Safety
Culture
Improvement
Panel

U.S. Department of Energy
Safety Culture Improvement Panel

Safety Culture and Monitoring Means

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FORWARD

This report contains the results of the Monitoring Means Working Group assessment of safety culture data acquisition and performance monitoring based on a review of multiple facilities across the U.S. Department of Energy (DOE) Complex, as well as other government and commercial organizations. The intent is to provide recommended approaches to allow the effectiveness of safety culture implementation to be determined across the DOE and National Nuclear Security Administration facilities and offices.

This assessment was tasked by the Safety Culture Improvement Panel and conducted by highly experienced DOE professionals and managers that form the Monitoring Means Working Group. This effort was in response to the Safety Culture Improvement Panel required activities as defined in the Safety Culture Improvement Panel Charter signed by the Deputy Secretary on May 18, 2015.

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ABBREVIATIONS AND ACRONYMS

DOE	U.S. Department of Energy
EFCOG	Energy Facility Contractors Group
FEVS	Federal Employee Viewpoint Survey
IAEA	International Atomic Energy Agency
ISM	Integrated Safety Management
MMWG	Monitoring Means Working Group
NEI	Nuclear Energy Institute
PSO	program secretarial office
SCMP	Safety Culture Monitoring Panel

EXECUTIVE SUMMARY

This report describes the results of the Monitoring Means Working Group assessment of approaches to monitor and communicate the status of safety culture implementation at the U.S. Department of Energy/National Nuclear Security Administration facilities and offices, at the request of the Department's Safety Culture Improvement Panel.

The primary objective of the assessment was to examine current U.S. Department of Energy/National Nuclear Security Administration practices regarding the monitoring and communication of safety culture implementation, in addition to examining similar practices in other organizations. The specific task noted in the Safety Culture Improvement Panel Charter was to, "Develop a means to monitor DOE's Safety Culture."

The Monitoring Means Working Group found various metrics are used across the complex to evaluate a wide range of performance parameters, and some of these metrics can provide useful input to the determination of safety culture implementation. Based on additional nuclear industry guidance (specifically, but not exclusively from the Nuclear Energy Institute), additional key data input to evaluate safety culture implementation is periodically conducted through worker surveys. Lastly, it is important to conduct periodic broad reviews of appropriate metrics and worker survey results by senior leadership. This holistic review and leadership discussion provides the vehicle from which an evaluation of safety culture implementation can be made. As the practices addressed in this report are applicable to any organization, the recommendations can be equally applied to both DOE and contractor partner organizations.

Based on the results of the assessment (documented herein), the Monitoring Means Working Group recommends that Department of Energy sites and organizations:

1. Establish site-specific monitoring metrics and data sources applicable to safety culture;
2. Establish protocols to periodically conduct worker surveys on a sampling basis;
3. Conduct a periodic senior leadership review of the metrics and worker survey results; and
4. Provide a senior leadership summary on safety culture status based on the periodic reviews, data and surveys coupled with their own field observations, and communicate their conclusions using a safety culture continuum graphic and/or "stop light" chart.

It is essential that in implementing these recommendations senior leadership engage in effective communication from and to workers.

INTRODUCTION

This report describes the results of the Monitoring Means Working Group (MMWG) assessment of approaches to monitor and communicate the status of safety culture implementation at the U.S. Department of Energy (DOE) and National Nuclear Security Administration facilities and offices, at the request of the Department's Safety Culture Improvement Panel. The results and recommendations are widely applicable to both Federal and contractor organizations. This is particularly important to allow continuous safety culture improvement across the complex.

DOE's Safety Culture Improvement Panel was established as a permanent, high-level organization within the DOE devoted to promoting a positive safety culture; providing cross-organizational leadership focused on continuous safety culture improvement; and creating an ongoing forum for the exchange of information and ideas to establish, monitor, and sustain measures that support a positive safety culture.

Much of the information and text in this document was obtained from DOE and other nuclear industry guidance documents including those produced by the Energy Facility Contractors Group (EFCOG).

BASIS OF APPROACH

Substantial efforts have already occurred within DOE to generate the safety culture model described in DOE G 450.4-1C*, Integrated Safety Management System Guide*, Attachment 10, "Safety Focus Areas and Associated Attributes." The Safety Culture Improvement Panel MMWG efforts are intended to expand upon and elaborate on this already DOE-accepted model of safety culture attributes and focus areas.

Note: For purposes of this document the term "safety" is intended to meet the broad Integrated Safety Management System definition of safety, including but not limited to chemical, physical, biological, ergonomic, environmental, nuclear, electrical, and transportation. This broad definition is consistent with DOE G 450.4-1C.

Many DOE program secretarial offices (PSO) and DOE laboratories currently have programs established to monitor a wide range of performance metrics, including those related to safety culture. The MMWG encourages the continued use of site-specific measurements and attributes, while providing a framework to evaluate safety culture trends at a facility, PSO, and enterprise-wide basis.

Although the MMWG results do provide for incorporation of metrics/performance monitoring as an element of improved safety culture, multiple references advise that metrics alone are not enough to measure an organization's safety culture and safety culture trends.[1] To better monitor the progress of implementation of safety culture, the MMWG recommends the approach outlined in the Nuclear Energy Institute's (NEI) report, *Fostering a Healthy Nuclear Safety Culture* (NEI 09-07) for facility/site level, PSO level, and enterprise level periodic discussion, coupled with monitoring "dashboards" to provide a vehicle to view safety culture trends.

CONCEPTS OF INTEGRATED SAFETY MANAGEMENT GUIDANCE AND NEI 09-07

DOE G 450.4-1C, Attachment 10 (portion reproduced below) provides the current DOE perspective on safety culture as it applies to DOE facilities and organizations. This product was a collaborative effort

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[1] Primary references noting this are: NEI 09-07, *Fostering a Healthy Nuclear Safety Culture*, Revision 1 and IAEA Safety Series No. 75-INSAG-4, *Safety Culture*.

between DOE and EFCOG. The MMWG recommends continued use of this collaborative product along with other good practices documented through EFCOG and experience from the commercial nuclear industry as described in NEI 09-07, Revision 1 and guidance from U.S. Nuclear Regulatory Commission and International Atomic Energy Agency (IAEA) documents. Although the Integrated Safety Management (ISM) model and guidance provides a useful basis to discuss concepts and attributes of effective safety culture, an essential element not fully addressed is the coupling of site-specific performance monitoring related to safety culture with site management discussion. This is a crucial element of the NEI guidance model (NEI 09-07). NEI guidance as well as other references reviewed suggest that the periodic management discussion on safety culture at a facility/site/PSO/enterprise, provides substantially more value than simply the generation of safety culture metrics data, which may be forwarded to various management levels for information and action.

A positive safety culture is an integral aspect of an effective Integrated Safety Management System. DOE's commitment to a strong safety culture is expressed in DOE P 450.4A, *Integrated Safety Management Policy*. Because safety culture is constantly evolving, it is important to review various culture-related elements on a periodic basis, identify improvement opportunities, and take action to strengthen the culture.

Attachment 10, "Safety Culture Focus Areas and Associated Attributes" from DOE G 450.4-1C states:

> Experience from the commercial nuclear industry, including the Institute for Nuclear Power Operations, has been reviewed for relevant lessons. An analysis of this experience and research over the past decade has identified supplemental safety culture elements that may be helpful to focus attention and action in the right areas to create the desired [Integrated Safety Management (ISM)] environments. These elements also promote a shift from mere compliance toward excellence. They emphasize continuous improvement and long-term performance, and they are entirely consistent with the original intents of ISM.

DOE and EFCOG have collaborated to develop safety culture definitions and guidance for achieving a strong safety culture. DOE's definition of safety culture is:

> Safety culture is an organization's values and behaviors modeled by its leaders and internalized by its members, which serve to make safe performance of work the overriding priority to protect the workers, public, and the environment.

DOE and EFCOG identified the following safety culture focus areas and several attributes associated with each one (DOE G 450.4-1C), they felt offered the greatest potential for achieving excellence in both safety and production performance:

- Leadership
  - Demonstrated safety leadership
  - Risk-informed, conservative decision making
  - Management engagement and time in field
  - Staff recruitment, selection, retention, and development
  - Open communication and fostering an environment free from retribution
  - Clear expectations and accountability

- Employee/Worker Engagement
  - Personal commitment to everyone's safety
  - Teamwork and mutual respect
  - Participation in work planning and improvement
  - Mindful of hazards and controls

- Organizational Learning
  - Credibility, trust and reporting errors and problems
  - Effective resolution of reported problems
  - Performance monitoring through multiple means
  - Use of operational experience
  - Questioning attitude

There are common misunderstandings about the definition of safety culture. It is important for an organizations' review panel to have a common understanding of safety culture, key safety culture attributes, why it is important, how it can be assessed, and how it can be changed.

It is difficult to measure culture because values, assumptions, and beliefs are not directly observable. However, multiple data sources can be collectively monitored to provide a more accurate picture of the current state of culture. A safety culture monitoring process similar to the model described in NEI 09-07 has been useful at many sites serving as a focal point in driving organizational culture improvements. An organizations' focus should be on strengthening culture using a continuous improvement approach.

SAFETY CULTURE MONITORING PANEL

A model used to monitor culture, derived from NEI 09-07, is recommended as discussed in this section. The objective of the model is to identify types and sources of quantitative and qualitative information to be reviewed holistically as an indication of the health of a facility's/site's safety culture. This includes metrics and data to be used with emphasis on safety culture, related issues, and those documented conditions identified in the issues management program. Added emphasis is placed on periodic assessments or evaluations conducted by internal or external groups, along with feedback from the customer and contractor corporate reviews, to ensure compliance with the safety culture policy, procedures, and management expectations.

The NEI model addresses an organizational tool named the "Safety Culture Monitoring Panel (SCMP)" as an important element of monitoring safety culture implementation. The SCMP is responsible for monitoring process inputs for potential trends, deteriorating conditions, and project issues, which may be early indicators of latent weaknesses, performance gaps, or error precursors in the safety culture; and for reporting results to the organization's leadership. Key inputs collectively demonstrate the capability of the organization to self-identify, self-report, and resolve problems project wide. The SCMP identifies organizational behaviors and practices, inhibiting as well as fostering a strong safety culture. It reviews progress in the institution and the use of issues management processes and contractor assurance system program elements, feedback identified in external reports, including DOE assessments, corporate, and industry evaluations. The SCMP monitors and makes recommendations related to issues identified through cultural surveys and external assessments, appropriately capturing and effectively addressing them. The SCMP tracks progress of these actions for timeliness and effectiveness.

In addition to the use of an SCMP, a critical element of the NEI model is the periodic evaluation of the safety culture of a facility/site/organization by the appropriate senior leadership. This group may be the

SCMP itself, or management may obtain summary information obtained and synthesized by the SCMP. The level of effort and formality for an SCMP should be tailored to the needs of the specific facility or site. A complex site with multiple high risk facilities would likely benefit from a more structured approach, whereas a smaller, single mission, low risk site could adopt a more informal approach. The key elements for all, however, are the establishment of site/facility-specific metrics related to organizational safety culture, coupled with the periodic evaluation and discussion of the relevant metrics, survey results, and other inputs by a cadre of senior management. An organizational approach to the use of an SCMP and the leadership group is provided in Figure 1.

As noted in Figure 1, multiple data input sources are available and should be used to ascertain the safety culture status of a site/facility. Some of these inputs are noted in the box at the bottom of Figure 1. The relevant data should be provided on a specified frequency to both the SCMP as well as the selected site/facility senior management team members. Further discussion regarding the various inputs to the SCMP are provided below.

As an element of the senior management review, a site/facility should establish, based on site-specific needs, performance thresholds to allow adverse trends to be identified, which may require corrective or improvement actions. These performance thresholds are definitely site- or organization-specific, as it is inappropriate to compare a given threshold for one organization against another as individual data points by themselves without context provide no real intelligence for senior leadership. More important is the evaluation and understanding of data performance trends in determining the status of safety culture implementation for a given site or organization. An additional important source of data for the period senior leadership review of safety culture is first hand observations of safety culture as implemented in the workplace. This is also supportive of the ISM Safety Culture Attribute of *Management Engagement and Time in the Field.*

The periodic review of process inputs by senior leadership for an organization is the critical element of the NEI 09-07 described approach. All process inputs (e.g., metrics, field observations, survey results, trends, others) should be collectively reviewed with the intent to prompt leadership discussion and ownership of issues and to identify opportunities for continuous safety culture improvement. It is important for senior leadership to remain self-critical, particularly since culture is highly influenced by senior leadership.

The outcome of the periodic review by senior management would be any site organization actions, as well as communication and feedback. In order for the SCMP approach to be successful, it is essential that communications to and from senior management occur and through multiple paths. Interactive communication provides the valuable feedback needed for continuous improvement in safety culture. The goal is to provide information to senior leaders to prompt open and honest discussions that enable the organization to evaluate what issues may be affecting the overall safety culture and safety conscious work environment (e.g., the free flow of information up, down, and across the organization – without fear of intimidation) and to proactively respond to any potential for a chilling effect.
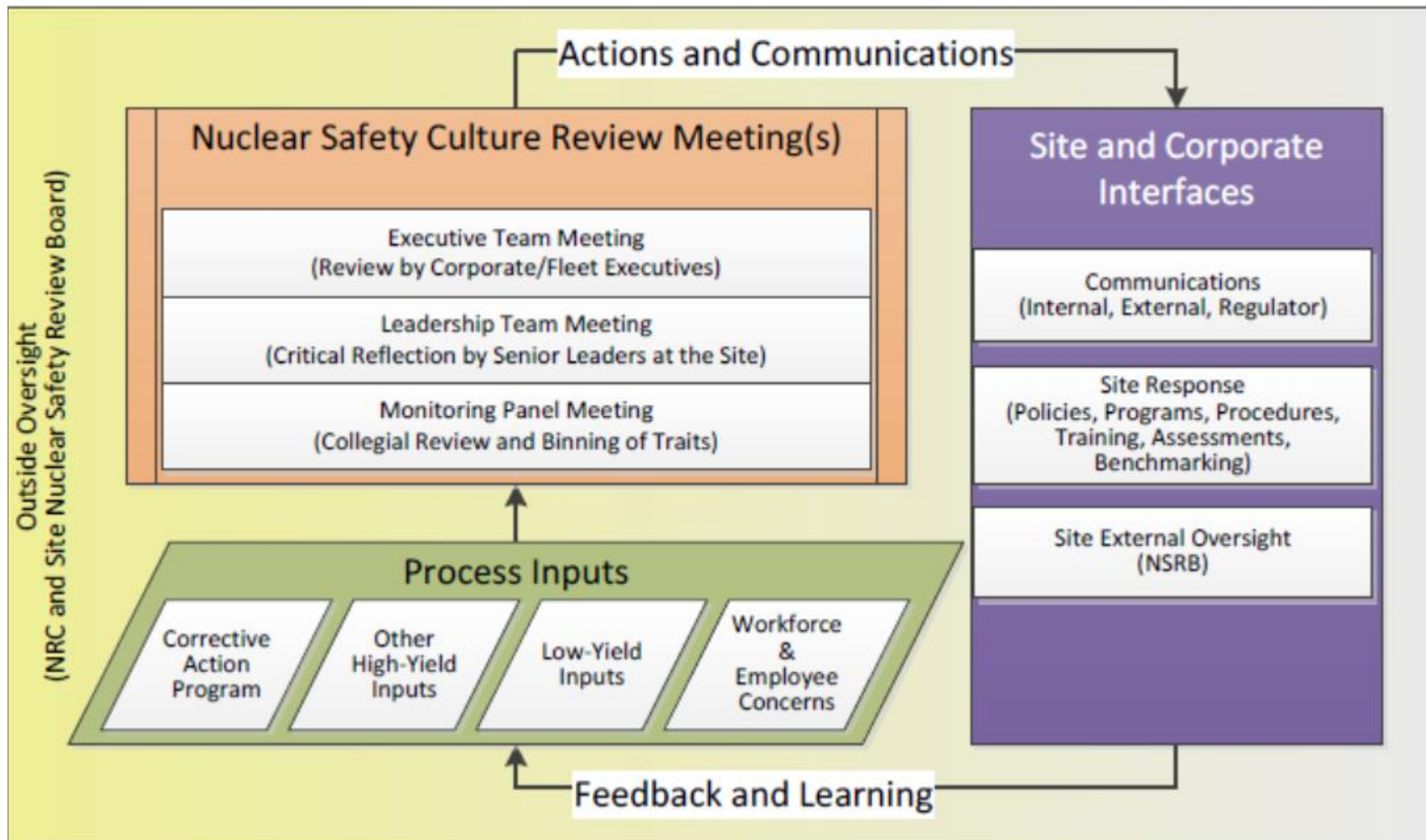
FIGURE 1 - EXAMPLE OF SAFETY CULTURE REVIEW PROCESS FROM NEI 09-07, REVISION 1

SAFETY CULTURE MONITORING PANEL PROCESS INPUTS

As noted in Figure 1, there are multiple process inputs available to the SCMP to support the periodic monitoring of safety culture implementation at a given organization. Feedback and learning provide inputs through external oversight, benchmarking and lessons learned, and corporate inputs. Additional feedback is also provided through actions and communications from senior leadership based on SCMP input.

Figure 1 notes four blocks of process inputs, however, in practice a wide range of inputs are available and should be selected on a site-specific basis.

Issues Management Process

The issue management process may contain a wealth of data that can be reviewed to provide insights into cultural health. Causal analysis results may be sorted to identify prevalent cultural issues, for example, failure to hold employees accountable to performance standards. Issue resolution timeliness, effective corrective actions, number of issues identified, and worker involvement can provide additional insight about the culture.

Workforce and Employee Concerns

Valuable information regarding the status of safety culture can be obtained by evaluation of issues addressed in employee grievances, differing professional opinions, and employee concerns. In gathering this information it is essential to ensure employee confidentiality and employee relations protocols are followed.

Assessments

Both internal and external assessments can be used to identify cultural issues, regardless of the subject of the assessment. Specific cultural assessments would have direct input to this process; however, all assessments conducted may provide insights as to the safety culture of a facility or site.

External Evaluations

Seeking external feedback is essential to making lasting improvements and guarding against complacency. Any organization has "blind spots"; no organization should "go it alone" when evaluating culture. Complacency can result in the normalization of deviance from documented performance standards. For example, an organization which prioritizes production at the expense of safety can lead to an erosion of compliance with established safety practices which, in time, becomes acceptable practice. Benchmarking and use of experts from outside the organization are necessary steps to help organizations more accurately determine cultural health and associated actions.

Benchmarking is a useful process to compare organizational attributes to a recognized external industry leader. The purpose for benchmarking should be clearly identified rather than benchmarking for the sake of benchmarking.

Safety Culture Metrics

Many DOE facilities already have routine performance monitoring programs. These may be prepared to address internal management and operating interests, provide data for DOE periodic evaluations of the contractor (e.g., performance evaluation and measurement plan process) or for other means. These already existing performance metrics programs should be evaluated to determine those which provide possible inputs toward the primary safety culture focus areas of leadership, employee worker engagement, and organizational learning. Where available, a listing of possible metrics should be provided for each of these focus areas. If not in use, facilities should consider the establishment of metrics of their choosing, which relate to these three focus areas. The metrics could be from the list provided in Appendix 1 or a facility could prepare/use their own as long as it reasonably would relate to one of the three safety culture focus areas.

In addition to the simple acquisition of safety culture related metrics, it is equally important to evaluate trends of the metrics over time.

Periodic Safety Culture Surveys/Assessments

One element used in many facilities/organizations is a periodic survey or assessment of safety culture from employees. This can be a useful "calibration" of the results obtained from the periodic management review of safety culture performance. These assessments can be as simple as a few (no more than 10) questions added to the facility/site annual training requirement, which are typically provided electronically, to more extensive division or sitewide detailed questionnaires. Like all, the specific approach selected should be tailored to the needs of the facility/site/organization. Any type of selected survey or assessment should be developed so that the questions developed are appropriate and able to be validated for the information requested. As changes in culture typically occur over longer periods of time, the frequency of surveys should be carefully considered for the organization. Too frequent, and the benefits of the surveys are substantially diminished. It is recommended that such formal surveys be conducted at a frequency between once per 6 months and once every 2 years. It is also recommended that a method be established on a site-specific basis to determine the survey sample size. In order to determine culture changes over time, some portion of the survey questions should be consistent across multiple surveys. Other questions may be tailored to site-specific interests or culture target areas. The number of questions on a survey also will need to be tailored to the individual facility. If a once per 6-month frequency is chosen, the number of questions would typically be fewer than surveys conducted every year. Survey information of a less formal nature can be obtained by management through walk-about discussions, all-hands meetings, or other alternatives. Example questions used for various facility safety culture surveys are provided in Appendix 2.

Surveys are just one of many inputs to determining an organizations overall cultural health. Internal surveys provide value, but broader independent organizational surveys are needed at some frequency. Some organizations use rolling surveys. This type of survey evaluates a percentage of the workforce each month, so that a timely sampling of employee perceptions occurs, rather than waiting for an annual or biennial survey to occur.

For Federal staff, one annually conducted survey, the Federal Employee Viewpoint Survey (FEVS) can provide valuable information regarding the status of safety culture for a given Federal organization. The FEVS is a tool that measures employees' perceptions of whether, and to what extent, conditions characterizing successful organizations are present in their agencies. Survey results provide valuable insight into the challenges agency leaders face in ensuring the Federal Government has an effective

civilian workforce and how well they are responding. Appendix 3 provides examples of FEVS questions that have been used by DOE organizations as a process input for the determination of safety culture implementation.

SAFETY CULTURE COMMUNICATION

Upon completion of the periodic review and discussion of SCMP process inputs and trends by senior leadership, it is important to communicate the conclusions of the assessment of implementation of safety culture at that point in time and any associated actions for continuous improvement. This communication needs to be widely distributed within an organization as well as to appropriate external stakeholders.

In order to provide a simple communication vehicle for safety culture status, many DOE facilities have established a one or two page "Safety Culture Dashboard" of various forms. A common theme is to include at a minimum a rating/score/color to reflect their self-assessed performance in each of the three safety culture focus areas. Examples are provided in Appendix 4.

These dashboards or variations thereof are currently used at several facilities with great success, and facilities are encouraged to continue to do so as they provide a vehicle for discussion by the SCMP or facility senior leadership team. Safety culture, however, is not a specific end point where you can cease efforts once a given performance level is reached, but rather, an effort that must always have engagement and focus. As such, a given "snapshot" of performance might suggest all green colors on the example dashboards; however, senior management would conclude that a facility requires overall substantial improvement in its safety culture.

For facilities that chose to use a dashboard to reflect status and areas for continuous improvement, it is important to note that implementation of safety culture or the associated focus areas or attributes within an organization cannot be described as "compliant or non-compliant." Working to improve safety culture is a continuous effort. Consequently, opportunities for improvement noted via a dashboard should not be viewed in a negative manner.

It may be challenging for senior management to view where in the continuum of safety culture implementation a given facility lies. To help address this, the IAEA has developed what is called a Capability Maturity Model. This model addresses attributes for three different safety culture stages and may provide additional guidance to facility management. As an alternative to a facility using or developing dashboards similar to those in Appendix 4, an alternate graphic (Figure 2 below) was prepared to communicate the status of implementation of safety culture at a facility based on the IAEA Capability Maturity Model. This IAEA model is discussed in Attachment 11 to DOE G 450.4-1C.
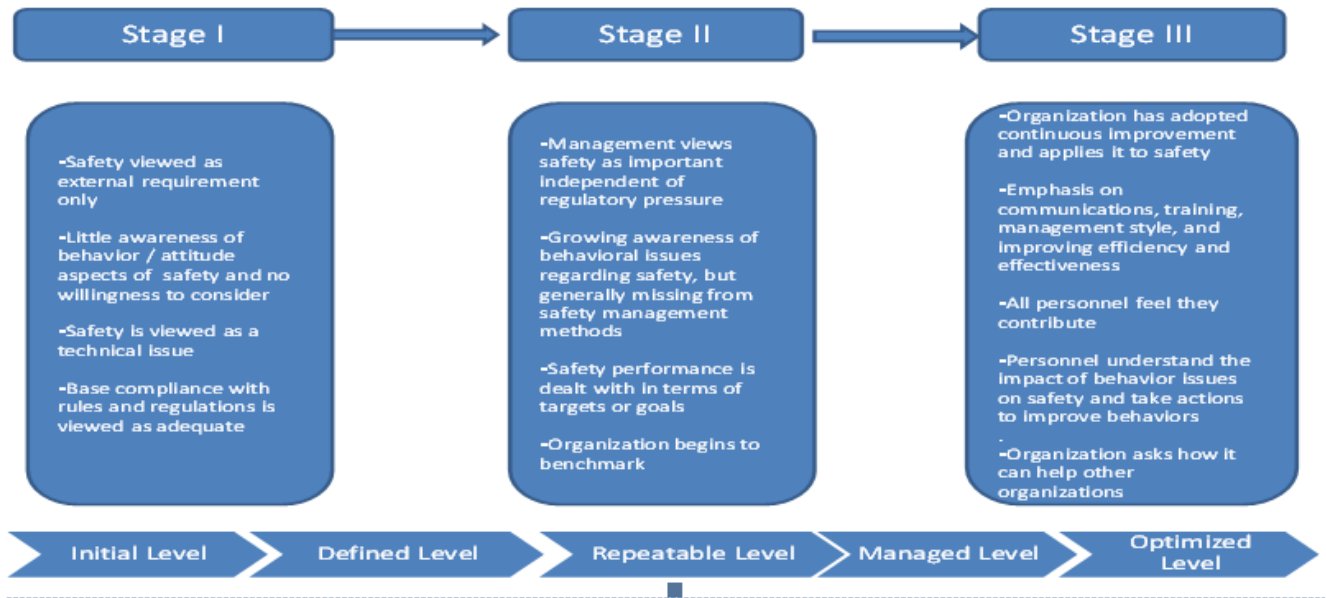
FIGURE 2 - SAFETY CULTURE MATURITY MODEL

PROPOSAL/GOOD PRACTICES

Based on the results of the assessment (documented herein), the MMWG recommends that sites and organizations:

1. Establish site-specific monitoring metrics and data sources applicable to safety culture;
2. Establish protocols to periodically conduct worker surveys on a sampling basis;
3. Conduct a periodic senior leadership review of the metrics and worker survey results; and
4. Provide a senior leadership summary on safety culture status based on the periodic reviews, data, and surveys coupled with their own field observations and communicate their conclusions using a safety culture continuum graphic and/or "stop light" chart.

It is essential in implementing these recommendations that senior leadership engage in effective communication from and to workers

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- National Safety Council, Campbell Institute – *Practical Guide to Leading Indicators*
- Example Dashboard – PSEG Trifold
- Example Dashboard – Savannah River Remediation
- Example Dashboard – Washington River Protection Solutions
- Example Performance Metrics – Mission Support Alliance
- Example Performance Metrics – CH2M
- Example Safety Culture Metrics – Yearly FEVS Analysis – DOE Office of River Protection
- Example Use of FEVS – Los Alamos Field Office Safety Culture Evaluation.

APPENDIX 1 – EXAMPLE METRICS/PERFORMANCE INDICATORS FROM REFERENCES

- DART/TRC (12 month rolling)
- First Aid Cases (12 month rolling)
- Respirator usage
- Number of Occurrence Reporting and Processing System (ORPS) reportable fall protection events
- Number of fall protection issues
- Number of ORPS reportable vehicle events
- Number of ORPS reportable heavy equipment events
- Number of ORPS reportable hoisting and rigging events
- Number of positive unreviewed safety questions
- Number of Potential Inaccuracy in Safety Analyses
- Number of technical safety requirement violations
- Number of Event Free Days
- Number of issues identified during a given period of time
- Number or percent of documents overdue for revision
- Number or percent of rework required
- Number or percent of errors related to lock-out/tag-out activities
- Number of repeat events
- Number Criticality Safety Infractions
- Number Chemical management issues
- Number Skin/Clothing Contaminations
- Number Radioactive material intakes greater than 1 mrem
- Number Radiological Area Entry/Exit issues
- Number Extensions to Administrative Radiation Levels
- Number Radioactive Material Areas
- Number of Scheduled Assessments Completed on Time
- Number of Procurement NCRs written
- Number of Corrective Actions identified Internally vs. Externally
- Number of Days to Submit a Final Occurrence Reporting and Processing System/Noncompliance Tracking System Report
- Number of Near Miss Events
- Number of Security Noncompliances
- Number of ORPS Reportable Environmental Events
- Number of Spills
- Number of Tri-Party Agreement Milestones Met
- Number of Conduct of Operations Issues
- Number of ORPS Hazardous Energy Events
- Number of Overdue Preventative Maintenance Activities
- Corrective Maintenance Backlog (number or percentage)
- Timeliness of Work Package Closure

- Percent of Response for Emergency Drills
- Percent Completion Rate for Emergency Training
- Percent of Work Packages Completed on Schedule
- Percent Operability of Safety Systems
- Percent Operability of Non-Safety Systems
- Percent of Training Courses Completed On Time
- Number of Lessons Learned Articles Issued
- Percent of Lessons Learned Articles Read
- Number or Percent of Lessons Learned Articles Incorporated into Work Control Documents or Procedures
- Number of Open Corrective Actions
- Average Age of Open Corrective Actions
- Number of Management (Above First Line Supervisor) Observations of Field Activity
- Number of Senior Management Observations of Field Activity
- Average Time to Close Employee Concerns
- Number of Employee Concerns
- Number of Bargaining Unit Grievances
- Average Time to Close Bargaining Unit Grievances
- Percent Overtime (or overtime Rate)
- Number of Staff Vacancies (or percent of total staff)
- Average Time to Fill Vacancies
- Budget/Staffing Allocation to Safety
- Number of Incentives/Rewards Issued for Safety Performance
- Number of Minority Opinions (or differing professional opinion)
- Staffing Turnover Rates
- Average Time to Complete (Issue) Assessment Reports
- Average Time to Complete Investigation (or Apparent Cause) Reports
- Diversity Performance vs. Goal
- Number or Percent of assessments completed on schedule
- Timeliness of final assessment report issuance
- Safety vs. Non-safety resources
- Worker satisfaction with managers
- Training Staff Turnover rates
- Number and significance of assessment findings
- Rates of overdue/delayed/cancelled audits and assessments
- Rates of overdue corrective actions
- Average time allowed to address corrective actions
- Rates of actions taken due to lessons learned or operational experience notes
- Ratio of issues identified by inspections/assessments to self-revealing issues
- Survey participation rates.

APPENDIX 2 – SAMPLE SURVEY QUESTIONS

- I believe efforts to improve health and safety are encouraged and recognized.
- I am encouraged to report concerns even when no harm is done.
- My concerns are respected and addressed.
- The facility learns from errors.
- The facility implements safety improvements in a timely manner.
- Safe work procedures are consistently enforced.
- My work environment is maintained for safe mission execution.
- I have adequate training to recognize and respond to potential safety hazards.
- I am confident that co-workers in my work area know what actions to take in an emergency.
- My first priority is accomplishing work safely.
- My co-workers will stop work that they feel is unsafe.
- My supervisor involves me in planning the work assigned to me.
- My supervisor's first priority is accomplishing the work safely.
- Safety practices and attitudes at the facility significantly reduce the chance of a catastrophic event.
- If I encounter a safety requirement that is difficult to apply or understand, I tell my supervisor or a safety representative.
- I feel encouraged to come up with new and better ways of doing things.
- I like the kind of work I do.
- I know what is expected of me on the job.
- I have sufficient resources to get my job done.
- My workload is reasonable.
- The work I do is important.
- Physical conditions allow employees to perform their jobs well.
- I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.
- My training needs are assessed.
- In my organization, senior leaders generate high levels of motivation and commitment in the workforce.
- Supervisors work well with employees of different backgrounds.
- My manager understands and accepts responsibility for safety.
- My manager enhances work activities, procedures and processes with safety practices and policies.
- My manager acknowledges and addresses external influences that may impose changes that could result in safety concerns.
- My manager clearly understands our work activities and performance objectives, and how to safely conduct our work activities.
- My manager demonstrates his/her commitment to safety through his/her actions and behaviors, and supports the organization in successfully implementing safety culture attributes, by conducting walk-throughs, personal visits, and verifying that their expectations are met.
- A high level of trust is established in the organization.
- Reporting individual errors is encouraged and valued. Individuals feel safe from reprisal when reporting errors and incidents.

- Individuals at all levels of the organization promptly report errors and incidents and offer suggestions for improvements.
- A variety of methods are available for personnel to raise safety issues and line managers promptly and effectively respond to personnel who raise safety issues.
- Leaders proactively detect situations that could result in retaliation and take effective action to prevent a chilling effect.
- The organization addresses disciplinary actions in a consistent manner; disciplinary actions are reviewed to ensure fair and consistent treatment of employees at all levels of the organization.
- Open communications and teamwork are the norm.
- Individuals at all levels of the organization listen to each other and effectively engage in crucial conversations to ensure meaning, intent and viewpoints are understood; and that differing points of view are acknowledged.
- Discussions on issues focus on problem solving rather than on individuals.
- Good news and bad news are both valued and shared
- Credibility and trust are present and continuously nurtured so that a high level of trust is established in the organization.
- My manager provides accurate, relevant and timely information to employees and is skilled in responding to employee questions in an open, honest manner.
- Reporting individual errors is encouraged and valued. Individuals are recognized and rewarded for self-identification of errors.
- My manager encourages and appreciates safety issue and error reporting.
- My manager demonstrates integrity and adheres to ethical values and practices to foster trust.
- My managers demonstrate consistency in approach and a commitment to the vision, mission, values and success of the organization as well as the individuals (people).
- Mistakes are used for opportunities to learn rather than blame.
- Individuals are recognized and rewarded for demonstrating behaviors consistent with the safety culture principles.
- My managers encourages a vigorous questioning attitude toward safety, and foster constructive dialogues and discussions on safety matters.
- Individuals cultivate a constructive, questioning attitude and healthy skepticism when it comes to safety. Individuals question deviations, and avoid complacency or arrogance based on past successes. Team members support one another through both awareness of each other's actions and constructive feedback when necessary.
- Individuals pay keen attention to current operations and focus on identifying situations where conditions and/or actions are diverging from what was assumed, expected, or planned. Individuals and leaders act to resolve these deviations early before issues escalate and consequences become large.

APPENDIX 3 – FEDERAL EMPLOYEE VIEWPOINT SURVEY CROSSWALK TO SAFETY CULTURE ATTRIBUTES

Note: Not all attributes had associated FEVS questions identified.

LEADERSHIP

Attribute: Demonstrated safety and security leadership

- Question 35: Employees are protected from health and safety hazards on the job.
- Question 36: My organization has prepared employees for potential safety hazards.
- Question 38: Prohibited practices are not tolerated.
- Question 52: Overall job of immediate supervisor.
- Question 60: Overall job of manager above supervisor.
- Question 61: Have respect for senior leaders.

Attribute: Management engagement and time in the field

- Question 48: Supervisor listens.
- Question 59: Managers support collaboration.

Attribute: Staff recruitment, selection, retention and development

- Question 21: Unit able to recruit people with right skills.
- Question 46: Supervisors support development.
- Question 55: Supervisors work well with different backgrounds.

Attribute: Open communication and fostering an environment free from retribution

- Question 3: I feel encouraged to come up with new and better ways of doing things.
- Question 17: I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.
- Question 37: Arbitrary action, personal favoritism and coercion is not tolerated.
- Question 48: My supervisor listens to what I have to say.
- Question 53: Leaders generate motivation.
- Question 56: Managers communicate goals.
- Question 58: Managers promote communication.

Attribute: Clear expectations and accountability

- Question 6: I know what is expected of me.
- Question 46: My supervisors provide constructive suggestions.
- Question 57: Managers review progress toward goals.

EMPLOYEES/WORKER INVOLVEMENT

Attribute: Personal commitment to everyone's safety and security

- Question 7: I am willing to put in extra effort.
- Question 13: The work I do is important.

Attribute: Teamwork and mutual respect

- Question 20: People cooperate to do job.
- Question 26: Employees share job knowledge.
- Question 43: Supervisor provides opportunity to demonstrate leadership.
- Question 49: My supervisor treats me with respect.
- Question 55: Leaders work well with employees of different backgrounds.
- Question 59: Managers support collaboration across work units to accomplish work objectives.

Attribute: Participation in work planning and improvement

- Question 1: I am given the opportunity to improve my skills.
- Question 8: I am looking for ways to do my job better.
- Question 12: I know how my work relates to agency goals.

Attribute: Mindful of hazards and controls

- Question 35: I am protected from hazards.
- Question 36: I am prepared for security threats.

ORGANIZATIONAL LEARNING

Attribute: Credibility, trust, and reporting errors and problems

- Question 17: I may disclose suspected violation without reprisal.
- Question 37: Favoritism not tolerated.
- Question 51: I have trust and confidence in my supervisor.
- Question 54: My organization's leadership maintains high standards of honesty and integrity.

Attribute: Performance monitoring through multiple means

- Question 24: Performance differences are recognized.
- Question 44: Discussion about performance is worthwhile.
- Question 50: My supervisor talks with me about performance.

Attribute: Use of operational experience

- Question 3: We seek new and better ways of doing things.
- Question 27: The skill of our operational unit has improved.

Attribute: Questioning Attitude

- Question 3: I feel encouraged to come with new and better ways of doing things.
- Question 8: I am constantly looking for ways to do my job better.

APPENDIX 4 – EXAMPLES OF SAFETY CULTURE DASHBOARDS/STOP-LIGHT CHARTS

SRR Nuclear Safety Culture Dashboard
October 2014 – December 2014

Savannah River Remediation
We do the right thing.
January 8, 2014: 1010

Organizational Learning

– # of Alleged Retaliation Employee Concerns
– Timeliness of Employee Concern Evaluations
– # of Disciplined Operations Events (ORPS Reported)
– Timeliness of ORPS Characterization
– Integrated Assessment Plan vs. Schedule
– Assessment Quality Evaluation
– Self Identified versus Event Response Corrective Actions
– Corrective Action Program Timeliness

Management Leadership

– Training Hours in Nuclear Safety (Ops/Maintenance)
– Senior Management MFO Performance
– Management Field Observations

Employee Engagement

– New Issue Actions Identified (STAR CTS)
– Safety Meeting Attendance
– Behavior Based Safety Observations

Key: Good   Marginal   Unsatisfactory   No Data

S A V A N N A H   R I V E R   S I T E   •   A I K E N ,   S C   •   W W W . S R S . G O V   3

1. Safety & Health

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
Days Away, Restricted, Transferred Case Rate	3	✔	✔		≤ .35	0.18	0.18	0.00	0.00
Total Recordable Case Rate	4	✔	✔		≤ .75	0.36	0.53	0.52	0.50
First Aid Case Rate	5	✔			-	3.48	1.96	1.20	1.51
MOPs, PERs, Field Surveillances	6	✔			≥ 56	56	49	48	52
Safety Council Membership Participation	7	✔			≥ 60%	72%	73%	78%	86%
EAPC Facility Inspections Performance	8	✔			≥ 90%	88%	100%	100%	100%
Stop Works Issued	9	✔			-	3	3	3	4

2. Conduct of Operations

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
Corrective Maintenance Backlog	10	✔		✔	≤ 380	520	550	587	579
Delinquent Preventive Maintenance	11			✔	≤ 100	91	97	109	122
Sched. vs. Worked Activities - Prod Ops	12			✔	≥ 80%	92%	88%	87%	89%
Sched. vs. Worked Activities - R&C	13			✔	≥ 80%	85%	85%	78%	71%
Sched. vs. Worked Activities - TFP	14			✔	≥ 80%	84%	84%	83%	84%
Work Control Field Execution Health	15	✔		✔	≥ 3	2.79	2.73	2.71	2.77
Drill Activity	16	✔		✔	≥ 10	43	30	17	19
Technical Safety Requirement Violations	17			✔	= 0	2.7	2.7	2.7	0
Lock Out / Tag Out Performance	18	✔		✔	≤ 1	0.7	0.0	2.3	7
Tech Safety Requirements Program Health	19				--				

3. Environmental Management

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
Regulatory Notices of Correction / Violation	20	✔		✔	= 0	0	0	0	0
Environmental Notifications	21	✔		✔	≤ 5	6.7	6.3	5.0	4
Self Evaluations	22	✔		✔	≥ 8	15	14	14	14

4. Engineering

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
ECN Backlog Reduction	23		✔	✔	≤ 0	1	0	0	-3
Essential Drawing Incorporation Status	24		✔	✔	≤ 14	23	16	8	7
Technical Rigor Issues	25			✔	≤ 20	8.7	8.0	12.0	18.0

5. Emergency Preparedness

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
EP Evaluated Drill Performance	26	✔		✔	≤ 1.5	1.75	1.73	1.73	1.90
Emergency Preparedness Activity	27	✔		✔	≥ 2	3.7	3.3	2.3	2

6. Radiological Control

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
Skin & Clothing Contamination Events	28	✔			= 0	0.0	0.0	0.3	1
Radiological Uptakes	29	✔			= 0	0.0	0.0	0.3	0
RadCon MOPs	30	✔		✔	≥ 60	61	55	48	39

7. Problem Identification & Resolution

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
Self-Identified Issues	31	✔	✔	✔	≥ 75%	90%	90%	89%	89%
PER Evaluation Timeliness (SIG, RES, TUF)	32	✔			≤ 30	42.8	42.9	45.0	45.0
PER Timeliness (SIG, RES, TUF)	33	✔			≤ 130	148	150	154	154

8. Performance Assessment

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
MOP WSV Participation	34	✔	✔		≥ 80%	91%	92%	92%	89%
Observed Field Activities	35	✔	✔	✔	≥ 30	34	26	27	25
Worker Feedback on Field Activity MOPs	36	✔	✔		≥ 80%	81	80	82	86
Lessons Learned Applications	37	✔	✔	✔	≥ 45	45	49	50	49
ID Issues by Internal WRPS Assessment	38			✔	≥ 7.7%	14%	17%	14%	8%

9. Management Focus Areas

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
Employee Concerns - Average Age to Close	39	✔			≤ 30	6.3	5.3	9.2	18
Vehicle Safety Performance (weighted)	40	✔	✔	✔	= 0	2.3	2.3	2.3	3
Cumulative Bargaining Unit Overtime	41				≤ 9.2%	6.21%	6.20%	6.19%	6.19%
Noncompliant Timesheets	42				≤ 5%	5.8%	4.1%	4.5%	5.0%
Small Business Statistics	43				≥ 100%	105%	105%	104%	95.0%
% Tot. Dollars Obligated on Actions > $150K	44				≥ 60%	57%	58%	57%	57%
Software Quality Assurance Implementaton	45			✔	=100%	95.0%	95.0%	95.5%	96.3%
Training No-Shows (External Cost)	46	✔			≤ 4%	2.1%	2.2%	2.1%	1.6%
Employee Job Task Analysis (EJTA) - Status	47				≤ 25	21	20	22	20
Elect. Time Verification (ETVS) Noncompliance	48				≤ 1%	0.8%	1.2%	0.9%	0.9%
Financial Accountability Improvement Plan	49				≥ 100%	89%	107%	107%	107%

10. One System

	Page #	SCWE	POMC	PEMP	Goal	Nov-14	Dec-14	Jan-15	Jan. Value
WTP Integration and Program Alignment	50			✔	≥ 100%	0 of 0	1 of 1	0 of 0	0 of 0
Schedule & Cost Performance	51			✔	≥1.0				
CTO - Technical Value Performance	52			✔	≥1.0				
NSESI Engineering Program Ingetration	53			✔	≥1.0				

Legend

Performance Measure				Goal	Exceeds	Meets	Declining	Adverse

Leadership

Performance Metric 1

Performance Metric 2

Performance Metric 3

Performance Metric 4

Performance Metric 5

Performance Metric 6

Performance Metric 7

Performance Metric 8

Performance Metric 9

Performance Metric 10

Employee Engagement

Performance Metric 1

Performance Metric 2

Performance Metric 3

Performance Metric 4

Performance Metric 5

Performance Metric 6

Performance Metric 7

Performance Metric 8

Performance Metric 9

Performance Metric 10

Organizational Learning

Performance Metric 1

Performance Metric 2

Performance Metric 3

Performance Metric 4

Performance Metric 5

Performance Metric 6

Performance Metric 7

Performance Metric 8

Performance Metric 9

Performance Metric 10

Multi-Site Stop-Light Chart Example

Plant

CAP—Corrective Action Program

Qualitative and cognitive trending	Procedures and QATR
Anonymous Condition Reports	
As needed, root cause NSC evaluation	RIS 2006-13
Common Cause or Root Cause evaluation of NRC identified trends	NRC IMC 0305

NOS—Quality Assurance Program

Biennial NSC Assessment	NIEP-GUID-001
Quarterly Line Dept Assessment	QATR

Leadership

Weekly CNO / Site VP staff meeting	
Periodic leadership assessments	
Board of Directors	
2 C's & Skip Level Meeting	
All Hands, Supervisors meetings	
INPO Mid-Cycle Assessment	Standard Industry Practice
VP walkabouts, smoke pad, gym etc...	
Diversity—WIN, NAYGN etc...	
Plant Operations Review Committee	Administrative TS
Supervisor—worker communication	
Manager in the field program	SOER 10-2, IER L1 11-3
Accountability Model	

Training

Daily message	
Communication of events	
SCWE refresher CBT or letter	
Basic NSC for plant access	NRC SCPS
Advanced NSC for leadership	SOER 10-2

Site or Fleet

ECP—Employee Concerns—Ensures quality and nuclear safety concerns are raised to management without retaliation.

Pulsing and active listening	
Differing Professional Opinions	
Concerns Trends & Themes	
Supervisory Qualification Interview & Training	NEI 97-05
Working Group Lunch	RIS 2005-18
Liaison with contractor ECP program	
Exit interview and brochure	
ECP periodic reports to executive team	
ECP : VP, one on one	
Fleet SCWE Statement	
Outage focus; "new to nuclear", "outage roadshow"	INPO IER L2-14-42

EPG—Executive Protocol Group—Monitors and Fosters SCWE, assigns resources for ECP issues or NRC allegations (also includes Managers Protocol Group)

Monthly assessment	
Ad-hoc assessment	

ERB—Executive Review Board, reviews personnel actions for protected activity concerns.

As needed, protected activity assessment	10 CFR 50.7

NSCMP—Safety Culture Monitoring Panel

Quarterly Assessment	NRC SCPS NEI 09-07
Emergent Assessment	NEI 09-07
Biennial Survey and Assessment	SOER 02-04
Safety Culture & SCWE OPEX	
Fleet SC Policy Statement	

Corporation

Enterprise—Corporation Level

Biennial engagement survey	
Non-nuclear operating experience	
Annual ethics survey	Sentencing Reform Act
1-800-ethics hotline	Sarbanes-Oxley

Industry Oversight

INPO

Biennial Assessment	INPO 12-013
Corporate Assessment (every six years)	INPO 12-013
Biennial OR survey	
As needed assist visits (communications, tech conscience etc...)	
Training and conferences	
Issues Nuclear Operating Experience	

NSRB—Offsite Nuclear Safety Review Board

Qtrly Review of NSCA	NEI 09-07
Independent assessment of NSC	NEI 09-07

NAECP

Conferences, training & networking	

NIEP—Nuclear Industry Evaluation Program

Biennial assessment of NOS, NSRB and NSC	NIEP-GUID-002

Regulatory Oversight

NRC

Cross Cutting Trends	NRC IMC 0305
Allegations	
Biennial PI&R inspection	NRC IMC 71152
OI Investigations	
CEL and confirmatory orders	