



Developing a Culture of Reliability and Preventing Catastrophic Events

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Catastrophic Events Prevention Requires Oversight and Control of *Programs, Proficiency and People*



How Confident are you that your organization will not have a catastrophic event?

(Multiple fatality incident, major public impact., terrorist attack, significant fire, etc.)

- Extremely Confident?
- Somewhat Confident?
- Not Confident?
- Don't Know?

Traditional Focus of Process / Catastrophic Event Safety has Been Enabling Systems

Process Safety Elements (System Safety Program Plan)

- Process Safety Information
- Process Hazard Assessment (PHA)
- Operating Procedures –
- Training
- Contractor Management
- Mechanical Integrity
- Non Routine Work Authorizations
- Management of Change (MOC)
- Incident Investigation
- Emergency Planning and Response
- Self-Audits

Safety Enabling Systems

Hazard Recognition and Mitigation
Skills, Knowledge, and Training
Policies and Standards
Exposure Reduction Mechanisms

Organizational Sustaining Systems

Selection and Development
Structure
Performance Management
Rewards and Recognition



People Create and Sustain a Strong Process Safety Culture



Anticipation

- Reporting encouraged.
- Curiosity encouraged.
- Rewards & recognition reinforce desired culture.
- All data is acted upon.
- Open communication upward and downward.



- Each of the cards below has a number on one side and a letter on the other. Someone says “if a card has a vowel on one side, then it has an even number on the other side.” Which of the cards would you need to turn over in order to decide whether the person is lying, turning as few as possible?

E

K

4

7

Cognitive Bias

Confirmation bias. The tendency to search for or interpret information in a way that confirms one's preconceptions.

Normalcy bias. The refusal to plan for, or react to, a disaster which has never happened before.

Availability bias. The tendency to predict based on how easily an example can be brought to mind.

Status quo bias. The tendency for people to like things to stay relatively the same.

Groupthink. The tendency to do (or believe) things because many other people do (or believe) the same.

Risk seeking/risk aversion. The tendency to make risk-averse choices if the expected outcome is positive, but make risk-seeking choices to avoid negative outcome.

Inquiry

- Leadership & culture actively work to avoid influence of cognitive bias on analyses.
- Risk acceptance decisions made by appropriate people.
- Value for quality of content (not just “checking the box”).
- Open communication upward and downward.



Execution

- Leadership and culture support behavioral reliability and accountability.
- All employees feel safe and encouraged to raise issues.
- Employees feel ownership for the safety systems.
- Issues addressed promptly and with appropriate feedback.



Resilience

- Leadership and culture support employee intervention to minimize impact.
- Exceptional conditions, metrics, alarms, etc., consistently produce response.
- Exceptional conditions fed back to analysis.
- High tolerance of false negatives.
- Rewards & recognition reinforce desired culture.



Creating a Safety Culture





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