

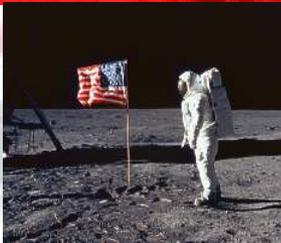
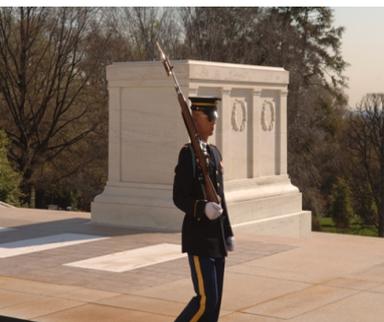
# Accident Prevention: Combatting Complacency

March 21, 2019



“THE DEPTH OF ONE’S INTEGRITY IS ROOTED IN THE FOUNDATION OF ONE’S PERSONAL PRIDE, PROFESSIONAL MORALS & COMMITMENT TO EXCELLENCE”





SOUTH EAST EAST

86 753 09

**Damned**

If You Do      If You Don't

↓                      ↓

WEST

80 302

Hazard ↗



# BEHAVIOR PRINCIPLES

☑ When The Reason For Behavior is Not Known.

✓ **Determine What Motivates The Behavior.**

-- Lack of Training?

-- Working Conditions?

-- Personal Problems?

✓ **Not Trained In Task? – Train Them.**

✓ **Work-Related Problem? - Fix It.**

✓ **Personal Problem? - Company EAP?**

**Find Positive Ways To  
Discourage Unacceptable Behavior.**



# CHAIN OF ACCIDENT CAUSATION

**Basic Causes**

Management Safety Policy & Decisions  
Supervisory Performance  
Human Factors  
Job Factors

**Immediate Causes**

Substandard Practices

Substandard Conditions

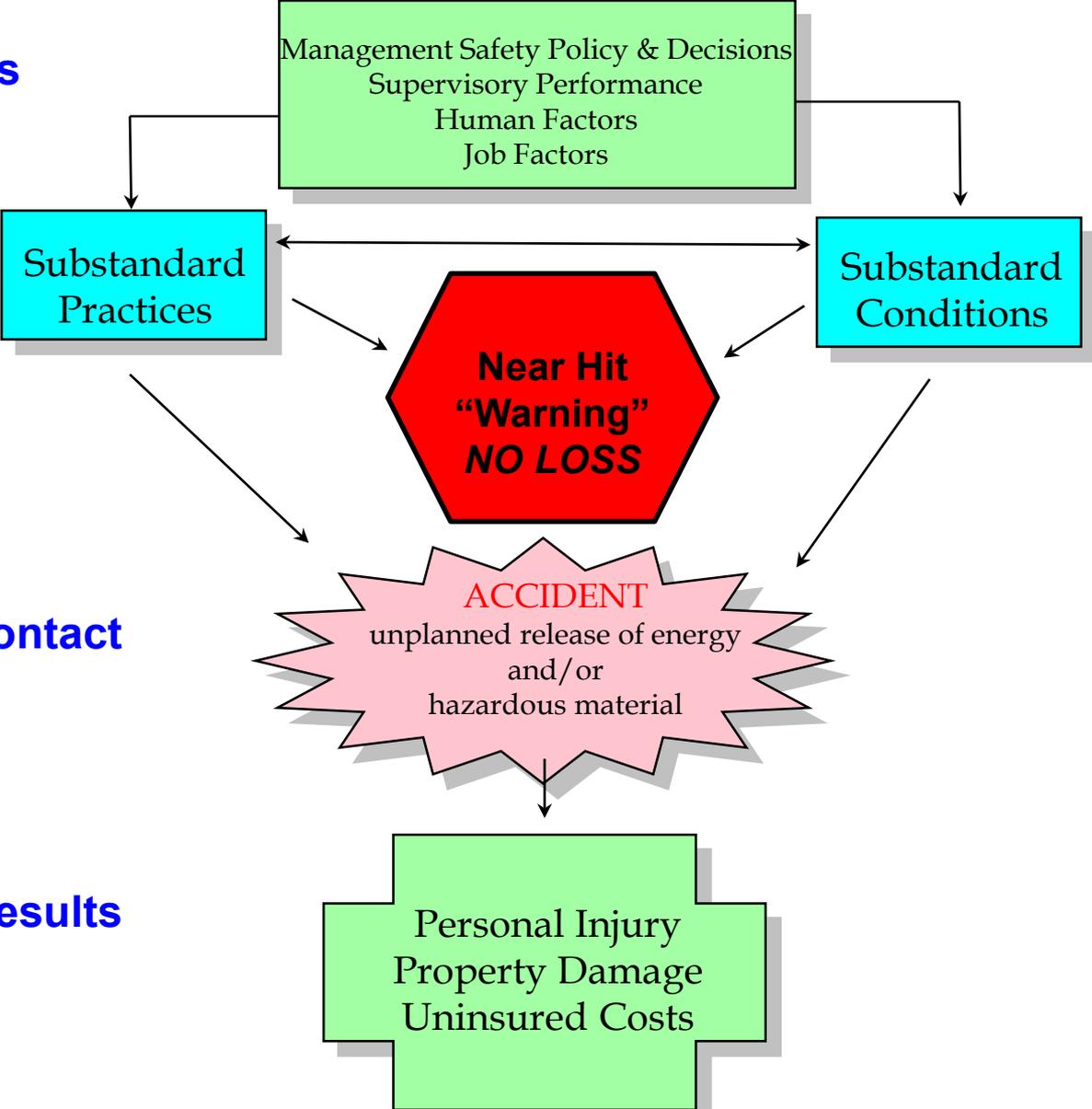
**Near Hit  
"Warning"  
NO LOSS**

**Incident - Contact**

**ACCIDENT**  
unplanned release of energy  
and/or  
hazardous material

**Accident Results**

Personal Injury  
Property Damage  
Uninsured Costs



# ACCIDENT COST VS. RECUPERATIVE COST

INCIDENT COST ( U.S.\$ )	COMPANY PROFIT MARGIN				
	1%	2%	3%	4%	5%
✓ \$1,000	100,000	50,000	33,000	25,000	20,000
✓ \$5,000	500,000	250,000	167,000	125,000	100,000
✓ \$10,000	1,000,000	500,000	333,000	250,000	200,000
✓ \$25,000	2,500,000	1,250,000	833,000	625,000	500,000
✓ \$50,000	5,000,000	2,500,000	1,667,000	1,250,000	1,000,000
✓ \$100,000	10,000,000	5,000,000	3,333,000	2,500,000	2,000,000
✓ \$150,000	15,000,000	7,500,000	5,000,000	3,750,000	3,000,000
✓ \$200,000	20,000,000	10,000,000	6,666,000	5,000,000	4,000,000

**SALES REQUIRED TO COVER LOSSES**

# **If you have a plan you respond; if you don't have a plan you react**

- 1) It's about Exposure.**
- 2) What you allow, is what will continue.**
- 3) As the degree of immediate risk rises, so does the degree of immediate care.**
- 4) Failure to act upon knowledge of this leads to 110(c) charges.**

# The Problems are the Problems... not the Accidents!

**Accidents & Citations are not the problem; *the problem(s) are the problem.***

**Accidents & Citations are not unplanned, random, unforeseeable, fortuitous process outcomes; *they are however, patterned and predictable performance symptoms; the final visible evidences of systemic failings and organizational deficiencies.***

**If there are accidents and citations in an organization, there are systemic organizational problems. To achieve excellence, *focus on the systems, not the symptoms of accident or citation causes.***



← 2017

2018 →



# COMPLACENCY

1. WHAT IS IT?
2. WHAT ARE THE SIGNS  
YOU / WE NEED TO LOOK  
FOR?

# NORMALIZATION OF DEVIANCE

*“We’ve always done it that way!”*

A long-term phenomenon in which individuals or teams repeatedly accept a lower standard of performance until that lower standard becomes the normal. Over time, the individual/team fails to see this action as deviant.

**“NORMAL PROCESS”**

**A > B > C = D**

**A > B > *SKIP C* = D**

***“C IS A CRITICAL TO SAFETY”***

**METAL/NONMETAL MINE FATALITY** – On October 19, 2018, a 63-year old quarry manager, with 17 years of experience, was fatally injured when he lost control of the haul truck he was driving. The victim was operating a haul truck down a steep grade and traveled through a berm and over a short drop-off. The victim was not wearing a seat belt.



# OPTIMISM BIAS

*“It won’t happen to me!”*

The optimism bias causes a person to believe that they are less at risk of experiencing a negative event compared to others. There are four factors that cause a person to be optimistically biased:

- **their thought process** (normalization of deviance)
- **information they have about themselves v. others** (ego)
- **their desired end state** (risk vs. reward)

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# “Inattentional Blindness”

**EXAMPLE:** A Loader Operator looks in his mirrors and starts backing up, the back-up alarm is fully functional. He hears a grating sound and feels the loader heave up in the rear. He stops and gets out and sees that he just backed over a pick-up truck killing the other driver....

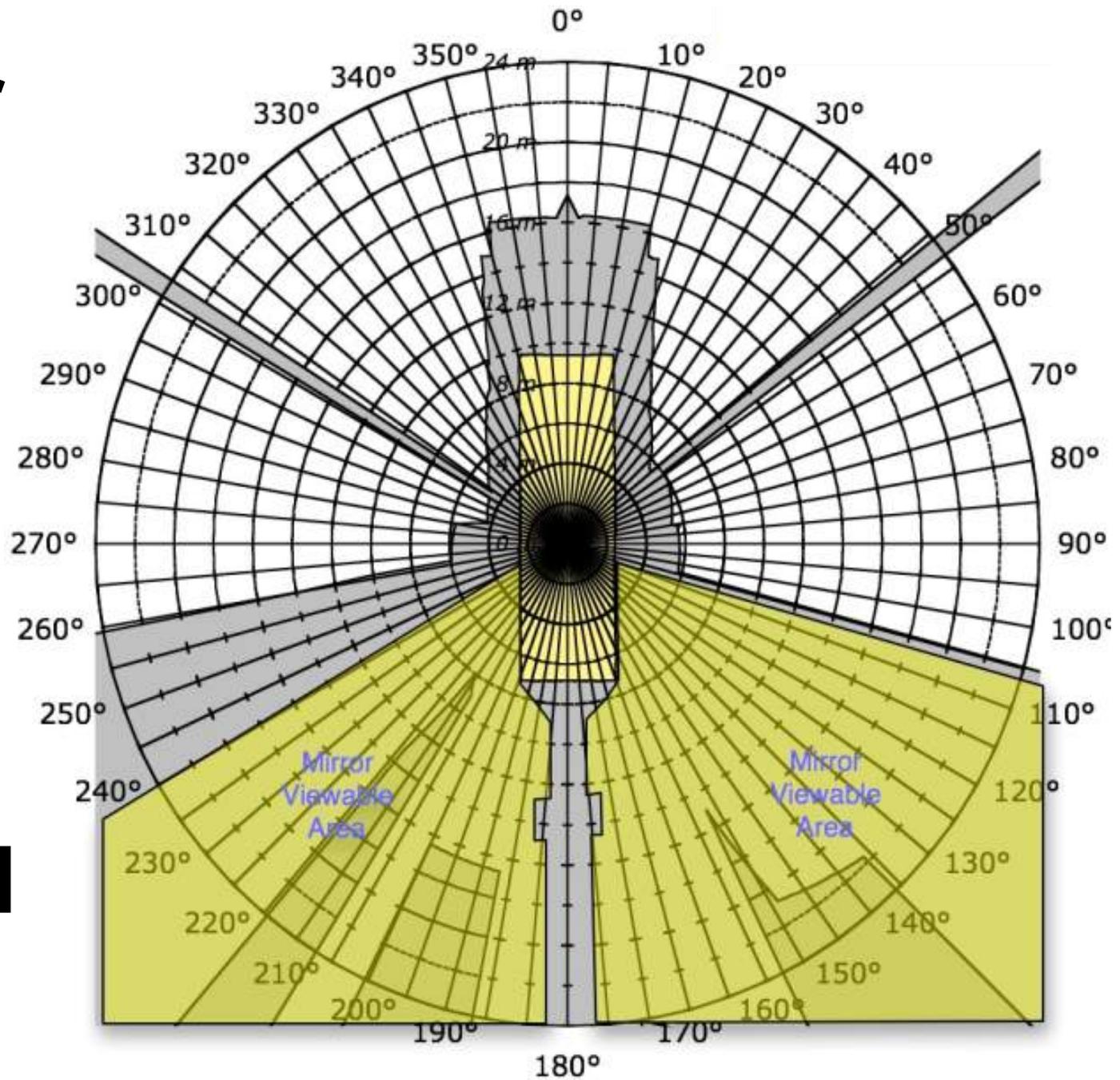
- The person making the error is likely to be held negligent. While assigning blame and deeming someone as stupid or careless might provide emotional release, it does little to explain why such accidents are so commonplace.

**METAL/NONMETAL MINE FATALITY** – On December 30, 2017, an employee in a pickup truck approached the quarry loadout area to get the Front End Loader (FEL) operator for lunch. The FEL backed into the pickup, pushing it sideways and crushing the driver's side of the pickup cab, trapping the victim inside the truck. The pickup truck caught fire and efforts by the FEL operator and a nearby contractor to put the fire out using fire extinguishers were not successful.



# Loader Blind Spots

At  
Ground  
Level



# Why do intelligent, diligent and thorough people so often fail to see the obvious?

- To understand how **“Inattentional Blindness”** occurs, it is necessary to accept a very un-intuitive idea: most of our perceptual processing occurs outside of conscious awareness.
- Our senses are bombarded with such a large amount of input, sights, sounds, smells, etc., that our minds cannot fully process it all. The overload becomes even worse when we recall information from memory and engage in deep thought.

# **“Inattentional Blindness” is affected by four factors**

- **Conspicuity**
- **Mental Workload**
- **Expectation**
- **Capacity**

# “Inattentional Blindness” is affected by four factors

## 1. Conspicuity

When we are just casually looking around, sometimes an object will jump out of the background. The term "conspicuity" refers to this ability to capture attention. There are two general types of factors which determine conspicuity:

- **Sensory Conspicuity Factors**

“Sensory Conspicuity”, the physical properties of the object. The most important sensory factor is **contrast**. We see objects, not because of their absolute brightness, but by their contrast with the background. When there is higher contrast, objects are more conspicuous.

# **“Inattentional Blindness” is affected by four factors**

The second is;

- **Cognitive Conspicuity Factors**

**"Cognitive Conspicuity" . We are much more likely to notice things which are relevant to us in some way. The classic example is the “Lecture” phenomenon. You are having a discussion, you understand the words of the individual speaking with you and you may or may not also be aware of the buzz of other, unintelligible conversations. Attention limits us to one conversation at time. Now, suppose someone behind you says your name. This automatically attracts your attention to the other conversation because your name is meaningful. This happens visually as well.**

# **“Inattentional Blindness” is affected by four factors**

## **2. Mental Workload and Task Interference**

Since attention is roughly fixed, the more attention we focus on one task, the less there is for others.

“Inattentional Blindness” often occurs because part of our attention is devoted to some secondary task.

In theory, for example, speaking on a cell phone, adjusting a radio can absorb some attentional capacity and lead to **“Inattentional Blindness.”** Any mental workload, such as just thinking about what to have for dinner, can also reduce available attention.

# “Inattentional Blindness” is affected by four factors

## 2. Mental Workload and Task Interference

- Low Work Load and the Effects of Automation  
Ironically, “Inattentional Blindness” can be caused by too little mental load. When confronted with a routine task where the chance of an important event is low, people become bored, and they cease paying close attention. Arousal level drops and attention wanders. People may also go on "autopilot" when performing highly practiced tasks, such as operating heavy equipment over the same path over and over again.

# **“Inattentional Blindness” is affected by four factors**

## **3. Expectation**

- Past experience exerts a strong control on attention because it teaches us what is and isn't relevant. For example, think about your breathing. You can now sense the movement of your chest. Of course, the movement was always there but you were inattentionally blind to it because it is highly uninformative. Nothing new ever happens, so attention filters away the sensation to conserve mental processing. Errors often occur when there is a new and unusual combination of circumstances in a highly familiar setting.**

# **“Inattentional Blindness” is affected by four factors**

## **3. Expectation**

- The Loader Operator who backed over the pick-up truck killing the driver had backed around the same stockpile every workday for months or years and had never seen anyone. The policies were in place, the back alarm functioned, employees were trained to stay 50' away from heavy equipment. He had unconsciously learned that there wasn't anything important to see behind the Loader. There are some amazing instances of confirmation bias in accident cases.**

# **“Inattentional Blindness” is affected by four factors**

## **4. Capacity**

- **Attentional Capacity varies from person to person and from time to time. It is lessened by drugs, alcohol, fatigue and age. Under these conditions, likelihood of noticing important events declines. Attentional Capacity is also a function of experience.**
- **When learning a new task, we pay attention to detail, after years of doing that same task with no failures, “Muscle Memory” takes over. When we learn to perform tasks "automatically," we seemingly need no longer pay attention to them and focus on other matters which contributes to **“Inattentional Blindness”**.**

# SO NOW WHAT?

- Monitor Your Own Actions (*autopilot mode*)
- Monitor Employee Actions (*look for robots*)
- Change it up!
- Safety vests = *Contrast*
- Cross Train Employees
- Make the Jobs Non-Routine

# Ask Yourself Before Starting Job

1. Have we discussed the scope of work to be performed today?

2. Are we familiar with the hazards associated with the job?

3. Does everyone know & trained on the job procedures?



4. Do we have the right PPE for the job?

6. Do I know what to do & who to contact if there is a change?

5. What could change today?

7. How will I ensure I remain injury free today?

# THE GREAT QUALIFIER

**Q: “*WOULD I HAVE*  
(FILL IN NAME  
HERE),  
*DO WHAT I’M  
ABOUT TO DO?*”**  
**A: “NO”**

***.....THEREFORE!***  
**IF YOU WOULDN’T  
HAVE THEM DO IT,  
THEN YOU  
SHOULDN’T  
DO IT EITHER!**



**"Leadership is action, not position."**



**THANK YOU FOR YOUR ATTENTION !**



**THE MINING INDUSTRY'S MOST  
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*PERSONAL PRIDE, PROFESSIONAL MORALS & COMMITMENT TO EXCELLENCE*

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