Workshop C

Why Smart People Do Stupid Things: Recognizing & Correcting Behavior that Puts People in Harm’s Way ... Incident Investigations, Root Cause & Corrective Actions That Work

Tuesday, March 21, 2017
9:45 a.m. to 11 a.m.
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Richard Cutrell has worked in the EHS field for more than 28 years. He has EHS experience in heavy manufacturing, cold storage/distribution, railroad tank car industry, and is currently the Corporate EHS Manager for Franklin International in the chemical manufacturing industry. Mr. Cutrell has managed facilities that are covered by PSM, RMP, and managed in both union and non-union workforces. For the past 10 years, he has been a member of the Chemical Emergency Preparedness Advisory Council’s (CEPAC) Hazard Analysis Committee for Franklin County, Ohio. He has conducted EHS presentations at several MEC Symposia, for the Franklin County LEPC, and other area businesses. Mr. Cutrell has degrees in Mechanical Engineering (Clark State Community College) and Chemistry (Urbana University). He has also received Class I Wastewater Operator Certification from the Ohio EPA and is a Six Sigma Black Belt Champion. According to legend, in 1997, under the tutelage of Mike Carnell from Six Sigma, Mr. Cutrell and his Black Belt Candidate Robert Carpenter were the first people to identify injuries as “defects” in a Six Sigma Black Belt Certification project.

Michael J. Freeman, CIH, CSP, CHMM
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Mike Freeman is an EHS professional with over 25 years of experience. This experience ranges from general industry and manufacturing to global management of dispersed workforces. Currently, Mr. Freeman is the North American EHS Manager for GE Water and Process Technologies. In this role, he leads a staff dedicated to insuring EHS excellence with the field workforce. In general industry and manufacturing, Mr. Freeman has managed EHS programs at a manufacturing facility as well as leading multiple sites in a corporate level capacity. Additionally, Mr. Freeman has spent much of his professional life in consulting. This consulting has been for clients from all sectors. This consulting experience has included environmental site assessments, industrial hygiene assessments, auditing, program development and training. Mr. Freeman holds a bachelor’s degree in environmental health from Indiana University. Mr. Freeman is certified in the comprehensive practice of industrial hygiene, in comprehensive practice as a safety professional as well as hazardous materials management.

Christina L. Whitehead, CSP
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Christina Whitehead has 15 years of experience as an EHS professional and almost 20 years in manufacturing and general industry. Currently, Ms. Whitehead is the Lean, Materials, and Delivery Leader for GE Aviation Engine Services in Springdale, OH. In this role, she leads an hourly and salaried staff dedicated to insuring safety, quality and delivery within a 550 person overhaul and repair shop. Ms. Whitehead has almost 6 years with GE Aviation, during her time with GE, she started as the EHS Leader for Evendale Manufacturing Operations, then took a dual role as a QS/ISO Rep and a Quality Control Engineer, then as a Lean Leader before transitioning over to her most current role. Prior to GE, Ms. Whitehead worked for as an EHS consulting firm for 5 years, and an EHS Manager for Amazon in Wilmington, DE. During her time as a consultant, she conducted EHS audits, site assessments, conducted EHS training such as OSHA 10 & 30 Hour, HAZWOPER, LOTO, RCRA/DOT etc. and acted as an EHS site manager. She started her career at General Motors and Delphi where she was a First Line Manufacturing Supervisor for 5 years then became the EHS Manager for an 1800 person, union brake component shop. Ms. Whitehead holds a bachelor’s degree in Criminal Justice from the University of Cincinnati and is expected to receive her MBA from UC in August of 2017. Ms. Whitehead is also a Certified Safety Professional.
Why do Smart People do Stupid Things?

Presented By:
Richard Cutrell
Michael Freeman
Christina Whitehead

“Safety People”

Franklin International

GE imagination at work
Dysrationalia is defined as the inability to think and behave rationally despite adequate intelligence.
“I know that I am intelligent because I know that I know nothing.”

- Socrates

“Common sense is not so common.”

- Voltaire
"A person is smart. People are dumb, panicky, dangerous animals and you know it. Fifteen hundred years ago everybody knew the Earth was the center of the universe. Five hundred years ago, everybody knew the Earth was flat, and fifteen minutes ago, you knew that humans were alone on this planet. Imagine what you'll know tomorrow."
A ball and a bat together cost $1.10

The bat costs a dollar more than the ball.

How much does the ball cost?
What you **KNOW** versus what you **THINK**

How do you properly pronounce the capital of Kentucky?

A: “Louie – Ville”          B: “Louis-ville”
C: “Lou–uh-vull”           D: ????
Error versus Violation

Michael Freeman
Definitions: Error and Violation

**Error**
– an action or inaction that *unintentionally* deviates from an expected work practice or procedure.

**Violation**
– an action or inaction that *intentionally* departs from established work procedures or approved work practices
Error is **NOT** a Choice

“A behavior which is *totally under the control of the person*: clear *choices* or procedures were available and could have been executed, but the *wrong decision* was made or a short cut was taken.”

-- A Fortune 100 company
Old vs. New View of Human Error

**Old View**

Human error is a cause of accidents  
To explain failure, investigations must seek failure  
We must find people’s inaccurate assessments, wrong decisions and bad judgments

**New View**

Human error is a symptom of trouble deeper inside a system...  
To explain failure, do not try to find where people went wrong.  
Instead, find how people’s assessments and actions made sense at the time.
Local Rationality

People did things that made sense to them at the time; otherwise, they would not have done them (given their goals, mindset, and context).

Incidents don’t happen because people gamble and lose…

Incidents happen because the person believes that what is about to happen is not possible…

OR

what is about to happen has no connection to what they are doing…

OR

that the possibility of getting the intended outcome is well worth whatever risk there is.
Reason’s “Swiss Cheese” Model of Human Error

Error Origin

Organizational Factors

Unsafe Supervision

Preconditions for Unsafe Acts

Unsafe Acts

Failed or Absent Defenses

Human Fallibility
3-4 errors/hour

Incident

Unsafe Acts seen as more a consequence of failed or absent defenses

Adapted from Error Management Solutions, LLC 2005
Drift + Accumulation

**Expectations**: Desired state of work performed
- Work as “imagined” by leaders -

**Normal Practices**: Work as actually performed (allowed by mgmt!)

**Margin for Error**

**Hidden conditions**

**Accumulation**

**Drift**

**Violation**

**Error**

**Safety/Quality**

**Danger**

**Time**
Error without consequence is a good thing — it shows that our systems are error-tolerant and that they are working.
Mistakes arise directly from the way the mind handles information, not through stupidity or carelessness.

— Dr. Edward de Bono
The human brain does not need specific letters to be in order in a word to understand the word. All the human brain needs is the first letter and the last letter to be in the correct order to read the word in a sentence.
State the “Word”
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State the “Color”
Risk-Important Actions and Critical Steps

Risk-Important Steps: procedure steps or actions that expose products, services, or assets to the potential for or actual harm.

Critical Steps: actions that will trigger immediate, irreversible harm.

All Procedure Steps

All Risk-Important Actions

All Critical Steps
Critical Step

Is the decision or step you are about to take going to lead to immediate, irreversible harm to you or others?

Do you have plans and measures to ensure your safety as well as that of others?
Hazardous Attitudes

**Pride**: “Don’t insult my intelligence.”

**Heroic**: “I’ll get it done, by hook or by crook.”

**Invulnerable**: “That can’t happen to me.”

**Fatalistic**: “What’s the use?”

**Bald Tire**: “Gone 60K miles without a flat yet.”

**Summit Fever**: “We’re almost done.”

**Pollyanna**: “Nothing bad will happen.”
Trade-Offs

1. People routinely make a choice between being **efficient** (productive) and being **thorough** (safe), since it is rarely possible to be both at the same time (see herons/egrets).

2. If **demands** for **productivity** are high (**time to do**), thoroughness is reduced until productivity goals are met.

3. If **demands** for **safety** are high (**time to think**), efficiency is reduced until the safety goals are met.

What do you want at critical steps?
Strengthen Your Defenses

Safety isn't the absence of injuries, it is the strength of the defenses.
“If we learn from our mistakes, shouldn’t I try to make as many mistakes as possible?”
INGENUITY
Some bright ideas are best observed from a distance.

STUPIDITY
Mother Nature's way of thinning the herd.
Types of Error

**Active Errors**
Physical, observable actions that change equipment, personnel system or facility state, resulting in immediate unwanted outcomes (harm)

**Latent (Hidden) Errors**
An actions, inaction or decision that creates an unwanted condition, unnoticed at the time, causing no immediate, apparent harm to the work, facility, or personnel

“Accidents waiting to happen”
--Kim Vincente, professor, University of Toronto
Latent System Weaknesses

Undetected organizational deficiencies in facilities, processes, or values that create job-site conditions that provoke error and/or degrade the integrity of defenses.

Latent Weaknesses Accumulate
Your organization is not basically or inherently safe. People have to create safety by putting tools and technologies to use while negotiating multiple system goals at all levels of your organization.
Adaptability

“People at work cannot simply follow a prepared plan or set of procedures, but must constantly take the situation into account and make the necessary adjustments.”

--Erik Hollnagel
*The ETTO Principle*, 2009
(Efficiency-Thoroughness Trade-Off)

“It is better to know things as they are than to believe things as they seem.”

--Kenneth Boa
When things go tragically wrong...what can we learn?

1. Identifying the hazards present in our work is the critical baseline that allows us to eliminate hazards or implement strong defenses. If we do not execute well here, we leave workers to make the best decisions they can without training or guidance.

2. Communicating the hazards, defenses, and talking with workers about why they are important is the next step.

3. Think about drift – are there circumstances where it might make sense to workers to not follow established procedures? Talk with workers about this, and use the insights to address these types of circumstances in your training and planning.
When things go tragically wrong...what can we learn?

4. Help workers understand how to recognize when the conditions of work have changed enough to trigger the EXPECTATION that they must STOP and REASSESS because normal procedures and defenses no longer apply.

- For example – a worker in a confined space is typically not a normal work routine, yet when that worker goes down, the workers outside of the confined space will react and go in to try and save them without even thinking about it.

- How do we communicate to workers in advance, and routinely, how critical it is for them not to react in the emotion of the moment? We need them to understand they have to stop and reassess how they can safely try to help by following the emergency procedures that were put in place in advance.

5. When we talk with workers remind them that nothing is more important than sending them home safely at the end of the day, and ask them how we can accomplish that.
One accident is bad enough, but when the same accidents happen over and over, and when the same individuals are involved in accidents month after month, year after year, something has got to be done to break the vicious—and potentially deadly—cycle.

Safety experts believe that about 20 percent of workers cause 80 percent of accidents. So is it possible that some individuals truly are “accident prone.” Who are these people? They are the ones who exhibit the following traits:

- Stoic “tough guys,” who work through any injury or illness and consider it a sign of weakness to do otherwise;
- Risk takers, who think accidents happen to other people;
- Angry people, who let emotions distract them from their work because, as the old saying goes, they are “so angry they can’t see straight”;
- Shy workers, who don’t want to draw attention to themselves by reporting an incident or near miss;
- Tired people, including shift workers, whose lifestyles don’t give them enough energy or alertness to work safely;
3 factors must be considered if we want to break the vicious cycle of repeatable accidents:

- **Human factors** include an employee’s:
  - Lack of job skills and knowledge
  - Unsafe work style/habits (rushing, careless, inattentive)
  - Poor judgment (taking shortcuts, skipping steps, not bothering with personal protective equipment (PPE))
  - Lack of physical fitness (overweight and out of shape)
  - Distracting personal problems

- **Jobsite factors** include:
  - Not having the right equipment for the job or equipment in poor condition
  - Workers fitted to jobs rather than jobs fitted to workers
  - Improperly laid out work spaces that don’t provide ease of movement and worker comfort
  - Inadequately managed work flow resulting in workload spikes and overloads
  - Poorly lit, loud, over- or underheated work environments

- **Safety culture** factors include:
  - An environment in which safety and health aren’t priorities and safe behaviour isn’t reinforced and rewarded
  - Accident investigations that don’t get to the root causes of accidents and fail to correct safety problems to prevent future accidents
Learning from our Mistakes

We are generally guilty of 3 things when dealing with mistakes:

1. **We Rationalize**
   - Rationalization is the process of coming up with apparently sensible explanations for our behavior. This line of reasoning comes to us naturally because we don't want to feel bad or guilty so instead, we get defensive and grasp for any possible reason for our actions that gets us off the hook.

2. **We Convince Ourselves It Was Simply a Fluke**
   - Often when we make a mistake we convince ourselves it was an aberration, a one-time event that happened because of bad luck, the stars aligned against us, or whatever. But the bottom line is we choose to put the experience behind us and move on as quickly as possible without trying to learn anything about the dynamics of the mistake because we assume it will never happen again.
   - Sometimes mistakes happen even when we make all the right choices, but other times they are a signal that our internal self is trying to tell us there is something far more serious going on. The only way to get off the merry-go-round is to take the time to understand and learn from our choices and behaviors.

3. **We Don't Take Time to Understand What Went Wrong**
   - Sometimes we recognize and take responsibility for the mistake, but never bother to understand why it happened. Mistakes are a reality check. Taking responsibility for the consequences of our mistakes is just the first step, but it puts us in a better position to do the work to understand what's working—and what isn't. If we choose to deny or move on for the sake of putting the event behind us we miss out on a powerful opportunity to learn about our behaviors, the things we say, do and think, particularly if it's a recurring pattern.
The Risk of Complacency

Risk Patterns

States (Cause) Errors (Which cause) Less risk (To become) More risk

- Rushing
- Frustration
- Fatigue
- Complacency
- Eyes Not on Task
- Mind not on task
- Line of fire
- Balance, Traction, Grip

Hazards

- Major
- Minor
- Close Calls

Hazards with a critical error

To Become
Actual Events

Just when you thought it was safe to go back to work...
“Every time someone asks me, ‘Do you really think someone would actually do that?’, I remind them that there is a guard rail at the top of the Grand Canyon.”

- Richard Cutrell (aka ‘Safety Boy’)}
Actual Events

- Drove a raised trailer into the Low Bridge… (Twice)
- Ran an entire batch with the drain valve open
- Opened top hatch on an actively running reactor to look inside
- Placed a chemical jar next to their foot and then kicked it over
- Drove through doorways with forks all the way up.. Twice
- Placed parts of ourselves into actively running machines
- Closed doors on the forklift as they drove through door
- Stabbed ourselves
- Placed hand inside machine and then instructed partner to cycle the machine
• People are human and humans make mistakes and misjudge situations.
• We can reduce mistakes through training and consistently demonstrating safe behavior.
• Create the path of least resistance.
Incident Reports:
- Injuries
- Spills
- Near Misses
- Damage/Crashes

All incidents are investigated so that we can better understand how and why they occurred and therefore initiate corrective actions to correct the unsafe conditions.
Adoption of engineering solutions so that people cannot get hurt or make mistakes.

- Guarding / Light Curtains
- Automatic Equipment
- 3D Powerwash
- Guard Rails
- Air Movers / Exhaust
Creating good habits through high expectations

• Good work practices are expected and part of the culture so that workers wouldn't think of doing something the wrong way.

• This is how hardhats and seat belts became a way of life - people should speak up when unsafe work occurs and not let it slide.

• Very Difficult to change traditions.
Making safety a priority

• Many people think safety will slow the job down, but companies that make safety a priority with better planning and integrated safety leads to higher job satisfaction, higher quality, higher efficiency, and a longer tenure for employees.
Making sure experienced workers set a good example for newer ones

• New employees are educated and trained on the job and learn the most through the example of the experienced work force.

• If the experience people cut corners, the inexperienced people will follow right along.
What are the chances of...

you and a girl like me ending up together?

I'd say like one out of a million.
SO...
YOU'RE SAYIN' THERE'S A CHANCE
Why?

Think Safety First!

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Questions and Comments

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imagination at work