

# **Presentation to the Defense Nuclear Facilities Safety Board on Safety Culture**

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**May 28, 2014**



## Safety Culture - Working Definition

Safety Culture refers to the characteristics of the work environment, such as the values, rules, and common understandings that influence employees' *perceptions* and *attitudes* about the importance that the organization places on *safety*.



# Methodological Premises

- o Safe working environment is impossible without an effective organizational safety culture.
- o Organizational culture consists of the context within which behaviors occur and the expectations and values that are perceived to be reinforced by the organization (descriptive).
- o A method that allows objective and systematic measurement of the organizational behaviors that impact safety performance is a useful tool (normative).

# Methodological Premises

- o Models of organizational culture identify behaviors as the observables of the values and beliefs underlying them.
- o Understanding the behaviors and having reliable and valid tools to assess them is the most effective way to understand and assess organizational safety culture.
- o Too often organizations just look at processes or indicators which are only outcome measures and may be obtained by several different behaviors.
- o Complexity of the relationships between individuals, technology and organizations must be considered to fully understand the organizational safety culture.



# Organizational Behaviors Impacting Safety Culture

- Attention to Safety
- Communication
- Coordination of Work
- Decision-making
- Formalization
- Goal Setting/Prioritization
- Organizational Culture
- Organizational Learning
- Organizational Knowledge
- Performance Evaluation
- Performance Quality
- Personnel Selection
- Problem Identification & Resolution
- Resource Allocation
- Roles & Responsibilities
- Time Urgency
- Training

# Multiple Methods for Behavioral Measurement

- Functional Analysis
- Structured Interviews and Focus Groups
- Behavioral Anchored Rating Scales (BARS)
- Behavioral Observations
- Organizational and Safety Culture Survey

**Multiple methods are used to assess each organizational behavior and provide convergent validity to the results.**

# Safety Culture Assessment Characteristics

- Types – Independent, Self-Assessment, Hybrid
- Scope – Broad or Focused; include Corporate Function
- Team Composition – Diverse; Team Lead with Behavioral/Social Science Advanced Degree
- Training on Methodology
- Tools – Reliable, Valid
- Information Collected – Quantitative and Qualitative

# Safety Culture Assessment – Evaluation of Data

- Collect descriptive, objective data
- Evaluate on the basis of a normative framework:

INPO

U.S. NRC

International Atomic Energy Agency

WANO



# Applications of Methodology

- Implemented in over 60 different organizations
- Implemented across different industries including:
  - Nuclear power
  - Fossil fuel
  - Chemical reprocessing
  - Health care
  - Mining
  - Research
- Methodology used effectively in multiple countries
- Methodology discriminates between organizations

# Lessons Learned – Discriminating Behaviors

- Leadership
- Communication
- Organizational Learning
- Problem Identification and Resolution

# Lessons Learned – Addressing Gaps

- Communication
- Engagement
- Internalization
- Problems with metrics
- Checklist mentality
- Complexity

# Lessons Learned - Proactive Organizations

## *Actions*

- Longer-term investments
- Way of doing business
- Behaviors in parallel with process – Integrative Approach

## *Solutions*

- More focused strategies on key behaviors

## *Results*

- Long term cost reductions and better return on investment
- Performance and process based culture

# Lessons Learned - Reactive Organizations

## *Actions*

- Short-term investments
- Driven by outcome measures
- Behaviors follow process – results of Diagnostic Approach

## *Solutions*

- Require significant behavioral change

## *Results*

- Longer term costs and poorer return on investment
- Compliance based culture

# Organizational Challenges to High External Stakeholder Involvement

- Past focus was on process and outcomes, not behaviors.
- Standards in safety culture not clearly defined.
- Regulator cannot require excellence.
- Proactive safety culture requires continuous improvement and proactive behaviors.

# Impact of External Stakeholder Involvement

- External stakeholder involvement has facilitated the recognition of the importance of safety culture.
- External stakeholder requirements can inhibit positive safety culture change.
- Reactive organizations more likely to sustain reactive behaviors in response to external stakeholders.
- Organizations need to move beyond external stakeholder guidance to develop and maintain a positive safety culture.

## Summary

- Methods for assessing and effecting Safety Culture.
- An integrative approach more likely to effect positive Safety Culture through behavioral change.
- Discriminating behaviors can facilitate effective positive Safety Culture change.
- External Stakeholder guidance on safety culture will not by itself effect positive behavioral change.