INSPECTION PROCEDURE 95003

SUPPLEMENTAL INSPECTION FOR REPETITIVE DEGRADED CORNERSTONES, MULTIPLE DEGRADED CORNERSTONES, MULTIPLE YELLOW INPUTS, OR ONE RED INPUT

PROGRAM APPLICABILITY: 2515

CORNERSTONES: ALL

INSPECTION BASIS: The NRC's revised inspection program includes three parts: baseline inspections; generic safety issues and special inspections; and supplemental inspections performed as a result of risk significant performance issues. The inspection program is designed to apply NRC inspection assets in an increasing manner when risk significant performance issues are identified, either by inspection findings evaluated using the significance determination process (SDP) or when performance indicator thresholds are exceeded. Accordingly, following the identification of an inspection finding categorized as risk significant (i.e., white, yellow, or red) via Table 2 of the SDP, or when a performance indicator exceeds the "licensee response band" threshold, the NRC regional office will perform supplemental inspection(s). The scope and breadth of these inspections will be based upon the guidance provided in the NRC's "Assessment Action Matrix" and the Supplemental Inspection Selection Table (included in 2515 Appendix B).

This procedure provides the supplemental response for repetitive degraded cornerstones, multiple degraded cornerstones, multiple yellow inputs, or one red input to the Assessment Action Matrix. The intent of this procedure is to provide the NRC with supplemental information regarding licensee performance, as necessary to determine the breadth and depth of safety, organizational, and programmatic issues. As such, this procedure is more diagnostic than indicative, and includes reviews of programs and processes not inspected as part of the baseline inspection program. While the procedure does allow for focus to be applied to areas where performance issues have been previously identified, the procedure does require that some sample reviews be performed for all key

attributes of the effected strategic performance areas. The rational behind this is that additional NRC assurance is required to ensure public health and safety, beyond that provided by the baseline inspection program and the performance indicators at those facilities where significant performance issues have been identified. The results of this inspection will aid the NRC in deciding whether additional regulatory actions are necessary to assure public health and safety. These additional regulatory actions could include orders, confirmatory action letters, or additional supplemental inspections, as necessary to confirm that corrective actions to the identified performance concerns have been effective.

This procedure was developed with consideration of the following boundary conditions:

1. The NRC is performing the inspection;

2. The procedure is not intended to be used for event response;

3. New issues identified by the team will be evaluated using the significance determination process during the course of the inspection; other process issues will be documented in the inspection report; and,

4. The procedure is intended to provide insight into the root and contributing causes of performance deficiencies, but is not intended to be a substitute for a more focused root cause analysis (or self assessment) of specific performance issues to be performed by the licensee or by a third party; and

5. The licensee has completed a root-cause, extent-of-cause, and extent-of-condition investigation(s) of the performance deficiencies which prompted this inspection and an independent third-party assessment of their safety culture before the NRC begins this inspection. A third party assessment is conducted by individuals who are not employees of the plant or the utility operators of the plant.

95003-01 INSPECTION OBJECTIVES

01.01 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.

01.02 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.

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

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

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

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

01.07 *To independently assess the licensee's safety culture and evaluate the licensee's assessment of its safety culture.* [C1]

95003-02 INSPECTION REQUIREMENTS

The intent of this procedure is to allow the NRC to obtain a comprehensive understanding of the depth and breadth of safety, organizational, and performance issues at facilities where data indicates the potential for serious performance degradation. The procedure is not intended to duplicate the scope of previously performed baseline and supplemental inspections; however, some repetition may be necessary where previous inspections were not sufficient to fully scope the breadth and depth of licensee performance issues. Considerable leeway has been built into the procedure to allow it to be customized, to better reflect the specific nature of the previously identified performance issues.

This procedure was written with the assumption that supplemental inspections (either 95001 or 95002) have been conducted to evaluate the licensee's root cause, extent-of-cause, and extent-of-condition evaluations and associated corrective actions for "white" or greater performance indicators or inspection findings. If such supplemental inspections have not been conducted, the scope of this inspection should include inspection of the licensee's evaluation of those issues.

02.01 Strategic Performance Area(s) Identification

a. Using the information contained in the Assessment Action Matrix, identify the strategic performance areas for which performance has significantly declined (e.g. Reactor Safety, Radiation Safety, or Safeguards). The scope of this inspection will generally include all key attributes of the degraded strategic performance areas. Specific inspection requirements pertaining to each strategic performance area are contained in Sections 02.03 - 02.06 of the procedure.

b. Inspection Requirements 02.02, and 02.07 - 02.12 should always be performed regardless of the strategic performance areas selected for review. Attachment 95003.01, "Additional Emergency Preparedness Cornerstone Inspection," to this procedure should be performed when Emergency Preparedness (EP) Cornerstone performance issues are a contributing factor to the reason this procedure is being implemented, e.g., the EP Cornerstone is degraded and Reactor Safety is the relevant strategic performance area. When Attachment 95003.01 is implemented it supplants the EP related inspection requirements contained in the body of this procedure.

02.02 Review of Licensee Control Systems for Identifying, Assessing, and Correcting Performance Deficiencies. Once significant performance concerns have been identified in the Action Matrix, the NRC must ensure that licensee systems for identifying, assessing, and correcting performance deficiencies are sufficient to prevent further performance degradations. The following inspection requirements evaluate whether licensee programs are sufficient to prevent further declines in safety that could result in unsafe operation.

a. Determine whether licensee evaluations of, and corrective actions to, significant performance deficiencies have been sufficient to correct the deficiencies and prevent recurrence.

b. Evaluate the effectiveness of audits and assessments performed by the quality assurance group, line organizations, and external organizations. Focus on how the performance data is integrated with other data to arrest declining performance. This review should include the organization's response to EP related corrective actions identified as a result of actual events, exercises and drills.

c. Determine whether the process for allocating resources provides for appropriate consideration of safety and compliance, and whether appropriate consideration is given to the management of maintenance backlogs and correction of work-arounds.

d. Evaluate whether licensee performance goals are congruent with those corrective actions needed to address the documented performance issues.

e. By reviewing selected aspects of the employee concerns program and the results of surveys or other workplace environment evaluations, ensure that employees are not hesitant to raise safety concerns and that safety significant concerns entered into the employee concern program receive an appropriate level of attention.

f. Determine whether there is a mechanism for all members of the workforce to suggest improvements and explain their disagreements with technical resolutions of identified deficiencies. Determine whether there is a feedback mechanism in which the evaluation of deficiencies and follow-up corrective actions are reported back to the identifying workers.

g. Evaluate the effectiveness of the organization's use of industry information for previously documented performance issues.

02.03 Assessment of Performance in the Reactor Safety Strategic Performance Area (Initiating Events, Mitigation Systems, Barrier Integrity, and Emergency Preparedness Cornerstones).

a. Inspection Preparation

1. Develop an information base to allow the review of the effectiveness of corrective actions.

(a) Compile performance information from the licensee's corrective action program, audits, self-assessments, licensee event reports (LERs), and the inspection report record (both the inspection reports and the PIM) for the time period determined by the team manager.

(b) Review the compiled information and sort the issues by the key attributes listed below. Licensee corrective actions for the issues should be assessed as part of the following key attribute reviews.

2. Select a system(s) for focus using the plant specific individual plant evaluation (IPE) and issues identified as part of the performance information developed above.

3. Review inspection reports and critique findings from EP related event response and drills. Review a summary of recent EP corrective actions. Review recent changes to the Emergency Plan (Plan) changes. Review

licensee analyses of corrective actions related to specific findings and general audits where available. Develop an inspection plan to address concerns identified as well as the inspection requirements.

4. Perform the following inspection requirements for each key attribute focusing on the selected system. While the inspectors should focus on the selected system, other systems and components may be reviewed as necessary to assess licensee performance for the following key attributes.

b. Key Attribute - Design. Inadequacies in the design, the as-built configuration, or the post- installation testing of plant modifications can cause initiating events, affect the capability and reliability of mitigating systems, and the margin of safety in barrier design. As plants age, their design basis may be misunderstood or forgotten such that an important design feature may be inadvertently removed or disabled as changes are made to the plant.

Independently assess the extent of risk significant design issues by performing the following inspection requirements. The review shall cover the as-built design features of the selected system to verify its capability to perform its intended functions with a sufficient margin of safety. Focus will be on system modifications rather than original system design. Information from this inspection will be used to assess the licensee's ability to maintain and operate the facility in accordance with the design basis.

1. Assess the effectiveness of corrective actions for deficiencies involving design.

2. Select several modification to the system for review and determine if the system is capable of functioning as specified by the current design and licensing documents, regulatory requirements, and commitments for the facility.

3. Determine if the system is operated consistent with the design and licensing documents.

4. Evaluate the interfaces between engineering, plant operations, maintenance, and plant support groups.

c. Key Attribute - Human Performance. By nature of the design of nuclear power plants and the role of plant personnel in maintenance, testing and operation; human performance plays an important part in normal, off-normal and emergency operations. Human performance impacts each of the cornerstones and therefore should be considered across this entire inspection.

The team members reviewing this key attribute should coordinate their activities to ensure that the following inspection requirements are addressed:

1. Assess the effectiveness of corrective actions for identifying, evaluating, and correcting deficiencies involving human performance.

2. Review specific problem areas and issues identified by inspections to determine if concerns exist in the human performance cross-cutting area components as detailed in section 06.07 of Inspection Manual Chapter (IMC) 0305 "Operating Reactor Assessment Program."

3. Conduct EP Emergency Response Organization Performance-Drills, in accordance with Inspection Procedure 82001, with a sampling of shift crews and management teams to assess their ability to implement the Emergency Plan.

d. Key Attribute - Procedure Quality. Inadequate procedures can cause initiating events by inducing plant personnel to take inappropriate actions during plant operations, maintenance, calibration, testing, or event response. Adequate procedures also assure proper functioning of mitigating systems during operation, maintenance, and testing. Emergency and abnormal operating procedures are also essential for mitigating system performance and assuring appropriate actions will be taken to preserve reactor coolant system (RCS) and containment integrity. To the extent that there are procedure deficiencies associated with the above noted activities, they should be identified as causes of problems in other key attributes.

Determine the technical adequacy of procedures by verifying that they are consistent with desired actions and modes of operation by completing the following inspection requirements.

1. Assess the effectiveness of corrective actions for deficiencies involving procedure quality.

2. Evaluate the quality of procedures and as applicable, determine the adequacy of the procedure development and revision processes.

3. Review a sample of Emergency Plan Implementing Procedure (EPIPs) changes against the requirements of the Plan and corrective action assessments. Determine if the EPIP change process is adequate in correcting EPIP related deficiencies and maintaining Plan commitments in EPIP instructions.

e. Key Attribute - Equipment Performance. Equipment failure or degradation can cause initiating events during power operation and losses of decay heat removal during shutdowns. To limit challenges to safety functions due to equipment problems, licensees should have programs to achieve a high degree of availability and reliability of equipment that can cause initiating events. The availability and reliability of equipment is also critical to mitigating the impact of initiating events on plant safety. Strong preventive and corrective maintenance programs are an integral part of assuring equipment availability and reliability.

Determine that the licensee is adequately maintaining and testing the functional capability of risk significant systems and components by completing the following inspection requirements.

1. Assess the effectiveness of corrective actions for deficiencies involving equipment performance, including equipment designated for increased monitoring via implementation of the Maintenance Rule.

2. Determine if the licensee has effectively implemented programs for control and evaluation of surveillance testing, calibration, and post-maintenance testing.

3. Assess the operational performance of the selected safety system to verify its capability of performing the intended safety functions.

4. Review a sample of EP related equipment and facilities (including communications gear) against Plan commitments. Review the adequacy of the surveillance program to maintain equipment and facilities. Review the correction of deficiencies identified by the surveillance program.

5. Assess decision-making regarding longstanding equipment issues (i.e whether conservative decisions were made and decisions supported long term equipment reliability)

6. For any unresolved long-term equipment issues, determine whether inadequate resources were a cause or contributed to any inappropriate delay in resolving those issues.

f. Key Attribute - Configuration Control. Loss of configuration control of risk-significant systems or equipment can lead to the initiation of a reactor transient and/or can compromise mitigation capability. Maintaining proper water chemistry in the RCS is essential to long term reliability of both the nuclear fuel and the RCS pressure boundary. Proper configuration control is necessary to maintain assurance that the RCS pressure boundary is maintained intact and monitored for degradation. Containment integrity depends on maintaining the configuration of penetrations and safety-related systems that need to respond following an accident. Also, maintaining the containment within its design limits ensure that it will be able to accommodate a design basis or severe accident.

Assess the licensee's ability to maintain risk-significant systems and the principle fission product barriers in configurations which support their safety functions by completing the following inspection requirements.

1. Assess the effectiveness of corrective actions for deficiencies involving configuration control.

2. Perform a walkdown of the selected system. In addition, if the selected system does not directly have a containment over-pressure safety function (such as containment spray), conduct an additional review of such a system.

   (a) Independently verify that the selected safety system is in proper configuration through a system walkdown.

   (b) Review temporary modifications to ensure proper installation in accordance with the design information.

3. Determine that the work control process uses risk appropriately during planning and scheduling of maintenance and surveillance testing activities and the control of emergent work.

4. Determine whether the primary and secondary chemistry control programs adequately control the quality of plant process water to ensure long-term integrity of the reactor coolant pressure boundary.

5. Assess the programs and controls (tracking systems) in place for maintaining knowledge of the configuration of the fission product barriers including: containment leakage monitoring and tracking, containment isolation device operability (valves, blank flanges), and reactor coolant leak-rate calculation and monitoring.

6. Review the results of the plant specific IPE relative to the system(s) selected. Determine if the IPE is being maintained to reflect actual system conditions regarding system capability and reliability.

g. Key Attribute - Emergency Response Organization Readiness. Implementation of the Emergency Response Plan is dependent on the readiness of the emergency response organization to respond to an emergency. In this usage, "readiness" means the ability of the licensee to activate timely Emergency Response Organization (ERO) augmentation of on shift personnel as necessary to implement the emergency plan. Self-assessments of readiness during drills and activation tests are used to identify areas for improvement. Self-assessment and corrective action resolution is critical to ERO readiness.

1. Assess the effectiveness of corrective actions for deficiencies involving ERO readiness.

2. Verify that adequate staffing is available on shift for emergencies.

3. Verify the capability to activate and staff the emergency response facilities and augment the response organization within the requirements of the licensee emergency response plan

4. Verify licensee ability to meet Emergency Plan goals for activation by implementing Inspection Procedure 71114.03, "Emergency Response Organization Augmentation." If this inspection procedure has been implemented recently, the inspector may exercise judgement as to the need to implement the inspection procedure as part of the 95003 inspection effort. If Attachment 95003.01 is being implemented, there are additional requirements under this key attribute to consider.

02.04 Assessment of Performance in the Radiation Safety Strategic Performance Area - Occupational Radiation Safety

a. Inspection Preparation

1. Develop an information base to allow review of the effectiveness of corrective actions.

2. Compile performance information from the licensee's corrective action program, audits, self-assessments, LERs, and the inspection report record (both the inspection reports and the PIM) for the designated time period.

3. Review the compiled information and sort the issues by the key attributes listed below.

4. Perform the following inspection requirements for each key attribute. Note that specific areas such as external and internal dosimetry are not specifically delineated and treated as key attributes, but should they need to be closely examined, the inspector should use the procedures listed in 2515 Appendix B for evaluating extent of condition.

b. Key Attribute - Program/Processes for Occupational Radiation Safety. The effective implementation of the required radiation protection (RP) program and implementing procedures contribute to proper control and minimization of occupational exposures. Programmatic deficiencies, inadequate procedures, and/or improper implementation have all resulted in significant, uncontrolled occupational exposures in excess of regulatory limits (both from internal and

external radiation sources). Worker radiation exposure controls are governed by both administrative and physical controls which serve as protective barriers that prevent excessive, unintended exposures in high and very high radiation areas, and significantly contaminated and airborne areas.

The team members reviewing this aspect of the key attribute should coordinate their activities to ensure that the following inspection requirements are addressed:

1. Assess the RP organization to ensure it is clearly defined (assignment of duties, authorities, and responsibilities); scope of program and the staffing are adequate.

2. Select several implementing procedures (from three or more programmatic areas - job controls/coverage, surveys, RWP issuance, etc.) and evaluate their technical adequacy. Focus on problem areas identified in previous inspections. Review the procedure development process and determine its adequacy.

3. Observe planned work activities in high radiation, high airborne, and/or highly contaminated areas and determine effectiveness of work planning, coordination, implementation and lessons learned.

The facilities ALARA program focuses on ensuring that plant operations and maintenance activities are performed using planning, methods and procedures based to achieve occupational doses that are ALARA. The team members reviewing this aspect of the key attribute should coordinate their activities to ensure that the following inspection requirements are addressed:

1. Determine adequacy/implementation of the radiological source term controls and quality of related chemistry controls.

2. Determine adequacy/implementation of work planning and controls, focusing on outage maintenance periods.

3. Determine effectiveness and degree of management support and integration of ALARA into facility craft work units.

c. Key Attribute - Plant Facilities/Equipment & Instrumentation for Occupational Radiation Safety. To properly conduct adequate radiation monitoring and surveillance activities and to protect workers, the facility is required to maintain fixed and portable radiation survey equipment (for airborne and external hazards), respiratory protection, communication, temporary ventilation and shielding, and anti-contamination clothing. Routine calibration and maintenance of this equipment ensures its continued operability. If problems are identified during the inspection preparation or during the conduct of this team inspection, the team should pursue the inspection requirements below. The team members reviewing this aspect of the key attribute should coordinate their activities to ensure that the following inspection requirements are addressed:

1. Select several implementing procedures (from three or more programmatic areas - survey instrument calibration, self-contained breathing apparatus maintenance, etc.) and evaluate their technical adequacy. Focus on problem areas identified in previous inspections. Review the procedure development process and determine its adequacy.

2. Observe several planned equipment maintenance or calibration activities. If possible, focus on equipment used in high risk areas (high radiation or

airborne areas, potential oxygen-deficient, immediately dangerous to life or health (IDLH) areas, etc.).

3. Determine level of management support in maintaining adequate equipment and support facilities.

4. Review any recommendations for plant improvements to support radiation safety and determine whether the decision based on these recommendations sufficiently supported radiation protection.

d. Key Attribute - Human Performance for Occupational Radiation Safety. Worker performance has an obvious, important impact on work activities in radiological areas. Two of the major components are health physics technician (HPT) and general radiation worker (crafts) groups. Human performance is impacted by several vital factors -- qualification and training. The selection, qualification and training requirements for facility personnel are generally governed by a commitment in the plant technical specifications (to a ANS standard). For HPTs and others, 10 CFR 50.120 (training rule) requires HPTs (including contractors) to be task qualified for their assigned normal and outage duties.

The team members reviewing this key attribute should coordinate their activities to ensure that the following inspection requirements are addressed:

1. Assess the effectiveness of identifying, evaluating, and correcting deficiencies involving human performance.

2. Review specific problem areas and issues identified by inspections to determine if concerns exist in the human performance cross-cutting area components as detailed in section 06.07 of Inspection Manual Chapter (IMC) 0305 “Operating Reactor Assessment Program.”

02.05 Assessment of Performance in the Radiation Safety Strategic Performance Area - Public Radiation Safety (Radiological Effluent Monitoring, Radioactive Material Control, and Transportation of Radioactive Material)

a. Key Attribute - Plant Facilities / Equipment and Instrumentation for Public Radiation Safety. The improper installation, modification, maintenance, or calibration of radioactive effluent monitoring equipment, and associated radiochemistry laboratory equipment and meteorological system equipment can adversely affect licensee performance in achieving and demonstrating compliance with regulatory limits and ALARA design objectives for radioactive effluents. For transportation activities, shipping packages not prepared in accordance with their applicable design requirements increase the potential for unexpected exposure or loss of radioactive material which could result in uncontrolled and unnecessary exposure to members of the public. To prevent the inadvertent release of licensed radioactive material from the licensee’s control requires the use of sensitive radiation survey equipment that is properly setup and calibrated.

The team members reviewing this area should ensure the following requirements are addressed:

1. Review the results of audits and appraisals performed for the designated time period. Review deficiency reports (also referred to as incident reports or condition reports) issued for the area being inspected.

2. Perform a walkdown of the selected facility or equipment to assess its physical condition. Review any significant changes made by the licensee to the facilities or equipment that were not included in the prior inspection period.

3. Determine the level of management support for the maintenance of facilities and equipment of the program.

b. Key Attribute - Program/Process for Public Radiation Safety. Procedures must be technically adequate and implemented appropriately to ensure the proper processing, control, and discharge of radioactive effluents into the environment. For transportation activities, procedural guidance is necessary for the proper evaluation of radioactive waste to determine the quantities and types of radioactive material present for the selection and preparation of shipping packages. Detailed procedures are required to conduct radiation surveys of the packaged radioactive waste to ensure that radiation levels are within regulatory limits. The performance of radiation surveys on equipment and material to be released from the licensee's facility requires appropriate policy and technical procedural guidance for handling and processing a wide variety of potentially contaminated materials.

The team members should review the licensee's program documents and implementing procedures to ensure the following requirements are addressed:

1. Review the results of audits and appraisals performed for the designated time period. Review deficiency reports (also referred to as incident reports or condition reports) issued for the area being inspected.

2. Select several implementing procedures from the area being inspected and review for general quality (i.e., clearly written, contain specific actions, and contain data record sheets) and technical adequacy.

3. Review the licensee's program documents and implementing procedures for any recent significant changes in the area being inspected.

4. Review the records which resulted from the implementation of the selected procedures. Review them to determine if the procedure was correctly used.

c. Key Attribute - Human Performance for Public Radiation Safety. Human performance can directly affect radioactive waste processing, radioactive effluent processing, and transportation programs. It is important to ensure that plant workers are adequately trained and qualified to perform their job function. Periodic retraining is also needed to ensure that workers maintain their qualifications and are updated with new information and requirements.

The team members reviewing this key attribute should coordinate their activities to ensure that the following inspection requirements are addressed:

1. Assess the effectiveness of identifying, evaluating, and correcting deficiencies involving human performance.

2. Review specific problem areas and issues identified by inspections to determine if concerns exist in the human performance cross-cutting area components as detailed in section 06.07 of Inspection Manual Chapter (IMC) 0305 "Operating Reactor Assessment Program."

3. Observe the performance of activities described in the selected procedures. If the activities are not scheduled to be performed during the inspection time

period, request that the activity be simulated so that worker performance and the adequacy of the procedure can generally be assessed.

4. Interview several personnel (i.e., technicians, engineers, health physicists, and supervisors) associated with the program to assess their level of knowledge about the program and procedures.

02.06 Assessment of Performance in the Safeguards Strategic Performance Area

a. Key Attribute - Access Authorization (AA). The personnel screening process is the process used to verify trustworthiness of personnel prior to granting unescorted access to the protected area. The failure in the Access Authorization Program can compromise the licensee's ability to adequately protect against the insider threat of radiological sabotage that may result in core damage.

Assess the licensee's ability to implement the behavior observation portion of the personnel screening and fitness for duty program.

1. Verify that the licensee is identifying problems related to the access authorization program at an appropriate threshold and entering those problems into the corrective action program.

2. Verify that the licensee has appropriately resolved the concerns and regulatory requirements for a selected sample of problems associated with AA.

b. Key Attribute - Access Control (Searches of personnel, packages, and vehicles). The Access Control program's function is to prevent the introduction of contraband (i.e. firearms, explosives, incendiary devices) into the plant that could aid in the attempt to commit radiological sabotage. The failure of the Access Control program could compromise security measures in place that are required to protect vital and risk significant plant equipment and functions.

1. Assess whether the licensee has effective access controls, and equipment in place designed and functioning as intended to detect and prevent the introduction of contraband into the protected area that could be used to commit sabotage.

2. Verify that the identification and authorization process is properly used to ensure that only those personnel who have been properly screened are granted unescorted access to the protected and vital area.

c. Key Attribute - Response to Contingency Events (protection strategy, program design, and support elements). The purpose of the licensee's contingency response program is to provide reasonable assurance that the licensee can protect identified target sets against the design basis threat and thus prevent core damage. The licensee should have developed a response strategy and the associated security response infrastructure necessary to maintain, update, and implement that strategy. The strategy's objective shall be to respond with sufficient force, properly armed, appropriately trained and within the appropriate time to protected positions to interdict and defeat the design basis threat in order to protect target sets, and thus prevent core damage.

Verify that the licensee has established and maintains a contingency response program and the necessary infrastructure to support the performance of an adequate protective strategy.

d. Key Attribute - Response to Contingency Events (performance-based force-on-force exercises and target set evaluation). The licensee should be able to respond to contingency events with sufficient force, properly armed, appropriately trained and within the appropriate time to protected defensive positions to interdict and defeat the design basis threat in order to protect against radiological sabotage and prevent core damage.

1. Verify through review of documents and discussions with the licensee that appropriate target sets are identified and have an associated protective strategy to those target sets.

2. Verify through the conduct of table-top drills and NRC evaluated exercises that for any selected target set, the licensee's protective strategy is adequate and it can protect against the design basis threat.

e. Key Attribute - Security Plan Changes. The licensee's Security Plan is the licensee's plan for the physical protection at their site. An inadequate security plan can compromise the licensee's ability to protect against the design basis threat and be ineffective against acts of radiological sabotage. Changes to basic security measures could allow a direct reduction in the effectiveness of the physical protection measures that are vital to maintaining adequate physical protection.

1. Verify that changes made to the licensee's Security Plan do not reduce its effectiveness to prevent or mitigate an attack by the design basis threat or increase the likelihood of acts of radiological sabotage.

2. Verify that changes to the licensee's security procedures have not decreased the effectiveness of the previous plan, as required by 10 CFR Part 50.54(p).

02.07 *Evaluate the Licensee's Independent Safety Culture Assessment* [C1]

a. Inspection Preparation

From the licensee, obtain:

- tools and instruments used to conduct the licensee's independent safety culture assessment(s),
- documents produced by the assessment team that conducted the licensee's most recent safety culture assessment,
- documents that characterize the licensee's response to the most recent safety culture assessment;
- names, qualifications, and contact information for the personnel who conducted the assessment; and
- any safety culture assessments conducted at the site within the past five years to look for trends, licensee actions to address issues raised by the assessments, and the effectiveness of the actions taken to resolve the issue.

(If the tools or instruments are proprietary, handle them in accordance with standard NRC procedures for handling proprietary information.)

As described in General Guidance section "Develop the Inspection Plan and Complete Inspection Preparations," coordinate with the licensee to schedule interviews with the personnel who performed the assessment, and licensee staff and managers responsible for implementing actions taken in response to the assessment.

b. Evaluation

1. Review the documents relating to the licensee's independent (i.e., third-party assessment) safety culture assessment conducted in response to being placed in the multiple/ repetitive degraded cornerstone column of the ROP Action Matrix to obtain a general understanding of how the assessment was conducted, what the assessment results were, and how the licensee responded.

   The licensee's terminology may differ from NRC terminology for the same application, e.g., the licensee may call safety culture components by other terms such as safety culture attributes or principles but what it addresses should be similar.

2. Verify that:

   (a) The assessment addressed all functional groups within the licensee's organization, including the functional groups that have a clear nexus to safe plant operations (e.g., operations, engineering, maintenance);

   (b) The assessment included all levels of management with line responsibility for plant operations, up to and including corporate senior management;

   (c) Sample sizes were sufficient to ensure that assessment results were representative of the populations and sub-populations addressed in the survey; and

   (d) Information was collected relating to all of the safety culture components.

   Specifically note any safety culture component(s) which no information was collected within the scope of the licensee's assessment. If any of these components were not addressed, review any justifications for not including specific component(s) of safety culture.

3. Review the methods used by the assessment team to collect and analyze data for adequacy and appropriateness.

4. Determine whether the licensee's third-party assessment team members were independent and qualified.

5. Review the results of the licensee's assessment to determine whether:

   (a) The results drawn from the assessment were consistent with the data collected.

   (b) The overall conclusions drawn from the assessment were consistent with the stated results.

(c) If any substantial differences exist between results from the assessment and the results of similar assessments performed within the previous five years, the reason(s) for those differences are known and explained.

6. If the licensee's assessment identified weaknesses in any safety culture component(s), then determine whether:

(a) The licensee evaluated those weaknesses within their corrective action program.

(b) The licensee's evaluations of those weaknesses were appropriate and the resulting corrective actions appear adequate for resolving those weaknesses.

(c) The licensee has made reasonable progress in implementing those actions.

02.08 Prepare for the NRC's Independent Safety Culture Assessment

a. From the list of inspection requirements in attachment Enclosure 95003-A, select the requirements that relate to the performance deficiencies that prompted this inspection, and, to the extent possible, adapt the selected requirements to focus on those performance deficiencies. Ensure that the selected requirements include at least one requirement associated with each safety culture component.

b. Identify the team members who will conduct the assessment, and ensure that at least two different team members independently collect information from each functional/organizational group.

c. Obtain access to documents and ensure that the documents are not duplicates of that which has already been requested by team leader:

1. From the licensee and as described in the General Guidance, request the following documents:

(a) The root cause investigations of the performance deficiencies that prompted this inspection;

(b) Reports of any self or independent assessments related to the components of safety culture from the past five years;

(c) Any corporate and site policy statements related to safety culture;

(d) A sample of redacted job performance reviews from each functional group in the organization (e.g., operations, maintenance, security, engineering) and any (redacted) agreements or documents related to the bases for management compensation and incentives;

(e) Meeting minutes from the past year for site senior management team meetings, nuclear oversight review group meetings, and corrective action review group meetings; meetings to develop and amend site financial plans and budgets, including operating, maintenance, and capital improvement plans; meetings that focus on decision-making with nuclear

safety implications; and other meetings held to plan and discuss mitigating any potential or actual chilling effects from disciplinary actions;

(f) Documents describing any reward or incentive programs focused on promoting nuclear safety behaviors and documentation pertaining to the implementation of the program(s) (redacted, if necessary);

(g) Lesson plans used to train site personnel on safety culture and/or safety conscious work environment, and records that show when the training was presented and attendance;

(h) Summaries of documents from the corrective action program that relate to the components of safety culture and were identified or resolved within the previous year;

(i) Complete and current organizational charts, including the names and site contact information for the individuals listed;

(j) Written communications (e.g. memoranda, e-mails) between management and staff related to any significant organizational changes within the past year; and

(k) Documents that correspond to the selected inspection requirements in Enclosure 95003-A

2. From NRC sources, obtain:

(a) Allegations related to the site's safety culture received within the previous year; at a minimum; and

(b) Inspection reports that document the performance deficiencies which prompted this inspection.

d. Review the results of the licensee's third party safety culture assessment to determine if particular functional/organizational groups were identified by the assessors as having problems in any of the safety culture components or if the results indicated that there were weaknesses in any of the safety culture components across the site.

e. From the review of the documentation, determine if any functional groups, management levels, or safety culture components should receive more emphasis in the assessment based on the licensee's assessment having identified safety culture or performance issues related to them.

f. Determine the assessment methods that are best suited to the perceived situation at the site, ensuring that each safety culture component will be assessed with at least two different methods, and develop sampling plans for each method. Assessment methods shall include individual and/or focus group interviews (see attachments Enclosure 95003-B and Enclosure 95003-C); structured behavioral observations (see Enclosure 95003-D); and event follow-up studies (see Enclosure 95003-E).

g. Prepare the selected data-collection tools, which may include interview and focus group guides, and behavioral observation checklists;

h. Work with the licensee to identify the appropriate means to disseminate a communication plan to site personnel that addresses the purpose of the assessment; states that the team will meet with groups, observe meetings and work activities, and talk with individuals; states that anyone who wants to talk with the NRC should contact the team (provide appropriate instructions); and describes that, to the extent possible, information obtained during the assessment will not be attributed to individual participants who are interviewed or observed by NRC inspectors.

02.09 *Conduct the NRC's Independent Assessment of Safety Culture* [C1]

a. Complete this assessment by applying the methods and sampling plans identified in 02.08, using the data-collection tools developed in 02.08.

b. As the assessment progresses, adjust the assessment plan as required to (1) ensure that the information collected will be adequate to reach valid and reliable insights about the safety culture components at each management level and in each functional group that falls within the scope of the assessment, (2) Resolve inconsistencies identified in NRC assessment results, or (3) address emergent issues identified during other inspection or assessment activities.

c. Ensure that each safety culture component is assessed using at least two data-collection methods, by at least two safety culture assessors independently, and that the data-collection methods are applied consistently.

d. From the review conducted in 02.07, determine if the licensee's safety culture third party assessment was of sufficient scope, used appropriate methods, had suitable sample sizes, and their analyses were adequate to assess all of the safety culture components at the site.

e. Determine whether the results of the licensee's third party assessment of safety culture are consistent with results of the NRC's independent safety culture assessment.

f. As results from the various data-collection tools are being compiled, and particularly after all results have been obtained, aggregate those results to determine whether any consistency regarding a particular safety culture component exists among results obtained from various data-collection tools and inspectors. From this determination, develop insights about the various components of safety culture and how they are reflected in the attitudes and behaviors within the various licensee functional groups. (For additional guidance on how attitudes and behavior are indicative of the safety culture components, see section 03.09)

02.10 Performance Deficiency Cause Analysis

Group the safety performance deficiencies identified during the inspection by apparent root and contributing causes.

02.11 NRC Assessment

Compare the team's findings with previous performance indicator and inspection program data to determine whether sufficient warning was provided to identify a significant reduction in safety. Evaluate whether the NRC assessment process appropriately characterized licensee performance based on previous information. The findings from this inspection requirement will not be contained in the inspection report associated with this inspection, but should be documented in a

separate report, co-addressed to the appropriate Regional Administrator and the Director of NRR.

02.12 Document Inspection Results

Assess licensee performance in the affected Strategic Performance Area by considering the performance deficiencies, results of the inspections described above (including related observations and findings), and the need for any follow-up inspections. Document the inspection results in a single inspection report.

95003-03 INSPECTION GUIDANCE

General Guidance

This procedure provides a framework for conducting a comprehensive assessment of licensee performance in affected strategic performance areas. As such, the procedure is broad in scope, but is designed to allow focus in certain areas where performance concerns have already been identified. While some inspection should be performed for each key attribute, certain inspection guidance is only applicable if problems are identified in that area.

In order to consolidate inspection activities, the team leader may decide to include a continuous main control room observation as part of the inspection. The results from the main control room continuous observation should satisfy several inspection requirements for the key attributes of configuration control, equipment performance, human performance, and procedure quality.

The team leader should ensure that all team members receive "just in time" training on IP 95003 processes and methods. To arrange training, team leaders should contact the Branch Chief of the Performance Assessment Branch of the Division of Inspection and Regional Support of the Office of Nuclear Reactor Regulation to verify completion.

Team Staffing

The inspection team shall be staffed with a team leader, primarily inspectors from other regional offices and/or headquarters and qualified safety culture assessors, typically from headquarters. This provides sufficient diversity of talent and opinion, and also adds a degree of independence to the overall effort. The team leader selected to perform this inspection should have extensive experience in conducting NRC team inspections. Also, the inspection team should be staffed with an assistant team leader (ATL).

Duties and responsibilities for team members are as follows:

The team leader should ensure that an appropriate balance is maintained between determining the depth of previously identified issues and determining the breadth of performance issues within the strategic performance area. Additionally, the team leader should plan and manage the inspection and provide oversight for the safety culture assessment activities; including, coordinating all interfaces between the inspection team and licensee personnel, NRC management, and public officials.

The ATL duties and responsibilities should (1) mirror those of the team leader and (2) include the majority of the administrative tasks, and planning and managing safety culture assessment activities [in coordination with the lead safety culture assessor]. The 95003 inspection is a demanding effort, and the team leader should have flexibility to respond to emergent demands for briefing NRC management and public officials as well as maintaining overall cognizance of the inspection effort. An ATL would also aid in the freeing up valuable time for the team leader to effectively accomplish these duties.

It is also desirable to staff the inspection with at least one inspector who has detailed knowledge of the site/plant layout. Consideration should be given to using the assigned resident staff or another inspector who has recently served as a resident at the site. Three safety culture assessors with experience and/or specialized training in safety culture assessment will solely focus on the safety culture activities shall be assigned to the inspection team.

At least one senior reactor analyst (SRA) should be assigned full time to the team. The SRA assigned to this team and other risk experts as appropriate should conduct a detailed assessment of the individual and collective risk associated with team's findings.

The use of contractor support should be considered for conducting aspects of the system design reviews, for help in reviewing the licensee's business and strategic plans, and for assistance in completing the safety culture assessment. The statement of work associated with contractor efforts should specifically include provisions for weekend travel for contractors as well as funding for review and concurrence on the final report.

A "team manager" should also be designated for the 95003 effort. Ideally, the team manager should be based in the sponsoring region and should be an SES-level manager. The role of the team manager is to coordinate important senior management briefings and interface with other Commission offices and external stakeholders as necessary during the conduct of the inspection. Additionally, the team manager is responsible for coordinating the acquisition of additional resources as necessary to support the overall effort.

Qualification Requirements for Safety Culture Assessors

The team leader should verify that the safety culture assessors collectively have appropriate credentials that ensure knowledge, skills, and abilities in the following areas:

- Knowledge of appropriate methods for gathering safety culture data and their strengths and weaknesses, including: (1) individual and group interviews, (2) structured and unstructured interviews, (3) questionnaires and surveys, (4) behavioral observations and checklists, and (5) case studies;

- Ability to determine the applicability and likely usefulness of various data-gathering methods under different circumstances;

- Ability to implement the different methods correctly, including, but not limited to (1) conducting focus groups and interviews in a manner that elicits the desired information while reducing potential biases in the responses, (2) conducting reliable (i.e., repeatable) structured behavioral observations, and (3) conducting content analyses of written documentation and verbal communications;

- Knowledge of the requirements for developing, administering, and analyzing the results of surveys and questionnaires, including: (1) strengths and weaknesses of different item types (Likert, BARS, forced-choice, etc.); (2) requirements for administering a survey to reduce potential biases in the responses; (3) behavioral statistics and the appropriate methods, and their constraints, for analyzing survey data; and (4) Statistical requirements for the different types of validity and reliability, and appropriate techniques to assess/measure/establish them;

- Knowledge of the rationale for a multiple-measures approach and ability to assess the limitations of a single-method safety culture assessment;

- Knowledge of statistical and conceptual constraints on determining appropriate sample sizes for each method;

- Knowledge of the alternatives for selecting samples for the assessment and the biases introduced by different sample selection strategies;

- Knowledge of theories and research in organizational and human behavior;

- Ability to integrate results from applying the different methods to arrive at defensible conclusions;

- Knowledge of the NRC's Reactor Oversight Process and applicable inspection requirements and techniques; and

- Knowledge of theory and research in safety culture.

Inspection Planning and Logistics

The decision to perform this inspection is based on the action matrix. Based on the documented performance issues and the guidance contained in this procedure, the team leader should develop an outline for a customized inspection plan which should describe the overall scope of the inspection, team member assignments, scheduling information, etc.. The team leader should then notify the licensee of the inspection dates and scope, and provide the licensee a list of requested documents that the team will need for its initial in-office review. Once the licensee has been notified, the licensee should formally acknowledge the readiness for the inspection and that the root cause analysis is completed.

Prior to the start of the inspection, the team leader should also establish with the licensee an agreed upon method for tracking NRC information requests and potential issues (findings) that arise during the inspection. The NRC team should not provide written documentation to the licensee during the inspection, but rather, should ensure that both the team and the licensee have a common understanding of the developing issues, throughout the inspection. The joint use of a licensee developed and controlled issue tracking list is highly encouraged.

The team should prepare for the inspection at a location determined by the team leader. During this time, the team members should provide input into the inspection plan for their assigned areas and should provide input to a list of any other documentation that will be required for review on-site. All samples selected by team members for inspection focus shall be coordinated with and approved by the team leader as part of the inspection plan. This preparation phase of the inspection should normally last one to two weeks.

The on-site portion of the inspection should generally consist of two weeks on site, one or two weeks offsite, and a final week on-site. A final debrief should be provided to the licensee on the last day of the on-site inspection. A public exit meeting should be held approximately three weeks after completion of inspection. All team members should attend the final de-brief.

When planning for the inspection, to the extent possible, the safety culture assessment should be completed concurrent with the other parts of the inspection, for the following reasons:

(a) As inspectors complete the subject inspections, they will be expected to compile observations that will be used in the safety culture assessment.

(b) As safety culture assessment team members identify issues related to the subject inspections, the assessors should inform the inspectors, so the inspectors may follow-up on those issues during their inspections.

(c) As inspectors identify issues and make observations that have safety culture implications, the inspectors should inform the assessors, so the assessors may redirect or redeploy assessment resources to address those issues and/or incorporate those observations.

The team leader should therefore ensure that effective communication channels will exist between inspectors and safety culture assessors responsible for completing the activities described above.

On a parallel path, identify documents to complete the assessment of the affected Strategic Performance Areas. If the Emergency Preparedness cornerstone was degraded, then also include the documents required to complete attachment 95003.01

Specific Guidance

03.01 Strategic Performance Area(s) Identification. No additional guidance provided.

03.02 Review of Licensee Control Systems for Identifying, Assessing, and Correcting Performance Deficiencies.

a. The inspector should evaluate whether licensee evaluations into significant deficiencies are of a depth commensurate with the significance of the issue. Evaluations should ensure that the root and contributing causes of risk significant deficiencies are identified. Corrective actions should be taken to correct the immediate problems and to prevent recurrence. Include in the sample to be reviewed the licensee's evaluations associated with "white" or greater performance indicators and inspection findings that were not been previously inspected. Use the guidance contained in supplemental inspection procedure 95001 to help in evaluating the adequacy of the licensee's evaluations.

   To the extent possible, include in the sample licensee evaluations and assessments associated with programmatic performance issues and organization deficiencies, as well as those related to specific hardware issues. Consider the results of NRC's evaluation of licensee root causes performed during Inspection Procedure 71152 "Identification and Resolution of Problems".

b. Line organization, quality assurance, and external audits and assessments should be reviewed to determine whether the licensee has demonstrated the capability to identify performance issues before they result in actual events of undesired consequence. The findings of these audits and assessments should be integrated with more quantitative performance metrics and compared to those findings identified during this and other NRC inspections. Management systems should be in place to process and act upon this performance data as appropriate. The inspector should evaluate management's support to the audit and assessment process, as evidenced by staffing of the quality organization, responsiveness to audit and assessment findings, and contributions of the quality organization to improvements in licensee activities.

   With regard to EP related activities, Inspection Procedure 71114.05 "Correction of Emergency Preparedness Weaknesses and Deficiencies," contains guidance that may be useful in inspecting EP aspects of the PI&R program.

c. Processes for authorizing modifications and allocating resources for completing work should give adequate consideration to safety (risk) and the need for abiding by regulatory requirements. The authorization and allocation processes should provide for a manageable maintenance backlog and prevent the need for multiple

work-arounds that could increase the likelihood of an initiating event or complicate accident mitigation.

d. The inspector should ensure that licensee performance goals are not in conflict with the actions needed to correct performance issues and are in alignment throughout the organization. To complete this requirement, a review should be performed of corporate, site, and organizational strategic plans, as well as other associated licensee documents.

e. Using the guidance contained in Inspection Procedure 40001, perform a limited review of the licensee's program for the resolution of employee concerns. In selecting samples for review, focus on those concerns and programs specifically applicable to the strategic performance areas which are the subject of this inspection. The intent of this review is to determine: (1) whether weaknesses in the employee concerns program have contributed to previously identified performance deficiencies; (2) whether additional safety issues exist that have not been adequately captured by the corrective action program; and, (3) whether weaknesses in the employee concerns program have resulted in issues associated with the maintenance of a safety conscious work environment.

f. No specific guidance provided.

g. The team's review of licensee industry information programs should be limited to those problems that might have contributed to the previously identified performance concerns. Determine whether the licensee has adequately implemented actions as necessary to address the issue. For example, weaknesses in licensee programs to review and assess vendor information may have contributed to equipment problems.

03.03 Assessment of Performance in the Reactor Safety Strategic Performance Area

a. Inspection Preparation

1. No specific guidance provided.

2. System Selection. During the planning process, the team leader should select a system(s) based on the plant IPE, past safety system functional inspections that may have already been performed on a system by the licensee or by other NRC teams, and through review of issues contained in the Assessment Action Matrix.

   The team should select a number of electrical, mechanical, and instrumentation and control components for detailed review. The majority of these components should be from the principal system with the remainder from support systems which are necessary for successful operation of the principal system or from interfacing safety systems served by the principal system.

3. No specific guidance provided.

4. There are significant preparation activities associated with the review of the corrective actions program and the conduct of Performance-Drills. Guidance on those activities is given under the appropriate sections.

b. Key Attribute- Design

The design review portion of the inspection should be performed by inspectors (or contractors) with extensive nuclear plant design experience. It is also important that the inspectors performing the design review have a good understanding of integrated plant operations, maintenance, testing, and quality assurance so that they are able to relate their findings to the other areas being inspected.

The inspectors should focus their review on the system selected in paragraph 02.03.a.2. Specific supplemental inspection procedures are available for certain systems (e.g. service water, electrical, I/C) and should be considered as additional guidance for evaluating their functional adequacy. Prior to evaluating the selected system, the inspectors should review the design basis documents such as calculations and analyses. The review should provide the inspectors an understanding of the functional requirements for each system and each active component throughout the range of required operating conditions, including accident and abnormal conditions. The intent is to focus on the risk significant aspects of design that could contribute to an increased frequency of initiating events, degradation of mitigation systems, or degradation of barrier integrity. The inspection is not intended to be a re-validation of the original system design.

In selecting a sample of modifications to the system to be reviewed, the inspectors should concentrate on those modifications with the potential to significantly alter the system design and functional capability. The sample should include modifications involving vendor supplied products or services where practicable, since the licensee's ability to oversee vendor supplied services is an important aspect of design control. Inspectors should consider expanding the sample of modifications, if significant problems are found. This expansion should consider other similar modifications and should not be limited to the initially selected system.

The following inspection guidance covers a comprehensive number of design areas. The inspectors should focus their review as necessary to best reflect previous performance deficiencies.

1. No specific guidance provided.

2. For the selected modifications:

   (a) Verify that the design and licensing input and output information has been properly controlled.

   (b) Check the adequacy of design calculations for the selected modifications and consider the following when evaluating the calculation design parameters of the following components:

      (1) For valves: What permissive interlocks are involved? What differential pressures will exist when the valve strokes? Will the valve be repositioned during the course of the event? What is the source of control and indication power? What control logic is involved? What manual actions are required to back up and restore a degraded function? Are the valves subject to pressure locking? Do the valves fail to their safety position? Are the valves addressed in emergency or abnormal operating procedures?

      (2) For pumps: What are the flow paths the pump will experience during accident scenarios? Do the flow paths change? What permissive interlock and control logic applies? How is the pump controlled during accident conditions? What manual actions are required to back up and restore a degraded function? What suction and discharge pressures

can the pump be expected to experience during accident conditions? What is the motive power for the pump during all conditions? Do vendor data and specifications support sustained operations at low and high flows?

(3) For instrumentation and automatic controls: What plant parameters are used as inputs to the initiation and control system? Is operator intervention required in certain scenarios? Are the range and accuracy of instrumentation adequate? What is the extent of surveillance and calibrations of such instrumentation? What are the power sources during blackout conditions?

(c) Compare the as-built design with the current design basis and the licensing requirements for the selected system and consider the following questions:

(1) Verify that the modification does not invalidate assumptions made as part of the original design and the accident analyses, including interfaces with supporting systems. For example, are service water flow capacities sufficient with the minimum number of pumps available under accident conditions? Are the voltage studies accurate and will the required motor operated valves (MOVs) and relays operate under end-of-life battery conditions and degraded grid voltages? Are fuses and thermal overloads properly sized? Are current dc loads within the capacity of the station batteries? Is the instrumentation adequate in range and accessibility for operations to control the system under normal and abnormal conditions? Are maintenance frequencies sufficient to maintain the equipment within the range of acceptable operating parameters such as motor operated valve friction factors? Are test results for the system consistent with the design assumptions?

(2) Does the modification invalidate design input parameters provided to accident analyses vendors?

(3) Have modified structures surrounding safety equipment, components, or structures been evaluated for seismic 2-over-1 considerations? Have modified equipment or components under the scope of 10 CFR 50.49 been thoroughly evaluated for environmental equipment qualification considerations such as temperature, radiation, and humidity?

(d) Verify whether the selected modifications have introduced an unreviewed safety question.

(e) For the selected system, review recent changes to maintenance procedures and operating procedures to confirm that the changes have not introduced new design parameters or changed current design parameters. Confirm that any such design changes have been subjected to the formal design change process (e.g. 50.59 review).

Examples of potential inadvertent design changes follow:

(1) changing maintenance/surveillance procedures to tighten the packing on the main steam non-return check valves such that they are no longer free-swinging gravity-closing valves;

(2) changing emergency operating procedures to require that operators immediately throttle auxiliary feedwater following a reactor trip to prevent pump runout/failure that could otherwise occur during a main steam line break.

(f) Ensure that verification and validation of computer programs used for design and for monitoring of important safety features has been adequately accomplished.

3. Consistency between system design and operation.

(a) Verify that training programs are consistent with the current design.

(b) Verify that operator actions can be performed in the required time-frame to mitigate design basis events. Verify that any changes to operator actions resulting from system modification(s) have been subjected to a safety evaluation and are consistent with the UFSAR including the accident analyses.

(1) Was reliance on the operator actions approved by the NRC?
(2) Is there reasonable assurance that, under all anticipated circumstances (e.g. lighting, ambient temperature, radiation levels) operators can perform the actions within the times assumed in the accident analyses?

4. Evaluation of communications affecting design control.

(a) Assess the ability to communicate accurate information on the status of system modifications. Plant policies on updating design related material such as the UFSAR may not support timely documentation of changes to the system. Verify that provisions are in place and being followed to assure the accurate recording of the as-designed and as-built conditions during the interim period between modification implementation and incorporation into the plant design basis documents.

(b) Verify that operations involves engineering in determining the operability of degraded safety systems and components (SSC's).

(c) Verify that operations, engineering, maintenance, and affected plant support groups are involved in the evaluation and concurrence process for approving:

(1) performance of non-routine maintenance activities

(2) temporary modifications

(3) field change requests

(d) Review the licensee's control of vendor supplied services and products including the evaluation for technical adequacy and quality assurance. The licensee's evaluation and control of vendor supplied services and products should be multi-disciplinary in its approach, including operations, engineering, maintenance, and the affected plant support groups.

(e) Verify that self-revealing deficiencies and those identified by the licensee's vendor control process are properly communicated to the vendor.

c. Key Attribute - Human Performance.

1. Using data from the licensee's corrective action program, LERs, and audits, determine if human performance issues have contributed to performance issues. Evaluate the overall effectiveness of human performance corrective action commitments. Determine if the problems were reviewed by the appropriate level of management and prioritized according to their safety significance. Evaluate whether the corrective actions were technically correct and implemented in a timely manner.

2. Review the following human performance components, as related to the previously identified human performance issues.

(a) Work Control

(1) For operations, assess whether:

(aa) The turnover environment is adequate for clear communication;

(bb) On-coming operators are walking down panels with current operators or independently;

(cc) The turnover process is proceduralized and procedures are being followed;

(dd) Necessary plant status information is identified, and equipment/ operational problems are discussed in enough detail for the oncoming shift to understand. After turnovers, verify that the operators have sufficient knowledge of the plant conditions and activities in progress.

(ee) Review the licensee's administrative procedure for the shift supervisor's conduct and duties. Verify that shift command and control is maintained.

Inspectors should try to observe at least two different shifts, including a back-shift.

(2) For on-line maintenance work windows, complex surveillance and tests, verify that the activities are coordinated with the control room, the shift supervision is maintaining effective control of plant operations, and the control room is implementing the compensatory measures required by the risk/safety evaluation. Observe pre-evolution briefings and communication between operations and other disciplines to verify that effect on safety and risk is being considered.

(3) Review a number of scheduled and non-scheduled maintenance activities. Question the control room operators to determine their awareness of ongoing activities that could affect plant operations, and the priorities in resolving plant issues and equipment problems. The intent here is for the inspector to verify that control room personnel are appropriately aware of ongoing activities, such as maintenance, surveillance and testing, plant equipment taken out of service, and their impact on plant operation; and are implementing the necessary actions.

(4) Perform a tour of the plant and note indications of operator work-arounds or conditions that might require work-arounds including:

(aa) Unapproved job aids or marking;

(bb) Equipment that is not performing as designed;

(cc) The potential for adverse environmental condition(s), e.g., insulation removed from high energy lines, doors left open that are required for area isolation during a high energy line break in an adjacent area, and open doors that may render blowout panels and back-draft dampers inoperable.

(5) The inspector should review a sample of written logs and shift status reports or updates to verify that they:

(aa) Provide sufficient detail to allow a full understanding of operationally significant matters, including abnormal occurrences or test results and any compensatory measures taken;

(bb) Describe changes in plant or equipment status.

(6) Human-System Interfaces including work area design and environmental conditions.

(aa) Using the guidance contained in Inspection Procedure 71841, "Human Performance," perform a review of identified problem areas.

(bb) As necessary, if specific problem areas are identified the inspector should:

(i) walk down several control panels to evaluate the size, shape, location, function or content of displays, controls, and alarms;

(ii) evaluate work areas for accessibility of equipment, equipment layout, emergency equipment location, including location of remote panels;

(iii) evaluate the impact of environmental conditions on human performance.

(7) An evaluation should be performed to assess whether communications between departments and licensee management provide information needed for continued safe plant operation. Included should be:

(aa) An evaluation of the responsiveness and timeliness to requests for assistance and problem resolution;

(bb) An evaluation as to whether other departments are aware of the extent and significance of deficiencies that cross-cut organizational boundaries.

(b) Decision-making - For identified areas of human performance problems, assess whether the following decision-making practices support human performance while observing control room and local operations and other work activities:

(1) The roles and authorities of personnel are clearly defined and understood.

(2) Operational decisions and their bases are communicated.

(3) Interdisciplinary input and reviews of safety-significant or risk-significant decisions are sought.

(4) Decision-making is systematic when personnel are faced with uncertain or unexpected plant conditions.

(5) Conservative assumptions are used and possible unintended consequences are considered.

(c) Work Practices - Assess whether personnel work practices support human performance.

(1) Observe operators perform evolutions, tests, and response to annunciators, if possible. Evaluate whether the evolution was performed in accordance with approved directives and night orders, if applicable. Directives and night orders are often issued by plant management, and disciplines such as chemistry, reactor engineering, and systems engineering.

(2) Observe routine activities of licensed and non-licensed personnel.

(aa) Verify that procedural requirements are being met and that procedures are implemented using the correct level of use (i.e. continuous, reference, etc.).

(bb) Determine whether deficiencies are resolved using the corrective action program rather than implementing their own work-arounds.

(cc) If possible, during evolutions, tests, and response to annunciators, determine whether operator actions or compensatory measures were required due to degraded equipment of plant conditions, resulting in an operator work-around.

(dd) Determine that human error prevention techniques, such as holding pre-job briefings, self and peer checking, and proper documentation of activities, are used commensurate with the risk of the assigned task, such that work activities are performed safely.

(ee) Determine that supervisory and management oversight of work activities, including contractors, is effective.

(ff) Determine that personnel do not proceed in the face of uncertainty or unexpected circumstances.

(gg) Determine whether these individuals are knowledgeable about the current status of SSCs and equipment performance and understand the impact of ongoing work activities.

(3) Assess the quality of communications by observing whether:

(aa) Communications are consistent with licensee procedures during the conduct of operations, maintenance and testing activities;

(bb) Instructions or information disseminated using the plant's phone and paging systems are clearly and concisely communicated;

(cc) Personnel inform the appropriate level of management of any abnormal conditions or significant changes in plant equipment and systems.

(4) TS and/or procedure prerequisites are satisfied before procedures are executed.

(5) Assess whether the operators exhibit attentiveness and are pro-active in assessing plant conditions that may indicate a safety concern;

(d) Resources - Assess that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety.

(1) For identified areas of human performance problems, verify that training and personnel qualifications are adequate and appropriate for the level of work being performed.

(aa) If possible, observe classroom training and work in progress using the checklists of NUREG-1220, Training Review Criteria and Procedures, Rev.1.

(bb) Using the guidance in Inspection Procedure 41500, perform a limited review of training problem areas. If necessary, interview trainees, supervisors, and instructors using the IP 41500 guidance.

(2) In instances where previous performance issues were related to the use of excess overtime perform the following reviews.

(aa) Review the licensee's process for controlling overtime.

(bb) Interview personnel identified as having worked overtime to determine how management ensures that personnel are not assigned to safety related duties while in a fatigued condition.

(cc) Interview personnel involved in working hours in excess of those listed in the plant's technical specifications (with or without approval) to evaluate indications of recurrent/routine use of overtime.

(dd) Interview personnel involved in working hours in excess of those listed in the plant's technical specifications to determine whether they are willing to report whether they or others are fatigued.

(3) If applicable, review the control room disabled annunciator logs. For selected safety-significant annunciators, question the operators as to why annunciators are in alarm conditions, what operator response was required by the procedure(s) and if taken, if continuously lit annunciator windows prevent annunciation of new alarm conditions, and why and how annunciators are removed from service. For control room and local annunciators that cause operator distractions, determine if a

controlled process for their removal is in place that includes an assessment of operational impact, compensatory actions, authorization, and corrective actions for restoration. Also, review the alarm summary printout to determine if any significant alarms occurred that were not documented in the control room logs, and whether the operators were aware of and had taken appropriate action. Review of the alarm summary printout may lead to important operator performance indication during and after a transient.

(4) Review a sampling of work packages to verify that the documentation is complete, understandable, and accurate.

(5) If applicable, review inadequate equipment labeling.

(6) If applicable, review inadequate maintenance, surveillance, or operating procedures.

3. The guidance for observed Performance-Drills found in inspection Procedure 82001 Attachments 01 & 02 may be used to construct drill scenarios and evaluate performance.

(a) Evaluate Performance-Drills with a sample of off-duty shift crews, including the Shift Supervisor and appropriate support personnel. During the drill evaluate capability to (1) classify hypothetical conditions notify local authorities (3) perform dose calculations (4) recommend appropriate protective actions. This scope allows the assessment of licensee performance in all the RSPS. The inspection report should document licensee capability accordingly. The distinction between low significance mis-steps and the capability to implement the Plan to protect public health and safety should be clearly delineated.

(b) A small sample of significant changes to the licensee's emergency operating, abnormal operating, emergency response procedures and equipment can be examined and discussed with personnel to determine whether they are aware of the changes, understand them and have received training appropriate for their use.

(c) It should be noted that there is no intent to inspect the licensee's ability to critique the performance-drills. The inspection is performed to verify the licensee's ability to implement the Emergency Plan, not verify the ability to critique drills as is done under the baseline inspection procedure. As such, poor performance should be documented as observations under "scope" in the EP section of the inspection report. Corrective action program identification numbers may be included in the report to facilitate verification of correction during future inspections.

d. Key Attribute - Procedure Quality.

1. Evaluate to what extent procedure quality has contributed to previously identified performance issues. In performing this evaluation, select a sample of procedures which reflect instances where problems with procedures have been documented in LERs, NRC inspection reports, or licensee assessments or audits. Focus on the technical adequacy of the procedures using the following guidance as applicable. Evaluate the licensee's actions to address the procedure inadequacies.

2. Development and review of procedures.

(a) When reviewing procedures, the inspector should assess the technical adequacy of the procedures and determine if the procedural steps will achieve required system performance for normal, abnormal, remote shutdown, and emergency conditions. The inspectors should determine if the system is operated in accordance with the system design.

(b) Determine whether the procedures will accomplish the activity within the design characteristics and regulatory requirements. During this evaluation, the review may include technical specifications, limiting condition for operation, UFSAR descriptions, vendor manuals, design information, piping and instrumentation drawings (P&IDs), and instrumentation and electrical wiring and control diagrams.

(c) Review maintenance procedures for technical adequacy. Determine if the procedures are sufficient to perform the maintenance task and provide for identification and evaluation of equipment and work deficiencies. Verify the use of quality verification holdpoints for independent verification of important attributes. Check the procedure content against the vendor manuals to verify that the procedure satisfies the vendor requirements for maintaining the equipment in proper working order. Verify that important vendor manuals are complete and up-to-date. Documents, such as vendor manuals, equipment operating and maintenance instructions, or approved drawings with acceptance criteria, may by reference be part of a procedure. If these documents are so used, the documents (or applicable portions) require the same level of review and approval as the procedure that references it.

(d) If the technical adequacy of procedures is a concern review the following.

(1) Review a sufficient number of procedures to provide assurance that the procedures (including checklists, and related forms) in the plant working files are current.

(2) Verify that personnel have the ability to reference an up-to-date and accurate copy of documents. This is necessary because the controlled drawings may not be revised, unless changes due to modifications are extensive. As an interim measure, some utilities have marked-up a controlled set of the control room documents to show the design changes. In such situations, the inspector should also verify that revisions of the controlled documents incorporating the marked-up changes are performed in a timely manner following the modification.

(3) Procedure changes should be in accordance with licensee processes and regulatory requirements. Verify the adequacy of all procedure changes which resulted from recent (within the last year) license change(s) or revision(s) to a technical specification.

(4) Verify procedure changes are in conformance to 10 CFR Part 50.59. This item applies only to changes to procedures which are described or summarized in the UFSAR, normally a small portion of the procedures in use at the facility. General guidance and contrasting examples relating to the procedure changes which can be made by the licensee are described in NRC Inspection Manual Part 9900, "Guidance on 10 CFR 50.59 -- Changes to Facilities, Procedures, and Tests (or Experiments)."

(5) Through discussions with personnel and a review of approved procedures, determine if skilled craft, engineering, and technical support personnel contribute to the development, review, and approval of procedures. Are special or complex procedures “dry run” and discussed prior to use?

(6) Incorporating accepted human factors principles about format and writing style into procedures increases the likelihood that the procedures will be easier to use and follow. Standards for format and writing style can usually be found in the licensee's writer's guide. Usability should be determined by evaluating the degree to which procedures follow the guidance outlined in the writer's guide.

(7) When a writer's guide is not available or if the writer's guide is in question, procedure usability can be determined by evaluating the elements of writing style, format, and organization described in Inspection Procedure 42700, “Plant Procedures.”

(e) Verify temporary procedures were properly approved and did not conflict with technical specifications requirements. Review a sample of temporary procedures and temporary procedure changes issued during the past year to determine that the approval and subsequent review requirements of the technical specifications are being followed. Determine whether the licensee has procedural limitations on how long a temporary procedure or a temporary procedure change can be in effect, and compare this with observed practices. Verify that unapproved “procedures” are not instituted by night orders, work orders, etc.

(f) Review the method by which the licensee incorporates temporary changes to emergency or significant event procedures. The method used should not be so complicated as to preclude proper and timely operator action during abnormal plant conditions. The NRC position concerning control of procedural adherence is described in NRC Inspection Manual Part 9900, "Technical Guidance, Operations -- Procedural Adherence."

(g) NRC Inspection Procedure (IP) 42001, "Emergency Operating Procedures," and the NUREGs referenced in it provide additional guidance for reviewing, developing, implementing, changing and maintaining emergency operating procedures. The team leader should consider adding an emergency preparedness specialist inspector to the team if a detailed review of emergency plan implementing procedures is to be conducted.

(h) Inspection Procedure 82001.05 contains guidance for the inspection of emergency plan implementing procedures.

3. No specific guidance provided.

e. Key Attribute - Equipment Performance.

1. Corrective actions

(a) Based on implementation of the maintenance rule, 10 CFR 50.65 "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", the inspectors should evaluate the maintenance area by concentrating on performance examples that have shown to be a product of poor maintenance programs. Performance issues should be identified by the inspectors during the review of non-conformance reports, machinery

history results, plant tours, observation of maintenance work activities, LER reviews, and NRC and licensee's assessments. Risk significant SSCs identified with poor performance should receive the highest priority. After identifying the performance issue, the inspectors should attempt to determine its cause and use this performance example as a means to establish issues in any of the maintenance related programs. The inspectors should also see if the licensee appropriately implemented the maintenance rule in correcting the performance issue and whether the licensee is maintaining an appropriate balance between SSC availability and reliability.

(b) Examples of maintenance program issues include a relatively large maintenance work request backlog, related maintenance work not being accomplished in accordance with written administrative and procedural controls, and not identifying procedures for needed changes.

2. Programs and processes for testing

(a) Determine that effective methods have been implemented for review and evaluation of surveillance test/calibration data, including procedures for reporting deficiencies, failures, malfunctions, etc., identified during the tests/calibrations or inspections with required verification of operability.

(b) Review a sample of post-maintenance tests to ensure that the tests are adequate to ensure that the equipment has been returned to an operable configuration.

(c) Verify that the surveillance test procedure acceptance criteria are adequate to demonstrate continued operability.

(d) Verify that the licensee is effectively calibrating instruments that are important to safety. The Technical Specifications do not specify calibration requirements for some of these instruments, for example: boric acid tank temperature; discharge pressures for various engineered safety feature pumps; safety injection accumulator level and nitrogen cover gas pressure; cooling water flow to containment coolers; main steam isolation valve limit switches used to verify valve closure time and provide input to reactor protection system.

3. Operational performance of systems and components. Observe any maintenance or testing performed on the selected system while the inspection team is onsite.

(a) Walk through the system operating procedures and the system P&IDs. If any special equipment is required to perform these procedures, determine if the equipment is available and in good working order. Verify that the knowledge level of operators is adequate concerning equipment location and operation.

(b) Conduct interviews with licensee personnel to determine how the system is operated. Determine if system operation is consistent with the intended safety function.

(c) Determine if the environmental conditions assumed under accident conditions are adequate for remote operation of equipment, such as expected room temperature, emergency lighting, steam, radiation levels, etc.

(d) Review the maintenance program for the selected system to determine if the preventive maintenance (PM) requirements are adequate and comprehensive.

(e) Review applicable design documents, vendor manuals, generic communications (i.e., Bulletins, Information Notices, Generic Letters, and special studies) and verify that the licensee has integrated and implemented the applicable items into the maintenance program.

(f) Conduct interviews with personnel to determine what maintenance and modifications have been performed. Determine if the maintenance and modifications are consistent with the licensing basis.

(g) Determine if engineering input into maintenance activities is at an appropriate level to ensure safe and reliable plant operations.

(h) Verify that methods and responsibilities have been designated for performing functional testing of structures, systems, or components following maintenance work and/or prior to their being returned to service.

4. Inspection Procedure 82001 Attachment 4 contains guidance for the inspection of EP related equipment and facilities that may be useful.

5. Review records of decisions regarding actions to address long standing issues to determine whether the decisions appropriately and conservatively considered safety.

6. Review records of decisions regarding actions to address long standing issues to determine whether resource implications were appropriately considered and whether inadequate personnel, equipment, or procedures contributed to a delay in resolving the issue.

f. Key Attribute - Configuration Control.

1. Select a sample of the corrective action process/PIM issues related to configuration control and review the adequacy of the corrective actions implemented. Review all operability determinations that have been completed on the selected system.

2. System Walkdown

(a) For the selected system, obtain current drawings and review the associated operating procedures and UFSAR sections. Review the licensee's system lineup procedure, system design basis documents, and determine whether the documents are consistent with the as-built configuration.

Compare system line-up procedures with drawings to ensure that they are consistent (e.g., valve positions, installation of blank flanges and caps).

(b) Review jumper, lifted lead, and other temporary modification logs. Determine (1) if an adequate technical review was performed before the plant modification was performed to ensure the absence of unreviewed safety questions, and (2) if plant drawings were updated, as needed, to reflect the change. The licensee's controls for limiting the duration of temporary modifications should be reviewed. Assess the role of the plant,

system, and design engineering groups in the temporary modification process.

(c) Determine if accessible valves in the system flow path are in the correct positions by either visual observation of the valve; by flow indication; or by stem, local or remote position indication and that they are locked or sealed, if appropriate.

(d) Verify that valves do not exhibit excessive packing or boron leakage, missing hand-wheels or bent stems. Ensure that local and remote position indications are functional and indicate the same values. Remote manual operating devices should be functional.

(e) Verify that pump seals do not show signs of excessive leakage.

(f) Verify that cooling water is aligned to bearings and seals and that oil bubblers and bearings do not show signs of excessive leakage.

(g) Verify that power is available and correctly aligned, functional, and available for components that must activate on receipt of an initiation signal.

(h) Verify that major and support system components are correctly labeled, lubricated, cooled, and ventilated to ensure fulfillment of their functional requirements.

(i) Review system mechanical joints (packing, flanges, body to bonnet joint) leakage requirements and verify that known leakage is properly addressed and that observed leaks are accounted for.

(j) Determine if selected instrumentation, essential to system actuation, isolation, and performance, is correctly installed and functioning, correctly calibrated, and displaying indication consistent with expected values. Instrument elevations are consistent with design documents.

(k) Identify whether actual or potential adverse environmental condition(s) exist, and the adequacy of any compensatory measures.

(l) Identify whether components inspected for the system are consistent with the UFSAR description. Determine whether a 10 CFR 50.59 safety evaluation was performed for any items that differ from the UFSAR description.

(m) Identify additional equipment conditions and items that might degrade plant performance by verifying whether:

(1) Freeze protection, such as insulation, heaters, heat tracing, temperature monitoring, and other equipment, is installed and operational.

(2) Hangers and supports are in their proper positions, aligned correctly, and intact.

(3) No unauthorized ignition sources or flammable materials are present in the vicinity of the system being inspected.

(4) Cleanliness is being maintained.

(5) Temporary storage of material and equipment is in accordance with the licensee's seismic control procedures and does not interfere with equipment operations or operator actions.

3. Maintenance Work Control

(a) Determine the nature and extent of the licensee's backlog of corrective and preventive maintenance, especially concerning equipment of high safety significance. Assess the licensee's efforts to integrate preventive and corrective maintenance to minimize equipment unavailability.

(b) Assess the licensee's process for planning work, including the assessment of risk and the inclusion of new emergent work into the schedule. Review the licensee's policies with respect to schedule generation and the use of risk insight. Select several work packages on safety related equipment and determine how risk was factored into their scheduling. Assess whether the licensee evaluates possible interactions between components in service and those to be tested. Assess whether the need for planned contingencies, compensatory actions, and abort criteria were considered.

(1) What risk assessment tools are provided to the operators?

(2) What risk training has been given to the planning staff?

(3) Who has the absolute say in allowing work to progress?

(4) How is emergent work factored into previous risk evaluations?

(c) For the selected systems review the operating performance history and compare it with the assumed out-of-service times in the IPE. Ensure that the assumptions are conservative with respect to actual equipment performance.

(d) If warranted as a result of past performance deficiencies, select one or more safety system tag-outs for inspection. Determine if the tagout is adequate for the work to be accomplished. Verify in the plant that operators are thorough in tagging and isolation of plant equipment. Verify by observation that tags are properly hung and equipment has been placed in the designated position. Determine if equipment status changes and corresponding entry into or exit from technical specification action statements are appropriately documented.

(e) If warranted as a result of past performance deficiencies, determine if the licensee has adequate controls to ensure the independent verification of equipment status, particularly when equipment is returned to service.

(f) Verify that maintenance activities are coordinated with control room operations and that appropriate briefings and turnovers are held with control room operators.

(g) Equipment that is environmentally qualified should be identified as such prior to maintenance and sufficient controls should exist to ensure it is returned to that status upon reassembly.

(h) The inspectors should review the following: long-term (typically greater than six months) tagouts (caution and danger tags), disabled control room annunciators and instruments, control room deficiencies, operator work

arounds and other equipment deficiency tracking systems to assess the significance of these conditions.

(i) If warranted as a result of past performance deficiencies, review the licensee's process for using rapid response maintenance teams.

(j) Verify that work control procedures have been established to require special authorization for activities involving welding, open flame, or other ignition sources and take cognizance of nearby flammable material, cable trays, or critical process equipment. Ensure that work control procedures have been established to require a firewatch, with capability for communication with the control room, if an activity identified above is to be performed in the proximity of flammable material, cable trays, or vital process equipment. Procedures should address scaffold controls around safety, critical or operating equipment.

4. Chemistry Controls - limit reviews to primary and secondary chemistry which could degrade the RCS pressure boundary.

(a) Review records of completed chemical analyses to determine if required analyses have been performed.

(b) Review trends of recorded water quality data.

(c) Assess corrective actions taken when chemical variables have exceeded the established levels or limits, including consideration of the timeliness of these actions.

(d) Assess the effectiveness of measures taken to prevent the introduction of chemical contaminants into primary and secondary coolant water and to detect the presence of these contaminants.

(e) Review licensee evaluations of parameter trends associated with steam generator leakage.

5. Fission Product Barrier Assessment

(a) Observe a selected portion of the containment isolation lineup and independently verify whether valves, dampers and airlock doors are being properly controlled in accordance with the Technical Specifications.

Select several components and independently verify that they are in their required positions. Where possible, confirm valve position indication by direct observation of valve mechanism. For valves that isolate on a containment isolation signal verify proper breaker position and availability of power supply. Also, for motor and air-operated valves, verify they are not mechanically blocked and power is available, unless it is required to be otherwise. Inspect piping and the associated test, vent and drain valves, if any, for possible leakage paths.

(b) Assess the licensee's method of calculating the RCS leakrate.

(c) Containment temperature and pressure monitoring - review the licensee's procedures for ensuring that the containment atmosphere and/or water space meets the design basis assumptions for average temperature and pressure.

6. No specific guidance provided.

g. Key Attribute - Emergency Response Organization Readiness.

The guidance of Inspection Procedure 71114.03 is applicable and may be useful.

03.04 Assessment of Performance in the Radiation Safety Strategic Performance Area - Occupational Radiation Safety

a. Inspection Preparation.

1. No specific guidance provided.

2. Look particularly for those audits and self-assessments that probe for programmatic weaknesses and assess the quality of the program. Look for trends indicative of programmatic weaknesses. Requirements for reviews and audits normally are contained in the technical specifications. Audit teams should include someone with experience or training commensurate with the scope, complexity, or special nature of the activities audited.

3. No specific guidance provided.

4. No specific guidance provided.

b. Key Attribute - Program/Processes for Occupational Radiation Safety

1. Each position within the RP organization should have its own position description with authorities and responsibilities clearly defined. For example, each health physics technician (HPT) should know what authority should be exercised to ensure the RP program can be effectively implemented (e.g., enforce the stoppage of work, adherence to procedures). The HPT and the crafts workers should all understand these responsibilities and authorities. The inspector should be sensitive to the designated radiation protection manager's position in the facilities reporting chain and level in the organization and how this affects the RPM's direct recourse to onsite station manager on problems with the conduct of the radiation protection program. The impact of any organizational change in the RPM position relative to its level should be examined and discussed with appropriate level of management.

Plant staffing levels have been reduced during the 1990's, so determine if adequate HPT coverage is being provided during outages and normal backshift operations. Determine the extent of first-line supervision (foremen) presence in the field -- past lack of foremen having direct involvement at the onset of infrequent work activities in high radiation areas has contributed to serious mishaps and over exposures.

2. Evaluate to what extent procedure quality has contributed to previously identified performance issues. Select a sample of procedures where problems with procedures has been documented in LERs, NRC inspection reports, or licensee assessments or audits. Focus on the technical adequacy and completeness of the procedures using the following guidance as applicable.

(a) When reviewing the procedures, the inspector should determine if the procedural steps will achieve the required goal. The inspector should determine if the procedure is understood and used by the HPTs.

(b) Verify that the licensee has a workable system to ensure that the plant working files contain current procedures (including checklists and related forms).

(c) Procedure changes should be in accordance with licensee processes and regulatory requirements. Verify the adequacy of all changes (within the last year) in a selected area of concern (e.g., RWP issuance).

(d) Through discussions with personnel, determine if HPT and first line supervision contribute to the development, review and approval of procedures.

(e) Verify temporary procedures were properly approved and did not conflict with requirements, by review of a sample of recent temporary procedures and revisions to them.

(f) NRC Inspection Manual 9900 provides the NRC position on control of procedural adherence.

3. Effective radiation work practices include considerations of high and very high radiation areas and awareness of potential hazards (e.g., in diving operations, removing neutron-activated items from the reactor, and other non-routine and infrequent operations). See Regulatory Guide 8.38, " Control of Access to High and Very High Radiation Areas in Nuclear Power Plants" for further guidance on these problem areas. Based on current licensee work planning, select at least three jobs being performed in radiologically challenging areas. Whenever possible, select jobs in locked high radiation areas (with >1 rem planned job collective person-rem). Additionally, focus on work in Airborne radioactivity areas, with a special emphasis on areas were transuranic radionuclides may be present.

(a) Review all pertinent job requirements (RWP, work control procedures, etc.), attend job briefing, and observe infield work and judge compliance to above requirements.

(b) Determine if the job conditions were adequately communicated to the worker, by pre-work briefing and work site postings.

(c) Verify accuracy of required surveys, HPT job coverage is consistent with RWP requirements. Verify that worker dose monitoring is consistent with licensee and regulatory requirements. This should include the need for extremity and multi-badging for DDE. Improper uses of digital alarming dosimeters have resulted from (1) lack of training in their proper use, (2) use in high noise areas or under protective clothing, which made the alarm inaudible, and (3) poor (or no) procedures for their use.

(d) Attend any post-job debriefing to capture any lessons learned discussion. Determine how (if) licensee incorporates applicable lessons learned into procedures, RWP process, etc.

(e) Review the diving procedure and determine if it meets of intent of Regulatory Guide 8.38, Appendices A and B. See Information Notice 97-68, "Loss of Control of Diver in a Spent Fuel Pool" for further guidance.

(f) Transuranics can be a potential airborne problem at plants with previous fuel performance problems (fuel leakers). See Information Notice 97-36, "Unplanned Intakes By Worker of Transuranic Airborne Radioactive

Materials and External Exposure Due to Inadequate Control of Work". Note that while a plant (with a history of fuel leakers) may not have seen significant evidence of transuranics for years (on loose-contamination smears or routine air samples), alpha contamination may be incorporated into a corrosion layer on the interior surfaces of system components that carry primary system fluids. When these interior surfaces have be perturbed (by mechanical actions like scabbling), high levels of transuranic airborne activities have resulted in significant, unplanned worker intakes.

(g) Review each planned special exposure to determine whether it meets the requirements of 10 CFR 20.1206. See Regulatory Guide 8.35, "Planned Special Exposures."

(h) Review a selected sample of the records of exposures of declared pregnant women to determine whether, in each case, the dose to the embryo/fetus meets of the requirements of 10 CFR 20.1208. See Regulatory Guide 8.36, "Radiation Dose to the Embryo Fetus."

4. Review the extent to which the licensee has implemented or assessed methods offering significant potential for reducing occupational radiation exposure by reducing out-of-core radiation sources/fields. The following techniques are reported to be available for reducing exposure [See the Electric Power Research Institute (EPRI) report TR-107991, "Radiation Field Control Manual - 1997 Revision," October 1997.]

(a) PWRs: Methods available now that can provide an immediate impact are (a) chemical decontamination together with a modified pH primary chemistry control program (2.2 ppm Li, pH 7.2- 7.4) and use of Zircalloy fuel grids, and (b) valve maintenance procedures to remove Co debris. Methods available now that will have a slower impact are (a) Zircalloy fuel grids without decontamination, (b) electropolishing of replacement steam generators, c) cobalt replacement guidelines and NOREM valves, (d) use of low-cobalt Inconel 690 tubing for replacement steam generators.

(b) BWRs: Methods available now that can provide an immediate impact are (a) chemical decontamination together with (1) replacement of control blade pins and rollers and (2) zinc injection, (b) installation of cobalt-free feedwater control valves, and c) valve maintenance procedures to remove Co debris. [Note: The use of natural zinc injection has resulted in problems at some BWRs. The zinc-65 produced by neutron activation of zinc has caused higher radiation fields, higher volumes of radioactive waste, and in at least one case, surface contamination problems. As of October 1997, these problems are minimized by the use of depleted zinc. The industry is currently developing the most cost effective approach to zinc injection. Methods available now that will have a slower impact are (a) pins and rollers replacements and zinc injection without decontamination, (b) electropolishing/pre-conditioning replacement components, and (c) cobalt replacement guidelines. Methods showing promise are (a) replacement of in situ pins and rollers, and (b) NOREM cobalt-free hardfacings for valves.

The techniques above involve cobalt source reduction, preconditioning of out-of-core surfaces, control of crud transport (water chemistry control), and chemical decontamination.

Licensees should not be expected to implement a method for reducing out-of-core radiation sources/fields until the method has been fully tested and proven

by a full-scale field demonstration in one or more nuclear power plants. The term "fully tested and proven" means that the technique has been fully scoped and reliable generic technical basis documentation is available for the licensees to evaluate the potential for their particular plant application.

5. The licensee should have an appropriate basis for establishing dose goals and objectives. Goals should be frequently monitored and actions taken as necessary when goals are exceeded. Goals should be set for the facility as a whole, for different divisions or groups within the facility, and for specific work activities.

   Review work tasks to verify that pre- and post-job ALARA reviews were conducted. Determine whether the pre-job reviews adequately addressed the work to be performed, and whether lessons learned from post-job reviews are factored into future work/training. Ensure that the radiological significance of work performed under the direction of licensee vendors/contractors is adequately reviewed before the work is started. Review the method used to perform ALARA reviews of on-going work activities. These reviews should identify anomalies in the expected rate at which personnel exposure is being accumulated.

   Compare, as a minimum, the licensee's total annual collective dose (person-rem) against their goals. Determine whether the licensee's collective doses are increasing or decreasing. Discuss with the licensee reasons for any trends and actions they are taking or have taken that impacted the trend. Determine whether the licensee is effective in identifying causes of higher than necessary doses and in effecting corrective actions. Determine whether the licensee reviews dose experience for specific jobs against available industry norms for similar jobs.

   For plants planning their first outage, or for experienced plants performing significant tasks (e.g., 10-year in-service inspection) for the first time, determine the extent to which the outage experience of other similar plants is being used in the planning process. For plants that have experienced outages, determine the extent to which experience from, and lessons learned during, previous outages are being incorporated to improve performance. Approval of needed visits by radiation protection personnel to other sites to observe outage activities is a good indication of proper management support for ALARA.

6. Review the licensee's organizational structure for ALARA responsibilities. There should be a clear delineation of authority and responsibility, including dedicated ALARA staff adequate to implement the program on a daily basis as well as during outages. ALARA training that extends beyond the scope of General Employee Training for personnel such as radiation workers, is desirable for radiation protection technicians, and special maintenance teams. Professional development training should be available for the ALARA coordinator and related staff. To be most effective, mockup training should be reasonably realistic (e.g., including realistic temperature, humidity, and lighting) and address ALARA considerations.

   Discuss the ALARA program with several workers to determine whether they understand the program, understand their role in the program, and are actively involved in the program.

c. Key Attribute - Plant Facilities/Equipment & Instrumentation - Occupational Radiation Safety

1. No specific guidance

2. Select a variety of equipment and on-going maintenance to observe full calibration of beta/gamma survey instruments, as well as the daily source/response checks (or prior to use functional checks) for these instruments.

   Verify that the HPT or maintenance technician is familiar with the procedure governing the selected activity. Determine that the HPT is following the procedure, and discuss any deviations (and the reasons) from the procedure. Be aware of the facilities "art of the craft" position -- a level of skill and proficiency that is assumed (by the level of qualification). This position has a impact on the level of detail of the procedures, and allows the HPT, etc. to perform certain tasks or actions without a procedure.

3. Ensure that the facility has a adequate supply of materials necessary to support current operations and emergent work/special outages. This includes anti-c's, respiratory protection, temporary shielding, temporary portable ventilation equipment, personal cooling devices (heat stress) and other needed equipment.

   Determine if the facility has adequate areas for personal and equipment decontamination, equipment maintenance and calibration (including spare parts).

   Discuss the budgetary process with the RPM and first line supervisors and examine and determine reasons for budget item disapprovals for selected (rejected items). Focus on those budget items that had been approved by the RPM, but not supported by upper management. Determine reasons for budget denials for major proposed items, and judge the impact on any identified program deficiencies.

   . Identify plant areas that have become unusable as a result of an operational occurrence and licensee actions to control and recover such areas. (See SECY-89-326 dated 10/20/89 located at microfiche address 70038-056.)

4. Determine whether recommendations for plant improvement appropriately considered radiation safety. These considerations include whether: all potential impacts of the improvement on radiation safety were considered and incidents which negatively impacted radiation safety occurred after a decision not to incorporate the recommendation.

d. Key Attribute - Human Performance for Occupational Radiation Safety

The inspector should be aware that worker performance has an obvious, important impact on work activities in radiological areas. Two of the major components are health physics technicians (HPTs) and general radiation worker (crafts) groups. Human performance is impacted by several vital factors – qualification and training. Selection, qualification and training requirements for facility personnel are generally governed by a commitment in the plant technical specifications (to an ANS standard). For HPTs and others, 10CFR 50.120 (training rule) requires HPTs (including contractors) to be task qualified for their assigned normal and outage duties.

1. Using data from the licensee's corrective action program, LERs, and audits, determine if human performance issues have contributed to performance deficiencies. Evaluate the effectiveness of corrective actions by reviewing the corresponding commitments. Determine if the problems were reviewed by the appropriate level of management and prioritized according to their safety significance. Evaluate whether the corrective actions were technically correct, and developed and implemented in a timely manner.

2. Review the following components of human performance, as related to the previously identified human performance issues.

   (a) Work Control - If problem areas and issues were identified by inspections with respect to work control, including coordination and communication among activities; practices such as pre-job briefings, effective communications, and shift turnover; human-system interfaces, work area design, and environmental conditions, or minimization of work -arounds, then:

   (1) Determine if shift turnover time is sufficient, and that appropriate plant/work status/conditions are discussed. Determine if the radiation protection log (or night-orders) is governed by training or procedure, and whether it is a reliable and consistent tool for the HPTs. At the end of an inspection shift, attend a radiation protection HPT shift turnover and identify any weaknesses or deficiencies in the communication exchange. Discuss these with the on-shift management.

   (2) As necessary, if specific problems are identified in this area, the inspector should:

      (aa) Evaluate work areas for accessibility, equipment layout, emergency equipment location, power supplies for infield sampling, etc.

      (bb) Evaluate the impact (and means to compensate) for temperature extremes (heat stress), and other industrial hygiene hazards that might hamper radiation safety performance.

      (cc) Observe HPT interaction with crafts during development of RWP (on High Radiation area work, if possible).

      (dd) Determine how and when HPTs inform the appropriate level of management on any abnormal condition or significant changes in work environments.

      (ee) Evaluate the use of Engineering and Radiation Protection staff support during high risk (dose) work.

      (ff) Evaluate the impact (and means to compensate) for temperature extremes (heat stress), and other industrial hygiene hazards that might hamper radiation safety performance.

   (3) Assess the quality of communications by observing HPT interaction with crafts during development of RWP (on High Radiation area work, if possible).

   (b) Decision-making - If problem areas and issues were identified by inspections with respect to decision-making, then conduct observations of

planning activities to determine whether decision-making involves contingency planning and use of conservative assumptions, and decisions are communicated to affected personnel. For identified areas of human performance problems, verify that the following decision-making practices support human performance while observing control room and local operations and other work activities:

(1) The roles and authorities of personnel are clearly defined and understood.

(2) Operational decisions and their bases are communicated.

(3) Interdisciplinary input and reviews of safety-significant or risk-significant decisions are sought.

(4) Decision-making is systematic when personnel are faced with uncertain or unexpected plant conditions.

(5) Conservative assumptions are used and possible unintended consequences are considered.

(c) Work Practices - If work practices, such as peer- and self-checking, procedural use and adherence, human error prevention techniques, or management and supervisory oversight, were identified as problem areas, then conduct in-field observations of work in radiological areas, and focus on HPT and worker performance relative to required RP work practices.

(1) Assess the quality of communications by determining how and when HPTs inform the appropriate level of management on any abnormal condition or significant changes in work environments.

(2) Evaluate the use of Engineering and Radiation Protection staff support during high risk (dose) work.

(3) Verify that TS and/or procedure prerequisites are satisfied before procedures are executed.

(4) Assess whether radiation protection technicians stop work due to radiological considerations when appropriate.

(d) Resources - If problem areas or issues were identified by inspections with respect to available resources such as sufficient trained and qualified personnel to maintain work hours within limits, or tools and equipment, then:

(1) Review the licensee's overtime program and process to determine how management ensures that workers are not assigned safety related duties while in a fatigued condition. Interview workers to determine if they worked hours greater than specified in the technical specifications (with or without approval) to evaluate any repetitive nature that can lead to a degraded performance (See HPPOS #'s 024,173, and 253).

(2) Interview health physics technicians and other Radiation Protection staff that worked hours greater than the plant's technical specifications (with or without approval) to evaluate whether these personnel feel free to report whether they or others are fatigued.

3. Experience, qualification, and training of radiation protection staff - Review the applicable experience, qualification and training of selected members of the licensee's (and its contractor's) RP organization.

   (a) Review the licensee's program to provide training and periodic retraining to plant and contractor personnel on assigned duties and on safety significant changes to programs and procedures. Determine whether this training includes lessons learned from recent industry events and NRC communications (i.e., Information Notices, Generic Letters, Administrative Letters, etc.) and the proper use of human performance tools. By discussion with selected personnel, review of training lesson plans, and completed training records, determine if the requirements of 10 CFR Part 19.12 are met. If possible, observe portions of the general employee training (focus on the practical aspects of the training).

   (b) Review applicable radiation protection worker qualification and training of selected members of other facility work units (including contractor employees).

   (c) Interview several RP personnel, including first-line supervisors, professional RP staff, and the designated RP manager. Assess their level of knowledge about the program and applicable implementing procedures.

   (d) Select individuals on the radiation protection staff and contractor personnel. By a review of applicable documentation, direct observation and discussion with the technicians, determine if they meet the training and qualification requirements of their assigned duties/position. Licensee administration technical specifications normally contain a specific commitment to an industry standard on personnel selection, training and qualification.

   (e) For a selected sample of contractor health physics technicians (HPTs), review the actions taken by the licensee, in accordance with the training rule (10 CFR 50.120) to ensure that these individuals are task qualified to perform their assigned outage activities. The following general guidance exists concerning the10 CFR 50.120:

      (1) The only radiation protection personnel covered by the new rule are "radiological protection technicians" (HPTs) who are employees of the power plant. No supervisory, managerial or technical staff are covered. Contractor HPTs are not covered unless they occupy regular positions performing independently within the licensee's organization. If short-term contractor HPTs (e.g., outage workers) are assigned to work independently, they must be qualified to perform their assigned tasks.

      (2) The training rule covers qualification only in the sense of job task qualification, not qualification based on pre-selection criteria. Furthermore, successful completion of a training program required by the rule does not obviate the need to comply with other training or qualification requirements imposed by other regulations and/or license conditions.

      By direct observation and discussion with HPTs providing job coverage, determine if they have knowledge of the job activities and radiological conditions to provide adequate coverage. In discussions with HPTs, focus on ensuring adequate knowledge of radiological

hazards associated with plant systems [especially neutron-activated components such as traversing incore probes (TIPs), incore neutron detectors, and cabling, as discussed in Information Notice No. 88-63 and its Supplements 1 and 2, "High Radiation Hazards from Irradiated Incore Detectors and Cables"]. Interviews using event scenarios and role-playing (preferably in small groups) may be useful for assessing HPT knowledge and capabilities.

Review the licensee's method to provide training of permanent and contractor personnel on safety- significant changes in procedures and recent events. Emphasis should be on training provided to the increased work force required for the outage. Discuss with plant management and the RPM.

(f) Review training records and lesson plans, for a sampling of station and contractor crafts workers, to determine if the requirements of 10 CFR Part 19.12 are satisfied. If possible, observe portions of the general employee training (focus on the “hands-on portions” of the training).

4. Interviews should focus on identified program deficiencies, root causes, and action plans for improving performance. Discuss how improvements will be implemented -- what programmatic changes are needed, how these will be accomplished, etc.

03.05 Assessment of Performance in the Radiation Safety Strategic Performance Area - Public Radiation Safety (Radiological Effluent Monitoring, Radioactive Material Control, and Transportation of Radioactive Material)

a. Key Attribute - Plant Facilities / Equipment and Instrumentation for Pubic Radiation Safety

Perform an extensive tour of the facility which includes interviews with plant and contractor personnel to evaluate the adequacy of the plant facilities, equipment and instrumentation.

1. No specific guidance provided.

2. Evaluate the physical condition of the facilities, equipment and instrumentation. Determine if the facility is appropriate for its intended use and adverse conditions (i.e., radiation levels, temperature, lighting, industrial hygiene hazards, etc.) that may hamper the performance of the workers are minimized.

(a) Verify that equipment and instrumentation are operable, calibrated, source checked, and maintained as specified in the licensee’s procedures. Where appropriate, verify that the alarm/trip setpoints are correctly set to meet the requirements of the technical specifications or regulatory requirements.

(b) Review the licensee’s use of computers and software used to perform selected tasks. Review the licensee’s technical evaluation to ensure the software is appropriate for its intended use. Verify that the computer software has been verified and validated.

(c) Perform direct observation of the calibration of selected equipment and instruments. Verify that the proper materials, as specified in the procedure, are being used to perform the calibration. If radioactive sources are being used, are they properly transported, handled, used,

controlled, and stored in accordance with approved plant procedures. Is the process in accordance with the plant's ALARA program?

3. Verify that there is an adequate supply of spare parts and materials needed to maintain the equipment and instruments.

b. Key Attribute - Program / Process for Public Radiation Safety

For the assessment of procedures which implement the program being inspected, evaluate to what extent procedure quality has contributed to previously identified performance issues. In performing this evaluation, select a sample of procedures which reflect instances where problems with procedures have been documented in LERs, NRC inspection reports, or licensee assessments, audits or corrective action programs. The inspectors should focus on the technical adequacy of the procedures using the following guidance as applicable.

1. No specific guidance provided.

2. Review of procedures

(a) When reviewing the licensee's procedures, the inspector should assess the technical adequacy of the procedures and determine if the procedural steps will achieve the required result.

(b) Determine whether the procedures are consistent with the technical specifications, program documents, and regulatory requirements. During this evaluation, the review may include technical specifications, program documents, UFSAR descriptions, vendor manuals, design information, and instrumentation diagrams.

(c) If applicable, review maintenance procedures associated with the instrumentation and equipment being inspected for technical adequacy. Determine if the procedures are adequate to perform the maintenance task and provide for identification and evaluation of instruments and equipment and work deficiencies. If applicable, verify the use of quality verification holdpoints for independent verification of important attributes. Check the procedure content against the vendor manual to verify that the procedure satisfies the vendor requirements. Verify that the vendor manuals are complete and up-to-date. Documents, such as vendor manuals, equipment operating and maintenance instructions, or approved drawings with acceptance criteria, may by reference be part of a procedure. If these documents are so used, the documents (or applicable portions) require the same level of review and approval as the procedure that references it.

(d) Through discussions with personnel and a review of approved procedures, determine if radiation protection and technical support personnel contribute to the development, review, and approval of procedures. Determine if unique and/or complex high radiation work procedures are reviewed and approved by personnel responsible for work performance.

(e) Incorporating accepted human factors principles on format and writing style into procedures increases the likelihood that the procedures will be easier to use and follow. Standards for format and writing style can usually be found in the licensee's writer's guide. Usability should be determined by evaluating the degree to which procedures follow the guidance outlined in the writer's guide.

(f) When a writer's guide is not available or if the writer's guide is in question, procedure usability can be determined by evaluating the elements of writing style, format, and organization described in Inspection Procedure 42700, "Plant Procedures."

(g) Verify temporary procedures were properly approved and did not conflict with technical specification requirements. Review a sample of temporary procedure changes issued during the past year to determine that the approval and subsequent review requirements of the technical specifications are being followed. Determine whether the licensee has procedural limitations on how long a temporary procedure or a temporary procedure change can be in effect, and compare this with observed practices.

3. If the technical adequacy of procedures is a concern, review the following.

(a) Review a sufficient number of procedures to provide assurance that the procedures (including checklists, and related forms) in the plant working files are current.

(b) Verify that personnel have the ability to reference an up-to-date and accurate copy of documents. This is necessary because the controlled drawings may not be revised, unless changes due to modifications are extensive. As an interim measure, some utilities have marked-up a controlled set of documents to show the design changes. In such situations, the inspector should also verify that revisions of the controlled documents incorporating the marked-up changes are performed in a timely manner following the modification.

(c) Procedure changes should be in accordance with licensee processes and regulatory requirements. Verify the adequacy of all procedure changes which resulted from recent (within the last year) license change(s) or revision(s) to a technical specification or the top tier program document. Verify procedure changes are in conformance to 10 CFR Part 50.59. This item applies only to changes to procedures which are described or summarized in the UFSAR, normally a small portion of the procedures in use at the facility. General guidance and contrasting examples relating to the procedure changes which can be made by the licensee are described in NRC Inspection Manual Part 9900, "Guidance on 10 CFR 50.59 -- Changes to Facilities, Procedures, and Test (or Experiments)."

4. Review a selection of records produced from implementation of the procedures. Review the record file system to determine if the records are adequately filed and controlled in accordance with the procedure. Verify that the records are legible and have the appropriate sign-offs as required by the procedure.

c. Key Attribute - Human Performance for Public Radiation Safety

1. Using data from the licensee's corrective action program, LERs, and audits, determine if human performance issues have contributed to performance issues. Evaluate the overall effectiveness of human performance corrective actions by reviewing the licensee's corrective action commitments. Determine if the problems were reviewed by the appropriate level of management and prioritized according to their safety significance. Evaluate whether the corrective actions were technically correct and implemented in a timely manner.

2. Review the following components of human performance, as related to the previously identified human performance issues.

   (a) Work Control - Are assignments and technical information from management being effectively being communicated to the workers?

   (b) Decision-making - For identified areas of human performance problems and while observing control room and local operations and other work activities, verify that the following decision-making practices support human performance:

      (1) The roles and authorities of personnel are clearly defined and understood.

      (2) TS and/or procedure prerequisites are satisfied before procedures are executed.

      (3) Operational decisions and their bases are communicated.

      (4) Interdisciplinary input and reviews of safety-significant or risk-significant decisions are sought.

      (5) Decision-making is systematic when personnel are faced with uncertain or unexpected plant conditions.

      (6) Conservative assumptions are used and possible unintended consequences are considered.

   (c) Work Practices - Assess this area while observing the performance of procedures.

   (d) Resources

      (1) Review the licensee's program to provide training and periodic retraining to plant and contractor personnel on assigned duties and on safety significant changes to programs and procedures. Determine whether this training includes lessons learned from recent industry events and NRC communications (i.e., Information Notices, Generic Letters, Administrative Letters, etc.) and the proper use of human performance tools. By discussion with selected personnel, review of training lesson plans, and completed training records, determine if the requirements of 10 CFR Part 19.12 are met. If possible, observe portions of the general employee training (focus on the practical aspects of the training).

      (2) Review the licensee's overtime program and process to determine how management ensures that workers are not assigned safety related duties while in a fatigued condition. Interview workers to determine if they worked hours greater than specified in the technical specifications (with or without approval) to evaluate any repetitive nature that can lead to a degradation of performance.

   3. No specific guidance provided.

   4. Interview several plant and contractor personnel (i.e., technicians, engineers, health physicists, and supervisors) associated with the program to assess their level of knowledge about the program and procedures and

to determine their qualifications for the assigned position and duties. Evaluate training, experience, and qualifications by reviewing job documentation (usually specified in a licensee document), direct observation, and discussion with the individual.

03.06 Assessment of Performance in the Safeguards Strategic Performance Area

a. Key Attribute - Access Authorization (AA)

1. Using data from the licensee's corrective action system, and Inspection Procedures IP 71130.01, "Access Authorization Program" and 71152, "Identification and Resolution of Problems," verify that the licensee is identifying problems, entering those problems into their correction action system at an appropriate threshold, and effecting corrective action to prevent recurrence.

2. Review current regulatory requirements on behavior observation and identify license procedures that were changed under 10 CFR Part 50.54(p). See IP 71130.01 for further guidance.

b. Key Attribute - Access Control

1. Using IP 71130.02, "Access Control (Search of Personnel, Packages, and Vehicles: Identification and Authorization)," review any open LER, safeguards log and any self-assessments associated with access control for follow up, if necessary.

2. Using IP 71130.02, perform 02.02 (b) through (j), or as warranted. Pay particular attention to (h) if the licensee has a process for granting access to plant equipment, including vital equipment to authorized personnel who have an identified need for such access. Verify that access authorization criteria established by the security plan and procedures is being adequately implemented. See IP 71130.02-02, Section 02.02(h) for further guidance.

c. Key Attribute - Response to Contingency Events (protection strategy, program design, and support elements)

1. Using IP 71130.03, "Response to Contingency Events," review the recorded description of the current response strategy and response plans to evaluate the effectiveness of the protective measures contained in a sample of those written response plans.

a. Inspectors may request that the licensee perform table-top drills to assess and understand how the written strategy is effective and ascertain if it is implemented as described. See IP 71130.03, for further inspection guidance.

b. Conduct interviews and meet with the appropriate licensee managers to review the protective strategy and discuss any identified weakness in that strategy.

d. Key Attribute - Response to Contingency Events (performance-based force-on-force Exercises and Target Set Evaluation)

Using IP 71130.05, Response to Contingency Events (Force on Force Exercises and Target Set Evaluation), the inspectors should request that the licensee explain

their target set analysis and conduct force-on-force evaluated exercises. See IP 71130.05 for guidance.

e. Key Attribute - Security Plan Changes

Over a 2-year period, review and assess changes to the security plan and associated security procedures which appear to affect the ability of the safeguards program to prevent core damage. Determine if any changes decrease the effectiveness of the security plan or program, and if so, if those changes were reported to the NRC for approval prior to making the change. See IP 71130.04 for further inspection guidance.

03.07 Review the Licensee's Independent Safety Culture Assessment

The review of the licensee's safety culture assessment will occur in two steps. The first step is primarily focused on how the licensee's team completed their assessment (e.g., the methods used, sampling strategies, team qualifications). The second step of the review involves independently verifying the validity of the findings and conclusions of the licensee's assessment. This second step is performed concurrently with the NRC's independent assessment of the licensee's safety culture, by conducting interviews and/or focus groups with some of the individuals who also participated in the licensee's assessment or other representatives of the same functional groups. After the NRC team has collected and analyzed the data from its independent assessment, the findings and conclusions from the NRC's assessment will be compared to those of the licensee's assessment.

a. Preparation

1. The tools and instruments used to conduct the licensee's independent safety culture assessment(s) could include (but are not limited to) survey forms and questionnaires, interview guides, checklists, and the charter for the assessment(s).

2. Documents produced by the assessment team that conducted the licensee's most recent safety culture assessment could include (but are not limited to) an assessment plan, surveys, interview plans and reports, status memos, briefing notes, and interim reports.

3. Documents that characterize the licensee's response to the most recent safety culture assessment could include (but are not limited to) memoranda, meeting notes, corrective action program records, project plans, or other initiatives that were associated with or were initiated as a result of the assessment.

b. Evaluation

1. No specific guidance.

2. (a) It is important to verify that an adequate sample of functional groups was assessed. That is, a safety culture assessment that focuses only on the functional groups who perform work that has a clear nexus to safety (e.g., operations, maintenance, engineering, security) but excludes other support groups will be incomplete. Functional groups, such as human resources, financial services, and some technical support organizations, often fulfill roles in the organization that are important in shaping the site's safety culture.

(b) A key question to answer about the licensee's assessment is whether the sample sizes used were adequate to ensure that the findings and conclusions from the assessment were representative of the populations and subpopulations of interest.

(1) In general, if the licensee's assessment team administered a survey in-person to groups of licensee employees and contractors and their sampling plan was to obtain responses from all site personnel, the number of survey respondents should be about 80% of the site population.

(2) If the licensee's assessment plan was to permit site personnel to volunteer to participate in the survey and/or the survey was administered by mail or electronically, the number of survey participants should fall between 60% to 70% of those who were asked to participate.

(3) If the survey results were based on lower percentages of the population that was identified in the licensee's sampling plan, then the licensee's assessment team should have collected and analyzed information to demonstrate that those who did participate and those who did not were not systematically different in any way that could bias the results of the survey. For example, if the survey systematically excluded everyone on the back shift, it is unlikely that the results would be valid.

(c) Additional guidance related to appropriate sample sizes for individual and group interviews, structured behavioral observations, and event follow-up studies can be found in Enclosures 95003-C, 95003-D, and 95003-E, respectively.

(d) The safety culture components are detailed in section 06.07 of IMC 0305.

If the licensee's follow-up investigation and corrective actions for any weaknesses in the safety culture components involved sensitive information about the behavior of an individual(s), and an NRC assessor must review that information, then the NRC assessor shall protect the individual's identity and privacy to the extent possible. The NRC assessment team shall not disclose to the licensee, or anyone outside of the assessment team, any detailed information about the individual or the related events, but shall disclose only general conclusions about the thoroughness and likely effectiveness of the corrective actions the licensee has taken.

3. In determining whether the methods used by the assessment team to collect and analyze the data were adequate and appropriate:

(a) Determine whether the licensee's team ensured, to the extent possible, that information obtained during the assessment was not attributable to individual participants in any reports of assessment results, or in discussions with others who were not members of the assessment team.

(b) If the assessment included interviews, then evaluate the interview questions, the plan by which interviewees were selected, and the interview techniques used by the assessment team. (For related guidance, see Enclosure 95003-B and 95003-C.)

(c) If the assessment included focus groups, then evaluate the questions used in the focus-group meetings, the plan by which participants were selected, and techniques used to facilitate participation in the meetings. (For related guidance, see Enclosure 95003-B and 95003-C.)

(d) If the assessment included document reviews, then evaluate the assessment team's selection of documents and their review methodology.

(e) If the assessment included direct observations of meetings and/or work activities, then evaluate the assessment team's selection of meetings and activities to observe, the observers, and the observation methodology. If possible, observe similar meetings and/or work activities, to place the licensee's observations in proper context. (For related guidance, see Enclosure 95003-D.)

(f) If the assessment included a structured survey, then evaluate the survey instrument used, a sampling of raw survey data (if available), survey results, and documentation that describes how the survey was developed and the methods used to administer and analyze the survey data to determine if acceptable survey/interview practice was used. (For related guidance, see Enclosure 95003-F.)

(g) For each method used, determine whether the sample sizes were adequate to ensure that results from the method were representative.

(h) For each of the methods used, determine whether:

(1) any method was likely to introduce any systematic bias into the results;

(2) the methods were applied consistently; and

(3) if multiple methods were used, the licensee verified the internal consistency of the results from the different tools and instruments.

4. In determining whether the licensee's assessment team members were independent and qualified:

(a) Verify that the third party assessment team did not include any members of the licensee's organization or utility operators of the plant (licensee team liaison and support activities are not team membership).

(b) Determine whether the assessment team members who designed the assessment, applied the assessment methods, and analyzed the data were qualified through experience and expertise.

(c) Determine whether the assessment team included members with knowledge in the technical area being assessed.

5. No specific guidance

6. No specific guidance

7. No Specific guidance

03.08 Prepare for the NRC's Independent Safety Culture Assessment

The results of this assessment will be used to evaluate the licensee's independent safety culture assessment and inform the NRC's assessment of the contributors to degraded performance in the affected Strategic Performance Areas.

a. The purposes of this assessment are to (1) validate the licensee's safety culture assessment and (2) independently assess the licensee's safety culture. Safety culture is defined 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." Thus, because safety culture is a concept, it cannot be directly observed and measured. However, an organization's characteristics can be assessed by evaluating the extent to which its policies, programs, and processes ensure that nuclear safety issues receive the attention warranted by their significance. For example, the effectiveness of the licensee's corrective action program at identifying, prioritizing, and resolving issues with nuclear safety impacts provides important insights into the licensee's safety culture. Further, an organization's members' shared attitudes and behaviors with respect to nuclear safety can also be assessed and will also provide important insights into a licensee's safety culture. Sections 02.07 and 02.08 are intended to enable inspectors to identify those consistencies in attitudes and behavior that are indicative of safety culture.

   Relevant attitudes with respect to nuclear safety include:

   - specific attitudes (i.e., an individual's tendencies to react favorably or unfavorably) towards different characteristics of the organization, which may include general attitudes about the organization as a whole, the effectiveness of the job performance evaluation system in encouraging taking responsibility for nuclear safety, the effectiveness of the work control system in scheduling work activities safely and efficiently, or the procedures and work packages the individual is given to assist in performing tasks;

   - perceptions, which are how an individual interprets information about the organization to form beliefs; and

   - values, which are an individual's judgments about what is important, meaningful, and worthwhile at work both to the individual and to the organization.

   Consistencies in attitudes are typically identified by interviewing an organization's members to elicit their specific attitudes, perceptions, and values, and their views of the organization's values and attitudes as they relate to nuclear safety. Consistencies in attitudes may also be identified by asking individuals to provide examples of situations and experiences that are consistent with the attitudes, perceptions, and values they describe. If a large proportion of an organization's members share the same specific attitudes, perceptions, and values, these become a social "fact" within the safety culture of the organization and can influence individuals' subsequent decisions and actions.

   Behavioral consistencies with respect to nuclear safety include:

   - observable behaviors (e.g., how often supervisors mention safety considerations during pre-job briefs for jobs that may impact nuclear safety, how often personnel use procedures in the manner required),

   - written communications (e.g., how often do annual performance reviews mention individuals' decisions and actions related to nuclear safety in the past year; how often do the forms from a management feedback program note

unsafe acts or favorably record desirable safety behaviors; how often do email communications from managers and supervisors emphasize production or safety goals), and

- verbal communications (e.g., how often do supervisors and managers mention deadlines and schedules during conversations or in meetings compared to the number of times they mention nuclear safety considerations).

Consistencies in behavior with respect to nuclear safety are typically identified by observing an organization's members going about their daily work as well as reviewing written records of decisions made and work that was previously performed. Behavioral consistencies can also be identified by asking an organization's members questions that focus on their perceptions of the organization's norms. Norms are an organization's underlying, usually unwritten, rules for behavior that establish "how we do things around here," and they may or may not coincide with the organization's stated policies and procedures.

Therefore, the safety culture sections focus on the use of tools and instruments (i.e., information-collection methods) that will help the inspection team identify these consistencies organizational attitudes and behavior through the use of interviews, structured behavioral observations, document reviews and analysis, and case studies.

b. The safety culture components detailed in section 06.07 of IMC 0305 describe organizational characteristics and consistencies in attitudes and behavior with respect to nuclear safety that are indicative of safety culture.

   1. When developing the tools and instruments and selecting the methods for this assessment, include opportunities to look for evidence of all of these components.

   2. When planning focus group interviews, assign two different team members to lead the interviews with different groups of participants from the same functional area. If there is an insufficient number of licensee staff within a functional area to form two separate focus groups (e.g., chemistry), consider combining focus group participants from more than one functional area or use individual interviews instead of focus groups.

   3. Assign two different team members to conduct structured behavioral observations of the selected work activities within a functional area.

   4. Establish a plan for communication between and coordination among the assessment team members.

c. A specific performance deficiency may or may not be the result of a weak safety culture. As input to the safety culture assessment, inspectors/assessors should independently determine whether weaknesses in one or more safety culture components played a causal or contributing role in each performance deficiency.

   1. With respect to obtaining documents:

      (a) No specific guidance provided.

      (b) These reports may include:

         - safety culture assessments completed either by the licensee or an independent third party;

- safety conscious work environment assessments;

- leadership assessments (redacted, as necessary); Information gathered about an individual manager that provides evidence of leadership ineffectiveness or staff dislike of a particular leadership style should not be considered when developing safety culture insights. However, if there is evidence of generally ineffective leadership or style which demonstrates organizational attitudes and behaviors that are inconsistent with those described in the safety culture components,this should be noted.

- employee morale/job satisfaction assessments; Information gathered that provides evidence of low employee morale or low job satisfaction should not be considered when developing safety culture insights, except if the low morale or job satisfaction significantly contributes to weaknesses in the safety culture components.

- Nuclear Quality Assurance/Oversight assessments related to the components of safety culture; and

- any focused or broad-scope assessments of organizational factors;

(c) Review corporate and site safety policy statements as they relate to safety culture.

(d) Review the sample of redacted job performance reviews to determine if there is evidence that the actual reviews implemented the guidance, especially with regard to the balance between safety and production.

(e) Review for evidence that safety has priority, e.g., for safety over costs in making improvements or maintaining systems.

(f) Review documents related to reward or incentive programs focused on promoting nuclear safety behaviors and documents pertaining to the implementation of the programs.

(g) Review training lesson plans and records to determine what was presented, when it was presented, and who attended.

(h) Review summaries of the corrective action documents and code them to the applicable safety culture components.

(i) No specific guidance provided.

(j) Significant organizational changes could include changes in organizational structures and functions, leadership, policies, programs, procedures, and resources.

(k) No specific guidance provided.

03.09 Conduct the NRC's Independent Assessment of Safety Culture

a. No specific guidance

b. Adjustments to the assessment plan may include increasing the number of interviewees or focus group participants, conducting additional individual interviews, adding documents to be reviewed, increasing the number and focus of

behavioral observations, re-directing resources to complete a case study, and/or increasing the number of team members collecting related information.

c. In this context, valid insights are based on consistent results from applying multiple information-gathering methods, and reliable insights are based on consistent results from multiple team members who are independently collecting related information.

   Do not consider normative data about other sites or other industries provided by the licensee's assessment of safety culture when developing safety culture insights, except if the licensee also provides detailed information to permit the safety culture assessors to verify the applicability of the normative data (e.g., nature of the norms, sample size and representativeness, procedures followed in obtaining the samples).

   Identify weaknesses in any safety culture component and the functional groups and management levels in which any weaknesses appear. As examples, identify any performance deficiencies for which safety culture weaknesses were a root or contributing cause.

d. No specific guidance provided.

e. To determine whether the results of the licensee's third party assessment of safety culture are consistent with results of the NRC's independent safety culture assessment, answer the following questions:

   - Are the results of NRC interviews generally consistent with results of the licensee's methods?
   - Do the different functional groups show differing results?
   - Did either assessment identify weaknesses in particular safety culture components?
   - Did the NRC inspectors reach the same general conclusions relative to the safety culture components?

   If significant inconsistencies exist between the NRC's completed results and the licensee's results, then ask the licensee to determine the reason(s) for each inconsistency. This may require the licensee to perform additional assessment activities.

f. The insights of most concern include the following:

   - Corporate and/or senior site management demonstrates attitudes and behavior with respect to nuclear safety that are substantively inconsistent with the expectations in any of the safety culture components.
   - A single critical functional group, including operations, engineering, maintenance, or security, demonstrates weaknesses across multiple safety culture components.
   - The majority of functional groups demonstrate some weaknesses in multiple safety culture components (i.e., weaknesses are widespread throughout the organization).

If any of these statements are supported by consistent results obtained through application of multiple data-collection tools in conjunction with inspector/assessor insight then:

- Use this information to inform the assessment of the contributors to degraded performance in the affected Strategic Performance Area(s). For instance, the results of this assessment can be reflected in statements such as "weaknesses in a safety culture component (or group of components) contributed to deficiencies in (some SPA Key Attribute)" or "weaknesses exhibited by the operations organization related to (some specific list of safety culture components) contributed to the degraded Reactor Safety SPA (or Key SPA Attribute)."

- Document each such statement as a key result of this assessment.

03.10 Performance Deficiency Cause Analysis

Using the results from this inspection, in conjunction with information obtained from the NRC's review of previous root cause analyses that may have been performed by the licensee or others, attempt to group the apparent causes of the risk significant performance issues. The issues should be grouped using a structured technique such as that provided by MORT analysis. An attempt should be made to provide insight into the upper level causes of the performance issues, as applicable.

The senior reactor analyst should perform a detailed assessment of the individual and collective risk associated with team's findings. This information will be useful in evaluating the adequacy of licensee proposed corrective actions to the performance issues, and to aid in deciding if additional regulatory actions are warranted.

03.11 NRC Assessment

Perform a limited review of the NRC's assessment and inspection process at the subject facility.

a. Should the results of this inspection indicate that a significant reduction in safety has occurred, compare the team's findings with current assessment data (both PIs and inspection findings) to determine if sufficient warning was provided. If the results of this inspection indicate that a significant reduction in safety has not occurred, compare the team's findings with the current assessment data to identify inconsistencies in the plant performance data.

b. Evaluate whether the NRC assessment process appropriately characterized licensee performance based upon the data that was provided. For example, were inspection findings appropriately screened using the Significance Determination Process (SDP) for risk significance, and was this data appropriately entered into the NRC action matrix.

03.12 Document Inspection Results

Due to the diagnostic nature of this inspection, a thorough documentation of the team's observations, findings, and conclusions is required. Unlike the content of baseline inspections, this inspection report should include the team's assessment of licensee performance for each inspection requirement of the key attributes contained in the section of this procedure. IMC 0612, "Power Reactor Inspection Report," guidance regarding documentation thresholds is not applicable to this procedure. While certain issues should be evaluated using the SDP, this may not be possible for many of the team's more programmatic conclusions.

In the inspection report, include the following information in the major sections:

a. Strategic Performance Area Assessment

1. Inspection Scope

If only one SPA is degraded, then subdivide this section to address each key attribute of the SPA. However, if more than one SPA is degraded, then first subdivide this section into SPAs, and then subdivide each SPA subsection further to address each key attribute of the SPA.

For each key attribute, describe the documents and records reviewed, personnel interviewed, walkdowns conducted, activities observed, etc., to satisfy the inspection requirements associated with the attribute

2. Observations & Findings

List important observations which are not findings but which support the assessment result. Also list and document in accordance with IMC 0612 any findings which were identified during this assessment.

3. Assessment Result

Document a summary assessment of licensee performance in each degraded SPA, with reference to the observations and findings which support the assessment.

b. PI&R Assessment

1. Inspection Scope

Describe the documents and records reviewed, personnel interviewed, walkdowns conducted, activities observed, etc., to complete this assessment.

2. Observations & Findings

List important observations regarding PI&R which are not findings but which support the assessment result. Also list and document in accordance with IMC 0612 any findings which were identified during this assessment.

3. Assessment Result

Describe the overall assessment of licensee performance in PI&R that is supported by the observations and findings revealed during this assessment. Ensure that the basis for this assessment is fully contained in the Inspection Scope and Observations & Findings sections.

c. Safety Culture Assessment [C1]

1. Assessment Scope

Describe the assessment methods used, and the documents and records reviewed, personnel interviewed, walkdowns conducted, activities observed, etc., to complete this assessment.

2. Observations & Findings

Document the aggregated results relative to the consistencies derived from the various data-collection tools (described in the Enclosures), in conjunction with inspectors/assessors insights; and, the accompanying insights about safety culture components that were obtained from those consistencies.

3. Assessment Result

Document a summary assessment of safety culture based on insights from assessments of each safety culture component, highlight significant weaknesses that are found to exist in any component or functional/organizational area.

95003-04 RESOURCE ESTIMATE

The resource estimates provided are for direct inspection only, based on a three week on-site inspection. Not all areas will be performed during each inspection and the hours required to compete each area may be less for plants where previously identified performance issues were isolated.

Position/Inspected Area	Manhours	
Team Leader	120	
Assistant Team Leader	120	
Licensee Control Systems	240	
Licensee's Safety Culture Assessment	80	
Safety Culture Assessment	360	
Design	360	
Human Performance	120	
Procedures	120	
Equipment Performance	120	
Configuration Control	240	
EP without Attachment 95003.01	80	
EP with Attachment 95003.01*	160	
Occupational Radiation Safety	200	
Public Radiation Safety	60	
Safeguards TBD		
Review of Assessment Process	40	(not direct inspection)

* Including a remedial exercise in the scope of Attachment 95003.01 will require an additional 40 hours, resulting in a total of 200.

END

Attachment:
95003.01 Emergency Preparedness
Attachment 1 Revision History For IP 95003
Enclosures:

Enclosure 95003-A
Sample Inspection Requirements for Safety Culture Components

This enclosure contains sample inspection requirements from which safety culture assessors may select and adapt inspection requirements related to performance deficiencies, as required by section 95003.02.08.a. This enclosure also identifies documents which correspond to the requirements, to assist safety culture assessors in compiling a list of documents to request from the licensee. Hence, this enclosure is a resource that safety culture assessors may use to develop the assessment section of the inspection plan.

In this enclosure, sample inspection requirements and corresponding documents are listed in the two-column table below, under each of the safety culture components: column one includes the inspection requirements associated with each component, while the second column describes the corresponding documents which should be requested from the licensee.

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 that 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 reinforces safety principles among their peers.

Requirement	Corresponding Documents
Review the policies and procedure which define the line of authority and responsibility for nuclear safety to verify that those lines and responsibilities are clearly identified.	Policies and procedures which define the lines of authority and responsibility for nuclear safety. A sample of redacted performance reviews.
If the licensee has established a system of rewards and/or sanctions related to plant performance, then verify that those rewards and/or sanctions do not conflict with nuclear safety policies and do reinforce behaviors and outcomes which reflect safety as an overriding priority.	Policies and procedures for employee rewards and/or sanctions related to plant performance.
Determine that objective measures have been taken by management to reinforce safety standards.	Evidence of objective measures taken by management to reinforce safety standards
In management meetings, observe whether the behavior of management reinforces safety standards and displays behaviors that reflect safety as an overriding priority. See Enclosure D for guidance on structured behavioral observations.	Schedule of management meetings.

Observe whether personnel reinforce safety principles among themselves. See Enclosure D for guidance on structured behavioral observations.	
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.	
Requirement	Corresponding documents
For each major work group (including but not necessarily limited to Operations, Engineering, Maintenance, Radiological Protection, Security), review the continuing-training program for the group: ● Review the lesson plans to verify that they include features to effectively facilitate knowledge transfer to ensure technical competency. ● Review records which identify the employees who received the training and compare those records with employee rosters to verify that employee participation was consistent with management expectations. Also verify that management expectations facilitate and enable effective knowledge transfer.	Lesson plans and training records for continuing training.
Identify the benchmarking and reverse-benchmarking activities conducted during the previous two years. ● Review the records of benchmarking activities to verify that they included features which could improve licensee knowledge, skills, and safety performance. ● Review the actions taken by the licensee as a result of those activities, to verify that the licensee effectively integrated lessons learned from those activities into their programs and processes.	Records of benchmarking activities for the last three years.

Review the procedures which establish and describe the licensee's industry operating experience program and review selected records developed using that program, to verify that the licensee effectively communicates information learned from internal and external sources about industry and plant issues	Examples of communications to the organization of information learned from internal and external sources about industry and plant issues.

CORRECTIVE ACTION PROGRAM - 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 corrective action program 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 the 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.

Requirement	Corresponding documents
Review the CAP program procedure to verify that it clearly states an expectation to identify issues at a low threshold.	Procedures for corrective action program.
Review a sample of recently-identified issues in the CAP to verify that issues had been identified at the threshold stated in the procedure.	A list of corrective action documents to select a sample from or a sample of recent CA documents.

Review a sample of recently-completed evaluations to verify for each evaluation that ● the difference between the event date/time and the reported date/time is commensurate with the safety significance of the identified issue; ● the event/condition description in the completed evaluation is consistent with the event/condition description in the CAP record.	(as above) A list of corrective action documents to select a sample from or a sample of recent CA documents.
Verify that a program or process exists to periodically trend and assess information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. Review a sample of results produced by that program or process to verify that it does identify such problems. Review a representative sample of those problems to verify that they were appropriately addressed.	Audit or trending plan for the CAP.
Determine to whom the licensee distributes the trending results to verify that the results apply to those personnel. Determine how the recipients responded to or otherwise used the results.	A sample of trending results in the area(s) of inspection interest.
For a sample of issues identified in the CAP, verify that the evaluations were thorough and that the resolutions of those issues appropriately addressed the causes. For each issue, verify that the licensee properly classified and prioritized the issue commensurate with its potential safety significance, and that the licensee properly addressed operability and reportability considerations.	A list of corrective action documents to select a sample from or a sample of recent CA documents.
For a sample of significant conditions adverse to quality identified in the CAP, verify that the licensee completed effectiveness reviews, and that those reviews verified that the associated conditions were resolved.	A sample of significant conditions adverse to quality identified in the CAP.
For a sample of safety issues identified in the CAP as selected by the team leader, verify that the licensee implemented corrective actions in a timely manner, commensurate with their safety significance and complexity.	A list of corrective action documents to select a sample from or a sample of recent CA documents.

For a sample of adverse trends identified in the CAP as selected by the team leader, verify that the licensee implemented corrective actions in a timely manner, commensurate with their safety significance and complexity.	A sample of trending results in the area(s) of inspection interest.
Review any self /independent assessments of CAP conducted in the past 24 months, to verify that those assessments were thorough and objective.	Copies of self /independent assessments of CAP conducted in the past 24 months.
For the issues identified in self/independent assessments of CAP conducted in the past 24 months, review evaluations of the issues and corrective actions taken to address those issues, to verify that the evaluations were thorough and that the resolutions of those issues appropriately addressed the causes.	Evaluations of and corrective actions for issues identified in self /independent assessments of CAP conducted in the past 24 months
For a sample of CAP items that were cancelled, verify that no risk-significant issues were cancelled.	CAP items that were cancelled during the past 24 months
For a sample of CAP items that were downgraded in priority, verify that no risk-significant items were downgraded.	CAP items that were downgraded in priority during the past 24 months
Observe initial screening, management screening, and closure meetings	Schedule of these meetings
Determine whether any safety issues were identified in the alternative process within the previous two years. If so, determine how those issues were addressed, to verify that the resolutions of identified safety issues were appropriate and timely.	Safety issues that were identified in the alternative process in the past two years.

DECISION-MAKING - Licensee decisions demonstrate that nuclear safety is an overriding priority:

- 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.

Requirement	Corresponding documents
Review procedures for making decisions, immediate and longer-term; note definitions of authority and roles; verify that the procedures call for conservative assumptions (regarding equipment degradation, human performance, unfamiliar plant conditions and tasks, etc.) and consider risk impacts; verify that procedures require effectiveness reviews and communication of decisions and bases to affected personnel.	Records that describe recently-made decisions. Procedures for management decision making.
Identify methods used to communicate these roles to site personnel.	Procedures for communication and communication plans for management decisions
Review procedures for obtaining interdisciplinary reviews on decisions.	Procedures for obtaining interdisciplinary reviews on decisions.
Determine if training on decision-making is provided and review training materials and records.	Training materials and records.
Review records that describe recent decisions. If records don't exist or are incomplete, interview involved personnel. Observe decision making activities in work planning meetings, plan-of-the-day meetings, and other forums.	Records or minutes of planning meetings including modification and capital improvement approval meetings.

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 the free flow of information related to raising nuclear safety issues, differing professional opinions, and identifying issues in the corrective action program and through self-assessments. Such behaviors include supervisors responding to employee safety concerns in an open, honest, and nondefensive 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 exist, 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).

Requirement	Corresponding documents
Verify that measures have been taken by the licensee to encourage employees to raise concerns both to their management and/or the NRC without fear of retaliation.	Procedures and policies and training on raising concerns. Samples of plant communications that inform and reinforce the procedures and policies.
Observe licensee employee behaviors during meetings, etc. to determine whether behaviors promote the raising of safety concerns.	
Interview personnel involved in recent decisions to determine whether dissenting views were heard. If so, verify that consideration of those views did not discourage employees from raising dissenting views.	
Review the NRC records of allegations for evidence of discrimination to determine whether discrimination, chilling effect, or ineffective corrective action program issues have been raised and substantiated.	NRC files.

Review the procedures and policies which establish and describe the alternative process for raising safety concerns or resolving differing professional opinions to verify that those processes are 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.	Procedures and policies which establish and describe the alternative process for raising safety concerns.
Verify that actions and supporting behaviors have been taken by the licensee to inform employees about the alternative process.	Samples of communications that inform and reinforce the procedures and policies for raising concerns.
Review selected issues recorded in the alternative process for raising issues to verify that those issues were evaluated and resolved as appropriate.	Access to files for the alternative process for raising safety concerns.
OPERATING EXPERIENCE - The licensee uses operating experience 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 operating experience. • The licensee implements and institutionalizes operating experience through changes to station processes, procedures, equipment, and training programs.	
Requirement	Corresponding documents
Verify that the licensee collected, evaluated, and communicated to affected staff in a timely manner the generic communications issued by the NRC within the previous two years that applied to power reactor licensees.	A list of generic communications received and processed by the licensee within the previous two years. Procedures or policies for handling operating experience from the NRC.
By reviewing appropriate licensee records, verify on a sampling basis that the licensee collected, evaluated, and communicated to affected staff in a timely manner communications received from INPO, vendors and other sources.	A list of OE items received from INPO, vendors and other sources and processed by the licensee within the previous two years. Procedures or policies for handling operating experience from industry.
For a representative sample of OE items communicated to affected staff, verify that the licensee identified and implemented appropriate corresponding changes to station processes, procedures, equipment, and/or training programs.	For a sample of generic communications and OE items, actions taken as a result.

Verify that the licensee incorporates the use of OE into pre-job briefs, management meetings, and work packages.	A schedule of pre-job briefs that will be held while the team is on site. A schedule of management meetings that will be held while the team is on site. A list of work packages completed during the recent past. (Review a sample.)
Review the CAP for issues related to the use/effectiveness of OE.	Evaluations of and corrective actions for OE 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.	
Requirement	Corresponding documents
Review the method(s) or process(es) used by the licensee 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. Review records which describe the safety impacts of decisions evaluated using those methods/processes during the previous two years, to verify that the licensee effectively used the subject methods/processes.	Procedures and policies used 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. Records which describe the safety impacts of decisions evaluated using those methods/processes during the previous two years.
Review the methods used by the licensee to communicate such changes to affected personnel, to verify that the changes were effectively communicated to those personnel.	The methods used to communicate changes to affected personnel and a sample of communications.
Identify methods used to communicate these roles to site personnel.	Procedures for communication and communication plans for management decisions
Review procedures for obtaining interdisciplinary reviews on decisions.	Procedures for obtaining interdisciplinary reviews on decisions
Determine how the licensee identifies and attempts to mitigate any unintended effects of planned changes, including those associated with voluntary reductions, retirements and layoffs. For selected recent changes, interview involved personnel to determine whether any unintended effects were identified.	Procedures for implementing changes. A list of recent planned changes.

Determine the steps taken to get the organization culturally ready for change, to minimize fear, and increase tolerance of uncertainty.	Procedures for implementing changes.
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.	
Requirement	Corresponding documents
Verify that personnel have received training regarding supervisor-to-employee and peer-to-peer behaviors that could constitute harassment, intimidation, retaliation, and discrimination for raising safety concerns and that such behaviors are a violation of law and policy and will not be tolerated.	Training plans on prohibitions of harassment and intimidation. Records that indicate who received the subject training.
Review any investigations performed by the licensee of claims of discrimination to verify that those investigations were conducted 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.	Records of investigations performed by the licensee of claims of discrimination.
Review the NRC records of allegations for evidence of discrimination to determine whether discrimination issues have been raised and substantiated.	NRC records of allegations
Verify that the procedures and/or policies for disciplining employees and implementing forced reductions contain sufficient provisions to preclude taking adverse employee actions as retaliation for protected activity.	Procedures and/or policies for disciplining employees Procedures and/or policies for implementing forced reductions

Review the disciplinary actions taken against employees within the previous two years, and verify that compensatory actions were taken as appropriate by the licensee to address potential chilling effects of those actions.	Disciplinary actions taken against employees within the previous two years.
RESOURCES - 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 longstanding equipment issues, minimizing preventative maintenance deferrals, and ensuring maintenance and engineering backlogs that are low enough to support safety • training of personnel and sufficient qualified personnel to maintain work hours within working hour 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	
Requirement	Corresponding documents
Determine the history of reductions-in-force or other draw-downs of the workforce at the site. Establish the reasons for these reductions and quantify the numbers of employees for the associated organizational areas to determine the impact of the reductions on the available personnel resources. Determine the bases for staffing level determinations.	Reports of internal or third-party staffing studies Reports of re-engineering efforts completed within the past two years Peer group comparisons Resource assessments in the previous two business plans Strategic staffing plans
Verify that long-standing equipment issues and deferring preventive maintenance are minimized to the extent practical, and that justification for long-standing equipment issues is risk-informed.	Justification for identified long-standing equipment issues.
Verify that the licensee knows what design margins exist. Determine how design margins are considered in design control, and are updated as required to be current with how the plant is configured and operated.	Procedures for design control and design modifications, and design basis documents.

Review the engineering backlogs (including engineering work requests, design mods, temp mods, drawing updates, equipment database updates, mod proposals, CAP evaluations) to determine trends. Verify that any conditions adverse to quality that are addressed by backlogged items have also been entered into the corrective action program.	Tracking records for engineering work assignments and requests.
Verify that decisions to place items in the engineering backlog are risk-informed.	Justifications for listing items in the engineering backlog.
Review the trend in the non-outage work-order and work–package backlogs.	Tracking system status and trends in work orders and work packages.
Review the licensee's procedures for authorizing overtime, including exceptions to overtime guidelines. Review the trends in the overtime for selected work groups. Check that overtime limits are not routinely exceeded.	Procedures for control of overtime and meeting overtime guidelines
For selected work groups, review the programs and procedures for qualifying personnel. For a sample of personnel in those work groups, verify that personnel qualifications are current and in accordance with those procedures.	Procedures for qualifying working level and first line supervisors in all work groups.
Review the trend in update backlogs of procedures, calculations and drawings.	Tracking records for trends in document updates. (Engineering is listed above)
Determine how the licensee records reflect the quality of work packages; consider rework designations in the maintenance database and cause codes in the CAP that could indicate work package quality. Determine whether the trend in work package quality is being tracked.	Record of work package deficiencies and trend information.
Interview selected operators and simulator support personnel to determine the extent to which the simulator matches the plant. If the simulator does not reasonably match the plant, determine the reasons why not.	Procedures for simulator fidelity and identification and resolution of simulator issues, and results produced using those procedures. Lists of discrepancies between the plant and the simulator. Justification for the simulator backlog.
Review the trend in the simulator work order backlog.	The trend in simulator work orders.

Identify the procedure(s) used to maintain emergency facilities and equipment, and evaluate results developed through that procedure.	Procedures for meeting requirements for emergency preparedness.
Review the trend in the emergency facility maintenance and/or upgrade backlog.	Trend information on work orders for emergency planning.
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.	
Requirement	Corresponding documents
Review the policies and training plans which establish and reinforce that nuclear safety is an overriding priority, to verify that those policies and plans 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.	The policies and training plans which establish and reinforce that nuclear safety is an overriding priority. Policies and plans that reinforce that individuals have the right and responsibility to raise nuclear safety issues through available means.
Review records which identify the personnel (including, as appropriate, contractors) who have received training on those policies within the last two years. Compare those records with employee rosters.	Training records on policies and plans that require and reinforce that individuals have the right and responsibility to raise nuclear safety issues through available means.
Review the methods used by the licensee to communicate production, cost, and schedule goals to employees, to verify that those methods reinforces the primary importance of nuclear safety.	The documented methods used by the licensee to communicate production, cost, and schedule goals to employees
Review the methods used by senior managers and corporate personnel to periodically communicate and reinforce nuclear safety such that personnel understand that safety is of the highest priority.	The documented methods used by senior managers and corporate personnel to periodically communicate and reinforce nuclear safety as the highest priority.

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 the corrective action program, and policies.
- The licensee tracks and trends safety indicators that 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.

Requirement	Corresponding documents
Verify that the periodic self- and independent assessments conducted by the licensee have been conducted at an appropriate frequency.	The station self-assessment program and schedule.
For a representative sample of those assessments, verify that the assessments were of sufficient depth, are comprehensive, are appropriately objective, and are self-critical.	A representative sample of self-assessments.
Verify that the licensee periodically assesses the effectiveness of oversight groups and the CAP. For a sample of reports that document such assessments, verify that the assessments are of sufficient depth, are comprehensive, are appropriately objective, and are self-critical.	An assessment plan and schedule of effectiveness assessments of oversight groups and the CAP. A sample of assessments and the corrective actions taken.
Review the safety indicators tracked by the licensee to verify that those indicators provide an accurate representation of performance.	Performance indicator data for activities important to nuclear safety.
For a sample of reports that document assessments, verify that the issues identified in those reports were subsequently classified, prioritized, evaluated and addressed as appropriate.	A representative sample of self assessment results and performance indicator data for activities important to nuclear safety.

WORK CONTROL - 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 that 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.

Requirement	Corresponding documents
Review the procedures used to manage risk or control work to verify that the procedure requires risk considerations to be incorporated into work scheduling.	Work control procedures for risk.
Review the procedures used to prepare for work to verify that they require • consideration of risk insights • addressing job site conditions • 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.	Work package preparation procedures
Review the procedure(s) used to schedule and control work to verify that it includes features which appropriately limit temporary modifications, operator work-arounds, safety systems unavailability, and reliance on manual actions	Procedures for scheduling work. Procedures for control of temporary modifications, operator work-arounds, safety systems unavailability or degradation, and reliance on manual actions.
Review the procedure under which the licensee conducts pre-job and shift briefings to verify that it requires communication of the operational impact of work activities and plant conditions that may affect work activities.	Procedures for pre-job briefs and shift turnover and briefings.

Observe selected pre-job and shift briefings to verify that those communications occur.	Schedule of shift turnover meetings in all departments
Observe selected meetings used to plan and coordinate work activities to verify (1) that work groups communicate, coordinate, and cooperate with each other; (2) the free flow of information, including dissenting opinions; and (3) a strong presence by the operations organization and focus on operations' priorities.	Schedules of work planning and coordination meetings.
Determine whether licensee personnel have access to a process to appeal major decisions.	Procedures and policies for making major decisions.
Review the documents that include protocols between on-site and selected off-site work groups (like work groups who perform switchyard maintenance and coolant channel dredging) to verify that the protocols provide adequate communication, coordination, and cooperation.	Procedures for interfacing with non-nuclear support groups providing engineering and maintenance of nuclear plant related structures systems or components.
Interview the on-site personnel who administer selected interfaces with off-site organizations to verify that the associated protocols are being followed.	Organization charts and contacts for staff administering non-nuclear support groups.
WORK PRACTICES - Personnel work practices support human performance. Specifically (as applicable): • 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.	
Requirement	Corresponding documents

Review job preparation procedures and observe selected jobs to verify (1) that human error prevention techniques are used such as pre-job review of tasks, pre-job briefings, contingency planning, peer verifications, etc., as appropriate to the work being performed; (2) the presence of peer-to-peer coaching and reinforcement; (3) that workers understand the risk impact of planned work, and discuss that impact in pre-job briefs.	Procedures and training plans for working level work practices in all departments. Schedule of pre-job briefs scheduled during the inspection.
Verify that employees receive training on fitness-for-duty policies and practices, and review those policies and practices, including behavior observation.	Training records on FFD for plant staff. Policies and procedures on fitness-for-duty.
Review related records developed during the preceding 12 months to verify implementation of those policies and practices.	Records of administrative actions taken related to fitness for duty. Employee identification may be omitted.
Review policies or procedures which address proceeding in the face of uncertainty or unexpected circumstances to verify that related guidance is adequate. Verify that appropriate site personnel receive training on this topic, and that this topic is reinforced in pre-job briefs.	Policies, procedures and training records addressing resolution of issues impacting completion of work.
Review policies or procedures which address procedural compliance to verify that related guidance is adequate. Verify that appropriate site personnel receive training on this topic. Verify procedures are followed during observation of work.	Policies or procedures on procedural compliance. Training plans and records on procedural compliance.
Review policies or procedures which address supervisory and management oversight of work activities to verify that related guidance is adequate. Interview selected supervisors and managers to determine whether they are able to spend sufficient time in the field. If not, determine why not.	Policies or procedures for supervisory and management oversight of work activities
Review audits or performance metrics for supervisory functions (e.g., access records which indicate time in the plant for managers, supervisory reports of observations of worker performance, etc.) to verify that those managers and supervisors spend time in the plant.	Procedures or policies and audits or performance metrics for supervisory functions.

The following questions are examples of the types of questions which may be asked during focus group or individual interviews. Safety Culture components and questions selected for inspection should be based upon specific site circumstances, i.e., not all safety culture components and/or all questions will necessarily be applicable. The questions are not all-inclusive and the following list is not intended to be used in its entirety. The interviewer shouldn't simply read the questions to the focus group or interviewees as written; instead, the interviewer should understand the audience and reword/tailor the questions/topics for the audience.

The questions related to each safety culture component are organized here in alphabetical order by the title of the component, but the list of questions to be used in any particular interview or focus group can be organized differently. However, when developing the list of questions to be asked in interviews or focus groups, it is easier for respondents to answer groups of related questions than questions that skip from one topic to another. One way to introduce a group of related questions is with a statement such as, “Now let’s talk about decision making” (or operating experience, work practices, etc.).

The first step in developing a good question is to identify exactly what kind of information you want the respondents to provide. This is important because it is easy to receive one type of information when you really want another. Virtually all questions are either open-ended or close-ended.

Open-ended questions are generally more demanding to answer, typically produce many different responses, and often produce information that can not be compared across respondents. These questions may be used when the safety culture assessor doesn't want to specify response choices or wants to (1) to give respondents a chance to state opinions, (2) let respondents vent frustrations, and (3) hear what has been overlooked, or further explore issues. Open-ended questions are helpful when they follow a close-ended question and ask respondents to explain details about their particular answer. Also, open-ended questions are desirable when respondents are being asked about behaviors.

Close-ended questions are those that provide specific choices and the respondent selects from the choices. These questions are generally less demanding to answer and the responses are easier to analyze and aggregate.

In summary, well worded questions asked in the appropriate format will make it easier for the respondent to answer. Using the opened and closed ended questions appropriately will provide useful information for the safety culture assessor.

Enclosure 95003-C provides additional guidance for conducting individual interviews and focus groups.

Accountability

1. Who is responsible for nuclear safety at this site? Explain.

2. Please describe your line of authority. Who revises your line of authority if necessary?

3. Do you have nuclear safety responsibilities in your job? If so, please describe what they are. Is nuclear safety incorporated into your job performance review? If so, how?

4. In the past year, have you experienced any challenges or barriers to meeting your nuclear safety responsibilities? If so, please describe them. Have you had any particular successes in meeting your nuclear safety responsibilities? If so, please describe them.

5. Does the plant have any kind of program to reward staff for improving safety, such as spot awards for excellent work practices or awards for the best suggestions to improve safety? If so, please describe the program(s). Do you think they make difference in what people do around here? If not, what would be more effective?

6. Can you think of an instance from the past year in which your supervisor or a manager spoke directly to you about a nuclear safety issue? If so, please describe the circumstances. What was the nature of the discussion? Was a decision made to change anything about how you perform your work? If so, please describe the decision.

Continuous Learning Environment

1. On average, what is the proportion of staff time in your department that is devoted to training? What do you think about this proportion of time (e.g., too little, too much, right amount)? How does this compare with other departments at the site? How does this compare with other plants that you are aware of?

2. Is it ever necessary to cancel or reschedule training due to operational requirements? For what types of reasons does this occur? About how often does it occur? In the past several years, have you had planned training cancelled due to operational requirements? Were there any actions taken to reschedule the cancelled training? Who took these actions? Please describe what happened.

3. How does your management treat errors? Does your management consider errors as negative to the business, as learning opportunities, or both? Can you describe any examples of errors that were used as learning examples and/or errors that were considered to be negative for the business? If an error was used as a learning example, how was it discussed? Would you be more or less likely to report an error you or a co-worker made as a result? If an error was considered to be negative for the business, what happened? Would you be more or less likely to report an error you or a co-worker made as a result?

4. In the past several years, have you been involved in any benchmarking activities? If so, please describe them. Were any of your benchmarking ideas implemented? Please describe the ideas and how they were implemented or why they weren't implemented. Does it seem that the changes have made a difference? If so, how?

5. Have other departments been involved in benchmarking? Were any changes made as a result of what they learned? Does it seem that the changes have made a difference? If so, how? (Limit this question to managers, supervisors or others who would know about benchmarking activities in other sections.)

6. Have you been involved in a major organizational change (e.g. reorganization, layoff, voluntary staff reduction/buy-outs, retirements), where knowledge was transferred to persons who might be new to a position? If so, was this done in a timely way (i.e., before the knowledgeable person leaves)? How well did this work?

Corrective Action Program

1. Are issues entered into the Corrective Action Program (CAP) prioritized correctly? Please explain. Is there any difference in the handling of an immediate nuclear safety issue vs. a more long-term nuclear safety issue at this site? Can you describe the types of nuclear safety issues that are immediately addressed if they arise? What types of nuclear safety issues are associated with longer response times? Can you think of any long-term nuclear safety issues which exist that in the past year either have not been appropriately evaluated or whose corrective actions have been inappropriately extended? Please describe the situation. Do you know the reasons for delay in resolving the issue?

2. Is there a threshold for items identified for entry into the CAP? Is this threshold at the appropriate level? Are you aware of any abnormal or unusual or questionable conditions that may not be entered into the CAP but could potentially be indications of or precursors to nonconforming or degraded conditions?

3. Does your management encourage condition report (CR) initiation? How? Where? Can concerns be filed anonymously through the CR process? What about the Employee Concerns Program process?

4. Describe how CAP trends information in the aggregate to identify common cause problems.

5. Please describe an example from the past year in which your supervisor or manager stopped work or delayed completing a task because of a nuclear safety issue or concern. What was the nature of the issue? How was it identified? How was it resolved? Were you personally satisfied with the resolution? If not, what would you have liked to see happen?

6. Do you believe that the site's corrective action program is successful in addressing issues that are submitted? Can you provide an example related to your answer? Is the effectiveness of the implemented corrective actions evaluated? How? How frequently?

7. Are issues raised from CAP tracked to completion? Are initiators informed of the result? Can you describe any examples when this was true? If not, please describe what happened to the issue and why it wasn't completed or the initiators weren't informed, if you know?

8. Have you ever submitted an issue to the corrective action program? Was the issue adequately addressed? If not, did you pursue the issue? Please explain.

9. In your experience, are issues in the CAP addressed in a timely manner? Were the issues addressed in a manner consistent with their importance?

10. Are you aware of any specific instances in which another employee (or contractor) submitted an issue to the corrective action program and considered the response s/he got to be incomplete or unacceptable? Please describe the situation.

11. Do you see any changes in the amount of time necessary to resolve corrective action issues over the past year? If so, do you have any ideas about the reasons for the changes?

12. Can you think of an instance from the past year in which you approached a supervisor or manager about a nuclear safety issue? If so, please describe the circumstances. What was the nature of the discussion? Was a decision made to

change anything about how work is performed as a result of the discussion? If so, please describe. If not, what was the reason(s) the decision was made not to make any changes?

13. Can you think of an instance from the past year in which you approached a co-worker or a co-worker approached you about a nuclear safety issue? If so, please describe the circumstances. What was the nature of the discussion? Was a decision made to change anything about how work is performed as a result of the discussion? If so, please describe. If not, what was the reason(s) the decision was made not to make any change(s)?

14. When there is a problem to be solved that will affect several work groups or other departments, how is that handled? Who is usually involved with the resolution (e.g. employees or managers)? If the solutions are identified by managers, do employees have input? If so, how much? What would you do if a solution is identified that ins unworkable for you or your department?

15. Based on your experiences, does your manager fully understand technical and nuclear safety issues that you or members of your work group raise? How does your manager handle if s/he doesn't understand your issue? Is your input solicited during the problem resolution if you enter an issue into the CAP?

16. How is the CAP assessed? What have been the results? Are such reviews effective? Please explain. How does CAP address causes and extent of conditions? Are such reviews complete? Please explain.

17. Describe any unexplainable change in the number or nature of issues raised by employees to the CAP.

18. How and at what point are employees who raised issues included in the corrective action process? Is this necessary?

19. What corrective action tracking systems exist that are not part of the official CAP? If so, why do they exist? Who uses them? What types of issues are entered into them? Do any of these tracking systems include items that are potentially important to nuclear safety or that should be in the official CAP? Please give examples. Do these tracking systems get periodically audited to verify that any items that should be in the official CAP are put into that program?

20. Can anyone enter an issue into the CAP? When someone enters an issue into the CAP, does the entry have to be approved by a supervisor? Does anyone higher up also have to approve the entry before it goes through the remainder of the CAP process? Are you aware of any issues that someone wanted to enter into the CAP, but a supervisor or higher-level manager disapproved the entry? Please describe the situation.

Decision-Making

1. When a situation arises that requires a choice between nuclear safety and production, how is the decision handled and who decides? Can you give any examples of situations in which there may be a trade-off or even a conflict between nuclear safety and production in your job (e.g., there was pressure to meet a schedule goal, but you or someone you know identified a problem which would delay the work)? Have you ever run into a situation like this? If so, what did you do? How did your supervisor react? How did your management react? How did it work out? Would you do the same thing next time? If not, what would you do differently?

2. In your own words, what does the term, “conservative decision-making,” mean? Based on your definition, can you give any examples where you have demonstrated “conservative decision-making?” If so, please describe. What about your supervisor? Your management? Please describe.

3. What do you take into consideration when making a decision on whether a situation is safe (in terms of nuclear safety) to continue operation? What about your supervisor? Your management?

4. Do you receive information on the basis of management decisions related to safety-significant or risk-significant decisions? If so, how would you characterize the level of information you receive (e.g., not enough, right amount, too much detail). Please explain.

5. What is the site process for making decisions related to safety-significant or risk-significant decisions such as whether a component is inoperable or whether a proposed design change assures safety? Does the process use a systematic approach? Is this process consistently followed? If not, please explain.
6. Can you recall an instance in which decisions were not made at the appropriate organizational level, and, as a result , a nuclear safety issue arose? Please describe.

7. Do management decisions regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples.

8. Do management decisions related to deferred outage items, corrective vs. elective maintenance, and treatment of emergent outage items reflect the appropriate focus on safety? If so, please give examples.

Environment for Raising Concerns (For working-level personnel)

1. Are you willing to raise a safety concern? Are there any conditions under which you would be hesitant to raise a safety concern? If yes, does that condition exist here at (Insert Plant Name)? Please elaborate.

2. Are you aware of situations in the past year, where any employee or contractor may have been hesitant to raise concerns, internally or externally? If yes, please explain. (If the NRC safety culture assessor is aware of a specific incident that may have caused such hesitation, then ask about it. Focus on whether or not the interviewee or others may be less likely to report concerns since that incident).

3. Where would you go to raise a safety issue? [The NRC safety culture assessor should be aware of the following avenues for raising concerns, but not prompt the interviewee: supervisor, corrective action program (CAP), alternative program (Employee Concerns Program (ECP)/Ombudsman), NRC or other avenue.] Why would you pick this avenue? Have you or others had any experiences, or know of any situations, that have influenced your decision to pick this avenue? If so, please describe.

4. Are there other avenues available to you for raising safety issues? Ask each of the questions listed in the following table for each avenue available:

Question	Supervisor	Corrective Action Program	ECP/ Ombudsman	NRC	Other
Have you ever submitted a safety issue to (insert method) If no, why not?					
If yes, was the issue adequately addressed? Why or why not?					
If not adequately addressed, did you further pursue the issue? If not, why not?					
Given the nuclear safety importance of the issue, did you receive timely feedback?					
Describe any instances in which another employee who submitted an issue to (insert method) and you considered the response unacceptable?					

5. Explain how to use the ECP/Ombudsman program. How did you learn about the ECP/Ombudsman program? Is the ECP/Ombudsman office accessible? Too visible? Do you (routinely) see the ECP/Ombudsman Manager/Investigators around the plant? If yes, give examples. Is your management supportive of the ECP/Ombudsman program? If yes, how is such support demonstrated? If no, please describe what has led you to believe that they are not supportive.

6. Has your confidentiality been breached when a safety concern was raised to the ECP/Ombudsman? Describe. Do you know if anyone else's confidentiality has been breached when a safety concern was raised to the ECP/Ombudsman? If yes, describe.

7. Would you say that your management is supportive of the SCWE policy? If yes, how is such support demonstrated? If no, please describe what has led you to believe they are not supportive.

8. Have events or circumstances occurred in the past year that have reduced: Your willingness to identify or raise safety issues? Your confidence in the corrective action program? Your willingness to challenge actions or decisions you believe are wrong? Your comfort level in voicing your viewpoints and opinions?

9. Have you received training concerning SCWE? If yes, describe what it covered. When did you last receive SCWE training? Is there periodic SCWE refresher training? If yes, how often?

10. Did your supervisor receive any SCWE training? If yes, did you notice a difference in the way he or she handled concerns after the training?

11. If there has been an assessment of SCWE, were the results effectively shared with you? Were any actions taken with the results? If yes, please describe.

12. If actions have been taken by management to maintain or improve the SCWE, have they been effective? Why or why not?

Environment for Raising Concerns (For supervisors and managers)

1. Are you willing to raise a safety concern? Are there any conditions under which you would be hesitant to raise a safety concern? If yes, does that condition exist here at (Insert Plant Name)? Please elaborate.

2. Are you aware of situations in the past year, where any employee or contractor may be hesitant to raise concerns, internally or externally? If yes, please explain. (If NRC safety culture assessor is aware of specific incident that may have caused such hesitation, then ask about it. Focus on whether or not the interviewee or others may be less likely to report concerns since that incident).

3. Where would you go to raise a safety issue? [The NRC safety culture assessor should be aware of the following avenues for raising concerns, but not prompt the interviewee: supervisor, corrective action program (CAP), alternative program (Employee Concerns Program (ECP)/Ombudsman), NRC or other avenue.] Why would you pick this avenue? Have you or others had any experiences, or know of any situations, that have influenced your decision to pick this avenue? If so, please describe.

4. What are your management's expectations of you regarding handling employee (safety) concerns (e.g. responsiveness, timeliness, availability, confidentiality) ? How has your management documented these expectations? Please explain. How are these expectations measured/assessed (e.g., performance appraisal)?

5. What are management's expectations regarding employee behavior when raising safety concerns (e.g. peer-to-peer retaliation)? How are these expectations communicated?

6. How do you actively encourage your employees to bring concerns to you? Give examples (e.g. reward/incentive programs; communications).

7. Describe what an employee could do if he/she were not satisfied with how their concern was handled. For instance, is there an appeal process they may use? If yes, have you ever been through such a process? Describe your experience. How do you advertise this process to employees?

8. Have you been requested to protect the confidentiality of an employee raising safety concerns? If yes, how did you protect that? Are you aware of any instances where an employees' confidentiality was breached? If yes, describe.

9. As a manager, explain how you use the ECP/Ombudsman. Do you believe that the ECP/Ombudsman program is sufficiently independent from management? How do you show support for the ECP/Ombudsman? Give an example. (Is there survey data that shows what percentage of employees believe their manager supports the ECP?)

10. How are contractors covered by your SCWE Policy? Are all contractors covered? How do you ensure that contractors working under your direction foster a SCWE? Ask if guidance exists for evaluating contractor SCWE programs.

11. Have you received training concerning SCWE? If yes, describe what it covered. If you have received SCWE training, when did you last receive it? Describe any changes in the way you handled safety concerns brought to you after you took the

SCWE training. Is there periodic SCWE refresher training? If yes, how often? What SCWE training do contractors receive? If none, why not?

12. Describe the tools that management uses to monitor overall SCWE performance. How are the results of these tools (e.g., SCWE surveys, etc.) made available to the workforce?

13. Have actions been taken to maintain or improve the SCWE? Have they been effective? Why or why not?

14. Do you know what is expected of you in handling employee concerns? Do you feel able to effectively handle employee concerns? Are you held accountable for your handling of employee concerns? How?

Operating Experience

1. Are you able to find out what's going on relative to operating experience in the rest of the industry? from the NRC? Please describe how.

2. Does the site have a program for the collection of operating experience (OE) information? What about for evaluation? How are the programs communicated to the affected staff? How effective are the programs?

3. Can you think of an instance in the past year where external operating experience (OE) resulted in changes in how things are done here? If so, what was the event/problem/OE? Do you think the changes solved any problems or improved things?

4. Do you read relevant internal OE information? What about external OE information? How often? Is the information provided to you in a timely manner? Is it useful? Is it accessible? Can you quickly find what you need (without having to wade through everything)? (If a supervisor) Can you quickly find relevant information related to specific jobs to include in pre-job briefs? Do you have sufficient time to effectively use OE (i.e., is it an organizational priority?)? If no to the any of the above, please explain.

5. Can you think of an instance in the past year where OE information resulted in change to procedure(s)? If so, how often has this happened? Please provide an example and describe what happened.

6. Have there been any changes to training as a result of OE information in the past year? If so, Please provide an example and describe what happened.

7. Can you think of an instance in the past year where OE information did not receive attention? Was it something you thought was relevant? What was the topic? What would you have liked to see changed because of it? Please explain.

Organizational Change Management

1. Is there a change process for major organizational changes? What is that process? Please discuss. Is the process systematic? Please describe. In your experience, has the process worked well? Please provide an example.

2. Can you think of an instance in the past year in which management made a major organizational or resource change, such as a re-organization, a change in more than one senior-level manager at about the same time, layoffs, a hiring freeze or a hiring effort? If so, what was the change? How has the change worked out?

(Follow on questions 3 and 4, as appropriate)

3. How and when did you learn of the change? Were the reasons for the change communicated to you? In your experience, did the reasons for the change make sense?

4. Was the change actually carried out in the way you were told that it would be implemented? If not, were you informed of the reason(s) for the change of plans?

5. Is there a process for evaluating the impact of organizational changes on nuclear safety? If so, Explain that process. In your experience, has the process worked well? Please provide an example.

6. Have organizational changes (fill in with the specific change if applicable) impacted employees' willingness to raise concerns? Please discuss.

7. Are key management positions filled expeditiously or are "acting" managers common practice?

Preventing, Detecting, and Mitigating Perceptions of Retaliation

1. What are the organization's policies regarding preventing and detecting retaliation and/or chilling effect?

2. Are you aware of any actions taken by your management to prevent and detect retaliation and/or a chilling effect? If so, were their actions effective in addressing the situation? Do you believe that management's handling of the issues is consistent?

3. Are you aware of any instances in which another individual experienced a negative reaction for raising a safety issue? If yes, please describe the incident, including any information conveyed by management concerning the incident.

4. Are you aware of any specific instances in which another employee (or contractor) submitted an issue to the corrective action program or ECP and was retaliated against for pursuing the issue? Please describe the situation.

5. Are you aware of your company's policy with regard to protecting employees against retaliations/discrimination for raising nuclear safety concerns? Does management tolerate retaliation of any kind for raising concerns? Please explain.

6. How do you/your management prevent retaliation or the perception of retaliation associated with disciplinary actions or changes to the plant organization to ensure actions do not chill others (e.g., communicate reasons for discipline)? (This question is for managers)

7. How do you ensure that you don't discourage the reporting of issues when there is pressure to meet production goals? (This question is for managers)

8. What actions can you take if an allegation of employment discrimination involving a contractor is made?

Resources

1. What methods does your site use to maintain plant safety long term? (e.g., maintenance of design margins, minimization of long-standing equipment issues, minimizing preventive maintenance deferrals, ensuring maintenance and

engineering backlogs are kept low enough to support safety) Can you provide any examples or how it has (or has not) had an effect on resources?

2. Are there any nuclear safety initiatives or programs that your work group or team are currently involved in? If so, please describe the initiative/program. What is its purpose and goal(s)? What are the actions you are taking to accomplish the goal(s)? Do you have a sense of whether the program or initiative is being effective? Please describe. Does the program include ways to measure its effectiveness?

3. In the past year, have you lacked the type of tools, equipment, and other resources you need to perform your job? Can you think of an instance in the past year when you needed additional tools/equipment/resources to perform your work and were able/unable to obtain them? Please describe the request. If it was turned down, what reasons were you given for the decision? What impact did the lack of the__ _have on your work?

4. During the past year are you aware of situations in which the lack of staff, equipment, or facilities impacted the safe completion of a job? Are the people available qualified to perform the work? If no, why do you think that is? In the past year, can you think of any instances in which a lack of qualified staff, equipment, or facilities delayed the completion of work tasks? If so, please describe the circumstances. Are there any barriers to adding the qualified staff you need to get work done around here? Please describe.

5. Have you worked overtime under a deviation from the work hours policy in the past year? If so, which of the work hour limits was/were exceeded? What were the circumstances that required the extra work hours? How often does this occur?

6. Have you ever turned down overtime because you believed you were too tired to be safe? What response did your supervisor (or whoever you reported being too tired to) give you?

7. Have any instances occurred in which backlogs impacted the site's ability to respond to nuclear safety issues? Please describe.

8. Are there adequate resources to ensure that procedures, work packages, and design documentation are complete, accurate, and up-to-date? If no to any of the these attributes, please describe.

9. Do you use the simulator for any of your work or training? How would you describe the difference in the performance of the simulator with the plant?

10. Are you aware of a emergency drill where the adequacy of the emergency facility impacted performance of personnel? If so, please describe.

11. In the past year are there any long standing equipment issues at the site that were not addressed, such as deferred maintenance and/or PM's, deferred outage work or deferred emergent work, unaddressed operator burdens and control room deficiencies, or long-standing temporary mods? If so, please explain.

Safety Policies

1. Is there a vision/mission statement/policy that addresses safety? Is it clearly visible and understood? Where is that statement/policy located? What goals does that statement/policy specify?

2. Is there a separate policy on safety culture? If so, What do you think is the most important aspect of this policy? What is your reason? Is there a separate policy on safety conscious work environment? If so, What is the most important aspect of this policy? What is your reason? Specifically, how does management communicate these policies to the staff? How effective is this communication?

3. Other than policies, what tells you about the priority of nuclear safety at this site? What is the message you receive? Have any additional nuclear safety goals have been formulated for your work? What are they? Have you used them to guide your work? If so, how?

4. Do decisions and actions at your level incorporate the safety goals we just discussed? How?

5. How do your managers balance production and safety? Can you give an example of a good balance between production and safety? An unacceptable example? If your work group has production goals, are these goals communicated in a manner that reinforces safety?

6. Have you received training concerning safety policies? Describe what it covered. What did you think of this training (e.g. useful/not useful, effective/not effective)? When did you last receive such training? Have any of your other training courses referred to the priority of nuclear safety? Which courses and which policies?

7. How are the safety policies reinforced? (e.g., by management?, goals?, incentives? accountability?)

8. In your experience, how well do the managers at this site communicate in a clear way that nuclear safety is a high priority? Please provide an example of an effective communication. Did it change anything about how you think about your work or how you do it? If so, what changed?

Self- and Independent Assessments

1. Is self-assessment and improvement important at this site? Explain.

2. Have you ever been involved in a self-assessment or independent assessment? If so, what was the subject? When was it done? Did you have the resources you needed to complete the task (e.g., time, qualified personnel to address the technical issues involved)? If not, please explain. Were the schedule and due dates for completing the assessment consistent with the complexity of the issue? Was the assessment of sufficient depth to address the complexity of the issue? Were the results and recommendations from your effort used? How? Did the outcomes from the self-assessment lead to positive changes in how things are done? Did you experience any challenges while conducting the assessment? Please explain. Would you volunteer to become involved in one again? Please, describe your reasons.

   If not, do you know someone who has been involved in a self-assessment who we could talk to?

3. Do you know what typically happens to results from self-assessments or independent assessments? If so, please explain. If the assessment makes recommendations, do you know what happens to those recommendations? Please explain. Is there any tracking done on the recommendations? Please explain.

4. Has there been a recent self-or independent assessment of your department? Were the results communicated to you? If so, What were the results/findings? What changes resulted from the findings of the assessment? Were there any results/findings that were not addressed? Please explain.

5. Are you aware of an assessment of the effectiveness of the corrective action program? If so, did any of the findings impact your work? How?

6. In your job, do you track or trend performance indicators? What are those indicators? How are they used? Based on your experience, how would you describe the usefulness of the performance indicators? Are there any indicators you believe should be used but are not currently?

7. Are the results from self-or independent assessments typically communicated to you or affected personnel? How? If the results typically aren't communicated or you do not know, please describe the various assessments you know have been done in the past year. What do you think about not receiving this information? Is not receiving this type of information a problem? Whose responsibility do you think it is to deal with communicating that information (management, yours, or both)? If you are aware of assessment results, could this communication be improved? How?

8. Have there been instances in which the results of some self- or independent assessment resulted in changes in how you do your job? What were the changes? Have the changes solved the problem(s) and/or improved things? Was there something else that could have been done that would have worked better or been more effective?

9. What's the reaction to independent assessments done by your QA department? By external groups? By INPO? NRC inspections? Is this input valued by the organization? by management? by your peers? Is it used to improve?

Work Control

1. Has any change occurred in the nuclear-safety orientation of the site during the last several years? If so, has this had any effect on your work? How? Please describe.

2. What messages have you received from various people in this organization regarding the priority of safety? Please describe any different messages.

3. Does the site plan work such that job site conditions are adequate, including environmental, which may impact human performance; plant structures, systems, and components; human-system interface; and radiological safety? (Divide this question in pieces as appropriate for the respondent) Please describe.

4. Has your supervisor provided you with "abort criteria" for situations or conditions in which you should stop work? What are they? Are you aware of any guidance with respect to "compensatory actions"?

5. How does the site schedule emergent work? Can you give an example where is was not scheduled appropriately?

6. Do you get sufficient and timely information about what's going on at the site and in your department from your supervisor? In the past year, can you think of an instance in which timely communication or lack of timely communication made a difference in how you perform your job? Please describe.

7. In the past year, have you found that the work you were assigned to do couldn't be performed because it was scheduled in a way that it interfered or conflicted with other work being performed? Did the work have to be stopped or delayed? Over the past year, about how often would you estimate that this has happened to you?

8. In the past year, have you had to make a decision with nuclear safety implications and did not have any procedure to follow? Please explain. Have you ever had to deviate from procedure in order to assure the nuclear safety of the site? Please explain.

9. Are you aware of an example of a repeat maintenance issue that occurred in which the licensee had previously resolved the issue with temporary modifications? Please explain.

10. Is preventive maintenance scheduled in a manner that promotes long term equipment reliability? Please provide an example.

11. Is your work impacted by "operator work-arounds"? If so, please describe how?

12. On a scale from 1 to 5, how reactive (rather then preventive) do you rate the plant site maintenance scheduling? When equipment failures occur, are the maintenance activities sufficient to address all aspects of the system which could have been impacted or are subject to the same failure types? Please explain.

13. Is there an appropriate balance between outage and on-line maintenance at this site? Are outages typically long enough to do all the necessary work? Is work sometimes moved from the outage to on-line maintenance to keep outages as short as possible?

Work Practices

1. In terms of safety, what is your personal approach to your own work? Who do you look to for guidance on nuclear safety issues?

2. What is the first thing that happens here when an event has occurred that seems to have been caused by human error? Can you give an example? Based on your experience, what are the most common reasons behind human errors?

3, Are self and peer checking procedures used at the site? If so, how? Please describe your personal experiences. Can you think of any situations where they should be used but are bypassed? If so, please explain. Have you received any training on human error reduction techniques? How is the use of human error reduction techniques reinforced? Are you held accountable for using human error reduction techniques in your work?

4. Do you participate in pre-job briefs? If so, are pre-job briefs routinely held? For what types of work? Are they effective?

5. Over the past year, have you encountered a situation where you or someone else were getting ready to perform a job or were in the middle of performing it, and unexpected or uncertain conditions arose that were different from what you or the other person were led to expect? If so, about how often? Please provide examples and describe what you or the other individual did.

6. Do you personally have stop work authority? Have you used it or considered using it at any time within the past year? If so, please describe the situation. If you did stop work, what kind of reactions did you receive from co-workers? your immediate

supervisor/manager? higher-level management, if they became involved? Were you satisfied with your decision? Would you do it again?

7. What approach does this site take towards preparing for new and infrequently performed tasks? Is just-in-time training conducted for infrequently performed tasks? If so, how often? Have you ever participated in one of these training sessions? If so, please describe your experience. Do supervisors and/or managers typically provide oversight when new or infrequently performed tasks are being conducted?

8. Describe your fitness for duty program. Based on your experience, is it effective? Please explain. Based on your experience, is management supportive of the program?

9. If another department makes a change in how they perform their work that affects your work, are you informed of the change? How? Have there been instances where changes were made that directly impacted your job that you were not made aware of? If so, please describe.

10. Is it communicated to personnel which procedures require verbatim compliance? Are such procedures followed? If not, please explain.

11. Do you get feedback on your nuclear safety performance from your supervisors? Peers? Can you describe a recent (past year) situation in which you received feedback from your supervisor/peers? What was said or done to give you the feedback? Did you change anything as a result? Are you able to provide feedback on safety performance to your peers or supervisors? Please explain.

12. Do managers observe your work? If so, how often? What do they do when they are observing? Are you aware of any changes to how work is performed at the site that have resulted from management observations? If so, please describe.

13. Does the site provide oversight of contractors? If so, how? In your experience, has the oversight been adequate? Can you think of any examples where lack of oversight of contractors led to a safety issue? Please describe.

Enclosure 95003-C
Guidance for Focus Groups and Individual Interviews

This enclosure provides information about the strengths and limitations of different interview types and methods. It also provides guidance for conducting individual and group interviews.

This enclosure is arranged in the following five parts:

Part	Contents
1	Individual Interviews
2	Group Interviews
3	Structured Interviews
4	Unstructured Interviews
5	Sampling Guidance

Note that both individual and group interviews may be either structured or unstructured.

The first four parts are subdivided into Overview, Strengths, and Limitations subsections. Parts 1 and 2 also include a Guidance subsection. Part 5 presents considerations in selecting samples of participants for interviewing.

1. Individual Interviews

1.1 Overview

Individual interviews consist of collecting information in a face-to-face, one-on-one setting where an interviewer poses a series of questions/topics to the interviewee and records the information provided. The degree of structure in the questions/topics can vary. (See parts 3 and 4.)

1.2 Strengths

- Permits detailed exploration of an individual's values, perceptions, attitudes, and views about the organization's norms.
- Preferred method when information is more sensitive or personal and anonymity can be assured.
- Useful when additional probing on answers is required.
- Interviewer has good control over the session in terms of topics discussed and detail provided.

1.3 Limitations

- Time-consuming and resource-intensive.
- Quality of interview data strongly influenced by interviewer skills.
- Interviews with approximately 10% of the population are needed to adequately understand existing issues.

- Information from a single interviewee cannot be considered unless validated through other sources of information.

1.4 Guidance

Complete individual interviews as follows:

1.4.1. Note that the main objectives of the interview is to gain opinions on:

- the licensee's actual awareness of nuclear safety issues;
- the safety-related attitudes of management and staff;
- the degree of compliance with policies and procedures;
- the possible reasons for observed inconsistencies or contradictions between actual and expected behavior, thus gathering data on social norms, beliefs, and values relevant to safety culture.

1.4.2. Prepare an interview plan in advance of the interview, and follow that plan to conduct the interview.

1.4.3. Conduct the interview in 3 stages, as follows:

1) Establish a relationship of trust and cooperation with the interviewee

2) Gather interview data

3) Tell the interviewee that the results of all the interviews are captured and considered along with other results, and that observations, findings, and conclusions are documented in the Inspection Report.

4) Discuss and evaluate issues raised by the interviewee

1.4.4. After the interview, prepare a written summary of the interview results, with emphasis on the issues raised by the interviewee and insights gained by the safety culture assessor.

2. Group Interviews

2.1 Overview

Group interviews (i.e., focus groups) consist of collecting information in a face-to-face, group setting, where an interviewer poses a set of questions/topics to the participants and records the information provided. The degree of structure in the questions/topics can vary.

2.2 Strengths

- Group interaction can prompt/sustain discussions without a high level of interviewer input.
- Efficient - requires fewer team resources than individual interviews to obtain adequate sample size.

2.3 Limitations

- Should not be used (1) for sensitive or personal topics, (2) when there is evidence of conflict within or between work groups, or (3) when the participants have concerns about anonymity and confidentiality of responses.
- Interviewer does not have a high degree of control over the session; time may be lost on irrelevant issues. Participants will react to others' statements in addition to the interviewer's questions.
- The interview session may be dominated by the views of a minority of the participants.
- Participants may feel pressure towards consensus.
- Qualitative data may be difficult to analyze.

2.4 Guidance

2.4.1. Open each focus-group interview by introducing the safety culture assessors who are in the focus group. Ask the participants to introduce themselves (first names should be sufficient) and describe how long they have worked in their current organization, as well as, on site in total. Verify that the attendees are as selected by the safety culture assessors. Question the inclusion of substitutes. If supervisory or management personnel are among the working-level attendees, ask them to leave and invite them to meet privately with the safety culture assessors at another time or check if they are in the supervisory focus groups. Then tell participants:

- that the purpose of the focus group is to determine whether and how underlying issues contributed to the performance deficiencies which prompted this inspection;
- how interview participants were selected;
- that the focus group will consist of discussions prompted by questions;
- indicate that, to the extent possible, information obtained during the inspection will not be attributed to individual participants who are interviewed by the NRC. Remind the participants that the discussion is occurring in a group so others will hear what is said. Also, state that if an individual provides details about a specific event in which he or she was uniquely involved, and if the NRC includes those details in their writeup of this inspection, then those details may identify the participant who provided the details;
- all records held by the NRC of people participating will be destroyed after the focus group;
- that the NRC expects that cooperating with the NRC inspection, including participating in the focus group should not be used in any way to threaten, punish, or retaliate against an individual. The safety culture assessor should explain that if the individual wishes to discuss issues in a separate private interview, the safety culture assessors or residents if the safety culture assessors are no longer onsite, will make

themselves available. Such concerns may be handled as allegations (e.g., claims of retaliation or wrongdoing) or included as input into the ongoing inspection, as appropriate.

- that the results of all the interviews are captured and considered along with other results, and that observations, findings, and conclusions are documented in the Inspection Report.

2.4.2. From the set of questions developed or selected for this interview (see parts 3 and 4), ask one of the questions and invite participants to respond. Ask followup questions as necessary to clarify responses and encourage discussion from other participants. Continue followup questions until the group's response is complete and understood, and the team has obtained from the participants as many insights into safety culture components as are reasonably associated with that question. After that, ask another question.

2.4.3. Continue question-and-answer conversations as described above, for as long as participants willingly respond, or until the planned questions are all asked, subject to the following:

- Encourage all participants to speak up. Ask the same question or a variation of it to at least one other person.

- If any participant(s) does not answer any question directed to the group, direct a question or two to that participant, and encourage him or her to say what he or she thinks.

- If any participant(s) appears reluctant to answer a question or if his or her answers suggest an underlying issue or concern, make note of the question and the answers (if provided), for later follow-up. Do not persist if someone shows continued reluctance to speak.

2.4.4. Close the focus group by thanking the participants for their participation. Tell them that if:

- they have anything else to say that they did not feel comfortable saying during the session,

- they later want to clarify or revise something they said during the focus group,

- they later remember something they wish they had said during the focus group, or

- they want to talk about something that wasn't discussed during the focus group, then they should contact the safety culture assessors, and tell them how to do that.

2.4.5. After closing the focus group, review the focus group notes, and add relevant safety culture assessor observations and comments.

2.4.6. If any participant's response identified a concern or issue related to a safety culture component, or if any discussion suggested or otherwise indicated a concern or issue related to a safety culture component, then address that concern or issue as described in 02.09.

NOTE: Information that reflects negatively on licensee performance or safety culture, if provided in the context of the purpose of the inspection, is not an allegation. However, information that describes an inadequacy in licensee performance, which is specific and outside the scope of the inspection, may be an allegation if the NRC has not already assessed the validity of the issue. Any issues related to wrongdoing, whether provided by licensee management, licensee employees or contractors, or NRC staff, are allegations. For more specific guidance, refer to Management Directive 8.8, "Management of Allegations", or contact the appropriate regional allegation coordinator.

3. Structured Interviews

3.1 Overview

Structured interviews consist of using a pre-defined set of questions that are consistently asked of each interviewee or of subsets of interviewees. Can be done in a face-to-face or group setting.

3.2 Strengths

- Ensures similar topic areas are explored across multiple interviewees.
- Reduces differences in the process followed across interviewees and interviewers that could bias the results.
- Semi-structured interviews still allow follow-up questions and more in-depth probing of a topic.
- Ensures all key topics are addressed during the allocated interview time.
- Provides a basis for comparison between respondents.

3.3 Limitations

- If conducted as a fully structured interview, does not allow for additional follow-up on issues that arise.
- The question sets used require careful consideration.

4 Unstructured Interviews

4.1 Overview

Unstructured interviews consist of an interviewer asking interviewees a series of questions that are developed as the interview is conducted. Can be done in a face-to-face or group setting.

4.2 Strengths

- Gives interviewer complete freedom to fully explore topics of interest that arise.
- The interviewee largely guides the interview in terms of discussion topics. This may lead to the identification of previously unknown issues.

4.3 Limitations

- Provides no basis for comparison between respondents.
- The interview process is more likely to be influenced by the style and biases of interviewer.
- Information collected may not be highly relevant to the assessment.
- No framework is available to guide the interviewer.

5 Sampling Guidance

- Develop a sampling plan that is informed by the findings of the licensee's independent safety culture assessment and review of background material.
- Include all functional groups at the site and possibly some corporate functional groups in the sampling plan.
- Select licensee and contractor participants using a stratified random distribution (as described in (1) and (2) below) of personnel from organizational rosters, focused on specific groups as appropriate. Nominally:

  (1) For the work group(s) most closely associated with the performance deficiencies, plan to interview approximately 20% of the working- and supervisory-level personnel.

  (2) For the major functional groups that were not closely associated with the performance deficiencies, plan to interview approximately 10% of the working- and supervisory-level personnel.

  (3) Plan to interview all heads of functional groups within the licensee's management structure, and all managers organizationally above those individuals.

  (4) Work with the licensee to select permissible substitutes for selected participants, based on unavailability due to shift work, vacation, sickness, or press of duty.

Enclosure 95003-D
Guidance for Structured Behavioral Observations

This enclosure provides guidance for developing and using structured behavioral observation checklists to identify patterns of behaving related to the components of safety culture. This enclosure does not provide behavioral observation checklists for the operating experience and self-assessment safety culture components because they are process-type components and don't lend themselves to behavioral observation.

1. Overview

   Behavioral Observation Checklists involve the use of a structured format to record observational data. Key observable attributes of behaviors associated with safety culture are listed in checklist fashion, which ensures structured collection of data associated with observations. The structure also allows quantification of observational information. Behavioral Observation Checklists may also be used to guide and focus observations without quantifying the information collected.

2. Strengths

   - Data collected reflect real activities (versus respondent opinions or perceptions).
   - Multiple observations of similar activities (e.g., turnovers) allow quantification of information across multiple occurrences of the activity.
   - Observer is non-intrusive and does not interrupt activity.
   - Checklist format ensures similar information will be collected across multiple observers.
   - When quantitative data are not obtained or cannot be reported due to limited observations, qualitative data can be useful.

3. Limitations

   - Observer's presence may affect the manner in which the activity is conducted.
   - In some cases, multiple observations of a similar activity are not possible.
   - Unless multiple observations of a similar activity are conducted, quantitative data cannot be reported.
   - Those observed may avoid discussing any sensitive topics in the presence of the observer.

4. Applications

   To be completed when observing:

   - licensee decision-making processes, including goal-setting, oversight, and work planning sessions;
   - the actual performance of work activities, including activities for which formal procedures and standards of behavior exist;

- communications, including interactions between managers and staff, between peers, as well as interdepartmental, intradepartmental and external communications; and

- training.

5. Guidance:

   - Identify the categories of activities that will be observed. Select activities to observe based on their relevance to specific safety culture components to be assessed with this data-collection method, as defined in the assessment plan.

   - Through discussion with knowledgeable licensee personnel, identify the frequency with which the selected activities typically occur and determine the number of observations to be scheduled for each category of activity. If structured behavioral observation will be the primary method of collecting data about a specific safety culture component (e.g., decision-making), plan to observe a minimum of 25 activities of interest over the course of a one-week inspection. A minimum of 15 observations may be sufficient if behavioral observation will be used as a supplement to other information-gathering methods.

   - To develop consistency in using the checklists among different observers,

     - discuss the checklist items in advance and determine how they will be used;

     - jointly observe several of the same activities;

     - compare the results obtained by the different observers when observing the same activity;

     - discuss and resolve any differences in how the checklist items were interpreted;

     - revise the checklist items, as necessary.

   - For each category of activity to be observed, select a subset of the checklist items below or develop additional items, based on the nature of the activity and the safety culture components to be assessed. Do not plan to collect data about all of the safety culture components from any one observation, because the behaviors associated with some components do not occur with sufficient frequency to be provide an adequate sample of observations (e.g., budget planning meetings involving corporate and site management that might provide insights related to the Resources component).

   - Include no more than 15 items on a single checklist. Longer checklists are difficult to use and searching for items on the checklist can distract the observer.

   - Use the same checklist items when observing activities that fall into the same category of activities, so that the frequencies of the behaviors of interest can be determined.

   - For activities performed frequently during the inspection (e.g., shift turnover, pre-job briefs, and surveillance and maintenance activities), plan to observe up to 25 of the activities during the inspection.

- For infrequently performed activities (e.g. weekly management/staff meetings, all-hands meetings, personnel action meetings) plan to observe a sample of convenience (i.e., perform the observation if one occurs during the inspection and if safety culture assessors are available at the time.)

- Maintain the checklists used for each observation, even if no data were collected, in order to document the sample size.

- For each checklist created, the safety culture assessor should note:

  - the date and time of the observation;

  - the activity observed (e.g., pre-job briefing, shift turnover, plan-of-the-day meeting, department meetings, a maintenance job, corrective action review meeting);

  - the levels of management and staff involved (e.g., senior management, functional area management, middle management, first-line supervisors, staff or contractors);

  - the functional area(s) involved (e.g., operations, maintenance, radiation protection, engineering);

  - the number of individuals involved, and

  - other characteristics of the activity that can be used to compare and contrast data collected from different activities.

- Provide space on the checklist for the safety culture assessor to add notes that record more details about the interactions observed. For example, one of the checklist items below asks, "Was risk or nuclear safety discussed?" If the answer is yes, the safety culture assessor should add a description of the context in which risk or safety was discussed, the extent of the discussion, and an assessment of it. However, the additional information should be recorded only after the observation is completed, in order to ensure that the safety culture assessor is not distracted from observing.

- Following the observation, the safety culture assessor should also document any qualitative assessment of the interaction or work activity observed, related to the safety culture components. This information will be necessary to ensure that the observation data are appropriately interpreted.

- When all observations have been completed, summarize the following:

  - The number of observations made of each category of activity;

  - The extent to which behaviors were observed that are consistent with the safety culture components;

  - The extent to which behaviors were observed that are inconsistent with the safety culture components; and

  - Any qualitative information necessary to interpret properly the quantitative data.

  This information can then be used to assess how the components of safety culture are integrated into day-to-day activities. This information is useful in

assessing the overall safety culture as well as the safety culture of individual functional groups.

Example checklist items:

Accountability

(Observed during ongoing work activities.)

Are the personnel who are performing the activities given specific success criteria that define organizational expectations before beginning the work? Yes ___ No ___ N/A ___

If yes, nuclear safety was ___was not ___ among the expectations.

Is performance feedback timely, so that corrections in performance can be achieved?
Yes ___ No ___ N/A ___

If yes, did any feedback concern nuclear safety? Yes ___ No ___ N/A ___

Is performance feedback available from verbal communication ___ or performance evaluation reports generated at a later date ___?

If yes, did any feedback concern nuclear safety? Yes ___ No ___ N/A ___

Did any supervisor offer performance feedback related to nuclear safety?
Yes ___ No ___N/A ___

Did any manager offer performance feedback related to nuclear safety?
Yes ___ No ___N/A ___

Did any peers offer performance feedback related to nuclear safety?
Yes ___ No ___N/A ___

If it was necessary to deviate from the originally planned activities, did the personnel performing the activities have the authority to approve the deviation?
Yes ___ No ___ N/A ___

If yes, did the deviation have nuclear safety implications? Yes ___ No ___ N/A ___

If the work is being performed by a crew, is there an obvious structure to the group (i.e., there is a clearly identified group leader and specified roles and responsibilities for each of the other group members)? Yes ___ No ___N/A ___

Were the personnel selected to perform the activities familiar with the task requirements ___ or was there obvious uncertainty regarding the tasks to be performed ___?

(To be observed during meetings.)

Were the specific individuals responsible for implementing the initiative, project, or program under discussion present? Yes ___ No ___ N/A ___

Was the individual given an opportunity to present discuss or defend his or her position?
Yes ___ No ___ N/A ___

If the responsible individual was present, did s/he receive any feedback related to nuclear safety? Yes ___ No ___N/A ___

If yes, was the feedback provided by (check all that apply):
___ Peers
___ Supervisor
___ Manager

If the responsible individual was present, did s/he receive any feedback related to deadlines, costs, quality or other performance criteria? Yes ___ No ___N/A ___

If yes, was the feedback provided by (check all that apply):
___ Peers
___ Supervisor
___ Manager

Corrective action program (CAP)

(Typically observed during issue screening, management screening, or closure meetings)

Which of the following individuals participated in the meeting?
Corporate management ____
Senior management ____
Functional area management ____
Middle management ____
Licensee staff ____
Contractor ____
Other (describe)? ____

Were screening criteria used? Yes ____ No ____ N/A ____

Were the screening criteria conservatively applied for every issue?
Yes ____ No ____ N/A ____

Did anyone challenge how any of the criteria were being applied?
Yes ____ No ____ N/A ____

Did anyone challenge the prioritization of any issues?
Yes ____ No ____ N/A ____

Were any issues upgraded or downgraded in priority? Yes ____ No ____ N/A ____

Upgraded ____ Downgraded ____

If so, did anyone challenge the change?
Yes ____ No ____ N/A ____

Were issues thoroughly discussed? Yes ____ No ____ N/A ____

Was safety, as applicable, considered for every issue? Yes ____ No ____ N/A ____

Were there any issues where it was decided not enough information was available to make the prioritization? Yes ____ No ____ N/A ____

If so, were any individuals directly involved with the issue consulted or plans made to consult the individuals involved? Yes ____ No ____ N/A ____

Did the reviewers have an understanding of the evaluation (i.e., they reviewed the evaluation prior to the meeting)? Yes ____ No ____ N/A ____

Did the reviewers place safety as the highest priority? Yes ____ No ____ N/A ____

Was there any discussion about the scope of the evaluation (i.e., what areas the evaluation covered)? Yes ____ No ____ N/A ____

What about depth (i.e., how thorough/in-depth the issue was investigated)?
Yes ____ No ____ N/A ____

Did any reviewer raise any concerns about problems not being adequately investigated in the evaluation?
Yes ____ No ____ N/A ____

Was there any discussion on if the corrective action(s) presented could resolve all the problems identified in the evaluation?
Yes ____ No ____ N/A ____

Did any reviewer interact with the evaluator(s) of the issue? Yes ____ No ____ N/A ____

If so, did the reviewer(s) behave at any point in a way that could potentially discourage the evaluator from performing a thorough/in-depth investigation in the future?
Yes ____ No ____ N/A ____

Were there any evaluations not accepted by the reviewers? Yes ____ No ____ N/A ____

Is yes, was resolution on what to do about the evaluation reached?
Yes ____ No ____ N/A ____

If yes, was it through consensus-seeking ____ or top-down direction from management ____ ?

If no, was it decided to push the decision up the management hierarchy ____ or not ____?

If it was determined that the evaluation should have any rework done:
Was guidance provided on how to improve the evaluation?
Yes ____ No ____ N/A ____

Were any additional resources (e.g., training, additional evaluators, management assistance) offered to the evaluator(s)?
Yes ____ No ____ N/A ____

Were there any concerns raised about the new deadline?
Yes ____ No ____ N/A ____

If yes, who raised the concern? Reviewer(s) ____ Evaluator(s) ____

<u>Continuous Learning Environment</u>

(When observing training.)

Is the training a result of an event or incident that occurred at the facility due to a human performance problem? Yes ___ No___N/A ___

Do trainees appear hesitant to ask questions or seek clarification?
Yes ___ No___N/A ___

Do trainees appear to be engaged? Yes ___ No ___N/A ___

Do trainees have an opportunity to offer feedback about the training?
Yes ___ No ___N/A ___

Are trainees evaluated at the completion of training?
Yes ___ No ___N/A ___

Are trainees provided with feedback while the training is ongoing?
Yes___ No ___ N/A___

Are lessons learned from internal or external operating experience incorporated into the training? Yes ___ No ___ N/A ___

Is nuclear safety addressed during the training? Yes ___ No ___ N/A ___

Decision-making (and Organizational Change Management, as applicable)

(May be observed in scheduled or informal meetings or during ongoing work activities.)

Did the decision involve technical ___, policy____, or personnel___ issues?

Were any uncertainties discussed? Yes ___ No ___ N/A ___

Were alternatives generated____ or not ___?

Was "risk" or nuclear safety discussed? Yes ___ No___ N/A ___

Were conservative assumptions used? Yes No N/A

Were any alternatives rejected because of risk or nuclear safety considerations?
Yes ___ No ___ N/A ___

Was resolution reached ____ or not ___?

If resolution was reached, was it through consensus-seeking ___or top-down direction from management ____?

If resolution was not reached, was it decided to push the decision up the management hierarchy ___ or not ___?

If resolution was not reached, was it decided to seek more information ___ or not ___?

If nuclear safety was involved, was the decision based on sufficient evidence that it was safe to proceed? Yes____No____N/A____

If nuclear safety was involved, was the decision based on sufficient evidence that it was unsafe to proceed? Yes____No____N/A____

If the decision concerned policies, rules, and goals, did the manager consult with his/her immediate subordinates? Yes___ No___ N/A ___

If the decision concerned staffing, did the manager consult with his/her immediate subordinates? Yes ___ No___ N/A___

If the decision concerned a technical issue, did the manager consult with any technical staff? Yes ____ No___ N/A____

If the decision concerned how to solve a work-related problem, did the individual consult his/her superior? Yes___ No ___ N/A ___

Was a plan made for communicating the results of the decision? Yes___No ___ N/A___

If yes, was communicating with the affected individuals discussed?
Yes ___No ___ N/A ___

If yes, was communicating with a higher management level discussed?
Yes ___No ___ N/A ____

Were any previous, similar decisions discussed? Yes ___ No ___ N/A ___

If yes, was the effectiveness of the previous decision discussed?
Yes ___ No___ N/A ___

Environment for Raising Concerns

(Observed during any interactions among site personnel.)

Did a subordinate(s) ask any questions of a superior during the interaction?
Yes ___ No ___ N/A ___

If yes, did the superior answer the question(s)? Yes ___ No ___ N/A ___

Did a subordinate(s) raise any concerns to a superior during the interaction?
Yes ___ No ___ N/A ___

If yes, did the concerns involve (check all that apply):
___nuclear safety
___radiological or industrial safety
___resources (e.g., staff, expertise)
___scheduling or deadlines
___other

If yes, did the superior address the concerns? Yes ___ No ___ N/A ___

If yes, did the superior resolve the concerns? Yes ___ No ___ N/A ___

If yes, was the supervisor's response open and non-defensive?
Yes ___ No ___ N/A ___

Did a subordinate offer any suggestions to a superior during the interaction?
Yes ___ No ___ N/A ___

If yes, did the superior discuss the suggestion(s)? Yes ___ No ___ N/A ___

Was the interaction obviously strained ___, obviously pleasant ___, or was there no apparent affect ___?

Was the interaction related to a safety issue ___, regulatory requirement(s) ___, production issue(s) ___, personal conflict ___, other ___?

Did the interaction include discussion of ways to improve the facility performance?
Yes ___ No ___ N/A ___

Did the interaction include discussion of ways to improve personnel performance?
Yes ___ No ___ N/A ___

Did any staff member self-report an error? Yes____No____ N/A___

If yes, did peers react favorably? Yes____ No____N/A ___

If yes, did supervisor(s) react favorably? Yes____No____ N/A___

Preventing and Detecting Retaliation

(Observed during management or oversight meetings.)

Was there a rigorous investigation of the potential issue? Yes____ No____ N/A___

Did the disposition seem appropriate? Yes____No_____N/A___

Was the potential for the action to discourage the reporting of concerns discussed?
Yes____No_____N/A___

If yes, mitigation actions were____were not____assigned.

Resources

(Observed during ongoing work activities. See also procedures-related items in Work Practices.)

Did personnel have problems reading the work package (legibility)?
Yes ___ No___ N/A ___

Did personnel have problems interpreting the information in the work package?
Yes ___ No___ N/A ___

Was any information missing from the work package? Yes ___ No___ N/A ___

Were an adequate number of staff available to perform the work?
Yes ___ No___ N/A ___

Were the procedures adequate to perform the work? Yes ___ No___ N/A ___

Did personnel have the equipment necessary to perform the work safely?
Yes ___ No___ N/A ___

Safety Policies

(Typically observed in scheduled meetings.)

Was nuclear safety discussed as a goal? Yes ___ No ___ N/A ___

Were goals other than nuclear safety discussed? Yes ___ No ___ N/A ___

Goals were ___ were not ___ prioritized?

Nuclear safety was ___ was not___ assigned the highest priority.

Were any target levels attached to the goals? Yes ___ No ___ N/A ___

If goals were being set on a departmental level, were overall organizational goals factored in? Yes ___ No ___ N/A ___

If yes, nuclear safety was ___ was not ___ one of the goals.

If goals were being set on an organizational level, were corporate goals factored in? Yes ___ No ___ N/A ___

If yes, nuclear safety was ___ was not ___ one of the goals.

Was there overall agreement among the individuals setting the goals on what the goals and priorities should be? Yes ___ No___ N/A ___

Was there any indication that the goals of different departments were in conflict?
Yes ___ No ___ N/A ___

If nuclear safety goals were discussed, the following individuals brought them up:
___ Corporate management
___ Senior management
___ Functional area management
___ Middle management
___ Licensee staff
___Contractor
___Other (describe)

If production goals were discussed, was the potential impact on nuclear safety mentioned?
Yes ___ No ___ N/A ___

Work Control

(Observed during ongoing work activities or a work planning session.)

When planning a work activity, were the following issues discussed (check all that apply)?

___risk insights
___defense in depth
___job site conditions that could impact human performance
___task sequencing to optimize system availability
___potential impacts on nuclear safety of performing the activity at the same time as other activities are performed
___contingencies
___compensatory actions
___conditions under which the work would need to stop for nuclear safety reasons
___the impact on nuclear safety of any temporary modifications to be installed
___the impact on human performance of any operator work-arounds to be created
___any relevant internal or external operating experience

A pre-job briefing was ___ was not___ conducted. If it was conducted, were the following issues discussed (check all that apply)?

___risk insights and/or nuclear safety considerations
___defense in depth
___job site conditions that could impact human performance and means to mitigate their potential effects
___contingencies for mitigating the effects of mistakes and/or possible worst-case scenarios
___procedure usage requirements
___other work activities that have the potential to interact with this one
___conditions under which work would be stopped for safety reasons
___communications requirements
___applicable lessons learned from internal or external operating experience

When performing a work activity simultaneously with other work activities that had the potential to interact, communications were ___ were not___maintained between the individuals/groups performing the different activities.

When performing the work activity, unexpected conditions did ___ did not___ arise.

Work Practices

(Observed during ongoing work activities.)

Are there obvious time pressures for work completion? Yes ___ No ___N/A ___

If obvious time pressures exist:

Do they appear reasonable given the activities to be performed?
Yes ___ No ___N/A ___

Is there evidence that those pressures compromised the quality of the work performed in any way? Yes ___ No ___N/A ___

Is there evidence that those pressures compromised the safety of the work performed in any way? Yes ___ No ___N/A ___

Were time constraints for the work activities clearly communicated to all individuals involved in the activity? Yes ___ No ___N/A ___

The reason for the time constraints is related to (check all that apply):
___nuclear safety concerns
___limited personnel resources
___other scheduled work activities
___pressure to get the facility back on-line
___other/unknown

Human error prevention techniques were ___ were not ___ used.

Human error prevention techniques were ___ were not ___ discussed during the pre-job brief.

Were procedures used in performing the activity? Yes ___ No ___N/A ___

If procedures were used, were they conveniently located and easily accessible?
Yes ____ No ___N/A ___

Verbatim compliance with the procedures was ___ was not ___ required.

If verbatim compliance was required, was it achieved? Yes ___ No ___N/A ___

If verbatim compliance was not achieved,
(Note - these items relate to Resources.)

was it because the activities described by the procedure could not be performed as written, given the conditions (e.g., time constraints, personnel resources, unexpected conditions)? Yes ___ No ___N/A ___

was it because the procedures not well understood or understandable?
Yes ___No ___N/A ___

The formal process for deviating from a procedure was ___ was not ___ followed.

Were any problems encountered during performance of the work activities?
Yes ___ No ___N/A ___

If yes, did the problems have any nuclear safety implications?
Yes ___ No ___N/A ___

Work was ___ was not ___ stopped until the problem was resolved.

If a management decision or additional expertise was required to solve the problem, were the necessary individuals made available within a reasonable time period? Yes ___ No ___N/A ___

Did any personnel point out *conditions* that could adversely impact nuclear safety?
Yes ___ No___ N/A___

Did any personnel point out *behaviors* that could adversely impact nuclear safety?
Yes ___ No___ N/A___

Were any work-arounds used? Yes ___ No___ N/A___

If yes, was the work-around long-standing ___or created for the current work activity___?

Was it proceduralized? Yes ___ No___ N/A___

If the work activity was considered critical, was management present?
Yes ___ No___ N/A___

If yes, did management offer direction ___ or feedback ___ ?

Was the direction or feedback related to nuclear safety? Yes ___ No___ N/A___

This enclosure provides guidance for selecting and performing event follow-up studies to identify consistencies in attitudes and behaviors related to the components of safety culture.

1. Overview

An event follow-up study is an in-depth investigation and analysis of an organizational event (e.g., a high-visibility disciplinary action, a significant management change, a human performance problem that resulted in an operational event) or organizational condition (e.g., weaknesses in the safety culture components). Event follow-up studies provide an opportunity to trace the progression of a single event, or the development of an organizational condition, using multiple methods, to observe how organizational behaviors impact the facility's ability to cope with that event or condition.

2. Strengths

- Allows for a thorough examination of a particular situation.
- Results are documented in a narrative format providing valuable examples to support the overall findings of the assessment.
- Most effective when the activity to be tracked is identified early in the assessment and at the beginning stages of the activity, although retrospective analyses are possible.

3. Limitations

- Results cannot be generalized beyond the single situation studied.
- Requires sufficient time devoted by one to two safety culture assessors, detracting from time available for other assessment activities.
- Detailed information on the organization's assessment of the activity or event may not yet be available.
- If the event follow-up study requires retrospection, biases may be introduced by the effects of intervening events on individuals' memories.

4. Example Applications

- Understanding the history of a particular functional group or specific work unit that may be demonstrating weaknesses in one or more safety culture components to identify the causes of the weaknesses and the effectiveness or ineffectiveness of the licensee's corrective actions.
- As part of evaluating the licensee's organizational change management effectiveness by studying the implementation and impacts of a specific organizational change.
- As part of evaluating the licensee's decision-making processes by identifying the patterns of thinking and behaving that led to a specific decision.

- As part of evaluating the licensee's effectiveness in preventing, detecting, and mitigating the perception of retaliation by studying organizational events that did or did not create a chilling effect.

5. Guidance

5.1 Identify the organizational event or condition to be studied.

5.1.1 Significant events and conditions that will provide useful information about the safety culture components can be identified from the team's other assessment and inspection activities, including individual and group interviews, the review of issues entered into the corrective action program, as well as the review of allegations, previous inspection reports, and licensee self-assessments.

5.1.2 Operational events are also typically organizationally meaningful and understanding the management, organizational, and human performance causes and contributors to the events, as well as the event's organizational consequences, often provides useful information about the safety culture components.

5.2 Use a combination of interviews, document reviews, and observations, if possible, to obtain a complete understanding of why and how the event or condition occurred and its relationship to the safety culture components. Investigating and analyzing a single event or condition often provides information related to multiple safety culture components.

5.3 Ensure that the information obtained that is related to the safety culture components is shared within the team.

This enclosure provides safety culture assessors with guidance for evaluating a safety culture survey that was administered by a licensee. (The NRC's safety culture assessment will not include the use of surveys.)

Method: Quantitative surveys are structured, written questionnaires, administered to respondents. Questions are close-ended (require a single answer with no explanation) and require respondents to select the best answer from the several options provided. Answers given can be transformed into numerical information for statistical analysis.

Strengths:

- Can be administered to a very large sample or entire population.
- Can provide precise and quantitative data.
- Usually quick and easy to complete, depending on questionnaire length.
- Data can be rapidly analyzed.
- Respondents remain anonymous while information on general demographic characteristics can be collected.
- When completed by a representative sample can provide precise and reliable information on total population and subpopulations.
- Some reliable and valid surveys already exist.

Limitations:

- Not effective for exploring complicated/ambiguous issues.
- Managers can be strongly influenced by statistics.
- Results can be misleading, especially if the design, application, or interpretation of the questionnaire is less than satisfactory.
- Requires large sample sizes to draw valid conclusions, make valid comparisons, and assure statistical validity across the population and subpopulations selected.

Guidance

1. Review the questions used, as follows, to determine whether:

   (Note - the criteria listed for this step can also be used to evaluate questions used by the licensee for interviews or focus groups.)

   - Question wording is simple. Questions avoid technical or specialized words, unless the participants are highly familiar with them.
   - Sentences are short.
   - No ambiguous words or equivocal sentence structures.

- Times and places and frequencies are specified, even if they are usually assumed.

- Questions do not include double negatives.

- Questions address only one topic at a time; questions are not embedded within questions.

- Questions are unbiased and not leading (i.e., wording does not lead the respondent to answer one way rather than another or place the respondent in a double-bind where no answer accurately reflects his or her situation).

- Each question is necessary and provides additional, useful information.

- Related questions are grouped.

- Questions are sequenced so that one question or line of questioning does not influence responses to subsequent questions.

- Questions flow from the general to the more specific.

- Questions flow from the least sensitive to more sensitive topics.

- Initial questions address screening and rapport-building topics before specific questions.

- Unique or unusual questions are prefixed with an explanation to avoid confusion. For example, terms used in the questions, such as "your supervisor" or "management" should be defined, as well as any terms that may be unfamiliar to the participants, such as "SCWE."

2. Through interviews and document reviews, evaluate whether the survey was developed in accordance with standard practices. Determine whether:

   - The survey questions were pilot-tested with respondents who were representative of the intended participants.

   - Problematic survey questions were revised, on the basis of pilot test results.

   - The revisions were again pilot-tested with representative respondents.

   - The survey developer assessed test-retest or split-half reliability of the survey instrument.

   - The survey has been previously used at the licensee's facility, or in other organizations, and evaluate any evidence provided by the licensee that indicates whether the previous results were valid and accurately identified strengths and weaknesses that could be verified from other sources of information.

3. Evaluate the procedures used to administer the survey to determine whether they were systematic and were unlikely to have biased the responses. Determine whether:

   - The methods used to select the sample of participants assured representativeness.

- Questionnaires were administered in a consistent location under a consistent set of conditions. If the survey was administered at different locations or an online survey was used, determine whether the instructions to participants and other means were used to minimize the potential spurious effects of such differences on the data.

- Participants were monitored while taking the survey by the survey administrators and survey administrators were available to answer questions.

- Participants had sufficient time to complete the survey.

- All individuals in the sample had an equal opportunity to participate (e.g., accommodations were made to permit backshift personnel to participate).

- Licensee supervisors or management personnel were present only to introduce the survey team or not at all.

- The introduction to the survey clearly describes the purpose(s) of the survey, whether responses will be maintained anonymous, who will have access to the raw data, and how the information will be used.

- Introductory information and instructions encourage the respondents to answer truthfully, indicate that there are no right or wrong answers, and avoid statements that may bias the responses.

- The same introductory information and instructions were provided to all survey respondents.

- Anonymity and confidentiality were discussed.

4. Evaluate the statistical methods used to analyze the results. Determine whether:

   - Sufficient responses were received to ensure statistical validity.

   - The statistical techniques applied were appropriate for the types of data collected (i.e., nominal, ordinal).

   - Any differences in responses between functional groups or levels of management were appropriately tested to determine whether the differences were likely due to chance or appear to be statistically reliable.

   - The probability level established for comparisons between responses to individual questions, question sets, and among different subgroups was sufficiently low to reduce the likelihood of “false positives,” in which differences appear to be statistically reliable but are, in fact, due to chance.

   - Any analyses were performed to verify that scales or sets of grouped questions are internally consistent and so appear to be measuring related constructs, and that the results confirm the item groupings.

   - The conclusions drawn from the survey are supported by the results of the analyses.

5. Determine whether the quantitative survey results were supplemented with any of the following to enhance the interpretation of the results:

- Interviews or focus groups were conducted to gain additional information, as needed, to interpret ambiguous results or gain greater insights related to any issues identified in the survey.

- The survey provided opportunities for respondents to write-in comments, clarifications, explanations, and additional, more detailed information.

- Additional information related to any global organizational conditions that could affect the results, such as recent reductions in force, acquisitions or mergers, incentive buy-outs leading to large-scale retirements, or other factors, was used to evaluate differences between subpopulations or responses to the same survey administered at different times.

6. Evaluate participants' responses to the survey:

   - Determine whether any issues related to the survey were entered into the CAP, raised to the Employee Concerns Program/Ombudsman or other alternate means of raising concerns, or to the NRC in allegations.

   - Elicit individuals' perceptions of the survey, the manner in which the survey was administered, the integrity of the results, the manner in which results were communicated, and the manner in which the results were used.

Attachment 1

Revision History For IP 95003

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
C1	10/26/06 CN 06-031	Revised procedure to incorporate safety culture enhancements as required by the Safety Culture Initiative (ref: Staff Requirements - SECY-04-0111 - Recommended Staff Actions Regarding Agency Guidance In The Areas Of Safety Conscious Work Environment And Safety Culture.)	Yes	July 1, 2006	ML062980489