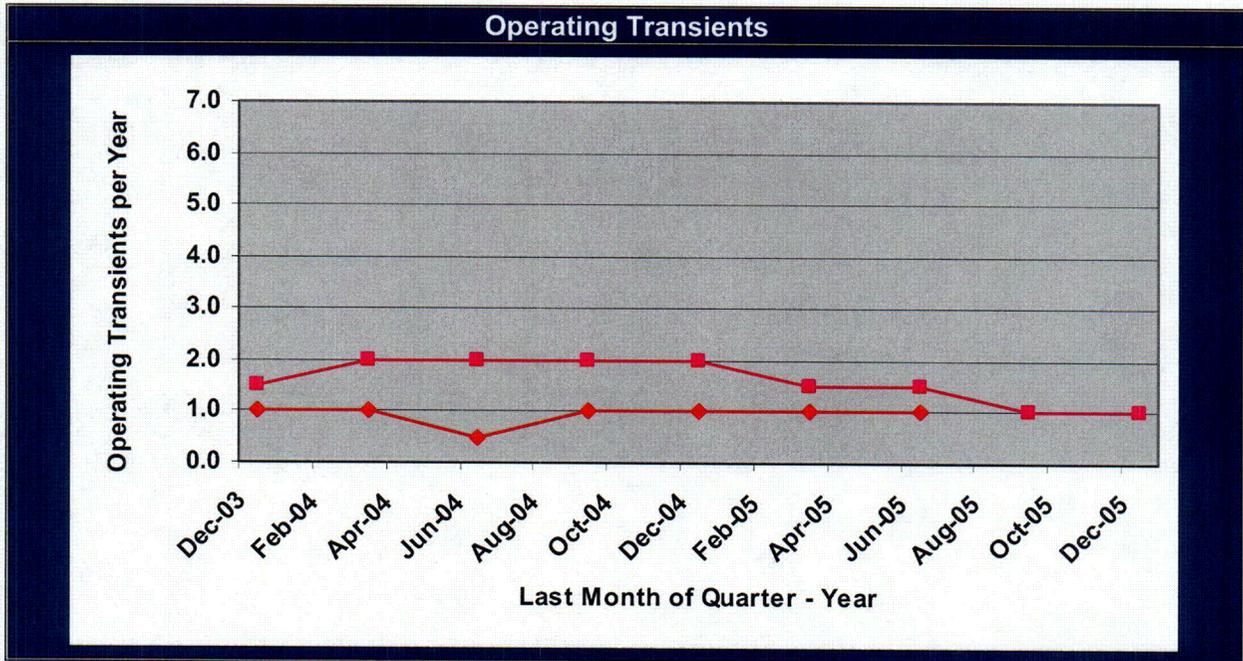
WBN's performance has continued to improve in these key indicators through the end of 2005. As shown below WBN has achieved top quartile performance in NRC Daily Events (50.72 reports), Licensee Event Reports (LERs), Unplanned Automatic Scrams, and Operating Transients based on latest available industry data. In the area of Unplanned Automatic Scrams, TVA achieved top quartile level performance on January 16, 2006. As of that date, WBN had not had an automatic scram for a period of two years:

Comparison of WBN to Industry in Four Key Performance Areas
 (All Charts are on a Two Year Rolling Average)



Legend: WBN: Industry Top Quartile:

Comparison of WBN to Industry in Four Key Performance Areas (continued)
 (All Charts are on a Two Year Rolling Average)



Legend: WBN: Industry Top Quartile:

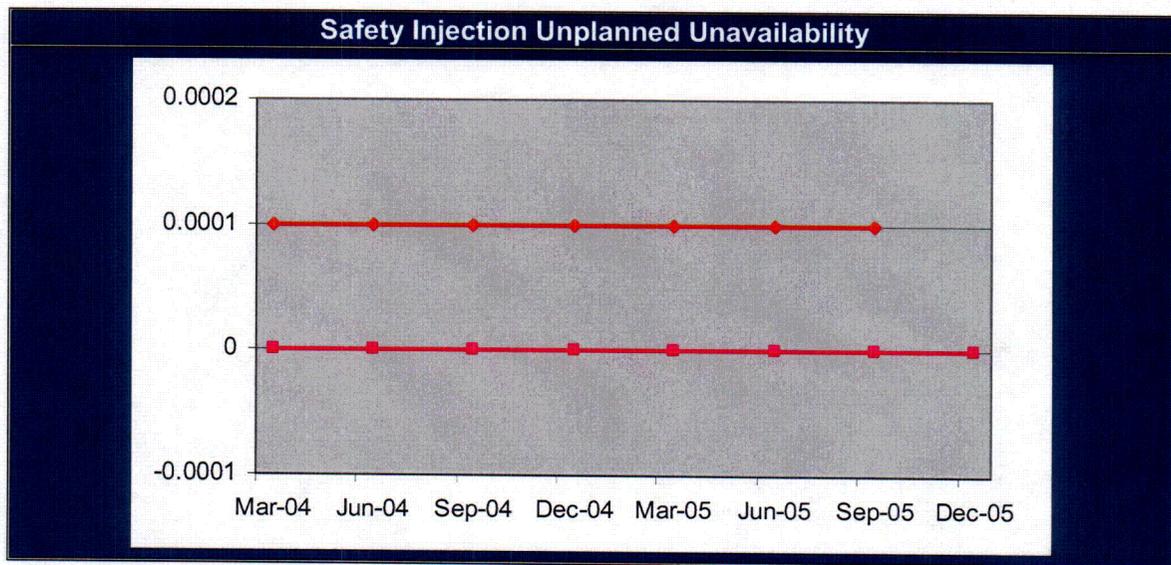
Note:
 LER 390/2004-001 documented an automatic reactor trip that was caused by an invalid turbine trip signal. This event occurred on January 16, 2004 and since the indicated data is based on a two year rolling average, WBN can be considered at the industry top quartile level of performance.

4.2 Consistency with the Reactor Oversight Process and Industry:

NRC Inspection Manual Chapter 0308, "Reactor Oversight Process (ROP) Basis Document," references the NRC Strategic Plan Performance Goal to maintain a low frequency of events that could lead to a reactor accident and references its activities in the ROP to monitor licensee activities in human performance to accomplish that goal. As presented in TVA's public meetings on the human performance issues, TVA's strategy to improve human performance is to reduce the frequency and severity of events by using human performance tools and aggressive defense in depth processes like BP-336.

NUREG/CR 6753 "Review of Findings for Human Error Contribution to Risk in Operating Events," provides an analysis of the influence of human performance on a sample of significant operating events. One of the most important findings of that study was that forty-one percent of the events involved partial or complete loss of either onsite or offsite power; twenty-two percent involved loss of Emergency Core Cooling Systems (ECCS); and nineteen percent involved loss of feedwater. TVA reviewed WBN's performance in those areas as compared to industry performance. Data was not readily available to tie performance directly to human error. However, by considering the unplanned unavailability of key systems which mitigate the casualties discussed above, the relative impact of human performance of these key systems can be approximated. The following figures show WBN's performance compared to the INPO top quartile industry data for Safety Injection, Emergency Diesel Generators (EDGs) and Auxiliary Feedwater. As can be seen from those charts, WBN stands in the top quartile for unplanned unavailability for Safety Injection and EDGs. AFW unavailability was impacted by a single event due to unplanned moisture in the turbine for the Turbine Driven Auxiliary Feedwater (TDAFW) pump which was corrected prior to impacting operability in May 2005.

**Comparison of WBN to Industry for System Unavailability
(All Charts are on a Three Year Rolling Average)**



Legend:

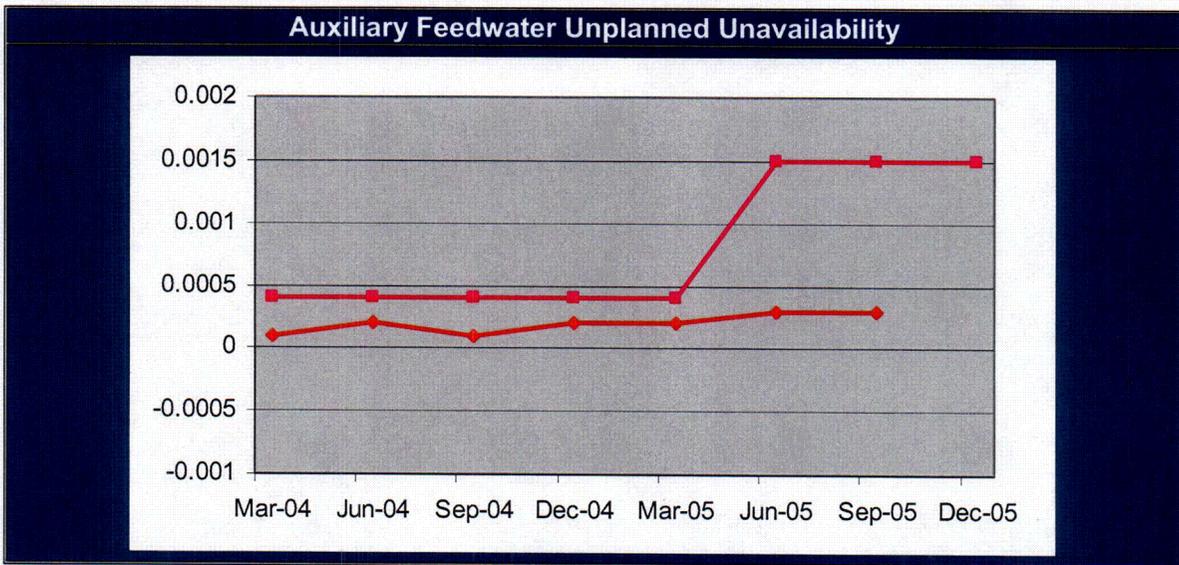
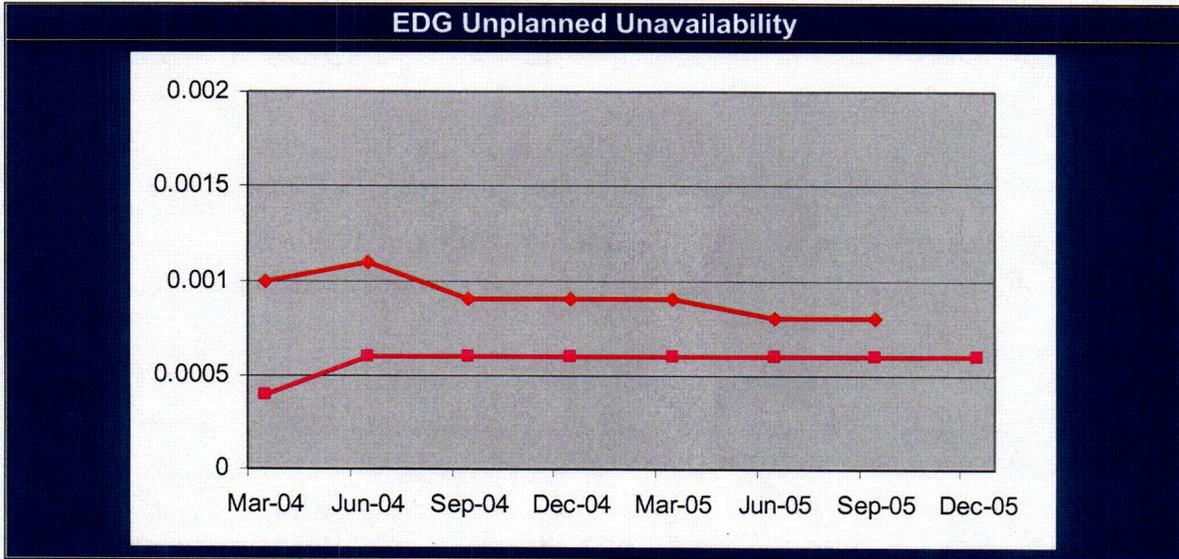
WBN:



Industry Top Quartile:



Comparison of WBN to Industry for System Unavailability (continued)
 (All Charts are on a Three Year Rolling Average)



Legend: WBN: —■— Industry Top Quartile: —◆—

5.0 Conclusion:

The following summarizes the results of WBN's HPIP:

- No new NCVs for human performance issues have occurred since March 2005.
- The implementation of the HPIP is well underway with measurable improvement.
- A rigorous process is in place (BP-336 critical evolutions review) to minimize risk of human events.
- The corrective actions and processes are being initiated to address the Cycle 6 outage performance deficiencies.
- Plant performance indicators show an overall improving trend for human performance and top quartile industry performance has been achieved in several areas.

Based on these results, NRC should have no concerns with TVA's "scope of efforts or progress" in addressing human performance issues regarding procedure compliance. Therefore, the substantive human performance crosscutting issue can be closed at the annual review for the period ending December 2005.