SAFETY CULTURE COMPONENTS

The following safety culture components were developed by the NRC safety culture working group based on the group's research of industry and international documents and the experience of the working group members. The information on safety culture gathered by the working group was screened to ensure that the information in the components is unambiguous, within NRC's regulatory purview, provides insights on the components through existing inspection techniques, and is generally applicable to reactor licensees. The NRC's components were compared to both industry and international safety culture attributes to ensure that the NRC staff fully captured concepts appropriate for NRC oversight. In an effort to utilize language and titles and nomenclature that are common with the industry, the working group compared the NRC's safety culture components to INPO's safety culture attributes and applicable sections of INPO's Performance and Objectives Criteria. Based on this review, some of the NRC's safety culture components were revised to be consistent with INPO's language, where appropriate. To address internal and external stakeholder feedback following the December 8, 2005, December 15, 2005, January 18, 2006, and February 14, 2006 public meetings, the working group further revised the safety culture components to enhance the concepts in the components and utilize language that would better facilitate use of the components under the Reactor Oversight Process (ROP).

The cross-cutting area components (i.e., the components of safety culture directly related to one of the cross-cutting areas of Human Performance, Problem Identification and Resolution, and Safety Conscious Work Environment) are described below. The section following the cross-cutting area components section describes four additional components that are considered along with the cross-cutting area components during the conduct of the supplemental inspection program. The revised inspection procedures and inspection manual chapters further explain how the NRC staff intend that these components be utilized in the ROP.

HUMAN PERFORMANCE

<u>Decision-Making</u> - Licensee decisions demonstrate that nuclear safety is an overriding priority. Specifically (as applicable):

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

<u>Resources</u> - The licensee ensures that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety. Specifically, those necessary for:

•	Maintaining long term plant safety by maintenance of design margins, minimization of long-standing equipment issues, minimizing preventative maintenance deferrals, and ensuring 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.

<u>Work Control</u> - The licensee plans and coordinates work activities, consistent with nuclear safety. Specifically (as applicable):

•	The licensee appropriately plans work activities by incorporating:

	▸	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 need for planned contingencies, compensatory actions, and abort criteria

•	The licensee appropriately coordinates work activities by incorporating actions to address:

	▸	the impact of changes to the work scope or activity on the plant and human performance
	▸	the impact of the work on different job activities and the need for work groups to 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
	▸	the need to keep personnel apprised of work status, the operational impact of work activities, and plant conditions that may affect work activities
	▸	the licensee plans work activities to support long-term equipment reliability by limiting temporary modifications, operator work-arounds, safety systems unavailability, and reliance on manual actions. Maintenance scheduling is more preventive than reactive.

<u>Work Practices</u> - Personnel work practices support human performance. Specifically (as applicable):

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- The licensee communicates human error prevention techniques, such as holding pre-job briefings, self and peer checking, and proper documentation of activities. 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 expectations regarding procedural compliance and personnel follow procedures.

- The licensee ensures supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported.

PROBLEM IDENTIFICATION AND RESOLUTION

Corrective Action Program (CAP) - The licensee ensures that issues potentially impacting nuclear safety are promptly identified, fully evaluated, and that actions are taken to address safety issues in a timely manner, commensurate with their significance. Specifically (as applicable):

- 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.

- The licensee takes appropriate corrective 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.

Operating Experience - The licensee uses operating experience (OE) information, including vendor recommendations and internally generated lessons learned, to support plant safety. Specifically (as applicable):

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

- The licensee implements and institutionalizes OE through changes to station processes,

procedures, equipment, and training programs.

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. Specifically (as applicable):

•   The licensee conducts self-assessments at an appropriate frequency; such assessments are of sufficient depth, are comprehensive, are appropriately objective, and are self-critical. 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

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. Specifically (as applicable):

•   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 reasonably 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 and personnel raise nuclear safety issues without fear of retaliation.

•   If alternative processes (i.e., a process 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 in the sense that the program does not report to line management (i.e., those who would in the normal course of activities be responsible for addressing the issue raised).

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 and other potentially adverse personnel actions (e.g., reductions, outsourcing, and reorganizations) are considered and compensatory actions are taken when appropriate.

OTHER SAFETY CULTURE COMPONENTS

The following are other safety culture components which are not associated with the cross-cutting areas. These components when combined with the cross-cutting area components, comprise the safety culture components. Components in this section are considered only during the conduct of the supplemental inspection program, while the cross-cutting area components are considered during the conduct of both the baseline and supplemental inspection programs.

Accountability - Management defines the line of authority and responsibility for nuclear safety. Specifically (as applicable):

- Accountability is maintained for important safety decisions in that the system of rewards and sanctions is aligned with nuclear safety policies and 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.

Continuous learning environment - The licensee ensures that a learning environment exists. Specifically (as applicable):

- 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.

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.

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 obtain feedback on 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. 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.