

POLICY ISSUE NOTATION VOTE

May 18, 2009

SECY-09-0075

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: SAFETY CULTURE POLICY STATEMENT

PURPOSE:

The staff of the U.S. Nuclear Regulatory Commission (NRC) has prepared a draft safety culture policy statement and requests Commission approval to publish it in the *Federal Register* (FR) for public comment. In addition, this paper contains the staff's review and conclusions related to the issues and questions in the Commission's Staff Requirements Memorandum (SRM) for COMGBJ-08-0001, "A Commission Policy Statement on Safety Culture," dated February 25, 2008.

SUMMARY

The staff considered how best to convey the Commission's expectations for safety culture. The staff reviewed domestic and international documents, considered NRC lessons learned, and obtained wide ranging stakeholder input on questions related to issues in the SRM through FR Notices (FRN) and in a February 3, 2009, public workshop.

Based on the staff's review and stakeholder feedback, the staff has (1) concluded that the NRC's oversight of safety culture as applied to reactors has been strengthened, is effective, and continues to be refined in accordance with the existing reactor oversight process (ROP) self-assessment process; (2) described actions taken and planned for increasing attention to safety culture in the materials area; (3) described actions taken and planned for most effectively utilizing stakeholder involvement to address safety culture for all NRC and Agreement State licensees and certificate holders including any unique aspects of security; and (4) developed

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one safety culture policy statement that acknowledges the equal importance of safety and security within the overarching safety culture. The staff is recommending that the draft safety culture policy statement (Enclosure 1) be published in the FR for additional public comment to facilitate discussions with stakeholders and interested parties in public meetings and other outreach forums prior to developing a final policy statement for Commission consideration. The staff also documented the development of the draft safety culture policy statement's safety culture characteristics (Enclosure 7). The staff recognizes that these safety culture characteristics are not all inclusive; there are many other characteristics and attitudes in organizations and individuals that may be indicative of a positive safety culture. However, licensees and certificate holders will be expected to (1) consider the extent to which these characteristics and attitudes are present in their organizations and among individuals who are overseeing or performing regulated activities and (2) take steps, as necessary, to foster a positive safety culture commensurate with the safety and security significance of activities and the nature and complexity of the licensee's or certificate holder's organization and functions. The staff also documented NRC and Agreement State considerations (Enclosure 8).

BACKGROUND

In 1991, as a result of the 1986 Chernobyl accident, the International Nuclear Safety Group (INSAG) emphasized the concept of safety culture to the nuclear industry in its report, INSAG-4, "Safety Culture." INSAG is an advisory group to the International Atomic Energy Agency (IAEA). The INSAG-4 definition of safety culture is, "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."

The Commission has long expressed its expectations for safety culture in previous policy statements. In 1989, the Commission published its "Policy Statement on the Conduct of Nuclear Power Plant Operations" (54 FR 3424) to make clear the Commission's expectations of utility management and licensed operators with respect to the conduct of operations. The policy statement stated, "the phrase safety culture refers to a very general matter, the personal dedication and accountability of all individuals engaged in any activity which has a bearing on the safety of nuclear power plants." The policy statement further stated that the Commission issued the policy statement to help foster the development and maintenance of a safety culture at every facility licensed by the NRC.

In 1996, the Commission published a policy statement, "Freedom of Employees in the Nuclear Industry to Raise Safety Concerns Without Fear of Retaliation" (61 FR 24336), to set forth its expectations that licensees and other employers subject to NRC authority will establish and maintain safety-conscious environments in which employees feel free to raise safety concerns, both to their management and to the NRC, without fear of retaliation. This policy statement applied to NRC-regulated activities of all licensees and their contractors and subcontractors. A safety conscious work environment is an important attribute of safety culture and is one of the safety culture characteristics in the draft safety culture policy statement.

In response to Commission direction and in response, in part, to the Davis-Besse reactor vessel head degradation event, the staff modified selected parts of the ROP to enhance the oversight of areas important to safety culture. In developing the changes to the ROP, the staff identified 13 safety culture components (i.e., overarching characteristics of a positive safety culture in an

organization or a program). When developing the safety culture components and aspects for the ROP, the staff reviewed and considered the following: organizational behavior, safety culture and safety climate research literature, case studies from the nuclear arena and other domains, the IAEA work on the attributes of a positive safety culture, and principles for a strong nuclear safety culture from the Institute of Nuclear Power Operations (INPO). Within each of the safety culture components are aspects that provide more specific examples of organizational characteristics and workforce attitudes and behaviors. The NRC staff made further modifications based on its discussions of the safety culture components and aspects with stakeholders in frequent public meetings. The ROP safety culture components and cross-cutting aspects were developed to apply to power reactor organizations. When introducing these safety culture changes to the ROP in 2006, the NRC adopted the INSAG-4 definition of safety culture.

Enclosure 6 contains additional information on the agency's more recent safety culture activities related to the oversight of operating reactors, fuel cycle facilities, new reactor construction, and security.

DISCUSSION

The NRC's regulations are designed to protect the public, workers, and the environment against radiation hazards from the use of radioactive materials. The agency's scope of responsibility includes the regulation of commercial nuclear power plants; research, test, and training reactors; nuclear fuel cycle facilities; medical, academic, and industrial uses of radioactive materials; and the transport, storage, and disposal of radioactive materials and wastes. The NRC carries out these responsibilities in numerous ways including through such regulatory activities as inspecting licensed and certified facilities and activities; collecting, analyzing, and disseminating information about operational safety; investigating nuclear incidents; and developing policy and providing direction on safety and security issues at nuclear facilities. Because licensees and certificate holders use or provide services related to the use of radioactive material, they bear the primary responsibility for safely and securely handling these materials. Therefore, it is the responsibility of each licensee and certificate holder to develop and maintain a positive safety culture which establishes that nuclear safety and nuclear security issues,¹ as an overriding priority, receive the attention warranted by their significance. However, as the regulatory agency, the Commission has an independent oversight role (through inspection and assessment processes) including addressing licensees' and certificate holders' performance related to areas important to safety culture.

In SRM-COMGBJ-08-0001, the Commission directed the staff to expand the Commission's policy on safety culture to address the unique aspects of security and to ensure the resulting policy is applicable to all licensees and certificate holders.² The SRM also directed the staff to

¹ Throughout this paper, the terms "safety" or "nuclear safety," "security" or "nuclear security," and "safety culture" are used. These terms refer to matters that are related to NRC-regulated activities including radiation protection, safeguards, material control and accounting, physical protection, and emergency preparedness.

² Throughout this paper, the phrase "licensees and certificate holders" includes licensees, certificate holders, permit holders, authorization holders, holders of a quality assurance program approval, and applicants for a license, certificate, permit, authorization, or quality assurance program approval.

continue its broad review of issues related to safety culture. Additionally, in consideration of the ongoing assessment of safety culture components of the ROP and the fuel facility pilots and their potential applicability to other NRC licensees, the SRM directed that the staff review of issues should address, at a minimum, the following: (1) whether safety culture as applied to reactors needs to be strengthened; (2) how to increase attention to safety culture in the materials area; (3) how stakeholder involvement can most effectively be used to address safety culture for all NRC and Agreement State licensees and certificate holders including any unique aspects of security; and (4) whether publishing NRC's expectations for safety culture and for security culture is best accomplished in one safety/security culture statement or in two separate statements, one each for safety and security, while still considering the safety and security interfaces.

In order to address the questions in the SRM and to develop a draft safety culture policy statement, the staff formed a task group and steering committee. They conducted document reviews and other information collection activities including stakeholder outreach activities through a February 3, 2009, public workshop; January 23 and February 9, 2009, FRNs (74 FR 4260 and 74 FR 6433); and through other forums.

Conclusions on the Issues Posed by the Commission

(1) *Whether safety culture as applied to reactors needs to be strengthened.*

The staff believes that the current process of considering cross-cutting aspects of inspection findings is effective because it offers insights into a licensee's safety culture. In addition, it is consistent with the original tenets of the ROP. (i.e., It is transparent, objective, understandable, predictable, risk informed, and performance based.) By tagging cross-cutting aspects to inspection findings, the staff has been able to gain insights into performance areas that have the potential to reflect organizational dynamics including safety culture. When recurring aspects were identified, safety culture assessments have been conducted to determine if an organizational safety culture challenge existed. The NRC's regulatory response has focused on licensees' corrective action plans and their demonstrated improvement through subsequent safety culture assessments and inspection findings.

The combined focus of NRC and nuclear power industry on safety culture has increased attention to this issue across the operating fleet and could have contributed to the relatively low number of units currently in Column 3 (Degraded Cornerstone) or Column 4 (Multiple/Repetitive Degraded Cornerstone) of the ROP Action Matrix. The staff is aware of an increasing number of licensees that are conducting periodic safety culture self-assessments independent of the NRC's regulatory response. These licensees are typically using outside contractors.

The NRC's oversight of safety culture as applied to reactors continues to be refined in accordance with the existing ROP self-assessment process. For example, when the Commission inquired about this issue in SRM-COMGBJ-08-0001, the staff was incorporating improvements to ROP guidance. These improvements were implemented in January 2009 based on lessons learned from the initial 18-month implementation period of the 2006 ROP safety culture enhancements as well as lessons learned from the

supplemental inspection at Palo Verde Nuclear Generating Station (Inspection Procedure 95003), special internal reviews, and feedback from internal and external stakeholders. The staff will continue to solicit feedback from internal and external stakeholders to inform future improvements to the ROP including its implementation of safety culture oversight.

(2) *How to increase attention to safety culture in the materials area.*

The staff has taken initial steps to increase attention to safety culture in the materials area. In its efforts to develop the draft safety culture policy statement, the staff conducted numerous outreach activities with a variety of materials licensees including holding a public workshop in February 2009 and having a breakout session dedicated to materials users. However the staff recognizes more needs to be accomplished in this area. In order to further engage materials users following Commission approval to publish the draft policy statement, the staff intends to take the following actions:

- (a) hold a public meeting to solicit input on the draft policy statement and use the publication of the draft policy statement and the public meeting to obtain additional stakeholder views on how the NRC can increase attention to safety culture in the materials area and
- (b) continue to engage the Agreement States on how best to increase the attention that the Agreement States and Agreement State licensees give to safety culture including requesting the Agreement States to share the draft policy statement with their licensees.

The staff is continuing to develop a strategy to increase the attention to safety culture in the materials area and will give the Commission recommendations for accomplishing this objective when it provides a draft final policy statement for Commission consideration.

(3) *How stakeholder involvement can most effectively be used to address safety culture for all NRC and Agreement State licensees and certificate holders including any unique aspects of security.*

The January and February 2009 FRNs and the February 3, 2009, public workshop represented the first opportunity for NRC's stakeholders to provide input into the draft policy statement and to identify ways that NRC could increase attention to safety culture including any unique aspects of security. As noted above, the staff intends to publish an FRN and hold a public workshop to provide opportunities for NRC stakeholders to comment on the draft policy statement and to identify ways the NRC could increase attention to safety culture.

(4) *Whether publishing the NRC's expectations for safety culture and for security culture is best accomplished in one safety/security culture statement or in two separate statements, one each for safety and security, while still considering the safety and security interfaces.*

The staff considered how best to convey the Commission's expectations for safety culture and security culture. Based on the staff's review and stakeholder feedback, the staff recommends that the Commission's expectations for safety culture be published in one

policy statement entitled, “A Safety Culture Policy Statement.” However, this policy statement should explicitly state that safety and security are to be treated equally within the overarching safety culture. The importance of treating both safety and security in an equal manner within NRC’s regulatory framework is clearly evident in our mission and strategic goals. Further, it is important for licensees and certificate holders to provide personnel in the safety and security sectors with an appreciation for the importance of each, emphasizing the need for integration and balance to achieve optimized protection.

The draft safety culture policy statement (Enclosure 1) includes discussions of the background of the policy statement, the statement of policy, the safety culture concept, stakeholder outreach, safety and security culture, characteristics of a positive safety culture, and implementation of policy. Information on the staff’s review and conclusions for each of the above SRM issues as well as a summary of stakeholder feedback are provided in Enclosures 2 through 5. Some of these enclosures also provide additional information that relates to the development of the safety culture policy statement and the issues described in the SRM. For example, Enclosure 2 documents that the nuclear reactor industry through the Nuclear Energy Institute and INPO has undertaken several initiatives related to safety culture including the development of safety culture assessment guidance. Enclosure 5 includes a discussion of safety/security interface consideration.

Development of the “Safety Culture Characteristics” in the Draft Safety Culture Policy Statement

In SRM-COMGBJ-08-0001, the Commission directed the staff to address certain issues in consideration of the on-going assessment of safety culture components of the ROP and the fuel facility pilot and their potential applicability to other licensees. The staff developed safety culture characteristics (i.e., the overarching characteristics of an organization’s or a program’s positive safety culture) that retain the safety culture concepts of the ROP safety culture components, explicitly communicate the central role of security considerations in a nuclear safety culture, and generically apply to the wide range of entities and activities the NRC regulates. The safety culture characteristics in the draft policy statement have not yet been applied to the NRC oversight programs for the full range of NRC licensees and certificate holders. Enclosure 7 provides an overview of the development of the draft safety culture policy statement’s safety culture characteristics.

Although the safety culture characteristics themselves will be applicable to all licensees and certificate holders, there may be other examples that more specifically address the unique characteristics of a licensee’s or certificate holder’s environment (i.e., unique for medical and industrial applications, operating reactors, research and test reactors, fuel cycle facilities, and new reactor construction environments). There are also other characteristics and attitudes in organizations and individuals that may be indicative of a positive safety culture. However, licensees and certificate holders will be expected to (1) consider the extent to which these characteristics and attitudes are present in their organizations and among individuals who are overseeing or performing regulated activities and (2) take steps, as necessary, to foster a positive safety culture commensurate with the safety and security significance of activities and the nature and complexity of the licensee’s or certificate holder’s organization and functions.

During the development of the draft safety culture policy statement, the staff in both the working group and the steering committee engaged in numerous discussions regarding whether the

safety culture characteristics should be included in the draft policy statement and, if so, where they should be located. Some staff expressed views that the safety culture characteristics should be included in the Statement of Policy section in order to clearly define what is meant by a positive safety culture. The majority of the staff expressed the view that the characteristics should not be included in the Statement of Policy section but that they should be included elsewhere in the draft policy statement in order to keep the Statement of Policy section brief and concise, maintain this section at a high level, and with an understanding that placement of the characteristics in another section of the policy does not invalidate its standing as part of the policy statement. These differing views were considered by the staff in several forums. The staff decided not to include the safety culture characteristics in the Statement of Policy section for the above noted reasons, but instead, to develop a separate “characteristics of a positive safety culture” section in the draft policy statement. Enclosure 9 includes a non-concurrence submitted by a member of the staff (NRC Form 757, “Non-Concurrence Process”) based on the placement of the safety culture characteristics in the Statement of Policy section of the draft policy statement.

NRC and Agreement State Considerations

The draft policy statement provides the Commission’s expectations regarding the need to promote a positive safety culture. Issuance of the draft policy statement would elevate awareness of this issue to State regulatory authorities and NRC and State licensees. The policy statement does not provide expectations for how licensees and certificate holders should address the safety culture characteristics because of the diversity of licensees’ and certificate holders’ environments. However, when final, it will provide the expectation that licensees and certificate holders will consider and foster the safety culture characteristics commensurate with the safety significance of activities and the nature and complexity of their organization and functions. It also does not address the NRC’s implementation of the safety culture characteristics in its licensee or certificate holder oversight programs. The staff plans to review its programs and processes for the oversight of licensees and certificate holders with respect to expectations in the policy statement. If the staff finds that implementation approaches need to be further developed or changed, the staff will engage with stakeholders.

The staff is considering how to increase attention to safety culture through NRC oversight programs for licensee and certificate holders. The staff will consider the activities of the licensees and certificate holders, the existing regulatory framework that applies to those activities, the safety and security significance of the activities, and other factors when making its evaluation. Because of the diversity among licensees and certificate holders, the program offices will prioritize their efforts and determine the appropriate level of review of certain oversight programs and processes with respect to the expectations in the policy statement.

Since the NRC will be issuing a policy statement (and not a rule); Agreement States are not required to implement the policy, and it is not legally binding upon NRC or Agreement State licensees. If the Commission (1) determines that Agreement States should be required to implement a program involving the oversight of safety culture or (2) decides to make other substantive changes to be legally binding on NRC and State licensees, the NRC would need to initiate a subsequent rulemaking. Enclosure 8 provides an attachment that more fully addresses NRC and Agreement State considerations.

COMMITMENTS

- (1) The staff will continue to develop a strategy to accomplish the Commission's objective of increasing the attention of safety culture in the materials area and plans to provide the Commission with recommendations for accomplishing this objective when the staff provides a draft final policy statement for Commission consideration.
- (2) At the time the staff provides the Commission with a draft final policy statement for its consideration, the staff will update the Commission on progress that has been made towards determining how stakeholder involvement can most effectively be used to address safety culture for all NRC and Agreement State licensees and certificate holders including any unique aspects of security.
- (3) The staff will provide the Agreement States with copies of the draft policy statement and will request the Agreement States to share the draft policy statement with their licensees.
- (4) The staff will provide a draft final policy statement to the Commission incorporating a discussion of public comments and feedback.
- (5) The staff will review its programs and processes for the oversight of licensees and certificate holders with respect to expectations following Commission approval of the final policy statement.

RESOURCES

The staff estimates that the resources required to fulfill the commitments described in this paper are approximately 4 full time equivalents (FTE). Since this effort was initiated after the fiscal year (FY) 2010 budget was developed, no resources are specifically budgeted for this effort. However, several offices have budgeted resources for overall safety culture related activities that were used to support this activity in FY 2008 and FY 2009 and that will continue to be used in FY 2010.

Currently, for FY 2010 there are approximately 2 FTE available that can be reallocated to support these efforts. Specifically, the Office of Enforcement has budgeted 0.5 FTE to support these efforts; the Office of Nuclear Materials Safety and Safeguards has budgeted 1.0 FTE for all their safety culture activities, and these resources will be applied to this effort as well as incorporating safety culture in ongoing efforts to revise the fuel cycle facility oversight process; the Office of Federal and State Materials and Environmental Management Programs (FSME) has budgeted 0.5 FTE (0.3 FTE is allocated to the Regions) that can be applied to these efforts; and the Office of New Reactors expects to fund their activities with currently budgeted resources. Offices that currently do not have resources budgeted, or sufficient resources budgeted, to fund the activities required to fulfill the commitments outlined in this paper (such as the Offices of Nuclear Security and Incident Response, Nuclear Reactor Regulation, Nuclear Regulatory Research, and FSME) would need to reallocate resources commensurate with other priorities. In most cases, this is less than approximately 0.6 FTE.

RECOMMENDATION

The staff recommends that the Commission approve the staff's recommendation to publish the draft Safety Culture Policy Statement as an FRN for a 75-day public comment period to facilitate additional discussions with stakeholders and interested parties before it develops a draft final policy statement.

COORDINATION

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

Representatives from the Organization of Agreement States and the Conference of Radiation Control Program Directors participated in the workshop on the panels. The following information was provided to all of the States for their information: (1) a copy of the FRN for the February 3, 2009, public workshop which included the policy questions discussed in the workshop; (2) a copy of the draft Commission paper; and (3) a copy of the draft policy statement.

/RA/

R. W. Borchardt
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Enclosures:

1. Draft Federal Register Notice
2. Safety Culture as Applied to Reactors
3. Safety Culture in the Materials Area
4. Stakeholder Involvement
5. Safety and Security Culture
6. Summary of NRC's Safety Culture Activities
7. Development of the Safety Culture Characteristics
8. NRC and Agreement State Considerations
9. NRC Form 757 "Non-Concurrence Process"

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