3/1/06 Rev.

THE REACTOR OVERSIGHT PROCESS' SAFETY CULTURE APPROACH NARRATIVE

Introduction

The Commission has long recognized the importance of safety culture as reflected in the development of the inspection program and as it has evolved. The Davis-Besse event reemphasized the importance of safety culture and demonstrated that significant problems can occur as a direct result of safety culture weaknesses that aren't recognized and addressed early.

Since the Davis-Besse event occurred, the staff has implemented several improvements to the Reactor Oversight Process (ROP) that relate to safety culture. These improvements include: revisions to the plant assessment process to provide more specific guidance for use in identifying the existence of substantive issues in the areas of human performance and problem identification and resolution; revisions to the baseline (or routine) inspection procedure on "Identification and Resolution of Problems" to require the resident inspector to perform a screening review of each item entered into the corrective action program so as to be alert to conditions such as repetitive equipment failures or human performance issues that might warrant additional follow-up, and to require a semi-annual review to identify trends that might indicate the existence of a more significant safety issue; revision to another inspection procedure to include deferred modifications as one of the areas an inspector can assess; and creation and implementation of a web-based training course for inspectors and managers based on the Columbia Space Shuttle accident which illustrated, for example, the importance of maintaining a questioning attitude toward safety and how issues concerning an organization's safety culture can lead to technological failures.

These changes provide insights into a station's safety culture while appropriately focusing on programs and equipment within the scope of the existing baseline inspection program.

In SECY 04-0111, dated July 1, 2004. the staff provided options for addressing oversight of a licensee's safety culture including safety conscious work environment. In an August 30, 2004, Staff Requirements Memorandum (SRM) SECY-04-0111, the Commission provided direction to guide the staff's activities to enhance the ROP to more fully address safety culture.

In part, the SRM directed the NRC staff to:

- continue to monitor industry efforts to assess Safety Culture and ensure the Commission remains informed of industry efforts and progress
- enhance the ROP's treatment of cross-cutting issues to more fully address Safety Culture
- ensure that the inspectors are properly trained in the area of Safety Culture
- in making any changes, the staff should follow the established processes for revising the ROP, in particular the process for involving stakeholders
- include as part of its enhanced inspection activities for plants in the Degraded Cornerstone Column (referred to as Column Three) of the ROP Action Matrix, a determination of the need for a specific evaluation of the licensees Safety Culture. The

staff should interact with our stakeholders to develop a process for making the determination and conducting the evaluation

A subsequent SRM-SECY-05-0187 - Status of Safety Culture Initiatives and Schedule for Near-term Deliverables, dated December 21, 2005, further directed the staff to:

- continue to interact with external stakeholders,
- build on enhancements already made to the ROP in response to the Davis Besse Lessons Learned Task Force,
- identify further improvements to more fully address licensee safety culture,
- keep the Commission offices fully and currently informed of the status of this activity,
- complete requisite training of inspectors on the enhancements to address safety culture by the end of CY 2006,
- document significant changes to the ROP in the ROP guidance and/or basis documents, and
- ensure that resulting modifications to the ROP are consistent with the regulatory principles that guided the development of the ROP, such that overall assessments of licensee performance remain transparent, understandable, objective, predictable, risk-informed, and performance-based.

The staff undertook an initiative to respond to the Commissions direction. As part of that initiative, the NRC staff solicited stakeholder input into developing an approach that will enable the agency to detect a declining plant safety culture earlier. This paper outlines the approach that was jointly developed during a public meeting held November 29 - 30, 2005, and was subsequently discussed in public meetings on December 8, 2005; December 15, 2005; and January 18, 2006. The approach relies on industry assessments and evaluations by licensees to the extent practical, with NRC staff reviewing results to ensure consistency between these assessments and what has been acknowledged by NRC and stakeholders as those features that are important to safety culture. In addition, the approach allows for the NRC to conduct an independent assessment of a plant's safety culture when there is significant performance degradation. Consistent with the existing ROP framework, the approach supports the regulatory principles that guided the development of the ROP.

Discussion

This paper is divided into two parts, as follows:

- Part I, "Fundamental Items," describes the assumptions upon which this approach is founded, and provides the definition of safety culture and descriptions of safety culture components that have been incorporated into the approach.

- Part II, "Enhanced Reactor Oversight Process Elements," describes how this initiative proposes to enhance the ROP, in terms of baseline inspections, event follow-up inspections, performance assessment, and regulatory responses to degraded performance to more fully address safety culture.

I. Fundamental Items

Assumptions

The approach is based on the following assumptions:

- any issues identified with a licensee's safety culture would be documented in accordance with the current ROP guidelines.

- the titles of the three existing ROP cross-cutting areas (Problem Identification & Resolution, Human Performance, and Safety Conscious Work Environment) will not be changed. However, the contents of each cross-cutting area will be adjusted to better align with the components important to safety culture.

- to the extent possible, the NRC will use existing industry terminology that defines safety culture components.

- the NRC staff will use a graduated or graded response to plant performance issues relative to safety culture, consistent with the existing ROP.

    < the NRC staff will rely on, to the extent practical, licensee and independent assessments of safety culture with NRC review of those assessments.

    < if there is significant performance degradation the NRC staff will conduct an independent assessment of a licensee's safety culture.

- the approach will remain consistent with the existing ROP framework.

Safety Culture

As part of the staff's interactions with stakeholders, and one of the necessary first steps was to gain agreement on the definition of safety culture. During public meetings in December 2005, there was general agreement that the NRC's proposed use of the International Atomic Energy Agency's (IAEA) International Nuclear Advisory Group (INSAG) definition of safety culture, which had been previously referenced by the Commission, was acceptable and close to the definition that was developed by the Institute of Nuclear Power Operations (INPO).

The INSAG definition was first published in Safety Series No. 75-INSAG-4, "Safety Culture," Vienna, 1991.) as "*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 also agreed that "safety culture" included the following 13 components:

1. Decision-Making
2. Resources
3. Work Control
4. Work Practices

5. Corrective Action Program
6. Operating Experience
7. Self- and Independent Assessments
8. Environment for Raising Nuclear Safety Concerns
9. Preventing, Detecting, and Mitigating Perceptions of Retaliation
10. Accountability
11. Continuous Learning Environment
12. Organizational Change Management
13. Safety Policies

Descriptions of these agreed upon components are provided in Attachment 1. Safety Culture components 1-9 above, termed “cross-cutting components” would be aligned with the three cross-cutting areas (i.e., human performance, problem identification and resolution, and safety conscious work environment) and would replace the existing cross-cutting subcategories or bins. However, all 13 safety culture components would be applied in the supplemental inspection program. This distinction was made because:

- the nine cross-cutting components are currently readily accessible through baseline inspection procedures, while the last four safety culture components listed above (i.e., Accountability, Continuous Learning Environment, Organizational Change Management, and Safety Policies) are not.

- the cross-cutting components would be considered only when an inspector was considering the cross-cutting aspect of a potential inspection finding or performance deficiency as is done in the existing ROP.

- each of the nine cross-cutting components is closely aligned with the cross-cutting area with which it is associated, while the last four components listed above are not closely aligned with a cross-cutting area.

For these reasons, the distinction was made between components one-nine and components 10-13; the former will be applied in the baseline inspection and assessment program, while all the components, including 10-13 will be assessed only through supplemental inspections, as described below.

Attachment 2 describes industry activities through which the NRC may gain insights into safety culture at plant sites.

II. Enhanced Reactor Oversight Process Elements

The subsections below describe how this initiative proposes to enhance baseline inspection procedures, event response procedures, performance assessment, cross-cutting areas, substantive cross-cutting issues, and actions for plants in the four columns of the Action Matrix described in Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program: Licensee Response, Regulatory Response, Degraded Cornerstone, and Multiple/Repetitive Degraded Cornerstone" to more fully address safety culture.

Baseline Inspection Procedures

Inspection Procedure 71152, "Problem Identification and Resolution," will continue to:

- provide for early warning of potential performance issues that could result in crossing thresholds in the action matrix,
- help the NRC gauge supplemental response should future action matrix thresholds be crossed,
- allow for follow-up of previously identified compliance issues,
- provide additional information related to cross cutting issues that can be used in the assessment process, and
- determine whether licensees are complying with NRC regulations regarding corrective action programs.

Inspection Procedure 71152, will be enhanced to:

- direct inspectors to be aware of safety culture components when selecting inspection samples;
- augment the inspection requirements and guidance for evaluating operating experience, the alternative processes for raising concerns, safety conscious work environment, and licensee self-assessments, including periodic assessments of safety culture; and
- modify the existing guidance for inspectors to assess the effectiveness of the corrective action program, the operating experience program, and the licensee's ability to complete self-assessments.

IMC 0612, "Power Reactor Inspection Reports," will be enhanced to be consistent with these changes.

Event Response Procedures

For event response, the NRC staff uses Inspection Procedures 71153, "Event Follow-up;" 93812 "Special Inspection;" and 93800, "Augmented Inspection Team." These procedures will be enhanced to direct inspection teams to be sensitive to causal factors related to safety culture.

Performance Assessment

As described in IMC 0305, "Operating Reactor Assessment Program," the NRC assesses plant performance continuously and communicates its assessment of plant performance in letters to licensees, typically semi-annually. These assessment letters are available on the NRC website (www.nrc.gov) on the plant performance summary page for each licensee.

Also, as described in IMC 0305, the NRC determines its regulatory response for each licensee in accordance with an Action Matrix that provides for a range of actions commensurate with the significance of the Performance Indicator and inspection results. For a plant that has all of its Performance Indicator and inspection findings characterized as green, the NRC will implement only its baseline inspection program. For plants that do not have all green Performance Indicators and inspection findings, the NRC will perform additional inspections and initiate other actions commensurate with the safety significance of the issues.

Cross-Cutting Areas of Problem Identification & Resolution, Human Performance and Safety Conscious Work Environment

Although the basic structure and titles of the three cross-cutting areas will not change, they will be adjusted to more fully reflect the components that are important to safety culture that can be readily accessed through the baseline inspection program. The table below provides the three cross-cutting areas, the existing subcategories, and the safety culture components which will replace the existing subcategories. These changes will be addressed in IMC 0305, "Operating Reactor Assessment Program."

CROSS-CUTTING AREA	EXISTING SUBCATEGORIES "BINS"	NEW CROSS-CUTTING COMPONENTS
PROBLEM IDENTIFICATION AND RESOLUTION	• **Identification** • **Evaluation** • **Corrective Action**	• **Corrective Action Program** • **Self and Independent Assessments** • **Operating Experience**
HUMAN PERFORMANCE	• **Personnel** • **Resources** • **Organization**	• **Decision Making** • **Resources** • **Work Control** • **Work Practices** •
SAFETY CONSCIOUS WORK ENVIRONMENT	• **None**	• **Environment for Raising Nuclear Safety Concerns** • **Preventing, Detecting, and Mitigating Perceptions of Retaliation**

Substantive Cross-Cutting Issues

As described in IMC 0305, "Operating Reactor Assessment Program," in each assessment meeting (both end-of-cycle and mid-cycle), the NRC will determine whether a substantive cross-cutting issue exists in any cross-cutting area as follows:

- Findings documented in NRC inspection reports are a major input to the assessment process. A finding is a non-minor[1] NRC-identified or self-revealing issue of concern that is associated with a licensee performance deficiency. A finding that is associated with a regulatory requirement is also a violation. Licensee-identified findings of very low (i.e., green) safety significance that are not violations of regulatory requirements are not documented in inspection reports.

- Each finding is documented in NRC inspection reports in terms of the performance deficiency associated with the finding and the relationship, if any, between the finding and one or more of the cross-cutting areas. A relationship between a finding and a cross-cutting area would exist if a causal factor of the finding is associated with or similar to any part of the description of the components within that cross-cutting area. (Attachment 1 provides the component definitions that will be used for this purpose by the inspectors.)

- For the cross-cutting areas of Problem Identification & Resolution and Human Performance, the NRC would identify a substantive cross-cutting issue if all of the following criteria are satisfied:

  < for the current 12-month assessment period, more than three green or safety significant inspection findings have documented cross-cutting aspects in the same cross-cutting area. Observations or violations that are not findings are not considered in this determination.

  < the causal factors for those findings have a common theme.

  < the NRC has a concern with the licensee's scope of efforts or progress in addressing this area's performance deficiency.

- For the Safety Conscious Work Environment cross-cutting area, the NRC would identify a substantive cross-cutting issue if for the current 12-month assessment period,

  < any non-minor green or safety significant inspection finding has a documented cross-cutting aspect in the area of Safety Conscious Work Environment (observations or violations that are not findings are not considered in this determination), or

  < the licensee received a chilling-effect letter, or

  < the licensee received a letter from the NRC which transmitted an enforcement action with a severity level of I, II, or III, and which involved discrimination, where

[1] Inspectors distinguish between minor and non-minor findings as described in NRC Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, section B-3.

the associated impact on Safety Conscious Work Environment was not isolated, and the NRC has a concern with the licensee's scope of efforts or progress in addressing this area's performance deficiency.

When the NRC informs a licensee that a substantive cross-cutting issue has been identified, the licensee should place that issue into its corrective action program, perform an analysis of causes for the issue, and develop corrective actions. The licensee's completed evaluation may be reviewed by the Region and documented in the next assessment letter.

Substantive cross-cutting issues may be identified by the staff for any licensee, regardless of their position in the Action Matrix. As currently described in IMC 0305, "Operating Reactor Assessment Program,"

> "When the NRC identifies a substantive cross-cutting issue in the mid-cycle or annual assessment letter, the licensee should place this issue into its corrective action program, perform an analysis of causes of the issue, and develop appropriate corrective actions. The licensee's completed evaluation may be reviewed by the regional office and documented in the next mid-cycle or annual assessment letter." (IMC 0305, Section 06.07.e)

For those plants where the same substantive cross-cutting issue has been raised in at least two consecutive assessment letters, the regional office may request that:

- the licensee provide a response at the next annual public meeting,
- the licensee provide a written response to the substantive cross-cutting issues raised in the assessment letters, or
- a separate meeting be held with the licensee.

This provision in Manual Chapter 0305 will be enhanced to provide an additional option as follows:

> "Additionally, in the third consecutive assessment letter identifying the same substantive cross-cutting issue, the regional office may also request that the licensee perform an assessment of safety culture. Typically, this evaluation would consist of a licensee self-assessment, unless the recurring substantive cross-cutting issue was associated with deficiencies in the identification or evaluation aspects of the problem identification and resolution program. The regional office should review the safety culture assessment and document the NRC's assessment in the next mid-cycle or annual assessment letter."

Actions in the Licensee Response Column

This initiative proposes no change to actions in the Licensee Response Column.

Actions in the Regulatory Response Column

As currently discussed in IMC 0305, when a licensee's performance falls into the Regulatory Response Column,

> "the licensee is expected to place the identified deficiencies in its corrective action program and perform an evaluation of the root and contributing causes."

The licensee enters the corrective actions identified during the above evaluation into the plant's corrective action program.

The licensee's evaluation will be reviewed by the NRC during Inspection Procedure 95001, "Supplemental Inspection for One or Two White Inputs in a Strategic Performance Area." This procedure will continue to provide assurance that:

- the root causes and contributing causes of risk significant performance issues are understood;

- the extent of condition and extent of cause of risk significant performance issues are identified; and

- licensee corrective actions to risk significant performance issues are sufficient to address the root and contributing causes, and to prevent recurrence.

Inspection procedure 95001 will be enhanced to verify that the licensee's root cause investigation, extent-of-condition evaluation, and extent-of-cause evaluation appropriately considered and addressed safety culture issues.

NRC staff will proceed with all other aspects of the existing process for the Regulatory Response Column as described in IMC 0305.

Actions in the Degraded Cornerstone Column

As currently discussed in IMC 0305, when a licensee's performance falls within the degraded cornerstone column,

- "... the licensee is expected to place the identified deficiencies in its corrective action program and perform an evaluation of the root and contributing causes for both the individual and the collective issues."

- "...an independent assessment of the extent of condition will be performed by the region using appropriate inspection procedures chosen from the tables contained in Appendix B to Inspection Manual Chapter 2515."

- the NRC will review the licensee's evaluation using Inspection Procedure 95002, "Supplemental Inspection for One Degraded Cornerstone Or Any Three White Inputs in a Strategic Performance Area."

IMC 0305 will be enhanced to:

- include an expectation for the licensee to ensure that its root-cause evaluation determines whether the plant's performance issues were in any way caused by or contributed to by any component of safety culture, and whether any opportunities exist for improved performance with respect to those components. The licensee should enter into the plant's corrective action program the opportunities for improved performance identified during this assessment. The assessment may be performed by an independent party.

- allow the NRC to request the licensee to complete an independent assessment of safety culture, if the NRC identified and the licensee did not recognize that one or more safety culture components caused or contributed to the risk-significant performance issues.

Inspection Procedure 95002 will continue to:

- provide assurance that the root causes and contributing causes are understood for individual and collective (multiple white inputs) risk significant performance issues.

- independently assess the extent of condition for individual and collective (multiple white inputs) risk significant performance issues.

- provide assurance that licensee corrective actions to risk significant performance issues are sufficient to address the root causes and contributing causes, and to prevent recurrence.

Inspection Procedure 95002 will be enhanced to enable NRC inspectors to independently determine whether any safety culture component caused or contributed significantly to the risk-significant performance issues.

NRC staff would proceed with all other aspects of the existing process for the Degraded Cornerstone Column as described in IMC 0305.

Actions in the Multiple/Repetitive Degraded Cornerstone Column

As currently discussed in IMC 0305, when a licensee's performance falls within the multiple/repetitive degraded cornerstone column,

> "the licensee is expected to place the identified deficiencies in its corrective action program and perform an evaluation of the root and contributing causes for both the individual and the collective issues."

This evaluation may consist of a third party assessment.

IMC 0305 will be enhanced to:

- expect the licensee to perform an independent assessment of their safety culture,

- enable NRC inspectors to review that assessment, and

- enable inspectors to independently assess the licensee's safety culture.

In accordance with IMC 0305, the licensee's evaluation will be reviewed by the NRC during Inspection Procedure 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, Or One Red Input." This procedure will continue to:

- provide the NRC additional information to be used in deciding whether the continued operation of the facility is acceptable and whether additional regulatory actions are necessary to arrest declining plant performance.

- provide an independent assessment of the extent of risk significant issues to aid in the determination of whether an unacceptable margin of safety exists.

- independently assess the adequacy of the programs and processes used by the licensee to identify, evaluate, and correct performance issues.

- independently evaluate the adequacy of programs and processes in the affected strategic performance areas.

- provide insight into the overall root and contributing causes of identified performance deficiencies.

- determine if the NRC oversight process provided sufficient warning to significant reductions in safety.

Inspection procedure 95003 will be enhanced to enable NRC inspectors also to:

- independently evaluate the adequacy of the independent assessment of the licensee's safety culture.

- independently assess the licensee's safety culture.

Safety Culture Component Descriptions

Descriptions of the Safety Culture Components "Cross-Cutting Components" within the Cross-Cutting Areas

Human Performance

1. Decision-Making - Licensee decisions demonstrate that nuclear safety is an overriding priority. For example:

   < the licensee makes decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. This includes, for example, formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed. The licensee obtains interdisciplinary input and reviews on safety-significant or risk-significant decisions.

   < the licensee uses conservative assumptions in decision making and adopts a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. The licensee conducts effectiveness reviews of safety-significant decisions to verify the validity of the underlying assumptions, identify possible unintended consequences, and determine how to improve future decisions.

   < the licensee communicates decisions and the basis for decisions to personnel who have a need to know the information in order to perform work safely, in a timely manner.

2. Resources - The licensee ensures that personnel, equipment, programs, procedures, and other resources are available and adequate to assure nuclear safety, including those necessary for items such as:

   < maintenance of design margins, minimization of long-standing equipment issues, and maintenance and engineering backlogs which are low enough to support safety

   < training of personnel and sufficient qualified personnel to maintain work hours within working hours guidelines,

   < complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components

   < adequate and available facilities and equipment, including physical improvements, simulator fidelity and emergency facilities and equipment

2. Work Control - The licensee plans and coordinates work activities, consistent with nuclear safety. For example:

< the licensee appropriately incorporates:

- risk insights;
- job site conditions, including environmental conditions which may impact human performance; plant structures, systems, and components; human-system interface; or radiological safety;
- the impact of changes on the plant and human performance;
- the impact of the work on different job activities; ~~and~~
- the need for planned contingencies, compensatory actions, and abort criteria.

< the licensee plans work activities to limit temporary modifications, operator work-arounds, safety systems unavailability, and reliance on manual actions. Maintenance scheduling is more predictive than reactive to support long-term equipment reliability.

< the licensee keeps personnel apprised of work status, the operational impact of work activities, and plant conditions that may affect work activities.

< work groups maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance.

4 Work Practices - Personnel work practices and job site conditions support human performance. For example:

< the licensee communicates human error prevention techniques, such as holding pre-job briefings, and these techniques are used commensurate with the risk of the assigned task, such that work activities are performed safely. Personnel are fit for duty. In addition, personnel do not proceed in the face of uncertainty or unexpected circumstances.

< the licensee defines and effectively communicates the necessity of procedural compliance and personnel follow procedures.

< the licensee ensures supervisory and management oversight of work activities such that nuclear safety is supported.

Problem Identification and Resolution

1. Corrective Action Program - The licensee promptly identifies safety problems, fully evaluates such problems, and actions are taken to address safety issues in a timely manner, commensurate with their significance. For example:

   < the licensee implements a corrective action program with a low threshold for identifying issues. The licensee identifies such issues completely, accurately, and in a timely manner commensurate with their safety significance.

   < the licensee periodically trends and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. The licensee communicates the results of the trending to applicable personnel.

   < the licensee thoroughly evaluates problems such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. Skilled, knowledgeable personnel perform causal analyses and event investigations.

   < the licensee takes actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

   < if an alternative process (i.e., a process for raising concerns that is an alternate to the licensee's corrective action program or line management) for raising safety concerns exists, then it results in appropriate and timely resolutions of identified problems.

2. Operating Experience - The licensee uses operating experience (OE) information, including vendor recommendations to support plant safety, to prevent safety events. For example:

   < the licensee systematically collects, evaluates, and communicates to affected internal stakeholders in a timely manner relevant internal and external OE.

   < the licensee implements and institutionalized through changes to station processes, procedures, equipment, and training programs, OE.

3. Self- and Independent Assessments - The licensee conducts self- and independent assessments of their activities and practices, as appropriate, to assess performance and identify areas for improvement. For example:

   < the licensee conducts self-assessments at an appropriate frequency; such assessments are of sufficient depth, are comprehensive, are appropriately objective, and are self-critical. Individuals assigned to perform assessments have the necessary training, skills, and authority. The licensee periodically

assesses the effectiveness of oversight groups and programs such as CAP, and policies.

< the licensee tracks and trends safety indicators which provide an accurate representation of performance.

< the licensee coordinates and communicates results from assessments to affected personnel, and takes corrective actions to address issues commensurate with their significance.

Safety Conscious Work Environment

1. Environment for Raising Concerns - An environment exists in which employees feel free to raise concerns both to their management and/or the NRC without fear of retaliation and employees are encouraged to raise such concerns. For example:

   < behaviors and interactions encourage free flow of information related to raising nuclear safety issues, differing professional opinions, and identifying issues in the CAP and through self assessments. Such behaviors include supervisors responding to employee safety concerns in an open, honest, and non-defensive manner and providing complete, accurate, and forthright information to oversight, audit, and regulatory organizations. Past behaviors, actions, or interactions that may discourage the raising of such issues are actively mitigated. As a result, personnel freely and openly communicate in a clear manner conditions or behaviors, such as fitness for duty issues, that may impact safety.

   < personnel raise nuclear safety issues without fear of retaliation.

   < if alternative processes (i.e., processes for raising concerns or resolving differing professional opinions that are alternates to the licensee's corrective action program or line management) for raising safety concerns or resolving differing professional opinions exists, then they are communicated, accessible, have an option to raise issues in confidence, and are independent from management who would in the normal course of activities be responsible for addressing the issue.

2. Preventing, Detecting, and Mitigating Perceptions of Retaliation - A policy for prohibiting harassment and retaliation for raising nuclear safety concerns exists and is consistently enforced in that:

   < all personnel are effectively trained that harassment and retaliation for raising safety concerns is a violation of law and policy and will not be tolerated.

   < claims of discrimination are investigated consistent with the content of the regulations regarding employee protection and any necessary corrective actions are taken in a timely manner, including actions to mitigate any potential chilling effect on others due to the personnel action under investigation.

   < the potential chilling effects of disciplinary actions are considered and compensatory actions are taken when appropriate.

Descriptions of Additional Safety Culture Components to be Applied in the Supplemental Inspection Program

In addition to the above safety culture components, the following additional components of safety culture will be applied in the Supplemental Inspection program:

1. Accountability - Management defines the line of authority and responsibility for nuclear safety. For example:

   < accountability is maintained for important safety decisions . For example, the system of rewards and sanctions is aligned with nuclear safety policies and

   < management reinforces behaviors and outcomes which reflect safety as an overriding priority.

   < management reinforces safety standards and displays behaviors that reflect safety as an overriding priority.

   < the workforce demonstrates a proper safety focus and reinforce safety principles among their peers.

2. Continuous Learning Environment - The licensee ensures that a learning environment exists. For example:

   < the licensee provides adequate training and knowledge transfer to all personnel on site to ensure technical competency.

   < personnel continuously strive to improve their knowledge, skills, and safety performance through activities such as benchmarking, being receptive to feedback, and setting performance goals.

   < the licensee effectively communicates information learned from internal and external sources about industry and plant issues.

3. Organizational Change Management - Management uses a systematic process for planning, coordinating, and evaluating the safety impacts of decisions related to major changes in organizational structures and functions, leadership, policies, programs, procedures, and resources. Management effectively communicates such changes to affected personnel.

4. Safety Policies - Safety policies and related training establish and reinforce that nuclear safety is an overriding priority, in that:

   < these policies require and reinforce that individuals have the right and responsibility to raise nuclear safety issues through available means, including avenues outside their organizational chain of command and to external agencies, and participate in the resolution of such issues. Personnel are effectively trained on these policies.

- organizational decisions and actions at all levels of the organization are consistent with the policies. For example, production, cost and schedule goals are developed, communicated, and implemented in a manner that reinforces the importance of nuclear safety.

- senior managers and corporate personnel periodically communicate and reinforce nuclear safety such that personnel understand that safety is of the highest priority.

Industry Actions Which Provide Insight into Safety Culture

The Institute of Nuclear Power Operations (INPO) conducted a lessons-learned review as a result of the Davis-Besse head degradation issue. Sixteen improvement items were identified, covering each of the four cornerstone areas that INPO provides for the nuclear industry (evaluation, training and accreditation, operating experience, and assistance). INPO also issued Significant Operating Experience Report (SOER) 02-4 in 2002 as a result of the Davis-Besse head degradation incident. Each station, per the SOER recommendations, performed an assessment of its safety culture. INPO, through its evaluation process, has evaluated implementation of that recommendation at each licensee station. The SOER further recommended that, going forward, each licensee periodically conduct a safety culture assessment. Although the frequency of these evaluations may vary, these evaluations provide insights into the health of a station's safety culture at each licensee's facility.

INPO developed "Principles for Effective Self Assessment and Corrective Action Programs." This document is an industry standard for conduct of these important programs. Included in the principles for effective self-assessment programs is the following expectation:
Station management verifies that the issues are promptly entered into the corrective action program or other tracking system for resolution. The principles document further states that:
… tracking systems are periodically screened to preclude important problems that should be in the corrective action program from being reported instead to lower-tier tracking systems in which they may receive a lower level of analysis and corrective action. Therefore, issues such as those likely to significantly affect or be driven by a licensee's safety culture would be handled within the licensee's corrective action program. These licensee assessments, as well as the results, are therefore available to the NRC staff during their Problem Identification & Resolution (PI&R) inspections.

In addition to licensee assessments, INPO performs plant evaluations on approximately a two year frequency. These evaluations are a comprehensive, INPO and industry peer team evaluation of plant performance that includes an assessment of the plant's adherence to key safety culture principles and attributes as defined in INPO’s “Principles of a Strong Nuclear Safety Culture” document. This evaluation is performed as part of an assessment of each station's Organizational Effectiveness cross functional are, in accordance with INPO's Performance Objectives and Criteria document.

INPO documents a summary of its evaluation regarding a station's safety culture in the Organizational Effectiveness Area Performance Summary for each plant. INPO's evaluation reports are not public documents. However, per the existing NRC/INPO Memorandum of Understanding, the NRC is afforded the opportunity to review these reports. This review also provides the NRC staff with insights into a plant's safety culture.