FILED
07/22/22
09:09 AM
R2110001

ATTACHMENT

Staff Safety Culture Concept Paper #1, July 2022

CPUC Safety Policy Division Staff Paper

This document outlines safety culture definitions, frameworks, and ideas for collaboration for the large electric and natural gas investor-owned utilities (IOUs) (Southern California Edison Company, San Diego Gas & Electric Company, Pacific Gas & Electric Company, and Southern California Gas Company) as discussed in the first two technical working group meetings for R.21-10-001 hosted in June 2022. Workshop recordings and presentations are available on the Safety Policy Division webpage.

Defining Safety Culture

As described by the Commission in its Order Instituting Investigation into PG&E's Safety Culture (I.15-08-019), an **organizational culture** is defined as the set of values, principles, beliefs, and norms shared by individuals within the organization, manifested through their planning, behaviors, and actions.[1][2]

Safety culture is a subset of organizational culture. Here, we build upon I.15-08-019's definition of organizational culture to develop a working definition of safety culture:

Safety culture is the collective set of values, principles, beliefs, norms, attitudes, behaviors, and practices that an organization's employees and contractor personnel share *with respect to risk and safety*.[3]

The term **safety**, in the context of this concept paper, is synonymous with the prevention of harm to people and the environment. Safety encompasses safety of workers, contractors, and members of the public; operational/process safety facility or asset integrity; security; and environmental protection.[4] This includes protection from high consequence, low probability events as well as low consequence, high probability events.

PG&E's Safety Culture Investigation also describes a mature safety culture, which we add to in this document. A public utility with a mature safety culture has an

[1] California Public Utilities Commission (2015). I.15-08-019, Order Instituting Order Instituting Investigation on the Commission's Own Motion to Determine Whether Pacific Gas and Electric Company and PG&E Corporation's Organizational Culture and Governance Prioritize Safety.
[2] The definition of organizational culture and description of safety culture from I.15-08-019 are also used in I.19-06-014, Order Instituting Investigation on the Commission's Own Motion to Determine Whether Southern California Gas Company's and Sempra Energy's Organizational Culture and Governance Prioritize Safety.
[3] Adapted with modification from American National Standards Institute (ANSI)/ American Petroleum Institute (API) (2015). Recommended Practice 1173, Pipeline Safety Management Systems.
[4] Adapted with modification from Canada Energy Regulator (2021). Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture.

organizational culture and governance that prioritizes safety and achieves a positive record of safe operation through:[5]

- A clearly articulated set of principles and values with a clear expectation of safety ownership that exceeds full compliance with existing rules and regulations.
- Effective organization-wide communication and continuous organizational learning, education, and testing.
- Committed safety leadership and uniform safety ownership by every individual in the organization, with effective and comprehensive safety metrics, incentives, and accountability.
- Continuous reassessment of hazards and reevaluation of norms and practices.

Frameworks for Assessing Safety Culture

Safety culture frameworks are used to describe characteristics of safety culture. They can simplify and communicate a complex concept into distinct dimensions to support its understanding and assessment.[6] A framework can provide a basis for the systematic review of safety culture against a defined set of characteristics.[7]

Many different safety culture frameworks have been developed, with varying numbers of dimensions, characteristics, or domains. Despite differences in names and numbers of domains, these frameworks tend to overlap considerably.

A consultant team engaged by the Commission has developed a draft safety culture framework that describes safety culture through the following ten domains:

1. **Strategy.** Improving safety culture requires a comprehensive formal strategy be designed and employed to ensure that any significant changes are rolled out in a controlled and systematic manner. Strategy refers to the "planning and directing" of the entire safety culture improvement process. Strategy should provide a clear direction for all stakeholders toward an advanced and commanding safety culture that [a] support lasting changes to the organization's social norms, [b] support the desired safety-related behavioral norms, and [c] optimize every working situation or environment to support desired behaviors. In turn, this requires the use of a formal strategic safety culture planning process. The focus of the *strategy* functional domain, therefore, is ensuring [a] that there is a strategic safety culture process, and [b] that it is being used by an organization.
2. **Risk Assessment.** Risk assessment is the bedrock of most international safety management system standards and/or regulations. Risk refers to "the possibility of harm or loss" presented by the existence of perceived threats arising from

[5] Adapted with modification from I.15-08-019.
[6] Canada Energy Regulator (2021). Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture.
[7] Canadian Nuclear Safety Commission (2018). REGDOC-2.1.2, Safety Culture (2018)/

situations. Every aspect of operations presents its own threats, and these usually require formal risk assessments to ensure no harm is experienced by people or assets. Within this safety culture framework, risk assessment is considered a fundamental process that is used to identify and control any threats arising from any of the core functional domains. Thus, the focus of the *risk assessment* functional domain is to [a] ensure that the IOU has a formal risk assessment system; [b] ensure that the system is being used; and [c] discover what happens with the system output.

3. **Corrective and Preventive Actions (CAPA).** Integral to safety culture improvement, corrective and preventive actions (CAPA) refers to organizational action(s) required to reduce risk exposures and/or eliminate future potential adverse events. Corrective actions are aimed at an adverse event that has already occurred, whereas a preventive action is aimed at reducing the potential for an adverse event to occur. Based on risk assessments and/or a root cause analysis, effective corrective and preventive action systems are a key component to continuous improvement.

   The focus of the *CAPA* functional domain is ensuring [a] the priority of any corrective and preventive actions are based on risk assessments and risk evaluations; [b] that any corrective and preventive actions are accurately targeting the underlying causes of problems to prevent repeat incidents; and [c] any corrective and preventive actions are tracked through to completion.

4. **Profit Before Safety.** Profit before safety relates to those instances where productivity comes before safety, as safety is viewed as a cost, not an investment. Ideally, an organization would adopt the philosophy that "safe production is the number one priority," and configure *all* their processes, resources, and actions around that. The focus of the *profit before safety* functional domain is on [a] the prioritization of safety, and [b] the resources provided to facilitate safety.

5. **Just Culture.** A just culture refers to the treatment of people that leads to serious problems remaining hidden and being driven underground by those trying to avoid sanctions or reprimands from their leaders, their coworkers, or the public. Accordingly, the focus of the *just culture* functional domain is on [a] ensuring there is a trusting and just culture, and [b] eliminating the presence of a blame culture.

6. **Safety Leadership.** Safety leadership refers to blinkered leadership behavior and the prevailing corporate culture preventing the recognition of risks and opportunities. In turn, this leads to wrong safety decisions being made at the wrong time, for the wrong reasons. This often stems from leaders' lack of knowledge about their safety responsibilities and associated accountabilities, their perceived lack of freedom to act to address safety issues, and a lack of knowledge about pertinent aspects of the safety management system that

apply to their sphere of influence. Consequently, the *leadership* functional domain is focused on leaders [a] taking responsibility for safety; [b] being held to account for safety; [c] knowing and using their degree of freedom to take safety actions; and [d] possessing the necessary knowledge of the safety rules and procedures within their sphere of operations.

7. **Managerial Compliance.** Eighty percent of process safety disasters occur during normal routine everyday operations (64%) and maintenance (16%), with a lack of managerial compliance to standards, rules, and procedures being the largest common causal factor involved in loss of primary containment (LOPC) incidents. This indicates that safety culture improvement should mostly focus on management and their compliance with rules, procedures, and standards (albeit non-compliance amongst the workforce and contractors can also be an issue). The focus of the *managerial compliance* functional domain is ensuring [a] procedures meet the goals of regulatory compliance; [b] that risk controls focus on managerial compliance; and [c] safety actions are within the compliance limitations set by the rules and procedures.

8. **Safety Communications.** Poor communication is a major contributor to many workplace fatality incidents. The principle for addressing such issues is to recognize that "a communication not received, is not a communication at all." This means IOUs need to concern themselves with the challenge of ensuring there are sufficient two-way communication and feedback channels to ensure any safety message is [a] received; [b] understood; and [c] acted upon. These elements form the focus of the *safety communications* functional domain.

9. **Safety Competence.** Competence is defined as "the ability of an individual or organization to do a job properly." Competency failures are highlighted in many inquiries into safety catastrophes where there were false expectations that direct hires and contractors were highly trained and competent. Competence is multidimensional and includes [a] *cognitive* competence: the ability to learn facts and principles; [b] *functional* competence: the ability to make decisions, plan work, do the work, and solve problems; and [c] *enabling* competence: the ability to lead, communicate, interact with others, and work in a team. Competent people are educated in their domains (e.g., electricity transmission), understand any background theory, possess practical experience in applying that theory in a wide range of situations, and can problem solve and articulate any requirements to others. Consequently, the focus of the *safety competence* functional domain is on ensuring [a] enabling competencies are defined and mapped for safety-critical jobs; [b] the cognitive competencies of those in safety-critical job roles; and [c] the functional competencies of those in safety-critical job roles.

10. **Lessons Learned.** Lessons learned refers to situations where critical safety information was not extracted from near misses and/or adverse events, where it was not shared promptly or was not shared at all, or where the lesson learned

was not enforced. To be termed a *lesson*, [a] it must be an issue that had a significant impact on everyday operations; [b] it must be valid (i.e., factually and technically correct); [c] it must be applicable in that it identified a specific process, decision, or failure; and [d] resolution of the issue must eliminate or reduce the potential for failures or reinforce a positive result. To be termed a *lesson learned*, there must be an *observable and measurable* positive change in the behavior(s) associated with the lesson that improves performance in some predefined way. Accordingly, the focus of the *lessons learned* functional domain is on ensuring [a] there is a system to report adverse events; [b] that adverse events are always reported; [c] there are systematic methods to investigate adverse incidents and conduct root cause analysis, and these are used; and [d] the organization has processes in place to extract and communicate the lessons learned.

Collaborative Approaches for Safety Culture

Organizations commonly include continuous learning and improvement as a key safety culture domain. Introducing safety culture into regulatory language can be a driving force towards this improvement, pushing key stakeholders to reflect on how they can find new ways to improve safety.[8]

Recognizing that any organization or enterprise is the owner of its own safety culture, Commission staff proposes several suggestions for advancing collaboration for safety culture with IOUs and other stakeholders:

1. **Host regular safety culture meetings with regulated entities.**
    a. Host quarterly or biannual meetings with each IOU to understand trends and progress on actions taken as a result of safety culture assessments;
    b. Convene annual workshops with industry stakeholders to share best practices; and
    c. Hold annual meetings with Board of Directors/Executive leadership to report to the Commission on safety performance and safety culture.
2. **Incorporate safety culture observations into ongoing inspections and audits.**
    a. Train staff to collect data on safety culture indicators during inspections;
    b. Use data from on-site observations to build a more robust understanding of safety culture indicators; and
    c. Develop mechanisms for following up on actions resulting from inspections/ audits as needed.[9]
3. **Provide resources for safety culture best practices.**

[8] Antonsen, Nilsen, & Almklovb (2017). Regulating the intangible. Searching for safety culture in the Norwegian petroleum industry.
[9] At the third and fourth technical working group meetings for R.21-10-001 in July 2022, SPD will continue to work with parties to develop parameters for following up on the results of these inspections/audits.

   a. Clarify expectations in a final staff proposal that includes a safety culture policy statement, framework, and guidance for conducting assessments; and
   b. Build partnerships between regulated entities, CPUC, academia, and related industries to further develop tools and material that provide practical guidance in the safety culture improvement process.

4. **Establish mechanisms for information sharing.**
   a. Collect data on safety culture indicators biannually and/or annually between assessments;
   b. Work with regulated entities to establish mechanisms for voluntary, non-punitive information sharing; and
   c. Work with sister agencies to share data and insights and to avoid duplicative reporting.

These initial ideas will be refined and substantiated based on party comment throughout the proceeding.

(END OF ATTACHMENT)