Energy Facility Contractors Group (EFCOG)

Safety Culture Task Team

White Paper

Safety Culture Measures and Monitoring Pilot

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Prepared by: _LG Serrato_   11/01/2021
Lynn Serrato   Date
HPMC Occupational Medical Services (HPMC OMS)

Approved by: **King, Adrienne L**   Digitally signed by King, Adrienne L
                                     Date: 2021.11.01 15:51:05 -07'00'
Adrienne King   Date
Washington River Protection Solutions (WRPS)
EFCOG Safety Culture Subtask Working Group Chair

Approved by: _Darlene Murdoch_   11/2/2021
Darlene Murdoch   Date
Savannah River Nuclear Solutions, LLC (SRNS)
EFCOG Integrated Safety Management System Task Working Group Chair

SUMMARY

This document captures the results of a pilot of recommendations and models provided in the 'Guide to Monitoring and Improving Safety Culture, Rev' and 'Proposed Safety Culture Measures and Monitoring White Paper,' issued in December of 2020.

Purpose

The intent of this white paper is to capture the process and results of the pilot of the EFCOG Safety Culture monitoring and measuring guidance and recommendations provided in the Revision 1 of the Guide to Monitoring and Improving Safety Culture and the Proposed Safety Culture Measures and Monitoring. The pilot was intended to determine whether the documents released by the EFCOG Safety Culture Task Team were of value to organizations within the U.S. Department of Energy (DOE) complex and identify additional potential improvements.

Scope

During the spring and summer of 2021, a DOE prime contractor performed a pilot (i.e., made changes to their Safety Culture monitoring and measuring processes) based on EFCOG materials (Revision 1 of the Guide to Monitoring and Improving Safety Culture and the Proposed Safety Culture Measures and Monitoring) published in 2020. The pilot organization had recently received contract direction to implement safety culture processes and deliverables, including establishing internal monitoring processes for the safety culture. The pilot was advantageous to both the pilot organization, which was able to show alignment to industry guidance and best practices to their local field office oversight through the implementation of the pilot, and to the EFCOG Safety Culture Task Team to have a practical test of the recommendations.

The pilot organization determined the scope of the metrics recommendations to implement. This included reviewing existing Contractor Assurance System (CAS) metrics and identifying those associated Safety Culture focus areas and attributes and developing a method to present them to senior leadership and the Safety Culture Monitoring Panel (SCMP) for review and identification of actions. This included establishing an adapted Nuclear Energy Institute (NEI) model for inclusion in the Safety Culture Sustainment Plan.

Results captured were:
- Changes implemented using the EFCOG guidance documents.
- Recommendations for improvement to the EFCOG guidance documents.

Narrative

The process of piloting the metrics recommendations involved the following:
- Soliciting organizations within the EFCOG Safety Culture Task Team to participate during the February 9, 2021 "EFCOG Safety Culture Task Group FY 21 Planning Meeting." A follow-up email was sent to the entire Safety Culture Task Team distribution list afterwards. In total, over 20 organizations from across the DOE complex were invited to potentially participate.
- Collaborating with the representatives from five organizations who expressed interest. Meetings were ultimately held with representatives with three of the organizations and the EFCOG Safety Culture Task Team Chair and Vice-Chair to review the proposed pilot process (see Attachment 1). One organization ultimately participated in the pilot to completion.

It is worth noting that, while not all organizations that showed interest in participating in the pilot had a contractual requirement to implement Safety Culture, the organization that ultimately completed the pilot recently had Safety Culture included as a contract requirement.

An extensive pilot was performed, involving:
- A review of current state (including a review of existing CAS, Quality Assurance and other metrics, and oversight bodies).

- Comparison of current state to recommendations and best practices from:
    - EFCOG documents (best practices, guides, and white papers).
    - The "Performance Monitoring" presentation from the Fluor Idaho Safety Culture Workshop on October 23, 2019.
    - The "Monitoring Means and Measures WG-Recommendations" presented by Pamela Bailey to the Safety Culture Improvement Panel on April 7, 2021.
    - NEI 09-07 "Fostering a Healthy Nuclear Safety Culture" Revision 1.

Regarding current state, the pilot organization maintains a combination of metrics, oversight committees, and a Safety Culture Sustainment Plan.

Prior to the start of the pilot, the organization used CAS and Safety and Quality metrics (hereafter simply referred to as metrics) and trends to inform management of performance trends and focus resources on issue resolution. The metrics included measures of performance related to environment, safety, health, quality assurance, safeguards and security, cyber security, and emergency preparedness program implementation. The CAS includes assignment of management responsibilities and accountabilities and provides evidence through self-assessment to assure the DOE and pilot organization that work is performed safely, securely, in compliance with all requirements, risks are identified and managed, and systems of control are effective and efficient.

Note: The pilot organization had already implemented Just Culture, which recognizes that competent professionals will make mistakes, that even professionals will develop unhealthy norms, such as Behavioral Drift, and is also intolerant for reckless behavior. Just Culture creates clear thresholds between what is acceptable and what is not. Behavior Drift represents at-risk behaviors. They are choices that increase risk where risk is not recognized, or where risk is mistakenly believed to be justified. Just Culture dovetails into Safety Culture as it is non-punitive. In essence, a fair and Just Culture is one in which individuals are held accountable for their actions, but not for system flaws.

The existing metrics were reviewed and paired to the Safety Culture focus areas and attributes. As a result of the comparison to the current state with industry guidance and examples, the following actions were taken:

- Development of a draft proposed metrics dashboard for use by the Safety Culture Subject Matter Expert (SME) for ongoing monitoring.
- Development of an adapted NEI model for inclusion in the existing Safety Culture Sustainment Plan and presentation to leadership and the customer for consideration.

See Attachment 2 for examples of these documents.

While the organization had realized prior to the pilot that data and metrics of value to Safety Culture were currently captured, the pilot was an opportunity to better present the existing materials within the paradigm of Safety Culture. The response by the pilot organization management (both the senior leadership team and the equivalent to the SCMP) was positive and seen as value-add for three reasons:

1. Initiated the realization of the link between existing data and Safety Culture, for example, the link between Workplace Civility, safety conscious work environment, and issues identification and other CAS metrics. While no specific issues were identified, there is now greater awareness among the management team of potential impacts and where to look for leading indicators.
2. Increased efficiency in how metrics data are framed for decision making efforts. This was a process improvement in that management is now able to make decisions for Safety Culture based on existing data rather than creating a new suite of metrics specific to Safety Culture.

3. Improved communication to the pilot organization's customer on the metrics collection process and status due to the enhancements in the framing of the data and the process of monitoring and measuring Safety Culture metrics.

Based on these results, the pilot is considered a success.

Conclusion

Based on the results of both the pilot and the process of soliciting participant organizations, the following conclusions were made:

- For organizations implementing Safety Culture monitoring and measuring strategies for the first time, especially in response to contract direction, the EFCOG Safety Culture guides and white papers, as well as support from other Safety Culture SMEs, can help with implementation to industry norms and best practices.
- For those organizations curious about Safety Culture monitoring and measuring, but lacking a contractual driver, the documents provide guidance on a broad variety of topics, from development of individual metrics to full-scale monitoring and measuring models.
- As a result of the pilot, a suggested improvement to existing EFCOG documents was to clearly identify how to use current processes and metrics and how to map them to Safety Culture concepts and processes. This will be considered during the development of FY 2022 Safety Culture Task Team actions.

It should be noted that the pilot occurred with specific support from other EFCOG members to the piloting organization; the pilot was not based purely on the Revision 1 of the Guide to Monitoring and Improving Safety Culture and the Proposed Safety Culture Measures and Monitoring documents. Use of an ongoing collection mechanism, such as 'Organizational Excellence' (OrgEx) webpage, may be advisable to capture more information on how well the documents stand on their own, and what improvements can be made for value and ease of use.

References

- [Revision 1 of the Guide to Monitoring and Improving Safety Culture](#)
- [Proposed Safety Culture Measures and Monitoring](#)
- [EFCOG Best Practice 181](#)
- [Monitoring Means and Measures WG-Recommendations, Pamela Bailey - 04/07/21](#)
- DOE G 450.4-1C, Integrated Safety Management Guide
- DOE O 226.1B, Implementation of Department of Energy Oversight Policy
- DOE P 450.4A, Integrated Safety Management Policy
- INPO Principles for a Strong Nuclear Safety Culture
- NEI 09-07 - Fostering a Strong Nuclear Safety Culture (Rev 1)

Attachment 1

Safety Culture Metrics and Monitoring Pilot Testing Overview

The EFCOG Safety Culture Task Team is looking for one or more U.S. DOE prime contractors to pilot recent recommendations regarding use of metrics and monitoring strategies to evaluate Safety Culture. Participation in the pilot would entail the following:
1. Confirmation of participation by 3/31/2021, including a point of contact (POC) for the EFCOG Safety Culture Task Team.
2. Gap analysis: work with EFCOG Safety Culture Task Team members to review current established process, including relevant procedures and metrics*, against industry standards and best practices, including the EFCOG guidance documents.
3. Determine what changes to make to the existing process of monitoring and evaluating data.
4. Implement changes with at least 3 months of run time (e.g., 5/30/2021 to 8/30/2021).
5. Document results of the changes by 9/30/2021 (including lessons learned and suggested improvements).

Results from the pilot, including recommended improvement and revision to the EFCOG documents, are intended to capture how well the guides apply to other prime contractors.

Resources

EFCOG would provide SME assistance to evaluate and advise the organizations participating in pilots, and participating organizations would:
1. Meet with the EFCOG Safety Culture Task Team members on a periodic basis
2. Assist with write up of results of the pilot

Participation in the pilot is estimated to require 10 hours for coordination with EFCOG and associated review/writing of results. This does not include any internal support (e.g., meetings with internal Safety Culture Monitoring Panels, procedure reviews, or metrics revisions).

References

- Revision 1 of the Guide to Monitoring and Improving Safety Culture
- Proposed Safety Culture Measures and Monitoring
- EFCOG Best Practice 181
- DOE G 450.4-1C, Integrated Safety Management Guide
- DOE P 450.4A, Integrated Safety Management Policy
- INPO Principles for a Strong Nuclear Safety Culture
- NEI 09-07 - Fostering a Strong Nuclear Safety Culture (Rev 1)

*Consider what documents and metrics can be shared. It is common when sharing metrics to populate them with fake data. A prime contractor that cannot share any documents or who will need to use the public release process to share information may not be a good candidate for the pilot.

Attachment 2

Draft pilot organization Safety Culture Metrics Dashboard and Adapted NEI Model

Safety Culture Focus Area	Metric Title
Leadership	Risk Management
Leadership	Credentialing
Leadership	Exposures
Leadership	Customer Feedback on service quality
Worker Engagement	Security Incidents
Worker Engagement	Peer Review
Worker Engagement	Drills & Emergency Preparedness
Organizational Learning	Corrective Actions & Action Tracking Systems
Organizational Learning	ECP/Employee Relations/Labor Relations
Organizational Learning	Wasteful Practices
Organizational Learning	Practice Patterns of Professionals
Organizational Learning	Quality Issues

Draft Adapted NEI 09-07 Model