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

December 15, 2010

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: SAFETY CULTURE POLICY STATEMENT

Dear Chairman Jaczko:

During the 578th meeting of the Advisory Committee on Reactor Safeguards (ACRS), December 2-4, 2010, we reviewed the NRC staff's draft Commission paper and the Draft Final Safety Culture Policy Statement. The staff is seeking ACRS comments and recommendations on the Draft Final Policy Statement, the associated definition of safety culture, and its traits. On November 3, 2010, our Subcommittee on Reliability and Probabilistic Risk Assessment met with representatives from the NRC staff, the Organization of Agreement States (OAS), the Institute for Nuclear Power Operations, and the Nuclear Energy Institute. The meeting focused on the Draft Final Policy Statement and industry initiatives to enhance safety culture. We also had the benefit of the documents referenced.

CONCLUSIONS AND RECOMMENDATION

1. The staff has proposed a Safety Culture Policy Statement that is responsive to the February 25, 2008, Staff Requirements Memorandum (SRM) and that emphasizes the expectation that all licensees and certificate holders establish and maintain a positive safety culture.

2. The proposed definition of safety culture and its associated traits describe a positive nuclear safety culture and are based on the collective judgment of NRC staff and experts from the community of stakeholders.

3. Implementation of the Policy Statement should allow the flexibility needed to address the safety significance and broad spectrum of technologies within its framework.

BACKGROUND

In a December 8, 2005, meeting with stakeholders (primarily those associated with nuclear reactor technology), the NRC staff and industry representatives agreed on the following definition of safety culture based on the International Atomic Energy Agency (IAEA) definition:

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

Additionally, eight safety culture characteristics were defined using reactor oversight process (ROP) benchmarking studies and lessons learned. In our April 21, 2006, report, we agreed with the staff that the proposed approach "enhances significantly the ability of the Agency to identify and address safety culture issues."

In an SRM dated February 25, 2008, the Commission "approved the need to expand the Commission's policy of safety culture to address the unique aspects of security and to ensure the resulting policy is applicable to all licensees and certificate holders." The Commission also directed the staff to "continue its broad review of issues related to safety culture as part of the effort for developing the oversight process and for revising or developing additional Policy Statement(s)."

In response to the SRM, the staff reviewed the safety culture literature and considered NRC lessons learned. The staff initiated a series of workshops and outreach activities with stakeholders affiliated with a broad spectrum of nuclear activities and technologies including reactor power plants, medical facilities, fuel cycle facilities, gauge manufacturers, and OAS. Based on the collective judgment of NRC staff and experts from the community of stakeholders, consensus was reached on a proposed new definition of safety culture:

> Nuclear Safety Culture is the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

Consensus was also reached on a set of safety culture traits that further characterize this definition. These traits describe areas important to a positive safety culture using common terminology. The final list of traits is:

- Leadership Safety Values and Actions
- Problem Identification and Resolution
- Personal Accountability
- Work Processes
- Continuous Learning
- Environment for Raising Concerns
- Effective Safety Communication
- Respectful Work Environment
- Questioning Attitude

A cross comparison between the previously defined safety culture characteristics and the currently proposed safety culture traits indicates that all characteristics have been subsumed into the proposed traits.

DISCUSSION

The staff has developed a Draft Final Safety Culture Policy Statement that emphasizes the expectation that all licensees and certificate holders[1] establish and maintain a positive safety culture. As a policy statement, it emphasizes that the Commission expects that licensees and applicants will recognize the importance of positive safety culture.

1 This includes all licensees, certificate holders, permit holders, authorization holders, and applicants for a license.

The definition and traits meet the Commission expectations as discussed in the February 25, 2008, SRM. The proposed safety culture definition and associated traits use a common terminology, and the definition meets the criterion that it be applicable to a broad range of stakeholders including those in Agreement States. The proposed definition of safety culture, together with the traits, provides a reasonable description of a positive nuclear safety culture that speaks clearly to stakeholders.

The Commission also asked how best to approach security culture. As the staff points out in their draft Commission paper, reviews of past safety and security incidents identified underlying causes that included lapses in many of the safety culture traits listed earlier. Examples include inadequate management oversight of changes and processes, perceived production pressures, perceived barriers to raising concerns, lack of a questioning attitude, and poor communications. With the same underlying causes, it is reasonable to claim that focus on the proposed safety policy could enhance both safety and security. The term “security” is not included in the definition or the traits because some stakeholders were concerned that adding security to the policy statement itself might be confusing to many materials licensees, might shift the focus away from safety, and might restrict safety communication. Nevertheless, as pointed out by the staff in the draft Commission paper, “an overarching safety culture addresses both safety and security.” While not mentioned in the definition or traits, security culture is discussed throughout the draft Commission paper and the Draft Final Policy Statement, where the Commission’s expectation is laid out: “that individuals and organizations performing regulated activities establish and maintain a positive safety culture commensurate with the safety and security significance of their activities.”

One important stakeholder, the OAS, represents the regulators for over 85 percent of the nation's radioactive material licensees. OAS reported that it supports the Draft Final Safety Culture Policy Statement and believes it is an appropriate regulatory vehicle. OAS also stated that safety culture can be implemented across the radioactive material sector, and that the Draft Final Policy Statement will allow the flexibility that will be needed to address the broad spectrum of technologies within its framework. The Agreement States can accept the safety culture definition, although they would prefer to use the term “radiation” instead of “nuclear” to reflect areas within their scope that are not specifically considered nuclear, e.g., X-rays and CT fluoroscopy. OAS also believes the Integrated Materials Performance Evaluation Program (IMPEP) should continue to be used to measure safety performance. IMPEP can be evaluated and modified as needed to ensure it adequately measures performance associated with safety culture and its traits.

The benefit of the broad policy statement will only be achieved if successfully implemented. We look forward to the coming implementation phase, as a time when the staff can consolidate its own research and that of other organizations on the efficacy of the safety culture traits in promoting improved safety and security. NRC has a wealth of information on nuclear power plant operating experience and experience developed in application of the ROP for reactors and IMPEP for materials. The staff should capitalize on lessons learned from these experiences during the implementation phase to confirm the validity of the proposed traits and to gain insights into a licensee or certificate holder’s safety culture.

We expect that the staff will attempt to characterize the approaches and safety culture traits that are most effective in improving safety performance in each venue, as well as those that are ineffective. We also expect that staff will attempt to recognize the wide range of safety significance for various categories of licensees and certificate holders. The programs

developed should be commensurate with the safety significance of the types, quantities, and physical and chemical forms of the radioactive materials that are licensed or permitted and the processes in which they are used.

Well-intentioned attempts at improving safety and effectiveness have faltered through efforts to overly prescribe correct behavior and to apply rigid scoring systems. We urge that the staff encourage approaches that emphasize thinking and safety awareness over scorecards of metrics that can induce complacency and rote compliance. Issuance of a policy statement, rather than a regulation, is likely to be a more effective way to appropriately engage all the stakeholders.

We look forward to additional discussions with the staff during the implementation phase, especially to better understand what has been learned from NRC inspections on safety culture, and other experience from related industry initiatives that are intended to foster a strong safety culture at nuclear facilities.

Additional comments by ACRS Members Dana A. Powers, J. S. Armijo, and Joy L. Rempe are presented below.

Sincerely,

/RA/

Said Abdel-Khalik
Chairman

Additional Comments by ACRS Members Dana A. Powers, J. S. Armijo and Joy L. Rempe

The NRC staff has worked diligently to draft a Safety Culture Policy Statement. The staff has also gone to lengths to assemble a consensus list of attributes (traits) that they hold to be indicative of a positive safety culture. Indeed, it appears that these traits are used to define what is meant by a positive safety culture. These traits will be used in some yet-to-be-determined manner to implement the policy. It is not clear to us that the staff's list of traits captures the most important traits that contribute to safety. For example, organizational and individual integrity, and technical competence are traits on which nuclear safety depends. These traits are as important or more important as those listed by the staff. That being said, there is faint evidence that the listed traits (individually or collectively) are assured to produce measureable improvements in safety. Certainly, there is no quantitative evidence that they lead to cost effective improvements in safety.

Staff now looks to the task of implementing the Safety Culture Policy Statement. It is not entirely clear to us what is meant by implementing a policy statement that lacks the authority of regulation. It appears that implementation of the safety culture policy statement may be an indirect method of imposing requirements on licensees without the discipline of the regulatory process. This, of course, is not acceptable.

Furthermore, what is being implemented appears orthogonal to the direction in which the NRC has been trying to move the nuclear safety regulatory system: that is a regulatory system that is based on performance and not on perceived attitudes. The regulatory system should concentrate on issues that demonstrably pose risk to the public health and safety. There is no objective evidence that the proposed implementation of the Safety Culture Policy Statement will further either of these aims. The only sure outcome of the implementation effort is that it will impose costs on licensees. It may distract both licensees and regulators from essential safety activities. It would be unfortunate indeed, if implementation results in expectations or requirements that licensees establish safety culture programs, metrics, self-assessments, and perhaps other documents subject to NRC inspection.

We disagree with the views of our colleagues on the ACRS. Efforts to implement the Safety Culture Policy Statement should be deferred until there is objective evidence that traits the staff has identified can be measured and demonstrated to improve safety performance in cost effective ways.

References:

1. Memorandum to Edwin M. Hackett, “Draft Final Safety Culture Policy Statement,” 11/17/2010 (ML103210482), Draft Policy Statement (ML103200087 Pkg)

2. Memorandum to Luis A. Reyes, (SRM) COMGBJ-08-0001, “A Commission Policy Statement on Safety Culture,” 02/25/2008 (ML080560476)

3. SECY 09-0075, “Safety Culture Policy Statement,” and associated enclosures dated 05/18/2009 (ML091130068)

4. Memorandum to R. W. Borchardt, (SRM) SECY-09-0075, “ Safety Culture Policy Statement,” 10/16/2009 (ML092920099)

5. *74 FR 57525*, “Draft Safety Culture Policy Statement: Request for Public Comments,” 11/06/2009 (ML093030375)

6. *75 FR 57081*, “Revised Draft Safety Culture Policy Statement: Request for Comments,” 09/17/2010 (ML102500563)

7. Management Directive (MD) 5.6, “Integrated Materials Performance Evaluation Program,” U.S. Nuclear Regulatory Commission (ML041410578)

8. Memorandum to Roy P. Zimmerman, “Summary of the September 28, 2010, Public Meeting Between the U.S. Nuclear Regulatory Commission and Stakeholders Regarding Safety Culture Policy Statement,” 10/28/2010 (ML102871218)

9. Transcript of ACRS Meeting 11/03/2010, “Reliability and PRA Subcommittee,” and Letter to Diane J. Sieracki, “Organization of Agreement States (OAS) Talking Points on Safety Culture for the November 3, 2010, ACRS Meeting of the Subcommittee on Reliability and PRA,” 10/22/2010 (ML103230487 pages 234 & 235)

10. NEI 09-07, "*Fostering a Strong Nuclear Safety Culture*, Draft Revision 0," June 2009 (ML091590728)

11. Letter to Chairman Diaz, "NRC Staff's Proposed Approach to Enhance the Reactor Oversight Process to Address Safety Culture Issues," 04/21/2006 (ML061140046)

12. International Atomic Energy Agency, Safety Series Report No. 75-INSAG-4, "Safety Culture Vienna, Austria," 1991

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Letter to the Honorable Gregory B Jaczko, Chairman, NRC, from Said Abdel-Khalik, Chairman, ACRS, dated December 15, 2010

SUBJECT: SAFETY CULTURE POLICY STATEMENT

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