Leading a Successful Safety Culture

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Safety Engineering and Training Solutions
Advanced Technologies and Laboratories, Intl
The Odds and Opportunities

• 121,000 Gas Stations in US X 18 sales per pump per day

• 18,000,000,000 gas-pumping operations annually

• 150 fires annually due to static fires, each one considered a major event
Record Performance

During January to December 2014:

• Preventative Maintenance Packages Completed: 340 x 12 steps (average)=4,080 task or performance critical steps

• Corrective Maintenance Packages Completed: 660x 30 steps=19,800 task or performance critical steps

• Project Support Related Activities: 8 x 20 task or performance critical steps=160 task or performance critical steps

• Lowest estimate: 24,040 opportunities for error/accidents

• Incident (ESHQ and KPI) rate: 120/year, (~10 per month)

• Summary: Though the opportunities for events are numerous, and are undesirable when they occur, they do not happen as often as the opportunities for them allow…why?
What are the Odds? (Mix and Match Quiz)

Opportunities/Events

1. Bowling a 300 game
2. Getting a hole in one
3. Becoming an astronaut
4. Injury from fireworks
5. Injury from shaving
6. Injury from using chain saw
7. Injury from lawn mowing
8. Being killed next year in transportation event
9. Serious accident/nuclear weapon

Chances

- 1 in 11,500
- 1 in 5,000
- 1 in 32,500,000
- 1 in 19,556
- 1 in 6,585
- 1 in 4,464
- 1 in 3,623
- 1 in 77
- 1 in 125
The Real Point: Fooled By Consequences

Incorrect View: We can have a lot of lower level events before a major one.

Correct View: A significant event can occur at any time...consequences range in severity, but causes do not!
Cultural Contrasts

High Reliability Organization

Healthy Preoccupation with Failure

Sensitivity to Operations (process)

Accountability: Error Tolerance, Detection and Recovery Defined

Co-responsibility for safety, quality, production expectations and goals

Unreliable Organization

False Sense of Security (Record)

Solely Focues on Results

Fault Finding and Culpability—capricious, arbitrary punishment

Management’s solely responsible for safety, quality and production goals
Leadership By Design Principles

Managers manage the culture or the culture manages them

Habits, norms and rituals are formally or informally created, intentionally or unintentionally enforced and reinforced

Safety, Quality and Reliability are NOT defined by the absence of incidents but in the capacity and capability of our people (to detect, prevent and recover from errors/mistakes created by less than perfect conditions)

Our chief capability is NOT risk aversion but risk competency ("Drive Safely")

Managers should ask what do we want for our employees more often than they demand something from them

Greatest turning point in an individual’s safety perspective and performance is when they see hazard controls as benefits rather than requirements
Team Activity
Complexity of Tasks

The complexity of tasks continues to increase

Yesteryear  Yesterday  Present
Error Management

- Error Tolerance
- Error Detection
- Error Recovery
Error Tolerant Systems

• Highway conditions and construction

• Filters—
  - 7” known failure rate
  - 5” DOE requirement
  - 3.6” Action Level
  - 3.0” Notification level
Control Paradox

By seeking to eliminate the undesirable event through the prevention of human error, we guarantee failure by ignoring human nature.
Anatomy of An Event

- Vision, Beliefs, & Values
- Latent Organizational Weaknesses
- Mission Goals Policies Processes Programs
- Flawed Defenses
- Error Precursors

Initiating Action
Error Precursors

- Error Precursors are unfavorable prior conditions at the job site that increase the probability for error during a specific action, that is, error-likely situations.
# Three Types of Culture

<table>
<thead>
<tr>
<th>Pathogenic (Unjust)</th>
<th>Responsive (Legal)</th>
<th>Sustainable</th>
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</thead>
<tbody>
<tr>
<td>Consequences</td>
<td>Policies Determine Practices</td>
<td>Personal Investment</td>
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<tr>
<td>Trigger Culpability</td>
<td></td>
<td>Improves Performance</td>
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<tr>
<td>Backward Looking Accountability</td>
<td>Fiduciary Accountability (Advise/Enforce)</td>
<td>Forward Looking Accountability (Advocate)</td>
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<tr>
<td>(Adversarial)</td>
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<tr>
<td>Confrontational Inquiry</td>
<td>Diagnostic Inquiry (Probative)</td>
<td>Empathetic Inquiry (Productive)</td>
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<tr>
<td>(Prosecutorial)</td>
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<tr>
<td>Ignore or tolerate mistakes</td>
<td>Learn from Mistakes</td>
<td>Predict/Prevent/Report Mistakes</td>
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Organization Expectations

DEF I N E
A Culture of Safety

All cultures consist of three basic elements:

• **The written word**
  - policies, procedures, directives, signs, notices

• **The spoken word**
  meetings, briefings, expectations, reviews

• **Modeled Behavior**
  norms, informal practices, approval or disdain
Habits and Rituals: Organizational Cornerstones

• Habits exist formally and informally, deliberately and unintentionally

• They are the daily litmus test between knowledge and belief

• Rituals are mental and physical constructs or routines we develop deliberately to either empty our minds (get in the flow) or improve our results
Tribal Knowledge

• The oldest form of people working in groups: Tribes

• We belong to many Tribes (maintenance, safety committees, crib players at lunch, smokers hiding in the corners…you know who you are)

• People long for affiliation, association, acknowledgement and achievement (some want to affiliate and associate with those who don’t want to acknowledge achievement—it’s their only achievement that fills the void)

• The strongest tribal ties are with those that most engage our heads and our hearts
Our Safety Process

Safety Culture

- Assessments and Audits
- Progressive Disciplinary Actions
- Supervisor Observations
- Coaching
- Safety Conversations
- Safety Team
- Toolbox Talks/Pre Jobs
- Hazardous Energy/LOTO
- Incident Analysis/CAPERs
- JSA/THA Process
- Task Reviews: Safe Start
- Safety Committees
Work: Three Phases

Work as Imagined

Work as Planned

• Management Gap

Work as Performed
The Disconnect

• Work as Imagined
  - Project Management and Production Plans
  - Audits, Assessments and Project Reviews

• Work as Planned
  - Work Baseline Summaries and Production Orders
  - Work Group Assignments (Plan of the Week)
  - Suspended/Interrupted Work, Stop Work, Package Recycle

• Work as Performed
  - Plan of the Day
  - Individual Task Execution
  - Management Observation and Feedback
Anatomy of an Event: Defenses and Precursors

- Flawed Defenses
- Vision, Beliefs & Values
- Event
- Error Precursors
- Initiating Action
Error Precursors

**Task Demands**
- Time pressure (in a hurry)
- High workload (high memory requirements)
- Simultaneous, multiple tasks
- Repetitive actions / monotony
- Irrecoverable acts
- Interpretation requirements
- Unclear goals, roles, and responsibilities
- Lack of or unclear standards

**Individual Capabilities**
- Unfamiliar with task / first time
- Lack of knowledge (mental model)
- New technique not used before
- Imprecise communication habits
- Lack of proficiency / inexperience
- Indistinct problem-solving skills
- “Unsafe” attitude for critical tasks
- Illness / fatigue

**Error Precursors**

**Work Environment**
- Distractions / interruptions
- Changes / departures from routine
- Confusing displays or controls
- Workarounds / out of service instruments
- Hidden system response
- Unexpected equipment conditions
- Lack of alternative indications
- Personality conflicts

**Human Nature**
- Stress
- Habit patterns
- Assumptions
- Complacency / overconfidence
- Mind set
- Inaccurate risk perception
- Mental shortcuts (biases)
- Limited short-term memory
Why I Make Mistakes

Vision, Beliefs, & Values

Mindsets and Traps
• Positive Illusion
• Bending the Map
• Expectation Bias
• Change Blindness
• Probability Neglect

Slips, errors, mistakes and lapses
Mind the Drift….

Drift occurs through seemingly minor compromises that lead to errant, disastrous concessions.

Desired Norm (the way we do something to get the desired outcome)

Undesirable consequences and failure

Time
Practical Application

Work Planning

Define Scope
Perform Work
Develop Controls
Analyze Hazards

Feedback & Improvement

Safety Culture Practices

PPSA SAFETY AND HEALTH CONFERENCE
ERROR DETECTION AND RECOVERY
Performance Deficiency

Motivation: Effort not Energy

Ability: Skills, Tools, Practice
Error Detection and Reduction Tools

- Questioning Attitude: “What if and How”
- SPEAK CLEAR (Pre and Post Job Dialogue Aids)
- Just in Time Activators
- Peer to Peer Observations (positive, soon and concrete feedback)
- Supervisory Observations (with conversations)
- Visual Aids
- Brown Bag Sessions (led by employees)
- Mock Downs/Walkdowns
- Checklists
- Standard Operating Procedures
- Drills
Just in Time Activators

Memory Jogger Cards

- Pre Task Review

Operations Aid

- Equipment Posting/Placard

- Importance and Role of Machine in Process

- Three common errors associated with operation

- Specific associated controls to eliminate errors and injuries

Five Key Questions
At the Pre-Job Briefing/Worker Led Pre-Job
Ask yourself, your peers, your supervisor

1. Is the scope of work clear?
   (What needs to be done?)
2. What are the critical steps or phases of this task?
   (What has to go right for success?)
3. How can we make a mistake at that point?
   (What is most likely to go wrong? Use the Error Precursors Card)
4. What is the worst thing that can go wrong?
   (What could go wrong and make this bad?)
5. What barriers or defenses are needed?
   (More information/clarification, right tools, extra help.)
Shaping Behaviors

Growth Mindset

• Errors are the result of technical inaccuracies and ability issues

• Leads to learning from failure in order to improve the system

• Corrects the problem by identifying and remediating a step or condition

Fixed Mindset

• Errors are the result of character flaws and motivational issues

• Leads to avoiding risk in order to sustain the status quo

• Uses slogans and admonitions to change an attitude or behavior
The Words We Chose...

Character-Based (fixed)  Performance-Based (growth)
Complyment: The Danger Zone

• “If you coerce and compel, rather than ‘listening to gain understanding’, you will not get people moving positively and safely with the energy and investment they need to be successful,” Dr. Conners

• *Forcing* people into alignment may get them moving, it won’t get them thinking....
Factors contributing to incident causation

Corporate Governance
- conflicting objectives
- loose culture
- inadequate control of business processes
- scorecard driven
- unclear priorities
- condone non-compliance
- uncontrolled change management
- unclear expectations
- lack of consequent management
- not open for ‘bad’ news
- focus on commercial targets
- focus on cost reduction
- focus on slips, trips & falls (TRCF)

Organisation & systems
- inadequate standards & procedures
- lack of resources
- poor audits and reviews
- time pressure
- inadequate HEMP process
- workload
- maintenance back-log
- lack of competence
- inadequate design
- Inadequate monitoring & corrective action
- Pushing operating window
- unclear roles & responsibilities
- inadequate ER system
- production pressure
- lack of supervision

Immediate causes at sharp end
- human error
- poor communication and hand-over
- no intervention
- equipment failure
- non-compliance
- acceptance of high risks
- lack of hazard awareness

Incident
Motivation and Ability

- Don’t know what to do
- Don’t know how to do it
- Don’t have the tools to do it
- Think they are doing it
- Don’t want to do it
- Don’t feel they have to do it
Human Error and Violation Decision Flow Chart

1. Occurrence of an undesirable event.
   - YES: Did the action proceed as planned?
     - YES: Were the actions in accordance with the rules and procedures?
       - YES: When the person was violating, did they think they were doing it the correct way?
         - YES: The person could not get the job done if they followed the procedures, but they did it anyway.
           - YES: Did the person violating think it was better for the company to do it that way?
             - YES: Did the person violating think it was better for them personally to do it that way?
               - YES: Did the person violating mean to do what they did and didn’t they think or care about the consequences?
                 - YES: Reckless violation
               - NO: Optimising violation for personal
             - NO: Optimising violation for company
           - NO: Unintentional violation
         - NO: Mistake
       - NO: Slip or lapse
     - NO: Does this happen a lot?
       - Routine error
   - NO: Would other people here do it the same way? (Substitution test)
     - Routine violation
     - Does this person have a history of violating?
Safety Champion Program
(Cosmo Specialty Fiber)

Personal Risk Tolerance Profile

Hazard Identification and Control Training

Peer Observations and Feedback

Field Observations and Recommendations

Individual Safety Improvement Plan
Performance Improvement Model

External

- Current Level Of Performance

Internal

Motivation
- Incentives: Market/Social
- Restrictions and Sanctions

Ability
- QTR
- Practice (Training/OJT)
- Coaching/Mentoring
- Process Improvement

Expected Actions OR Improvement
<table>
<thead>
<tr>
<th>Social Force Motivation</th>
<th>Market Force Motivation</th>
<th>Ability</th>
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</thead>
<tbody>
<tr>
<td>Sense of Purpose</td>
<td>Monetary Incentives</td>
<td>Awareness Campaigns</td>
</tr>
<tr>
<td>Sense of Accomplishment/Improvement</td>
<td>Financial Rewards</td>
<td>Overview/Refresher Briefs</td>
</tr>
<tr>
<td>Sense of Inclusion (Group)</td>
<td>Progressive Prizes (effort=reward)</td>
<td>Resource Allocation Priorities</td>
</tr>
<tr>
<td>Investment in Decision/Outcomes</td>
<td>Compensated Promotion</td>
<td>Schedule Allowance (time to perform)</td>
</tr>
<tr>
<td>Professional Pride (Personal)</td>
<td>Skill Development (resume enhancement)</td>
<td>Defined Accountability Measures (clear expectations)</td>
</tr>
<tr>
<td>Professional Pride (Affiliation)</td>
<td>Educational Opportunities (exclusive)</td>
<td>Visible, Current, Relevant Performance Metrics</td>
</tr>
<tr>
<td>Sense of Duty/Obligation</td>
<td>On the Spot Recognition Awards</td>
<td>Accessible and Available Point of Contact</td>
</tr>
<tr>
<td>Increasing Influence (personal)</td>
<td>Performance Appraisal Metrics</td>
<td>Personally Relevant Resource Materials</td>
</tr>
<tr>
<td>Personal Control of Corrective Actions</td>
<td>Loss Aversion (fear of losing what you already gained)</td>
<td>Knowledge/Skills Specific Training</td>
</tr>
<tr>
<td>Benefit Outweighs Effort</td>
<td></td>
<td>Removal of Conflicting or Ambiguous Goals</td>
</tr>
<tr>
<td>Senior Management Support</td>
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</tr>
<tr>
<td>Loss Aversion (fear of losing something)</td>
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<tr>
<td>Competition</td>
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The Communication Model

Mind Reading, Fortune Telling and Competitive Bias (Win/Lose)
“Rolling Filters”: Balancing Priorities

Safety comes first! We value Safety.

Do your work, and do it safely!

Get that job done, we have schedules to meet, and be careful!

Which is it? Production or Safety?!
Securing the Load

Deliver the message without the load:

- Isolating: “You’re the only one…”
- Sarcasm: “There’s a problem all right, I might be looking at it or him…”
- Attaching Global Weight: “You don’t respect the rules and never have…”
- Intimidating: “I don’t want to pull rank”
- Exaggerating: “You always, never, the hundredth time…”
- Point out their failures: “Can’t get through to you, You don’t get it”
- “If I were you…” means “Why can’t you be more like me”
- Gunnysacking: “This is like the time you..”
Examples of Inquiry

• “What bothers you the most about this situation?” (Diagnostic)

• “Why didn’t anyone else have a problem with it?”
• “Why didn’t you stop when you violated the safety limit?” (Confrontational)

• “What is your opinion of this situation?”
• “Is there anything about the task or job we are asking you to do that does not provide value to you?” (Empathetic)
Levels of Inquiry

• Diagnostic Inquiry
  - Steering the conversation to fix ‘an isolated problem’
  - Satisfactory Solution
  - Influences the other person’s mental processes

• Confrontational Inquiry
  - Inserting your own ideas in the form of a question
  - Judgment
  - Serves your own interest—not necessarily the other persons

• Empathetic Inquiry
  - Viewed from the other person’s perspective
  - Curiosity
  - Doesn’t assume intentions—takes the issue at face value
Advocacy Process: Teaching Others to Solve Problems

1. Encourage the identification of the issue
2. Clarify the issue
3. Determine the current impact (evidence)
4. Determine the future implications
5. Examine your personal contribution to this issue
6. Agree on the preferred, productive outcome
7. Commit to action—Check Up/Check Back
### Pre Job Quality- Tasks Level Stop Criteria

**SUCCESSFUL PRE-JOB BRIEFS and POST-JOB REVIEWS ARE INTERACTIVE!**

<table>
<thead>
<tr>
<th>6. SPEAK:</th>
<th>Each S.P.E.A.K. item must be discussed. Provide key information in the space provided.</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Summarize Critical Steps:</td>
<td>What steps, if done wrong, would have immediate negative consequences?</td>
</tr>
<tr>
<td>□ Prior Performance:</td>
<td>What lessons have we learned from this task and/or similar tasks before?</td>
</tr>
<tr>
<td>□ Error Likely Steps:</td>
<td>Where/when are WE most likely to make a mistake on <strong>THIS TASK</strong> at <strong>THIS TIME</strong>?</td>
</tr>
<tr>
<td>□ Anticipate Worst Case:</td>
<td>Related to <strong>THIS TASK</strong> at <strong>THIS TIME</strong>, what is the worst that could happen?</td>
</tr>
<tr>
<td>□ Kinds of Defenses:</td>
<td>How will WE defend OUR PEOPLE &amp; OUR PLANT on <strong>THIS TASK</strong> at <strong>THIS TIME</strong>?</td>
</tr>
</tbody>
</table>

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<tr>
<th>7. STOP Criteria:</th>
<th>On this task, our team will STOP &amp; Get Help (New PJB, Supervisor, etc.) when we face any of these challenges.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOP</td>
<td>Unexpected Conditions ➢ Team Members are Unsure ➢ Distractions ➢ Work Team Changes ➢ Job Scope Changes</td>
</tr>
<tr>
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<td>Instructions are Inadequate ➢ Time Pressure/Stress ➢ Additional STOP Criteria Identified by Our Team on This Task at This Time:</td>
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**PPSA SAFETY AND HEALTH CONFERENCE**
## Post Job Brief Quality

### 8. Post-Job Review: CLEAR

- **Changes:** What changes should be made to the task instructions?
- **Lessons learned:** What went right? What went wrong? What do we need to share?
- **Errors left uncorrected:** What errors still exist that need to be addressed before they cause an error?
- **Adequate Resources:** What resources should be added to support the task?
- **Results not as expected:** What happened that was unexpected?

### 9. Corrective Actions / Comments

- **We stopped this job because:**

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<th>WR #:</th>
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### Follow-up Requested

- **Circle who should follow up:** Supervisor, Planner, Safety, Management, Other
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