UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

ACRSR-2188

April 21, 2006

The Honorable Nils J. Diaz
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: NRC STAFF'S PROPOSED APPROACH TO ENHANCE THE REACTOR OVERSIGHT PROCESS TO ADDRESS SAFETY CULTURE ISSUES

Dear Chairman Diaz:

During the 531st meeting of the Advisory Committee on Reactor Safeguards, April 5-7, 2006, we met with representatives of the NRC staff to review the staff's proposed approach to enhance the Reactor Oversight Process (ROP) to more explicitly address safety culture issues. Our Subcommittees on Human Factors and Reliability & Probabilistic Risk Assessment discussed the proposed approach during a joint meeting on January 25, 2006. We also had the benefit of the documents referenced.

CONCLUSIONS AND RECOMMENDATIONS

1. The staff's proposed approach enhances significantly the ability of the Agency to identify and address safety culture issues.

2. After gaining experience with the enhanced process, the staff should reassess the adequacy of the guideline that specifies about 30-minutes daily for resident inspectors to review entries to the Corrective Action Program.

3. The revision to Inspection Procedure 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," should include criteria for safety culture assessments, clear thresholds for evaluating crosscutting aspects of findings, and clear expectations for the resolution of the staff's concerns with the licensee's safety culture.

DISCUSSION

In a Staff Requirements Memorandum (SRM) dated August 30, 2004, the Commission directed the staff to "enhance ROP treatment of crosscutting issues to more fully address safety culture." In the SRM, the Commission directed the staff not to use surveys of licensee personnel, but to rely on inspector observations and other indicators already available to the NRC. The staff was asked to consider enhanced problem identification and resolution initiatives as part of this effort. In addition, as part of their enhanced inspection activities for plants in the Degraded Cornerstone column of the ROP Action Matrix, the staff was also directed to include a determination of the need for a specific evaluation of the licensee's safety culture and a process for making the determination and conducting the evaluation.

The staff has nearly completed its revision to applicable Inspection Manual Chapters and associated inspection procedures that provide the tools for treating safety culture in the ROP as directed by the Commission. However, we have not reviewed the revision to Inspection Procedure 95003, which will govern how an independent assessment of safety culture is to be performed, because it was not available when we met with the staff.

The staff's approach preserves the three existing ROP crosscutting areas (Problem Identification and Resolution, Human Performance, and Safety Conscious Work Environment). To help inspectors identify causal factors related to safety culture, the staff modified the existing inspection framework to include expanded definitions and descriptions of components of safety culture that align with each crosscutting area. The staff proposes a graded approach for regulatory intervention as a licensee's performance moves from left to right in the Regulatory Response Columns of the ROP Action Matrix. We view this as a prudent evolutionary approach that enhances the existing ROP's ability to identify and address safety culture issues.

In developing this approach, the staff has interacted with internal and external stakeholders. There is general stakeholder agreement with the approach proposed by the staff. During a public meeting on December 8, 2005, the NRC and the industry representatives agreed that the NRC would use the definition of safety culture developed by the International Atomic Energy Agency (Safety Series No. 75-INSAG-4, "Safety Culture," Vienna, 1991):

"That assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance."

Participants in that meeting also agreed on two sets of attributes, which they called "components," that appropriately characterize safety culture. The components in the first set align with at least one crosscutting area of the ROP:

Corrective Action Program
Self- and independent assessment
Operating experience
Decisionmaking
Resources
Work control
Work practices
Environment for raising nuclear safety concerns
Preventing, detecting, and mitigating perceptions of retaliation

The second set of components do not align directly with the ROP crosscutting areas:

Accountability
Continuous learning environment
Organizational change management
Safety policies

Information on the first set of components is readily accessible through baseline inspections and therefore can be gathered as part of the inspection procedures that support the ROP.

Information on the second set is typically not available through baseline inspection procedures, and evaluations of such components would be part of the supplemental inspection procedures for plants in the Multiple/Repetitive Degraded Cornerstone column. We agree that the above components are appropriate.

The staff has assigned components from the first set to each crosscutting issue. Although some components could be aligned with more than one crosscutting issue, the staff assigned each component to only one crosscutting issue to avoid entering a performance deficiency into multiple locations. Following this approach, the staff identified the Corrective Action Program, self- and independent assessment, and operating experience as components of problem identification and resolution. Decisionmaking, resources, work control, and work practices are identified as components of human performance. Environment for raising safety concerns and preventing, detecting, and mitigating perception of retaliation are identified as components of safety conscious work environment.

We generally agree with this approach. However, a component may be relevant to more than one crosscutting issue. For example, resources and decisionmaking are also important attributes of problem identification and resolution. Among the key performance indicators of problem identification and resolution are backlog, time to correct identified conditions, and the threshold for entering conditions into the Corrective Action Program. For these indicators, performance depends significantly on resources and conservative decisionmaking. The revision to Inspection Procedure 71152, “Identification and Resolution of Problems,” should expand on this issue to improve inspectors’ ability to recognize the possible impact of decisionmaking and resources on problem identification and resolution.

Draft revision to Inspection Procedure 71152 gives instructions for the resident inspector’s daily review of each item entered into the Corrective Action Program. This procedure is important because it focuses on early detection of safety culture problems. The staff has made the procedure more effective by including the crosscutting issue component descriptions and associated resident inspector training. However, in spite of the importance of this activity, the procedure states that the inspection time should be generally less than 30 minutes per day. After gaining experience with safety culture enhancements to the ROP, the staff should revisit the less-than-30-minutes-a-day guideline to make sure this is enough time.

As mentioned above, the revised procedures reflect a graded regulatory response as a licensee’s performance moves from left to right across the ROP Action Matrix. Once a plant enters into the Multiple Repetitive Degraded Cornerstone column, the NRC expects that an independent assessment of safety culture will be performed. Under certain circumstances, this assessment is also required for a plant with a single degraded cornerstone or a substantive crosscutting issue. When an independent assessment is required, revised Inspection Procedure 95003 will guide the assessment. When the safety culture of the licensee is to be independently evaluated, all components will be tested, irrespective of where the findings were identified. Although we have not seen a draft revision of Inspection Procedure 95003, it should include criteria on assessing performance in each component, so that different organizations performing the assessment will produce consistent results. The procedure should include clear thresholds for crosscutting aspects of findings and clear expectations for the resolution of the staff’s concerns with the licensee’s safety culture.

The staff has developed a performance-based structured approach, to identify safety culture issues. With the inclusion of the criteria discussed above in the revised Inspection Procedure 95003, the proposed changes to the ROP are appropriate and will enhance the agency's ability to address safety culture issues. We look forward to additional discussions with the staff on the revised Inspection Procedure 95003 and its application within the ROP.

Sincerely,

/RA/

Graham B. Wallis
Chairman

References:

1. Memorandum dated July 1, 2004, from Luis A. Reyes, Executive Director for Operations, NRC, for the Commissioners, SECY-04-0111, Subject: Recommended Staff Actions Regarding Agency Guidance in the Area of Safety Conscious Work Environment and Safety Culture.
2. Memorandum dated August 30, 2004 from Annette Vietti-Cook, Secretary of NRC, to Luis A. Reyes, Executive Director for Operations, NRC, Subject: Staff Requirements - SECY-04-0111 - Recommended Staff Actions Regarding Agency Guidance in the Area of Safety Conscious Work Environment and Safety Culture.
3. Memorandum dated October 19, 2005, from Luis A. Reyes, Executive Director for Operations, NRC, for the Commissioners, SECY-05-0187, Subject: Status of Safety Culture Initiatives and Schedule for Near-Term Deliverables.
4. Memorandum dated December 21, 2005, from Annette Vietti-Cook, Secretary of NRC to Luis A. Reyes, Executive Director for Operations, NRC, Subject: Staff Requirements - SECY-05-0187 - Status of Safety Culture Initiatives and Schedule for Near-Term Deliverables.
5. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 93800, "Augmented Inspection Team," (03/22/06).
6. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 71152, "Identification and Resolution of Problems," (03/22/06).
7. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 71153, "Event Followup," (03/22/06).
8. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 93812, "Special Inspection," (03/22/06).
9. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," (03/22/06).
10. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 95002, "Inspection for One Degraded Cornerstone or Any Three White Inputs in Strategic Performance Area," (03/22/06).
11. U.S. Nuclear Regulatory Commission Inspection Procedure 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," Issue Date: 01/17/02.
12. U.S. Nuclear Regulatory Commission Revised Manual Chapter 0305, "Operating Reactor Assessment Program," (03/22/06).
13. U.S. Nuclear Regulatory Commission Revised Manual Chapter 0612, "Power Reactor Inspection Reports," Issue Date: 09/30/06.
14. U.S. Nuclear Regulatory Commission Revised Manual Chapter 0612, Appendix D, "Guidance for Documenting Inspection Procedure 71152, Identification and Resolution of Problems," (03/22/06).
15. Safety Culture Initiative Narrative, Revision 1, February 9, 2006.

Procedure 95003, the proposed changes to the ROP are appropriate and will enhance the agency's ability to address safety culture issues. We look forward to additional discussions with the staff on the revised Inspection Procedure 95003 and its application within the ROP.

Sincerely,

Graham B. Wallis
Chairman

References:

1. Memorandum dated July 1, 2004, from Luis A. Reyes, Executive Director for Operations, NRC, for the Commissioners, SECY-04-0111, Subject: Recommended Staff Actions Regarding Agency Guidance in the Area of Safety Conscious Work Environment and Safety Culture.
2. Memorandum dated August 30, 2004 from Annette Vietti-Cook, Secretary of NRC, to Luis A. Reyes, Executive Director for Operations, NRC, Subject: Staff Requirements - SECY-04-0111 - Recommended Staff Actions Regarding Agency Guidance in the Area of Safety Conscious Work Environment and Safety Culture.
3. Memorandum dated October 19, 2005, from Luis A. Reyes, Executive Director for Operations, NRC, for the Commissioners, SECY-05-0187, Subject: Status of Safety Culture Initiatives and Schedule for Near-Term Deliverables.
4. Memorandum dated December 21, 2005, from Annette Vietti-Cook, Secretary of NRC to Luis A. Reyes, Executive Director for Operations, NRC, Subject: Staff Requirements - SECY-05-0187 - Status of Safety Culture Initiatives and Schedule for Near-Term Deliverables.
5. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 93800, "Augmented Inspection Team," (03/22/06).
6. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 71152, "Identification and Resolution of Problems," (03/22/06).
7. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 71153, "Event Followup," (03/22/06).
8. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 93812, "Special Inspection," (03/22/06).
9. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," (03/22/06).
10. U.S. Nuclear Regulatory Commission Revised Inspection Procedure 95002, "Inspection for One Degraded Cornerstone or Any Three White Inputs in Strategic Performance Area," (03/22/06).
11. U.S. Nuclear Regulatory Commission Inspection Procedure 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," Issue Date: 01/17/02.
12. U.S. Nuclear Regulatory Commission Revised Manual Chapter 0305, "Operating Reactor Assessment Program," (03/22/06).
13. U.S. Nuclear Regulatory Commission Revised Manual Chapter 0612, "Power Reactor Inspection Reports," Issue Date: 09/30/06.
14. U.S. Nuclear Regulatory Commission Revised Manual Chapter 0612, Appendix D, "Guidance for Documenting Inspection Procedure 71152, Identification and Resolution of Problems," (03/22/06).
15. Safety Culture Initiative Narrative, Revision 1, February 9, 2006.

DOCUMENT NAME: **C:\MyFiles\Checkout\SafetyCulture4 - FINAL.wpd**
To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure **"E"** = Copy with attachment/enclosure **"N"** = No copy Accession #: ML061140046

OFFICE	ACRS/ACNW	Y	ACRS/ACNW	Y	ACRS/ACNW	Y	ACRS/ACNW	Y	ACRS/ACNW	Y	ACRS/ACNW	Y
NAME	JFlack		EThornsbury		MSnodderly		AThadani		JLarkins		JTL for GBW	
DATE	04/20/06		04/21/06		04/21/06		/ /06		04/21/06		04/21/06	

OFFICIAL RECORD COPY