

Handout for July 23, 2009 Public Meeting

Safety Culture Topic

Draft revision of Safety Culture Components and Aspects from the ROP (modified for construction)

1. Decision-Making – Licensee decisions demonstrate that construction quality is an overriding priority. Specifically (as applicable):

- (a) The licensee makes decisions related to construction quality that reflect the potential to impact ITAAC (closure or affect on already closed ITAAC) using a systematic process to ensure construction quality is maintained.

For example if a safety-related part could not be purchased as EQ, was the commercially obtained part properly dedicated and was the evaluation process adequate?

Unexpected construction conditions or test results are properly reviewed for potential impact on ITAAC.

Authority and roles for evaluating these decisions are formally defined and communicated to applicable personnel including contractors and subcontractors.

Interdisciplinary input and review are attained on decisions that relate to more than one discipline.

Design decisions are not made at the site, but are communicated back to the design authority (e.g. Engineering Procurement Contractor or Design Center).

- (b) The licensee uses conservative assumptions in decision-making and adopts a requirement to demonstrate that the proposed construction activity does not adversely impact construction quality or ITAAC closure. The licensee conducts effectiveness reviews of these decisions to verify the validity of the underlying assumptions, identify possible unintended consequences, and determine how to improve future decisions.

For example, when making decisions related to testing, individuals ensure that they are on the correct unit and question the validity of their underlying assumptions, identify possible unintended consequences, and obtain appropriate management involvement and/or interdisciplinary input and reviews.

- (c) The licensee communicates decisions and the basis for decisions, in a timely manner, to personnel who have a need to know the information in order to perform work properly.

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2. Resources - The licensee ensures that personnel, equipment, procedures, and other resources are available and adequate to assure construction quality. Specifically, those necessary for:

- (a) Training of personnel and sufficient qualified personnel to maintain work hours within working hour guidelines. Licensee ensures an adequate number of supervisors to ensure proper field oversight.

The licensee ensures that contractor and licensee staffs have applicable nuclear construction experience. Managers ensure that personnel have sufficient understanding of all nuclear-related codes/ standards/ requirements applicable to their job functions and are qualified to perform the assigned tasks.

Training is developed and implemented to ensure technical competency and reinforces that quality and safety is of the highest priority.

Management encourages individuals to develop and maintain current their professional and technical knowledge, skills, and abilities and ensures knowledge transfer.

- (b) Complete, accurate and up-to-date design documentation (field drawings), procedures, and work packages, and correct labeling of components.
- (c) Adequate and available facilities and equipment, including temporary construction structures. Simulator fidelity supports effective training and is consistent with final plant fabrication.

3. Work Control - The licensee plans and coordinates work activities, consistent with ensuring construction quality. Specifically (as applicable):

- (a) The licensee appropriately plans construction activities by addressing:
- the potential to impact quality (CAQ/SCAQ)
 - job site conditions, including environmental conditions which may impact human performance; previously/concurrently built structures, systems, and components; human-system interface; or radiological safety; and
 - abort criteria to prevent inadvertent equipment damage, either to equipment being operated or connected systems
- (b) The licensee appropriately coordinates work activities by incorporating actions to address:
- The impact of changes to the work scope or other planned construction activities and human performance,

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- 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 or multiple vendor coordination is necessary to assure human performance,
- The need to keep personnel apprised of construction work status that may affect work activities,
- Communication and coordination is maintained among on-site vendors, contractors, licensee personnel, and site support staff to minimize schedule pressure. The NRC resident inspectors are informed of schedule changes relevant to the oversight process

4. Work Practices - Personnel work practices support human performance. Specifically (as applicable):

- (a) 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 potential to impact construction quality for the assigned task, such that work activities are performed safely with appropriate attention to detail.

Individuals encourage and reinforce quality related principles, attitudes, and behaviors in their interactions with co-workers by, for example, questioning perceived unsafe or non-conservative decisions and behaviors, and holding one another accountable for the quality of their work products and safe performance of work activities.

Personnel are fit for duty. In addition, personnel do not proceed in the face of uncertainty or unexpected circumstances.

- (b) The licensee defines and effectively communicates expectations regarding procedural compliance and personnel follow procedures and work instructions.
- (c) The licensee ensures supervisory and management oversight of work activities, including contractors, such that construction quality is supported.

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- 5. Corrective Action Program – The licensee ensures that issues potentially impacting construction quality are promptly identified, fully evaluated, and that actions are taken to address construction quality concerns in a timely manner, commensurate with their significance. Specifically (as applicable):**
- (a) 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 impact on quality assurance.
 - (b) The licensee periodically trends and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems (especially among various work groups, contractors, and vendors). The licensee communicates the results of the trending to applicable personnel (internally and externally).
 - (c) The licensee thoroughly evaluates problems such that the resolutions address causes and extent of conditions, as necessary including properly classifying conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. Classifying of events should include review for impact to ITAAC conclusions or reliability assumptions used in the plant-specific Design Reliability Assurance Program (DRAP).
 - (d) The licensee takes appropriate corrective actions to address construction quality issues and adverse trends in a timely manner, commensurate with their significance (CAQ/SCAQ), complexity, and ability to impact ongoing construction activities.
 - (e) 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.
- 6. Construction Experience - The licensee uses construction experience (Con E) information, including vendor recommendations and internally generated lessons learned, to ensure construction quality. Specifically (as applicable):**
- (a) The licensee systematically collects, evaluates, and communicates to affected internal stakeholders in a timely manner relevant internal and external Con E.
 - (b) The licensee implements and institutionalizes Con E through changes to construction processes, procedures, materials, and training programs.

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- 7. 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):**
- (a) 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.
 - (b) The licensee tracks and trends safety and construction quality indicators, which provide an accurate representation of performance.
 - (c) The licensee coordinates and communicates results from assessments to affected personnel, and takes corrective actions to address issues commensurate with their significance.
- 8. 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):**
- (a) Behaviors and interactions of licensee personnel, contractors, subcontractors, and vendors encourage free flow of information related to raising construction quality concerns, 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 quality and personnel raise construction quality issues without fear of retaliation.
 - (b) If an 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 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).

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9. Preventing, Detecting, and Mitigating Perceptions of Retaliation – A policy for prohibiting harassment and retaliation for raising construction quality concerns exists and is consistently enforced in that:

- (a) All personnel are effectively trained that harassment and retaliation for raising concerns is a violation of law and policy and will not be tolerated.
- (b) 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.
- (c) 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.

10. Accountability - Management defines the line of authority and responsibility for construction quality. Specifically (as applicable):

- (a) Accountability is maintained for significant quality assurance decisions in that the system of rewards and sanctions is aligned with construction quality and reinforces behaviors and outcomes, which reflect construction quality as an overriding priority.
- (b) Management reinforces quality assurance standards and displays behaviors that reflect construction quality as an overriding priority.
- (c) The workforce demonstrates a proper construction quality focus and reinforces quality assurance principles among their peers.

11. Continuous Learning Environment – The licensee ensures that a learning environment exists. Specifically (as applicable):

- (a) The licensee provides adequate training and knowledge transfer to all personnel on site to ensure technical competency.
- (b) 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 site construction issues.

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- 12. Organizational Change Management – Management uses a systematic process for planning, coordinating, and evaluating major changes in the construction environment. The change management process considers the transitory nature of personnel involved with the construction project and the need to provide strong oversight and leadership. This may be demonstrated by effectively implemented procedures and processes.**
- 13. Construction Quality Policies – Construction quality policies and related training establish and reinforce that construction quality is an overriding priority in that:**
- (a) Management and supervisors adopt and reinforce, in their interactions with subordinates the approach that a proposed action must be demonstrated to be safe (and maintains construction quality) in order to proceed rather than an approach that a proposed action must be demonstrated unsafe in order to disapprove an action. The systems of rewards and sanctions are aligned with construction quality policies that reinforce behaviors and outcomes, which reflect construction quality as an overriding priority.
 - (b) Senior managers and corporate personnel periodically communicate and reinforce construction quality such that personnel understand that construction quality is of the highest priority.