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December 23, 2003

U.S. Nuclear Regulatory Commission  
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Dear Mr. Lesar:

NUCLEAR REGULATORY COMMISSION (NRC) – COMMENTS ON THE FOURTH  
YEAR OF IMPLEMENTATION OF THE REACTOR OVERSIGHT PROCESS (ROP) -  
(VOLUME 68 *FEDERAL REGISTER* (FR) 64374, DATED NOVEMBER 13, 2003)

TVA appreciates the opportunity to provide comments on the Fourth Year of  
Implementation of the ROP. The enclosure provides additional comments to some of  
the specific questions contained in the referenced *FR*. TVA endorses the comments  
provided by the Nuclear Energy Institute in their letter dated December 18, 2003.

TVA will continue to monitor developments in this area and provide any comments or  
suggestions through the Nuclear Energy Institute's ROP task force.

If you have questions, please contact Susan Ferrell at (423) 751-7737.

Sincerely,

Mark J. Burzynski  
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Enclosure

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12/29/03  
EDB received  
(initials)

11/13/03

68 FR 64374

(7)

Template = ADM-013

F-REFS = ADM-03  
Ccc = M. J. Maley (MSM3)

## ENCLOSURE

### TVA Comments on 4<sup>th</sup> Year of the Reactor Oversight Process

#### *Questions Related to Specific Reactor Oversight Process (ROP) Program Areas*

1. Does the Performance Indicator (PI) Program minimize the potential for licensees to take actions that adversely impact plant safety?

Yes. The PI Program continues to motivate licensees to improve performance in the cornerstone areas. While many of the areas have demonstrated a flattening of the improvement trend this year, improving trends are still evident for the industry in the following performance indicators:

- Unplanned Power Changes (Initiating Events Cornerstone)
- Reactor Core Isolation Cooling Safety System Unavailability (Mitigating Systems Cornerstone)

While the Emergency Drill/Exercise Performance PI continues to show stable performance in the mid-ninety percentile range, unintended consequences might be resulting from the strict application of the 15-minute classification goal. The 15-minute classification goal can find their basis within the WASH 1400 studies. The time limit established for the serious emergencies in WASH 1400 were than also applied to the lower emergency classifications when EPPOS 3 established a goal of 15 minutes to declare an emergency once data was readily available to the Shift Operators/Emergency Directors. This goal has now become a more strictly applied limit for use in determining the successful accomplishment of a classification for PI reporting purposes. Attempts to apply this goal as a PI-measured limit have required the defining of a start point for the 15 minutes. The NEI guidance current defines the 15-minutes by stating, "The 15 minutes is a reasonable period for assessing classifying an emergency once indications are available to control room operators that an EAL has been exceed."

The recently issued EPRI white paper on "Evaluation of Accident Scenario Timing for Emergency Planning of 'Fast-Breaking Events'" concludes that the vast majority of nuclear plant unusual conditions do not progress to more serious conditions. Even if an unusual condition should progress to a general emergency, the vast majority of such accident sequences would require hours, not minutes, to progress through the four emergency action limits. The more realistic slow moving, low-level events are first seen by operators after the analysis of initially ambiguous and changing plant parameters. The diagnosis of these parameters must advance through several procedures before the actual emergency plan implementing procedures are entered and question of emergency action limit exceedance is determined. In training and simulator drills, the accurate and appropriate transition through the procedure and the correct analysis of the event is the key critical success factor of the simulator experience. The use of a standard 15-minute goal from time of initial indications to classification completion for all types of events is placing a significant emphasis on the determination of the time of initial indication. This strict 15-minute standard and ambiguous start time criteria are leading to two unintended negative behaviors.

First, for the more realistic slow moving events, operators can become overly focused on determining when to start the 15-minute clock. This also creates the tendency to rush through the procedures and complete the declaration of the event in order to allow for start

time interpretation differences that might occur during post-event analysis. The second unintended consequence is a potential tendency to write and perform scenarios that have clear initiating events that lend themselves to less argument as to when there was clear indication of an emergency condition first existed. This can lead to the development of less realistic faster breaking events.

A more specific definition for when the 15-minute clock actually starts will result in the removal of the potential drill distraction. With the establishment of standard formats for emergency procedures based on owners group supports the selection of specific procedure step(s) that, once entered, would start the EAL determination declaration clock. For Westinghouse plants, this might be allow for the completion of the immediate action steps within E-0 "Reactor Trip" after determining the appropriate action of tripping the reactor before starting the time clock for declaration. The review of the EALs, classification of the event could progress in a timely manner (15-minutes or less) after the immediate action within the appropriate emergency procedure are completed. This keeps the operators focused on the reactor configuration and would allow drills and training to remain more focused on the practice of correct use of site procedures to analyze perceived abnormal condition and determine the appropriate mitigating response actions.

2. Does appropriate overlap exist between the PI Program and the Inspection Program?

Yes. Appropriate overlap exists between the PI Program and the Inspection Program.

The Loss of Normal Heat Removal PI is one area where unnecessary overlap exists. In addition to this PI being the source of the largest number of Frequently Asked Questions (FAQs), the NRC also performs a risk assessment of every plant scram per Management Directive (MD) 8.3 to determine the need for additional inspection. The Loss of Normal Heat Removal PI was initially intended to capture those scrams that were felt to be more complicated and thus more risk-significant. With the resolution of the multitude of FAQs that were written against this PI, the definition has changed and it is no longer counting what the industry views as complicated scrams. TVA believes that the better risk-assessing tool of scram complexity is MD 8.3 and supports the industry effort to delete this PI.

3. Do reporting conflicts exist, or is there unnecessary overlap between reporting requirements of the ROP and those associated with the Institute of Nuclear Power Operations (INPO), the World Association of Nuclear Operations (WANO), or the Maintenance Rule?

The implementation of the Consolidated Data Entry system developed by INPO has partially reduced the duplication in the reporting of system availability to ROP, maintenance rule, and INPO/WANO. Differences remain in the reporting criteria between the different reporting systems. The new Mitigating System PI implementation will go a long way in remedying the duplication and interpretation problems in the equipment availability reporting areas. However, TVA remains concerned that the new indicators may result in additional burden associated with the risk analysis support for the new indicator methodology.

4. Does NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," provide clear guidance regarding Performance Indicators?

In general, NEI 99-02 provides clear guidance. The FAQs process is useful to get clarification when necessary. The efficiency of the FAQ process needs to be improved. More defined guidance on the use of FAQs and a minimum threshold for FAQs needs to be established. The NRC and NEI need to screen inappropriate FAQs before significant effort is invested in discussions. It would also be useful for NRC to establish a timeliness goal for FAQ resolution to monitor performance.

5. Is the information in the inspection reports useful to you?

Yes. The quarterly report, which is now been standardized across all the regions, is more efficient. Effective application of finding threshold criteria ensures that the reports focus on significant issues. The use of the objective writing style has eliminated the search for the "hidden message" that was an element of the earlier oversight process.

TVA suggests that NRC consider including a summary of the direct and indirect man-hours expended for each inspection module in the inspection reports. This information would help utilities budget for future inspection costs.

6. Does the Significance Determination Process (SDP) yield equivalent results for issues of similar significance in all ROP cornerstones?

No. The non-green end points in the SDP logic for Emergency Preparedness, Occupation Radiation Safety, Public Radiation Safety, and Physical Protection Cornerstones are not consistent with the risk thresholds for Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones. In general, they represent a deterministic escalation for various types of regulatory noncompliance. TVA acknowledges the progress made in improving the SDPs in the Occupational and Public Radiation Safety cornerstones and recommends the pending changes for implementation as soon as possible. The implementation of these pending changes would make these SDPs less deterministic and thus afford results more risk-consistent with the initiating and mitigating events cornerstones. However, the Emergency Preparedness and Physical Security SDPs are still largely deterministic and the efforts to updates these SDPs need to be a higher priority.

Considerable effort was made this year in improving the existing fire protection SDP, but TVA feels the latest draft is still too long and complicated. TVA recommends that the level 2 entry criterion be modified to use the simpler logic of "green unless the event involves high combustible loading and no sprinkler capability." This would eliminate a large volume of the repetitive FP SDP assessments and many of overly conservative assumptions that have resulted in unnecessary Regulatory Conferences in the past.

The draft of a containment SDP was recently provided to to ROP task force for initial review and comment. Based on this initial review of this SDP, there appear to be some risk inconsistencies for ice condenser containments. Pertaining to the condition of igniters out of service, the discussion is not sufficiently detailed in that it treats all containment compartments the same. The important compartments are the lower compartment, the upper plenum of the ice condenser, and the upper compartment. These areas have numerous igniters. TVA would agree that if all of the igniters in any two of these compartments were out of service that this should represent a red condition. However, the dead-ended areas outside the crane wall are not significant. The areas are relatively small in volume and are very unlikely to have a source for hydrogen release. As such, it is unlikely for hydrogen to accumulate in these areas and, even if it did, the hydrogen igniting the pressure pulse would be small due to the small volume of the compartments. These areas have minimal igniter coverage for just those reasons. The SDP rankings should focus on important considerations. It would be more appropriate to tie it to a significant number of igniters out of service in the lower compartment, upper compartment, or upper plenum of the ice condenser. However, even in these cases, unless all of the igniters were out of service it is unlikely that there would be any consequences. Studies have shown that the main compartments are well mixed so that there would not be appreciable concentration gradients. Thus, ignition would occur if even one igniter were present. As written, the guidelines are overly restrictive--especially for the dead-ended compartments.

Additionally, the evaluations for 15% blockage of the ice condenser grossly overstate the impact on containment integrity for blocked ice flow passages. Analyses for multiple-blocked doors have shown very little impact on containment pressure for such blockage. In addition, the only event where the 15% has any appreciable impact is for the double-ended large LOCA. This is the only event where flow passage blockage is important. It is a very low probability event. A flow blockage of 50% or higher is unlikely to result in containment failure. For smaller breaks, the initial pressure pulse is small and the blockages will melt resulting in normal flow areas. Thus the guidelines as written are overly restrictive.

7. Does the NRC take appropriate actions to address performance issues for those licensees outside of the Licensee Response Column of the Action Matrix?

TVA has found that NRC takes appropriate actions to address performance issues for those licensees outside of the Licensee Response Column of the Action Matrix. TVA also believes that the Action Matrix has sufficient flexibility to address issues in the necessary manner (e.g., Davis-Besse problems and Point Beach red finding).

TVA concurs with the industry recommendation that NRC change the action level criteria from two to three white inputs in a cornerstone for a Degraded Cornerstone. This threshold for increased NRC involvement would be consistent with SDP rule to aggregate three adjacent scenarios to the next higher color. Changing this threshold will eliminate unwanted effects of resistance to identification and/or over-analysis of a single white input.

8. Is the information contained in assessment reports relevant, useful, and written in plain English?

The format is brief and focused on objective performance measures. TVA has found the reports to be relevant, useful, and written in plain English. On the other hand, TVA has found the annual meetings, as currently conducted and attended, to be of little value. TVA suggests that the annual meetings be eliminated for plants that are "all green" if the current format is retained. As a separate thought, NRC should consider using the public meetings associated with the annual assessment reports as an opportunity to do more outreach/education work on the ROP. This approach would require a new format and better advertisement to increase public attendance.

#### *Questions Related to the Efficacy of the Overall ROP*

9. Are the ROP oversight activities predictable (*i.e.*, controlled by the process) and objective (*i.e.*, based on supported facts, rather than relying on subjective judgment)?

TVA has found that inspection planning and schedule performance has continued to improve. Good performance in this area allows for better utility planning and resource utilization. The combining of similar inspection modules, as was recently implemented in radiological control area, has resulted in further resource savings for both the industry and the regulator while still affording the appropriate level of inspection and oversight. TVA supports efforts to improve coordination with outage activities and adjust inspection hours expended. Because team inspections during outages can create a significant support burden due to assignment of key personnel to outage assignments, TVA suggests that outage inspections minimize program review elements and focus only on outage-related activities. TVA welcomes future opportunities to work with the NRC in pursuit of further consolidation and elimination of inspection modules based on industry performance or use of common fleet-wide implementing practices. This will allow the reallocation of our limited resources to more high risk or emerging issues.

10. Is the ROP risk-informed, in that the NRC's actions are graduated on the basis of increased significance?

The PI and SDP processes for the Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones are risk-informed. As already addressed in the response to Question 7, the Emergency Preparedness, Occupation Radiation Safety, Public Radiation Safety, and Physical Protection Cornerstones are not based on similar risk thresholds. Instead, they are based on a deterministic escalation for various types of regulatory noncompliance. The yellow and red points are likely not comparable from a public risk (health and safety perceptive) than the risk-based thresholds. In general, TVA believes that the non-green thresholds overstate the significance of findings for Emergency Preparedness, Occupation Radiation Safety, Public Radiation Safety, and Physical Protection Cornerstones when compared to the thresholds for the Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones. TVA supports the current industry and NRC efforts to upgrade these less risk-based SDPs.

11. Is the ROP understandable and are the processes, procedures, and products clear and written in plain English?

Yes. The ROP is understandable and the processes, procedures, and products are clear and written in plain English. It is recognized that some of the SDP information does require a technical background to understand.

12. Does the ROP provide adequate assurance that plants are being operated and maintained safely?

TVA believes that the ROP provides adequate assurance that nuclear plants are being operated and maintained safely. In particular, the ROP system provides incentives to improve performance, as evidenced by the improving trends for the PIs noted in response to Question 1. The action matrix continues to provide a predictable, scrutable process for escalated NRC involvement. The ROP provides the necessary flexibility to allow NRC to take the necessary actions to address unusual situations.

13. Does the ROP improve the efficiency, effectiveness, and realism of the regulatory process?

The ROP is effective in improving performance in all strategic areas, as measured by the PIs. It is also effective at providing constructive escalation of NRC engagement in response to defined performance deficiencies. The ROP has made the oversight process more efficient by using the SDP to ensure that inspection findings focus on significant issues. Effective communication on inspection findings has minimized conflicts and allowed better utilization of NRC and utility resources. The new format reports are objective and present a realistic measure of performance. TVA has found the reports to be relevant, useful, and written in plain English. The use of the objective writing style has eliminated the search for the "hidden message" that was an element of confusion in the earlier process.

14. Does the ROP enhance public confidence?

The use of objective PIs and consistent application of finding threshold criteria serves to provide a consistent message to the public about nuclear plant performance. The objective writing style has eliminated the inconsistent messages that were evident in the earlier oversight process. NRC should consider using the public meetings associated with the annual assessment reports as an opportunity to do more outreach/education work on the reactor oversight process, as noted in response to Question 8.

The SDP information presents a special challenge when communicating with the public, since it does require a technical background for a full understanding. The NRC decision to refer to findings still under review as "greater than green" should significantly reduce public confusion and improve the scrutability of the process.

15. Has the public been afforded adequate opportunity to participate in the ROP and to provide inputs and comments?

TVA has found that NRC is open to stakeholder input to improve the ROP process and agency performance. Meeting notices and minutes are posted on the NRC public website in a timely manner. ROP task force meetings and the annual Regulatory Information Conference and Licensing Forum, sponsored by the industry, have included interested members of the public. Pilot workshop meetings have also been open and attended by public stakeholders.

16. Has the NRC been responsive to public inputs and comments on the ROP?

TVA has found that NRC is open to stakeholder input and takes reasonable actions to improve the ROP process and agency performance. As noted above, TVA has participated in numerous forums to provide comments on the ROP. TVA has found that NRC has acted on a number of suggestions made in these various forums.

17. Has the NRC implemented the ROP as defined by program documents?

Generally, yes, however improvement is always possible. More program definition is needed in the area of cross-cutting issues and how to document and close these issues. In addition, more consistency is needed in the area of performance indicator interpretation, particularly in the scrams with loss of normal heat removal, which has changed arbitrarily over the past several years.

18. Does the ROP reduce unnecessary regulatory burden on licensees?

The ROP has significantly reduced unnecessary regulatory burden. The ROP eliminated the requirement to respond in writing to minor violations (green findings). This practice permits licensees to focus on fixing problems, not generating time-consuming, non-value added correspondence.

19. Does the ROP result in unintended consequences?

The current action matrix criteria (2 white inputs) for a Degraded Cornerstone can have unintended consequences that result in resistance to identification and/or over-analysis of a single white input. TVA suggests that NRC change the action level criteria from 2 to 3 white inputs in a cornerstone for a Degraded Cornerstone.

20. Would you benefit if the NRC conducted a ROP Public Workshop in the future?

TVA is very active in various NEI and Owners Group task forces and working groups and attends most seminars and information forums currently sponsored by NEI and NRC. While a public workshop to discuss the status of the program, address lessons learned, and brainstorm new ideas would provide valuable ideas to support continuous improvement of the ROP, TVA recommends that this might be best attended if made part of another workshop such as the initial training workshops for MSPI (should it be approved for implementation).

21. Please provide any additional information or comments on other program areas related to the ROP.

TVA supports efforts to improve coordination with outage activities and adjust inspection hours expended. Because team inspections during outages can create a significant support burden due to assignment of key personnel to outage assignments, TVA suggests that outage inspections minimize program review elements and focus only on outage-related activities. TVA welcomes future opportunities to work with the NRC in pursuit of further consolidation and elimination of inspection modules based on industry performance or use of common fleet-wide implementing practices. This will allow the reallocation of our limited resources to more high risk or emerging issues. NRC needs to have better coordination of the improvement and validation efforts for the SDP phase 2 worksheet validation, SDP task force review, and SPAR model validation efforts.