

SAFETY CULTURE INITIATIVE SUMMARY RESULTS

(Prepared by NRC staff, 12/21/05)

Introduction

The Nuclear Regulatory Commission (NRC) staff has a task to enhance the Reactor Oversight Process to more fully address Safety Culture. The staff provided options for this initiative in SECY 2004-01111, dated July 1, 2004. An August 30, 2004, Staff Requirements Memorandum provided the NRC staff with directions for implementing this change to the Reactor Oversight Process. The staff undertook an initiative to implement those directions.

As part of that initiative, the NRC staff solicited stakeholder input into developing a robust regulatory process that will enable the agency to detect a declining plant safety culture in its early stages. This paper outlines an approach to address the Staff Requirements Memorandum directions that was developed during a public meeting held November 29 - 30, 2005. This approach relies on industry assessments and evaluations by licensees and/or Institute of Nuclear Power Operations to the extent practical, with NRC staff reviewing results to ensure consistency between these assessments and the staff's perceptions regarding the health of a licensee's safety culture. Consistent with the existing Reactor Oversight Process framework, the process also provides a performance-based approach to NRC oversight of a licensee's efforts to assess and maintain a healthy safety culture.

This paper is subdivided into two parts, as follows:

- Part I, "Fundamental Items", describes specific directions provided to the staff by the Commission, lists assumptions on which this approach is founded, and provides the definition of safety culture that has been incorporated into the initiative.
- Part II, "Impacted ROP Elements", describes how this initiative proposes to affect the Reactor Oversight Process, in terms of baseline inspections, event follow-up inspections, performance assessment, and regulatory responses to degraded performance.

I. Fundamental Items

Commission Guidance

In part, the August 30, 2004, Staff Requirements Memorandum directed the NRC staff to:

1. "...continue to monitor industry efforts to assess Safety Culture and ensure the Commission remains informed of industry efforts and progress. Of particular note was the progress made by INPO to address recent industry issues in this area. As industry works to develop guidance in this area, the staff should use its resources to ensure that it has programs and procedures in place that encourage licensees to establish strong Safety Culture programs."
2. "...enhance the Reactor Oversight Process ... treatment of cross-cutting issues to more fully address Safety Culture. The staff should not use surveys of licensee personnel, but rather should rely on inspector observations and other indicators already available to the NRC. Consequently, the staff should develop tools that allow inspectors to rely on more objective findings. The staff should consider including enhanced problem identification and resolution initiatives as part of this effort."

3. "...ensure that the inspectors are properly trained in the area of Safety Culture. The staff should consider developing an enhanced training program for its inspectors and resident inspectors on Safety Culture that uses both insights from INPO's work in this area and insights from the international community."
4. "...consider if the cross-cutting issues in the enhanced [Reactor Oversight Process] treatment may be more appropriately labeled Safety Management rather than Safety Culture. In making any changes, the staff should follow the established processes for revising the [Reactor Oversight Process], in particular the process for involving stakeholders."
5. "... include as part of its enhanced inspection activities for plants in the Degraded Cornerstone Column (referred to as Column Three) of the [Reactor Oversight Process] Action Matrix, a determination of the need for a specific evaluation of the licensee's Safety Culture. The staff should interact with our stakeholders to develop a process for making the determination and conducting the evaluation. The staff's methodology for using the treatment of cross-cutting issues to more fully address Safety Culture, should require a specific determination for plants in the Degraded Cornerstone Column."

Assumptions

This process includes and is based on the following assumptions:

1. Any issues identified with a licensee's safety culture would be documented in accordance with the current Reactor Oversight Process guidelines.
2. The names of the three existing Reactor Oversight Process cross-cutting issue categories (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.
3. To the extent possible, NRC staff and stakeholders will use existing industry terminology that defines important components of safety culture.
4. NRC staff will use a graduated or graded response to plant performance issues in evaluating a station's safety culture, consistent with the existing Reactor Oversight Process.
5. NRC will rely on, to the extent practical, licensee and independent assessments of safety culture.
6. The approach will remain consistent with the existing Reactor Oversight Process framework and, to the extent practical, the existing Reactor Oversight Process.

Safety Culture

During a public meeting held on December 8, 2005, the NRC and industry representatives agreed that the NRC would use the following definition of "safety culture":

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.

(This definition had been developed by the International Atomic Energy Agency, and had been published in the International Nuclear Safety Advisory Group (INSAG) Safety Series No. 75-INSAG-4, "Safety Culture," Vienna, 1991.)

Participants in that meeting also agreed that "safety culture" included the following components:

- Corrective Action Program
- Internal & External Operating Experience
- Self-Assessment
- Resources
- Work Control
- Work Practices
- Decision Making
- Willingness to Raise Concerns
- Preventing and Detecting Retaliation
- Continuous learning environment
- Safety conscious work environment policies
- Safety policies
- Accountability
- Organizational change management

Definitions of these components, also agreed upon, are provided in Attachments 1 and 2. As described below and as illustrated in these attachments, the components listed in Attachment 1 are associated with cross-cutting areas, while the components listed in Attachment 2 are not. This distinction was made because:

- The components in Attachment 1 are readily accessible through baseline inspection procedures, while those in Attachment 2 are not. Consequently, while inspection findings associated with the components in Attachment 1 could be expected, inspection findings associated with the components in Attachment 2 would not be expected except possibly very rarely and under very unusual circumstances.
- For plants whose performance is in the Licensee Response Column of the Action Matrix, the components in Attachment 2 could be addressed more appropriately by industry and/or licensee initiatives and programs, than by NRC inspections.
- Each component in Attachment 1 is closely aligned with the cross-cutting area with which it is associated, while the components in Attachment 2 are not closely aligned with any cross-cutting area.

For these reasons, the distinction was made between the components in Attachment 1 and the components in Attachment 2; the former will be inspected in the baseline inspection program, while the latter will be inspected only through supplemental inspections, as described below.

Attachment 3 describes industry activities through which the NRC can gain insights into safety culture at plant sites.

II. Impacted Reactor Oversight Process Elements

Subsections below describe how this initiative proposes to affect baseline inspection procedures, event response procedures, performance assessment, cross-cutting areas, substantive cross-cutting areas, 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.

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 gage 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.

(This represents no change in the current process.)

This procedure 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 Followup”, 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. (This represents no change in the current process.)

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. (This represents no change in the current process.)

Cross-Cutting Areas

IMC 0305, “Operating Reactor Assessment Program”, currently describes three “cross-cutting areas” as follows:

<i>Cross-Cutting Area</i>	<i>Included subcategories</i>
PROBLEM IDENTIFICATION & RESOLUTION	<ul style="list-style-type: none"> • Identification • Evaluation • Corrective action
HUMAN PERFORMANCE	<ul style="list-style-type: none"> • Personnel • Resources • Organization
SAFETY CONSCIOUS WORK ENVIRONMENT	(no subcategories)

Although the basic structure and names of these cross-cutting areas won’t change, this manual chapter will be revised to more fully reflect items that are important to safety culture, by including within the cross-cutting areas those safety culture components that are both closely associated with the cross-cutting areas and can be readily accessed through the baseline inspection program, as follows:

<i>Cross-Cutting Area</i>	<i>Included Safety Culture Components</i>
PROBLEM IDENTIFICATION & RESOLUTION	<ul style="list-style-type: none"> • Corrective Action Program • Independent and Self-Assessments • Operating Experience
HUMAN PERFORMANCE	<ul style="list-style-type: none"> • Decision Making • Resources • Work Control • Work Practices
SAFETY CONSCIOUS WORK ENVIRONMENT	<ul style="list-style-type: none"> • Preventing and Detecting Retaliation • Willingness to Raise Concerns

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-minor¹ 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.) (This represents no change in the current process.)
- 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 definition of the components within that cross-cutting area. (Attachment 1 provides the component definitions used for this purpose by the inspectors.) (This represents no change in the current process.)
- 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, >3 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.

(This represents no change in the current process.)

- 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

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 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

- 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. (This represents no change in the current process.)

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”,

“If a substantive cross-cutting issue is discussed in a mid-cycle or annual assessment letter, then the next annual or mid-cycle assessment letter should address the licensee’s performance in this area.... The next mid-cycle or annual assessment letter will either state that the issue has been satisfactorily resolved and reference the inspection report that documented the follow-up or summarize the agency’s assessment...as well as summarizing the licensee’s progress in addressing the issue.”

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 represents no change in the current process.)

This provision in Manual Chapter 0305 will be enhanced to provide the additional option that, if the same substantive cross-cutting issue has been raised in at least three consecutive assessment letters, the regional office may request, in addition to the options above, that the licensee have an assessment of safety culture performed.

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. (This represents no change in the current process.)

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.

(This represents no change in the current process.)

This procedure 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 would 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.”

(This represents no change in the current process.)

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.

(This represents no change in the current process.)

This procedure 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.

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.
- To 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.

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. (This represents no change in the current process.)

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.
- To provide an independent assessment of the extent of risk significant issues to aid in the determination of whether an unacceptable margin of safety exists.
- To independently assess the adequacy of the programs and processes used by the licensee to identify, evaluate, and correct performance issues.
- To independently evaluate the adequacy of programs and processes in the affected strategic performance areas.
- To provide insight into the overall root and contributing causes of identified performance deficiencies.
- To determine if the NRC oversight process provided sufficient warning to significant reductions in safety.

This procedure will be enhanced to enable NRC inspectors also:

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

Attachment 1: Definitions of Safety Culture Component Within Cross-Cutting Areas

The components of safety culture within the scope of the cross-cutting areas are defined as follows:

Components in the “PROBLEM IDENTIFICATION & RESOLUTION” Cross-Cutting Area

Corrective Action Program

Safety problems are identified with a low threshold. Such problems are identified completely, accurately, and in a timely manner commensurate with their safety significance.

When personnel identify conditions or behaviors that may adversely impact safety, they raise questions and challenge actions.

Conditions adverse to quality are properly classified, prioritized, and evaluated for operability and reportability.

Skilled, knowledgeable personnel perform causal analyses and event investigations.

For significant problems, effectiveness reviews of corrective actions are conducted to ensure that the problems are resolved.

Problem and corrective action backlogs are kept low enough to permit response to issues of safety significance in a timely manner.

Information from the CAP and other assessments is periodically trended and assessed in the aggregate to identify programmatic and common cause problems.

Actions to address adverse trends are taken 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.

Operating Experience

Relevant internal and external operating experience (OE) is systematically collected, communicated, and evaluated in a timely manner.

Lessons learned from OE are institutionalized through changes to station processes, procedures, equipment, and training programs.

Affected stakeholders are informed of relevant OE information.

Relevant OE information is reviewed before conducting risk-significant work.

Self- and Independent Assessments

Self- and independent assessments of the organization’s activities and practices are conducted to assess performance and identify areas for improvement.

Self-assessments are conducted at an appropriate frequency, are of sufficient depth, and are self-critical.

Results from assessments are coordinated and communicated to affected personnel.

Corrective actions are taken to address issues.

The effectiveness of oversight groups and programs such as CAP are periodically assessed.

Individuals assigned to perform assessments have the necessary training, skills, and authority.

Safety indicators which provide an accurate representation of performance are tracked and trended, and appropriate corrective actions are taken.

Effectiveness reviews of safety-significant decisions are conducted to verify the validity of the underlying assumptions, identify possible unintended consequences, and determine how to improve future decisions.

Components in the “HUMAN PERFORMANCE” Cross-Cutting Area

Decision Making

Decisions demonstrate that nuclear safety is an overriding priority.

Decisions are made at the appropriate organizational levels, using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained.

Interdisciplinary input and reviews are obtained on safety-significant or risk-significant decisions, and the results of decisions are communicated.

Conservative decision-making is demonstrated through using conservative assumptions, considering risk insights and potential consequences and contingencies, and maintaining design margins and long-term equipment reliability.

Work Control

Processes for planning and coordinating work activities ensure nuclear safety is supported.

Work packages are adequate to ensure work is completed safely.

Personnel maintain awareness of the potential risks of work activities, recognize the possibility of mistakes and worst-case scenarios, and make conservative decisions.

When planning and coordinating work activities, consideration is given to:

- risk insights,
- job site conditions which may impact human error,
- task sequencing to optimize safety system availability,
- the impact of changes on the plant and human error,
- the impact of the work on different job activities, and

- the need for planned contingencies, compensatory actions, and abort criteria.

Work activities are planned 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.

Personnel are trained and qualified for the tasks to be performed, and are kept apprised of work status and the operational impact of work activities.

Work Practices

Human error prevention techniques are communicated, understood, and used commensurate with the risk of the assigned task, such that work activities are performed safely and without unintended consequences.

Human performance is supported by holding pre- and post-evolution briefings, as appropriate, correct labeling of components, and providing communications on the status of activities, including any changes.

Procedural compliance is understood and procedures are followed by personnel.

Human performance, including fitness for duty, is monitored and addressed.

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.

Personnel do not proceed in the face of uncertainty.

Resources

Personnel, equipment, and other resources that are necessary to assure nuclear safety are available and dedicated, including those required for:

- capital improvements required to maintain plant safety,
- resolution of long-standing equipment issues,
- procedures and work packages that are clear, accurate, and up-to-date,
- sufficient qualified personnel to maintain work hours within working hours guidelines,
- training of personnel,
- maintenance with manageable backlogs,
- accurate and up-to-date design documentation,
- simulator fidelity and availability, and
- adequate emergency facilities.

Components in the “SAFETY-CONSCIOUS WORK ENVIRONMENT” Cross-Cutting Area

Preventing and detecting retaliation

The workplace is free from harassment and retaliation for raising safety issues.

All personnel understand that harassment and retaliation are not tolerated.

Claims of discrimination are fully investigated and any necessary corrective actions taken.

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

Willingness to raise concerns

Behaviors during personnel interactions encourage raising nuclear safety issues, and past behaviors do not discourage personnel from raising such issues.

Personnel communicate freely and openly.

Supervisors are skilled in responding to employee safety concerns in an open and honest manner.

Complete, accurate, and forthright information is provided to oversight, audit, and regulatory organizations.

Personnel raise nuclear safety issues without fear of retaliation.

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 is accessible, confidential, and independent.

Attachment 2: Definitions of Safety Culture Components Outside the Cross-Cutting Areas

Continuous learning environment

Adequate training and knowledge transfer are available to all personnel on site to ensure technical competency.

Personnel benchmark actively, are receptive to feedback, and continuously strive to improve their knowledge, skills, and safety performance.

Communication is effective for transmitting information learned from internal and external sources about industry and plant issues.

Safety conscious work environment policies

Formal policies and training exist to require and reinforce that personnel understand their rights and responsibilities to raise and clearly communicate nuclear safety issues and participate in the resolution of such issues.

The effectiveness of the formal policies and training is assessed and actions are taken to address any negative trends identified.

Safety policies

Safety policies and training exist to require that nuclear safety is an overriding priority.

Formal organizational policies and goals address the proper role of safety considerations in the organization's decision-making.

Organizational decisions and actions reinforce and are consistent with the formal policies.

Leaders recognize that production goals, if not properly communicated, can send mixed signals on the importance of nuclear safety.

Senior managers and corporate personnel periodically take steps to communicate and reinforce nuclear safety.

Personnel understand that safety is of the highest priority.

Accountability

The line of authority and responsibility for nuclear safety is defined.

Accountability is maintained for important safety decisions.

Management reinforces safety standards, provides oversight in the field, particularly during infrequently performed or safety significant evolutions, and models safe behaviors.

Staff demonstrate a proper safety focus and reinforce safety principles among their peers.

The system of rewards and sanctions is aligned with strong nuclear safety policies and reinforces behaviors and outcomes which reflect safety as the highest priority.

Organizational change management

Decisions related to major changes in organizational structures and functions, leadership, and resources incorporate safety considerations and are communicated effectively to personnel.

A systematic process is used for planning, coordinating, and evaluating the safety impact of organizational changes and to identify potential unintended consequences of such changes and there is evidence that the process is used.

Attachment 3: 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 has established "*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. These assessments, along with resident and visiting inspector activities, provide the NRC a periodic opportunity to monitor the health of a licensee's safety culture.

In addition to licensee assessments, INPO performs plant evaluations on approximately a 2 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. This evaluation is performed as part of an assessment of each station's Organization Effectiveness, in accordance with INPO's Performance Objectives and Criteria.

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.

The above assessments provide the NRC staff with ongoing insights about a licensee's safety culture, providing for early indication of an eroding safety culture.

For its part, NRC has substantially revised and expanded its baseline inspection process to earlier detect performance that may be indicative of a degrading safety culture, including:

- The staff revised Inspection Manual Chapter 0305 “Operating Reactor Assessment Program,” on December 21, 2004, to provide more specific guidance for the determination of a substantive cross-cutting issue in the areas of human performance and problem identification and resolution.
- The staff completed the implementation of several Davis-Besse Lessons Learned Task Force (DBLLTF) recommendations that relate to safety culture, including:
 - DBLLTF Recommendation 3.2.5(2), “Revise inspection guidance to provide assessments of: (1) the safety implications of long-standing, unresolved problems; (2) corrective actions phased in over several years or refueling outages; and (3) deferred modifications.”
 - DBLLTF Recommendation 3.3.1(1), “Provide training and reinforce expectations to NRC managers and staff members to address the following areas... maintaining a questioning attitude in the conduct of inspections...”
 - DBLLTF Recommendation 3.3.2(2), “Revise the overall PI&R inspection approach such that issues similar to those experienced at DBNPS are reviewed and assessed. Enhance the guidance for these inspections to prescribe the format of information that is screened when determining which specific problems will be reviewed.”
 - DBLLTF Recommendation 3.3.4(5), “Review the range of NRC baseline inspections and plant assessment processes, as well as other NRC programs, to determine whether sufficient programs and processes are in place to identify and appropriately disposition the types of problems experienced at DBNPS. Additionally, provide more structured and focused inspections to assess licensee’s employee concerns programs and safety conscious work environment”

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.