

TRAIT TALK

Issue 4

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Trait Talk was developed to provide you with a better understanding of the nine safety culture traits found in the U.S. Nuclear Regulatory Commission's (NRC) Safety Culture Policy Statement (SCPS) and how they apply to you—whether you are an NRC licensee, a vendor or contractor employee, an organization interested in the safe and secure use of nuclear materials, or others involved in nuclear safety regulation. Please see page 4 of Safety Culture Trait Talk for more information on the SCPS.

Experience has shown that certain personal and organizational traits are present in a positive safety culture. A trait, in this case, is a pattern of thinking, feeling, and behaving that emphasizes safety, particularly in goal conflict situations, for example, in situations where production, schedule, or just the cost of effort may conflict with doing the job safely. The NRC identified nine traits of a positive safety culture in the SCPS, although the agency recognizes that additional traits may also be important. In addition, please note that the traits were not developed to be used for inspection purposes.

Each Trait Talk includes a fictional scenario based on a different licensee or community. The scenario used in this Trait Talk is based on the nuclear power reactor community.

As you read through Trait Talk, consider the following questions:

1. How does this trait apply to my organization?
2. Are there other attributes and examples that better fit my organization?
3. What impact does this trait have on the safety culture in my organization?
4. How does this increase my understanding of the safety culture in my organization?
5. How could I improve the performance of this trait in my organization?

Problem Identification and Resolution

One of the traits of a positive safety culture as described in the U.S. Nuclear Regulatory Commission's Safety Culture Policy Statement.

What Is The Definition Of Problem Identification And Resolution?

The NRC's SCPS defines Problem Identification and Resolution as when issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.

Why Is This Trait Important?

Problem identification and resolution is an important element of safety culture. Leaders are responsible for identifying and diagnosing organizational or technical deficiencies, taking corrective action, and anticipating emerging issues. All members of an organization support problem identification and resolution by promptly raising and reporting concerns (for example, by working through a corrective action program). The extent and manner in which organizations identify and resolve problems serve as an example how the organization prioritizes safety. The ability and willingness of workers and managers to identify and address problems is also important for continuous learning, another trait of a positive safety culture.

An effective problem identification and resolution program uses the organization's corrective action program, operating experience, and self-assessment results to ensure safe operations. The corrective action program should have a transparent process for evaluating, prioritizing, and resolving issues. Leaders should ensure that they and the rest of the organization fully understand safety-related issues. Without full understanding, the organization cannot appropriately prioritize and resolve these issues so that they do not occur again. In addition, an effective problem identification and resolution program leads to a strong safety conscious work environment. In such an environment, the organization removes barriers to a free flow of information to ensure that all employees feel free to raise safety-related concerns.

Organizations can approach problem identification and resolution with different mindsets. One mindset focuses on finding existing problems and correcting weaknesses, typically through the organization's corrective action program. However, an organization with a positive safety culture also has a problem identification and resolution program that anticipates issues, reviews operating experience, and tracks emerging industry themes and trends. Organizational learning is most successful when issues are anticipated and addressed before they become weaknesses to be corrected.

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WHAT DOES THIS TRAIT LOOK LIKE?

Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.

Individuals recognize deviations from standards and understand how to enter issues into the corrective action program. They ensure that issues, problems, degraded conditions, and near misses are promptly reported and documented in the corrective action program at a low threshold. Individuals describe the issues entered in the corrective action program in sufficient detail to ensure they can be appropriately prioritized, trended, and assigned for resolution.

Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extents of conditions commensurate with their safety significance.

The organization ensures that issues are properly classified, prioritized, and evaluated according to their safety significance. Extent-of-condition and extent-of-cause evaluations are completed in a timely manner, commensurate with the safety significance of the issue. The organization ensures that apparent and root cause investigations identifying primary and contributing causal factors are completed as required. Issues are investigated thoroughly according to their safety significance, and root cause analyses are rigorously applied to identify and correct the fundamental cause of significant issues. The underlying organizational and safety culture contributors to issues are evaluated thoroughly and are given the necessary time and resources to be clearly understood. Managers conduct effectiveness reviews of significant corrective actions to ensure that the resolution addressed the causes effectively.

Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.

The organization ensures that corrective actions are completed in a timely manner. Deferrals of corrective actions are minimized, and when required, due dates are extended using an established process that appropriately considers safety significance. The organization ensures that appropriate interim corrective actions are taken to mitigate issues while more fundamental causes are being assessed. Corrective actions resolve and correct the identified issues, including causes and extents of conditions, and prevent the recurrence of significant conditions adverse to quality. Trends in safety performance indicators are acted on to resolve problems early.

Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.

The organization develops indicators that monitor both equipment and organizational performance, including safety culture. Managers use indicators that provide an accurate representation of performance and early indications of declining trends, and routinely challenge the organization's understanding of declining trends. Organizational and departmental trend reviews are completed in a timely manner in accordance with program expectations.



WHAT IS A SCENARIO IN WHICH THIS TRAIT COULD PLAY A ROLE?

A maintenance worker at a nuclear power plant found water leaking through the roof of the auxiliary building and into the emergency shutdown panel during a heavy rainstorm. He notified the control room supervisor, cleaned up the water, and wrote a condition report. The power plant management assigned the condition report a priority 4 (the lowest level). After the plant identified the degraded condition of the roof, management issued a work order to repair the roof. However, other layers of management never approved the work to proceed. Shortly afterwards, the plant started a program to maintain building integrity in all weather conditions; however, the plant never made plans or took actions to properly prioritize, identify and correct the roof leakage.

Two years later, the maintenance worker found water pooling around the power supply breakers for the feed water pump in the auxiliary building. Three months after that, the maintenance worker found water dripping onto the high-pressure safety injection pump. After both incidents, the maintenance worker notified the control room supervisor, mopped up the water, covered the equipment with a protective material as needed, and wrote a condition report. Each time, plant management assigned the condition a priority level of 4. The worker identified that the source of the water was from the roof of the auxiliary building and asked his supervisor why the roof was not repaired. The supervisor said work orders were written each time, but they were never approved or scheduled due to other priorities. The supervisor was not sure about the status of the program to ensure building integrity and had never seen any plans or schedules to repair roof leaks. Further, when the supervisor asked his manager about the ongoing degraded roof issues, the manager discovered that there were 43 open work orders to repair roof leaks, and none of these orders had ever been approved, scheduled, or completed.

Recently, water from a heavy rainstorm again leaked through the auxiliary building roof and into the switchgear room. This time the water caused an electrical ground short near a current transformer, which then tripped the reactor coolant pump. This led to a reactor trip due to a low reactor coolant system flow signal.

The auxiliary building provides structural support and separation to safety- and nonsafety related equipment, and is designed to provide protection against external events such as rain, wind, and snow. However, the plant's failure to resolve the leakage through its problem identification and resolution and corrective action program left the safety

systems unprotected. The weak safety culture and problem identification and resolution in this plant directly led to the reactor trip.

Thinking about the scenario discussed above, consider the following questions:

1. How does this scenario apply to the safety culture trait Problem Resolution & Identification?
2. What kinds of actions and behaviors would have reinforced safety as the overriding priority?
3. How could this situation have been handled differently?

WHO CAN I CONTACT WITH A QUESTION OR SUGGESTION?

The NRC looks forward to continuing to provide you with information about the traits of a positive safety culture. If you have a question or would like to make a suggestion, please contact the U.S. Nuclear Regulatory Commission, Office of Enforcement, Safety Culture Team, at external_safety_culture_resource@nrc.gov.

Sources of Information:

- 1 "Why is this trait important?" was derived, in part, from a literature review (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13023A054) prepared by Pacific Northwest National Laboratories for the NRC Office of Nuclear Regulatory Research.
- 2 "What does this trait look like?" was derived from the Safety Culture Common Language effort (ADAMS Accession No. ML13031A343), under the direction of the Office of Nuclear Reactor Regulation. Panelists from the NRC, nuclear power industry, and the public created attributes of a positive nuclear safety culture, and examples of each attribute that a nuclear power organization should demonstrate in maintaining a positive safety culture. Although these attributes and examples were created specifically for the reactor community, they may also be applicable to various other communities and organizations. For purposes of Trait Talk, the examples were partially rewritten to increase applicability to nuclear as well as non nuclear communities.
- 3 "What is a scenario in which this trait played a role?" was developed specifically for Safety Culture Trait Talk for educational purposes only. The scenario is fictional and any resemblance to actual events, people, or organizations is purely coincidental.

SAFETY CULTURE TRAIT TALK

WHAT IS THE NRC'S SAFETY CULTURE POLICY STATEMENT?

There are many definitions of safety culture. Most of these definitions focus on the idea that in a positive safety culture individuals and organizations emphasize safety over competing goals, such as production or costs, ensuring a safety-first focus. The NRC's SCPS defines nuclear safety culture as *the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.* Experience has shown that certain personal and organizational traits are present in a positive safety culture. The following traits were included in the NRC's SCPS, although additional traits may also be important in a positive safety culture:

Leadership Safety Values and Actions	Problem Identification and Resolution	Personal Accountability
<i>Leaders demonstrate a commitment to safety in their decisions and behaviors.</i>	<i>Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.</i>	<i>All individuals take personal responsibility for safety.</i>
Work Processes	Continuous Learning	Environment for Raising Concerns
<i>The process of planning and controlling work activities is implemented so that safety is maintained.</i>	<i>Opportunities to learn about ways to ensure safety are sought out and implemented.</i>	<i>A safety conscious work environment is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment or discrimination.</i>
Effective Safety Communications	Respectful Work Environment	Questioning Attitude
<i>Communications maintain a focus on safety.</i>	<i>Trust and respect permeate the organization.</i>	<i>Individuals avoid complacency and continually challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.</i>

The NRC's SCPS provides the NRC's expectation that individuals and organizations performing regulated activities establish and maintain a positive safety culture commensurate with the safety and security significance of their activities and the nature and complexity of their organizations and functions. Because safety and security are the primary pillars of the NRC's regulatory mission, consideration of both safety and security issues, commensurate with their significance, is an underlying principle of the SCPS.

The NRC's SCPS applies to all licensees, certificate holders, permit holders, authorization holders, holders of quality assurance program approvals, vendors and suppliers of safety-related components, and applicants for a license, certificate permit, authorization, or quality assurance program approval subject to NRC authority. In addition,

the Commission encourages the Agreement States (States that assume regulatory authority over their own use of certain nuclear materials), their licensees, and other organizations interested in nuclear safety to support the development and maintenance of a positive safety culture within their regulated communities. The SCPS is not a regulation; therefore, it is the organization's responsibility, as part of its safety culture program, to consider how to apply the SCPS to its regulated activities.

The NRC's SCPS, which includes the definition of nuclear safety culture and the nine traits of a positive safety culture, can be found on the NRC's Safety Culture Web site. The Web site includes additional safety culture information, as well as the NRC safety culture case studies, which describe how the presence or absence of safety culture traits affects the outcome of the events.