Coal Comprehensive Version

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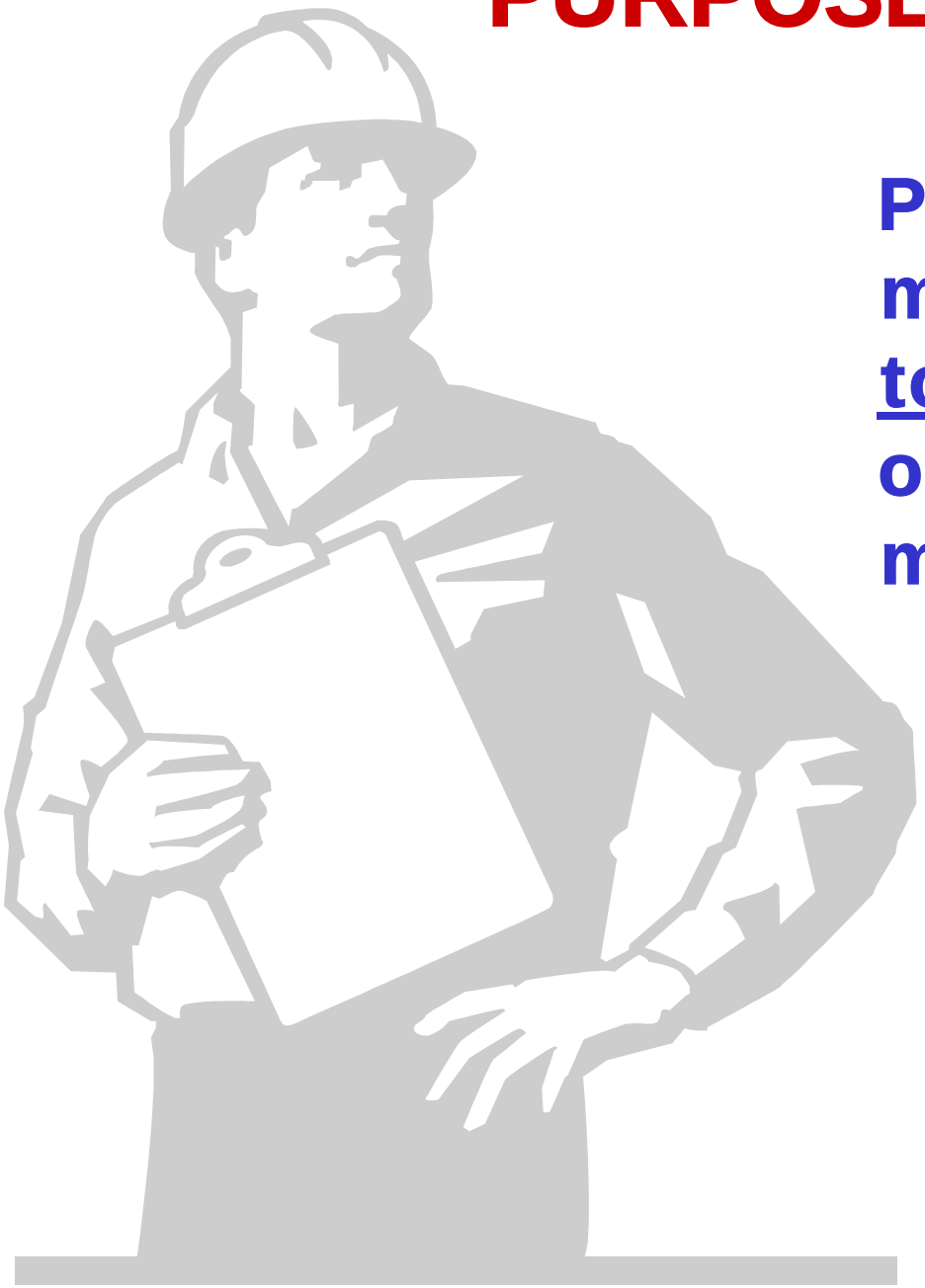
Introduction

- Today we are going to discuss two acronyms “SLAM” and “SMART”

- These are tools that will help the mining industry attain a new level of risk assessment and long term risk management

Make the RIGHT Decision!

PURPOSE OF THE PROGRAM



Provide management and miners with the same tools that each can use on a daily basis to manage risk.

Main Menu

RISK
& HAZARDS

SLAM

SMART
Menu

ACTION PLAN

EXIT

SMART Menu

SMART OVERVIEW

SPECIFICS

STOP

MEASURE

ACT

REVIEW

TRAIN

HUMAN FACTORS
SAFETY & HEALTH
HISTORY & RESULTS

Main Menu

WHAT IS RISK?

- Risk is the combination of the likelihood that an accident or injury will occur and its potential severity
- A hazard is anything that has the potential to cause harm
- Harm is the negative affect on one's safety or health

Main Menu

THERE IS RISK IN EVERYTHING WE DO

Main Menu

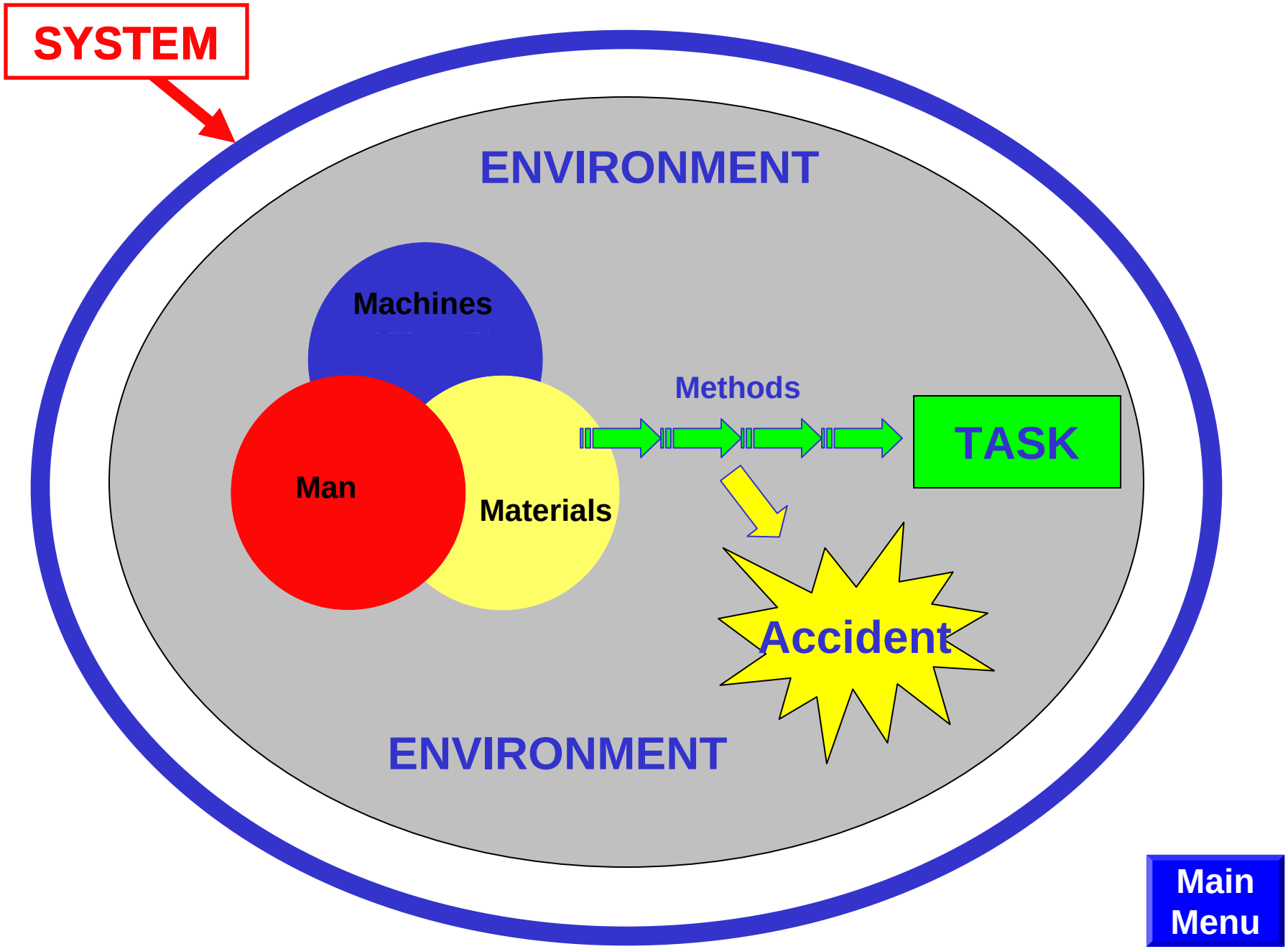
- **Regardless of the job in the mining industry, a potential for danger always exists**
- **Mining has few constant factors and many variables**
- **Environment, conditions, and human factors all impact this risk**
- **Risks must be eliminated or mitigated by identifying, evaluating, and controlling the hazards as each task is performed**
- **Performing this process on a recurring basis creates system safety and health**

WHERE DO WE BEGIN TO LOOK FOR THE HAZARDS?

In the "*SYSTEM*"

- The system is the composite of **people**, **machines**, and **materials** that are used to perform a specific task in a specified environment
- All components are interrelated so a failure of any part can cause a failure of the system
- Our risk assessment must take into account all the components and any associated hazards and human factors

Main Menu


SYSTEM
ENVIRONMENT
Machines
Man
Materials
Methods
TASK
Accident
ENVIRONMENT

Main Menu

Mining Factors that Motivate Risky Actions

- **Production**
  Excessive emphasis or focus on production (e.g. condoning or encouraging unsafe acts during repairs or maintenance, excessive emphasis placed on production bonuses, etc.)
- **Inconvenience**
  It's often very inconvenient to follow safety & health regulations
- **Pride, Ego, or Fear of Appearing Incompetent**
  These attitudes prevent some miners from asking for help
- **Working Alone**
  Many times this increases the opportunity for at-risk actions

Main Menu

Questions?

Main Menu

SLAM

KEY PRINCIPLE

Personal risk assessment & management is a step-by-step process used to eliminate or mitigate risks before performing a specific task. The miner also uses it while the task is being performed and after the task is completed.

Main Menu

Risk Management for Miners (SLAM)

Main Menu

- **S**top – think through the task
- **L**ook – identify the hazards for each job step
- **A**nalyze – determine if you have the proper knowledge, training and tools to do the task
- **M**anage – remove or control hazards and use the proper equipment

STOP

- Not so fast!
- Freeze the situation for a moment and look at each step in the task
- Is this a new task?
- Has the task changed?
- When was the last time you did this task?
- Do you feel comfortable doing this task?
- If you do not, you need training

Main Menu

LOOK

- Always inspect the work area for potential hazards
- This step begins prior to starting any task, during the task, and after the task is completed
- Identify the hazards for each job step
- Evaluate what must be done in respect to the potential hazards

Main Menu

ANALYZE

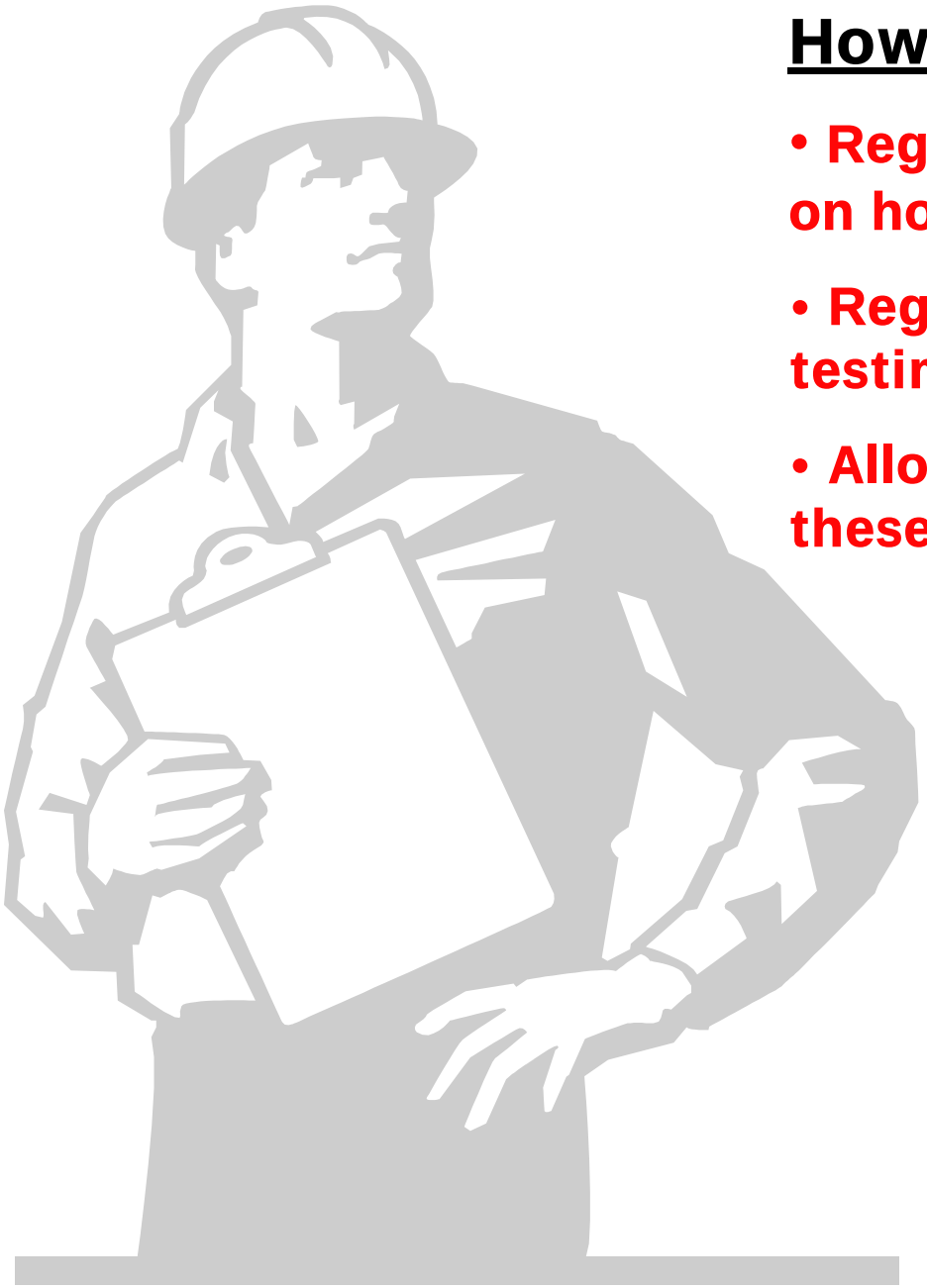
- Determine if you have the
  - ☑ Knowledge
  - ☑ Skills
  - ☑ Training
  - ☑ Tools to do the task safely
- Think about what else you need in order to perform the task safely
- If you need help, ask for it
- If you need training, do not perform the task until you have been trained

Main Menu

MANAGE

- Take the appropriate action to eliminate or minimize any hazards that make the risk unacceptable
- Ensure that the proper equipment is used and that it has been well maintained
- Take account of the task just completed
- Did anything unanticipated happen?
- Address unplanned occurrences and plan for them in the future
- Share this information with other miners and mine management

Main Menu



How to implement SLAM

- Regularly train and retrain miners on how to SLAM risks
- Regularly solicit new SLAM risk testimonies from the miners.
- Allow all miners to hear and discuss these testimonies.

Main Menu

Questions?

Main Menu

SMART

KEY PRINCIPLE

Smart Menu

A dynamic risk reduction program is a roadmap and a vehicle that produces continual improvements in safety and health. This program is run by a team comprised of management and miners. The team constantly revises the program to solve problems created by specific risks.

Risk Management for Mine Operators

(SMART)

- **S**TOP – Isolate each step in a task and identify past and potential accidents, injuries, and violations
- **M**EASURE – Evaluate the risks associated with the task and barriers that have allowed hazards to cause injuries
- **A**CT – Implement controls to minimize or eliminate any hazards that make the risk unacceptable

Smart Menu

Make the RIGHT Decision!

Risk Management for Mine Operators

(SMART)

- **R**EVIEW – Conduct frequent work site visits to observe work practices and audit accidents, injuries, and violations to identify root causes
- **T**RAIN – Develop a human factor-based action plan and then involve and train the miners

Make the RIGHT Decision!

Smart Menu

STOP

- Develop one or more health and safety teams comprised of management and miners
- Teams must meet regularly to discuss accidents, violations, observations, audits, and testimonies of miners who have **SLAM**med Risks
- Identify specific risky acts and tasks that need to be targeted
- ***Share with all miners and incorporate their suggestions***

Smart Menu

Audit Sheet for _____

(write work activity here)

Date _____/_____/_____

Page _____ of _____

ACCIDENT or VIOLATION	PROBLEM AREA			CAUSE				
	Examination	Installation	Correction	Information	Training	Tools/ Materials	Incentive	Capacity
Totals								

Questions?

Smart Menu

MEASURE

- **Perform root cause analysis to find out why unsafe acts are happening**
- **List the barriers that permit these unsafe acts (physical, human)**
- ***Share with all miners and incorporate their suggestions***

Root Cause Analysis Form

_____

(write work activity here)

Date: ___/___/___ Shift: _____ Time: _____ am pm

Observer:_____ Miner Observed: _____

Action No.	AT-RISK ACTION PROBLEM AREA			CAUSE OF AT -RISK ACTION				
	Examination	Installation	Correction	Information	Training	Tools/ Materials	Incentive	Capacity
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
Totals								

Sample Root Cause Analysis Form

Smart Menu

There are two types of barriers:

- **PHYSICAL BARRIERS**
  - ACCIDENTS THAT COULD HAVE BEEN PREVENTED BY SOME TYPE OF PHYSICAL BARRIER. A CONTROL IS A PHYSICAL BARRIER THAT HAS BEEN INSTALLED OR IMPLEMENTED.

- **HUMAN BARRIERS**
  - ACCIDENTS THAT COULD HAVE BEEN PREVENTED BY THE INDIVIDUALS INVOLVED. HUMAN FACTORS SYSTEMS AND PROGRAMS CREATE AN OPTIMUM SAFE WORK ATMOSPHERE WHERE WORKERS CHOOSE TO VALUE SAFETY.

Smart Menu

The five major barriers to human performance

- **INFORMATION**
- **PROPER TOOLS**
- **INCENTIVE**
- **KNOWLEDGE**
- **CAPACITY**

Smart Menu

INFORMATION

- EXPECTATIONS NOT CLEAR
- GUIDANCE TO PERFORMING THE TASK IS ABSENT OR VAGUE
- NO FEEDBACK ON HOW WELL A PERSON IS PERFORMING
- LACK OF CLEAR OPERATING PROCEDURES

Smart Menu

PROPER TOOLS OR EQUIPMENT

APPROPRIATE TOOLS OR EQUIPMENT:

- ARE NOT AVAILABLE

- IMPROPERLY DESIGNED

- RETRO-FITTED WITH FLAWS

Smart Menu

INCENTIVE

Smart Menu

- UNSAFE PERFORMANCE REWARDED
- SAFE PERFORMANCE PUNISHED
- POSITIVE REINFORCEMENT FOR FOLLOWING SAFE PROCEDURES IS OVERSHADOWED BY NEGATIVE PEER PRESSURE
- COMPANY MONETARY INCENTIVE PROGRAMS THAT REWARD “ZERO” INJURIES CAN PROMOTE MINERS TO NOT REPORT ACCIDENTS

KNOWLEDGE

- PERSON DOES NOT KNOW HOW TO DO THE JOB SAFELY
- LACK OF EDUCATION, TRAINING AND EXPERIENCE ARE FLAGS FOR THIS PROBLEM
- EXPERIENCE AND TRAINING IN ONE AREA DOES NOT QUALIFY ACROSS THE BOARD

Smart Menu

CAPACITY

- INTERNAL TO THE PERSON
- CAN BE BOTH MENTAL AND PHYSICAL
- TASK EXCEEDS CAPACITY OF THE INDIVIDUAL
- SOMETHING IMPAIRS THE INDIVIDUAL'S CAPACITY
- EXAMPLES WOULD BE:
  - DRAG OPERATOR WITH SHORT ATTENTION SPAN
  - MINER OPERATOR WITH NO PERIPHERAL VISION
  - MINER INFLUENCED BY DRUGS

Smart Menu

Questions?

Smart Menu

ACT

- **Decide on one or more engineering, administrative, personal protective equipment (PPE), and people controls**
- ***Share with all miners and incorporate their suggestions***
- **Install, require, and/or enact these controls**

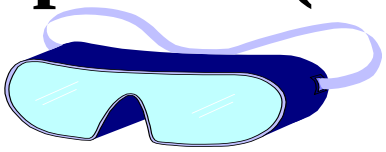
Make the RIGHT Decision!

Smart Menu

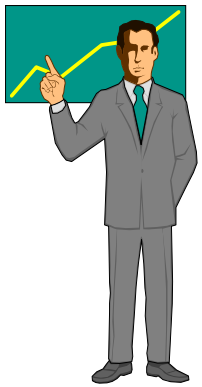
The Four Types of Controls

Engineering

Personal Protective Equipment (PPE)



People



Administrative

Smart Menu

Engineering Controls

Engineering Controls encompass:

- A sound system design before use
- A redesign after a problem is discovered

Smart Menu

Examples of Engineering Controls

- Automating parts of the process
- Redesigning machine controls
- Reducing speed
- Using safer materials
- Ventilation (dilution or local)
- Enclosing, Isolating, or Absorbing
- Increasing or shortening distances

Smart Menu

Administrative Controls

Administrative Controls encompass:

- Management's structuring of work activities and duties
- Management's implementation of instructional tools and reminders

Smart Menu

Examples of Administrative Controls

- Rotating workers between jobs
- Rotating work schedules
- Establishing work procedures
- Putting up warning signs
- Eliminating certain jobs or tasks
- Improving education and training

Smart Menu

Personal Protective Equipment Controls (PPE)

PPE Controls encompass:

- Miners wearing an apparatus, device, or article of clothing that shields them from unwanted objects or energy

Smart Menu

Examples of PPE Controls

- Respirators
- Hearing protection
- Gloves
- Boots
- Safety glasses
- Hard hats

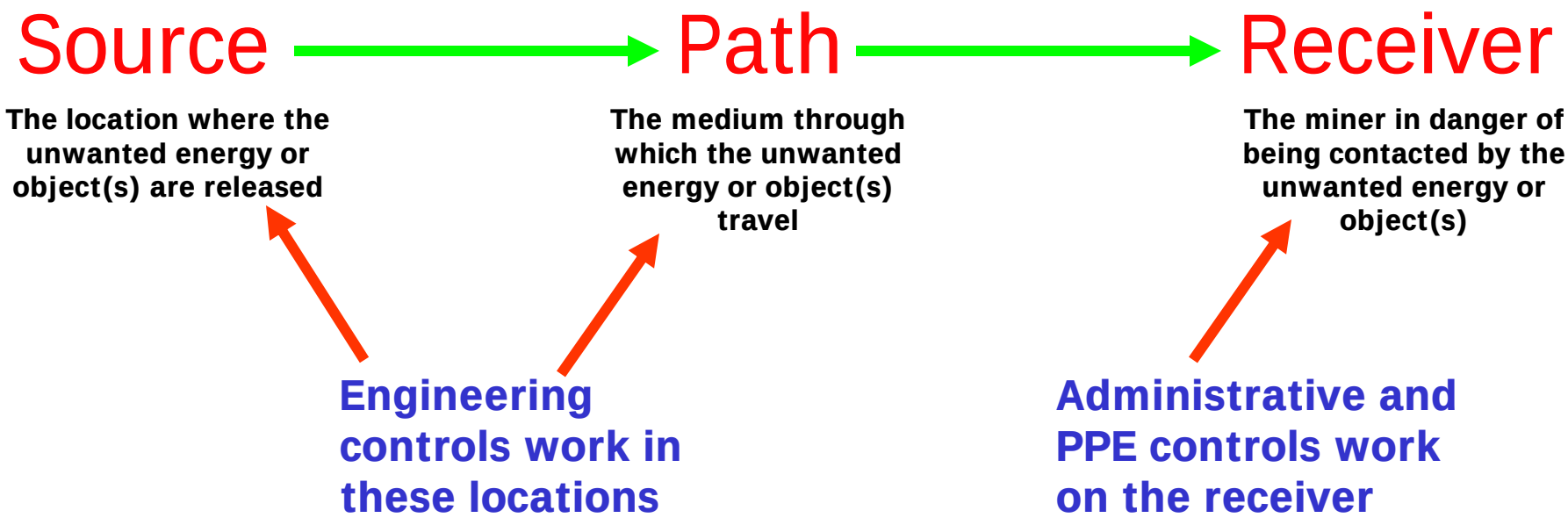
Note: PPE controls should only be used while other controls are being developed, installed, or implemented; when additional protection is needed; or when hazards cannot be controlled any other way.

Smart Menu

The human factors safety and health section will deal with people controls

Smart Menu

Determine the optimum place or places for controls to be implemented



People controls implemented through human factors safety and health programs work on all three

Smart Menu

Questions?

Smart Menu

REVIEW

- Perform announced and unannounced observations where miners observe the work practices of other miners
- Miners must record their observations and discuss with the miners they have observed
- Perform audits on observations, violations, accidents, and SLAM testimony
- Share audit findings with miners and incorporate their suggestions

Make the RIGHT Decision!

Smart Menu

Critical Action Checklist for

_____

(write work activity here)

Date: ___/___/___ Shift: _____ Time: _____am pm

Observer:_____ Miner Observed: _____

No.	Action	SAFE	AT-RISK	COMMENTS
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
	TOTALS			

% Safe= Total Safe Observations / Total Safe + At-Risk Obs. X 100 = _____ %

- Develop Critical Action Checklists (CAC) for specific tasks and occupations
- List the safe actions that must be performed to do the task safely
- List these actions in order if applicable

Smart Menu

We are focusing on an **act** or **action** by an individual that can be **observed** by others.

This deals with what a person **does** or **says**…
…not what they think, feel, or believe.

Feelings, attitudes, or motives **are not** the focus. They are internal aspects of a person that cannot be directly observed by others.

Smart Menu

Describing Actions

Action descriptions should be:

Clear – to avoid being misinterpreted

Precise – to fit the specific action observed

Brief – to keep it simple

Chosen for their reference to the activity

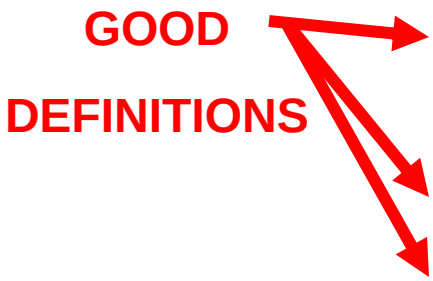
The test of a good action definition is whether the persons using the definition can accurately observe if the target action is occurring.

Smart Menu

Describing Actions

EXERCISE

Determine which of the following action descriptions fit these criteria:



(1) “Is not paying attention”

(2) “acting careless”

(3) “keeping hand on handrail”

(4) “lifting safely”

(5) “moving knife away from body when cutting”

(6) “using knees while lifting”

Smart Menu

- **At-risk actions often allow for more immediate fun, comfort, and convenience than safe actions.**

- **Most safe and healthy work actions do not provide obvious and measurable feedback to the worker. Instead, most safety and health practices have intrinsic negative consequences such as discomfort, inconvenience, and reduced pace.**

Smart Menu

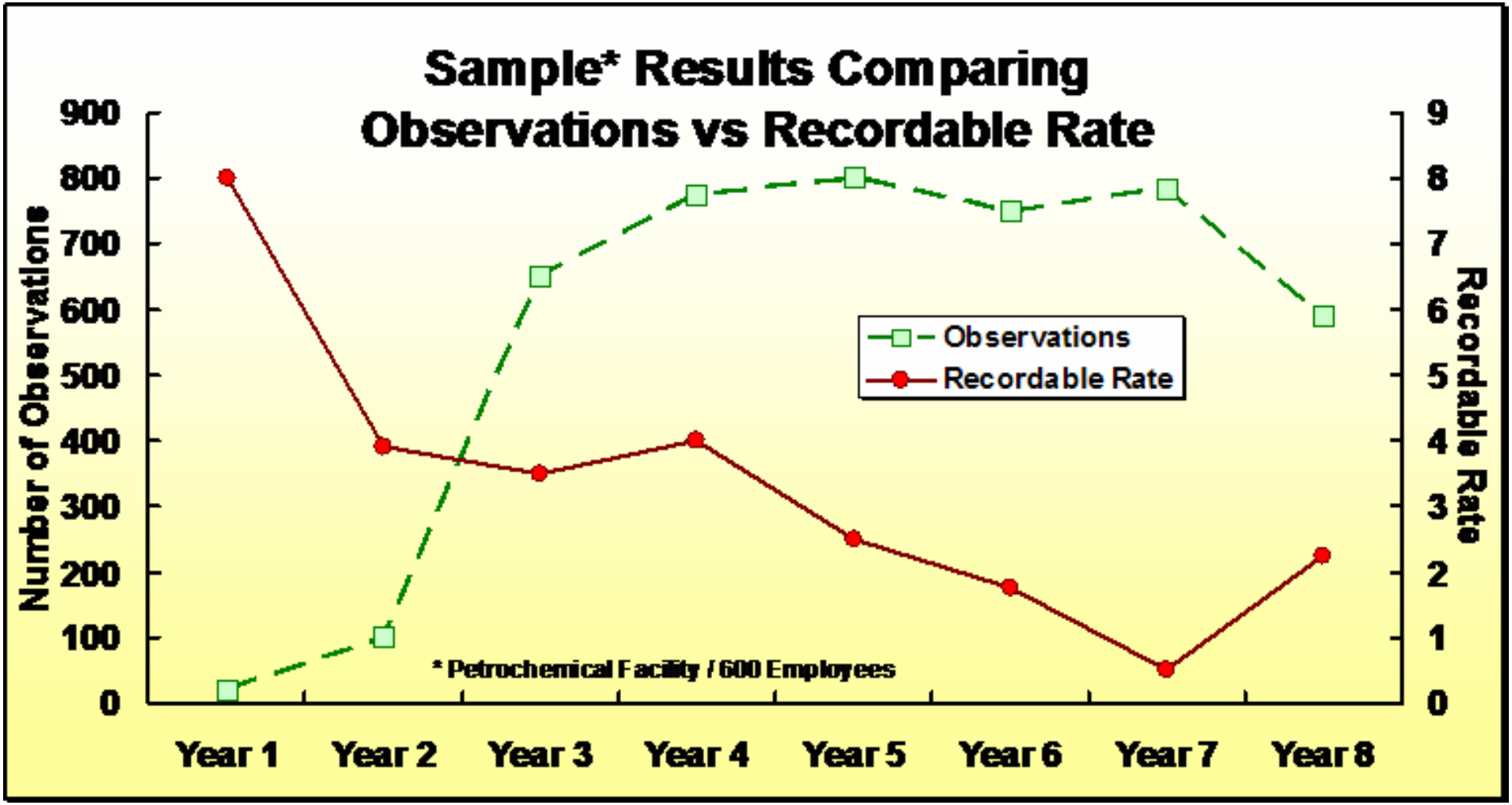
Audit Sheet for _____

(write work activity here)

Date _____/_____/_____

Page _____ of _____

ACCIDENT or VIOLATION	PROBLEM AREA			CAUSE				
	Examination	Installation	Correction	Information	Training	Tools/ Materials	Incentive	Capacity
Totals								


Sample* Results Comparing
Observations vs Recordable Rate
Number of Observations
Recordable Rate
900
800
700
600
500
400
300
200
100
0
9
8
7
6
5
4
3
2
1
0
Observations
Recordable Rate
* Petrochemical Facility / 600 Employees
Year 1
Year 2
Year 3
Year 4
Year 5
Year 6
Year 7
Year 8

Smart Menu

Questions?

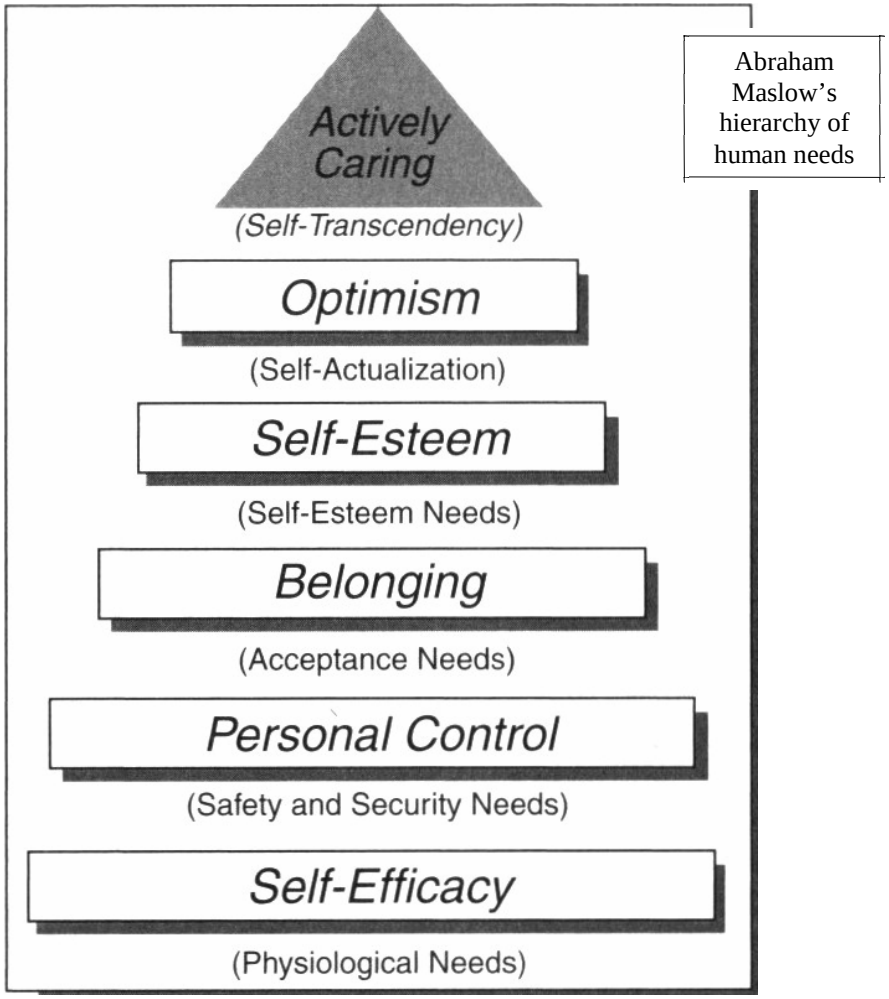
Smart Menu

TRAIN

- Develop ingenious proactive and reactive human factors programs that will create a safe and healthy work culture at the mine
- Share with all miners and incorporate their suggestions
- Take safety and health to the next level by enacting these programs

Make the RIGHT Decision!

Smart Menu



Abraham Maslow's hierarchy of human needs

Optimism = the extent to which a person expects the best will happen for him/her
Self Esteem = feelings of self -worth and value
Belonging = the perception of group cohesiveness or feelings of togetherness
Personal Control = the extent a person believes he or she is personally responsible for his/her life situation
Self Efficacy = general level of belief in one's competence

- To change actions, management and miners must form a team that meets regularly to create an atmosphere where miners actively care for safety.
- Maslow's triangle depicts what this atmosphere must consist of to cause miners and management to decide to work safely and healthily.
- People value things in life such as family, friendships, and hobbies because of the elements in this triangle.
- When management & miners have these elements built into how they perform safety and health in the mine, they will choose to work safely and healthily because they value it.

Once the team knows the specific actions they wish to target, they are ready to develop ingenious proactive and reactive human factors programs.

Once again, at-risk actions often allow for more immediate fun, comfort, and convenience than safe actions.

Because of this, there is a need for special intervention to direct and motivate safe actions.

Smart Menu

There are two types of interventions:

ACTIVATORS

&

CONSEQUENCES

Activators precede and direct actions and are proactive.

Consequences follow and motivate actions and are reactive.

Smart Menu

ACTIVATORS

The ingenious use and management of signs, cards, commitments, pledges, etc. to stimulate and encourage workers to work safe. Activators proceed and direct actions.

CONSEQUENCES

The ingenious use and management of incentives, rewards, disincentives, and punishments to motivate workers to work safe. Consequences follow and motivate actions.

Smart Menu

ACTIVATORS

The six keys to powerful activators:

- **Specify Actions**
- **Maintain significance with novelty**
- **Vary the message**
- **Involve the target audience**
- **Activate close to response opportunity**
- **Implicate consequences**

Smart Menu

(1) SPECIFY actions

Signs that refer to a specific action are beneficial

Signs with general messages have very little impact.

EXERCISE – Promotional flyers were passed out a grocery stores. Three different messages were placed on the flyers to get the patrons to not litter by throwing the flyers onto the ground. Pick the message that you think worked best.

"Please don't litter. Please dispose of properly."

"Please deposit in green trash can in rear of store."

<<No message>>

Equally ineffective – one as ineffective as the other

Drastically more effective – Up to 30% in trash cans

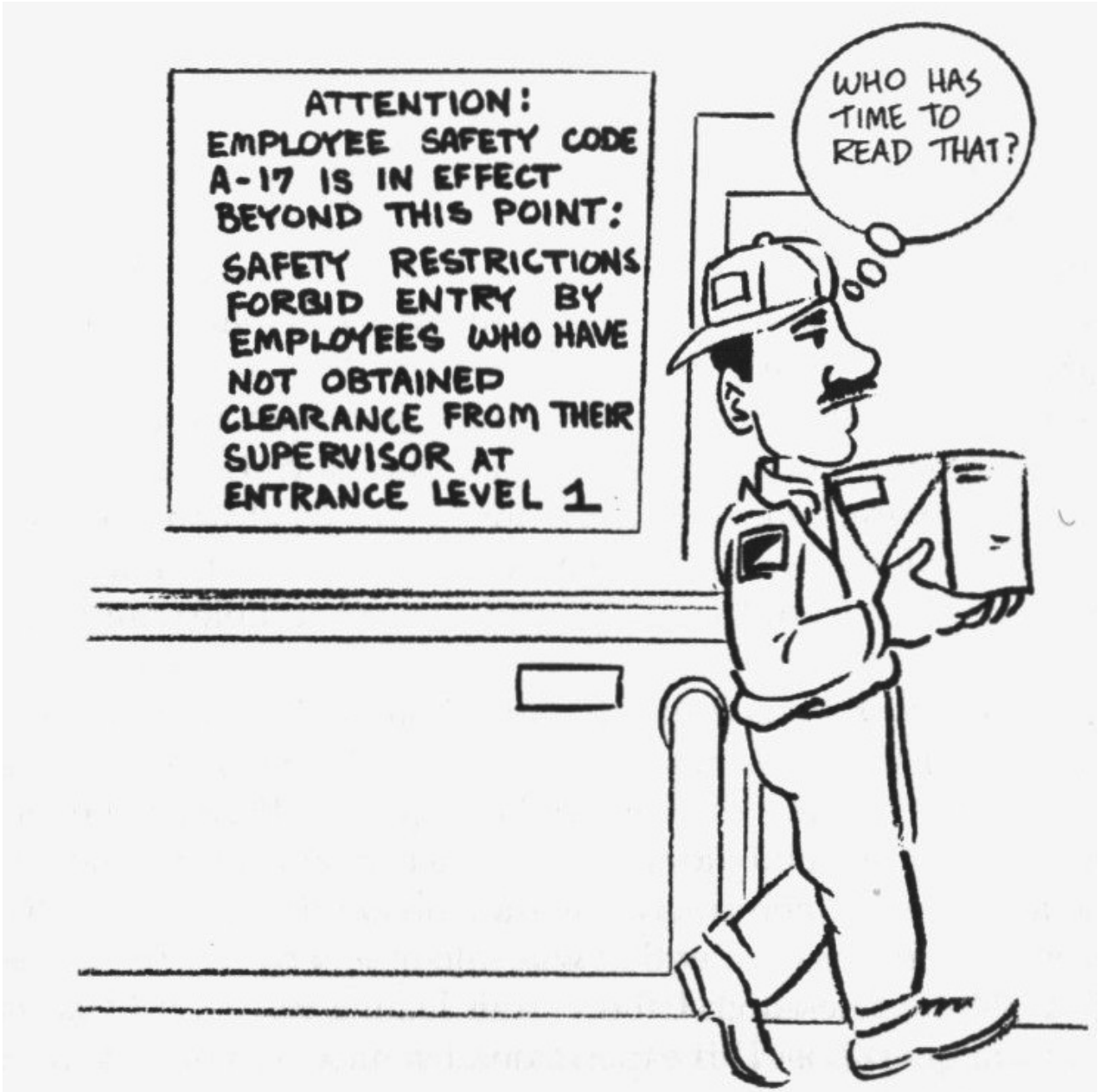
Smart Menu

Too many activators can be overwhelming and ineffective

Smart Menu

Some activators are not specific enough.

Smart Menu



Some signs are too complex to be effective.

Smart Menu

(2) MAINTAIN SIGNIFICANCE WITH NOVELTY

Maintain the significance of activators by doing different and new things from time to time.

Failing to update activators for long periods of time causes workers to become bored with, and irresponsive to activators. This is called habituation.

Smart Menu

EXERCISE – Can anyone tell me what the seat-belt reminder in your personal car sounds like?
Does this sound cause you to buckle-up?

EXERCISE – The effectiveness of different seat-belt reminders were tested. Pick the message that you think worked best.

A standard six-second buzzer or chime triggered by engine ignitions

A six-second buzzer or chime that initiated five seconds after ignition.

A voice reminder, “Please fasten your safety belt”, that initiated five seconds after engine ignition and was followed by a “Thank you” if the driver buckled up.

Smart Menu

EXERCISE – The effectiveness of different seat-belt reminders were tested. Pick the message that you think worked best.

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A voice reminder, “Please fasten your safety belt”, that initiated five seconds after engine ignition and was followed by a “Thank you” if the driver buckled up.

Least effective

Most effective

More effective

Smart Menu

Smart Menu

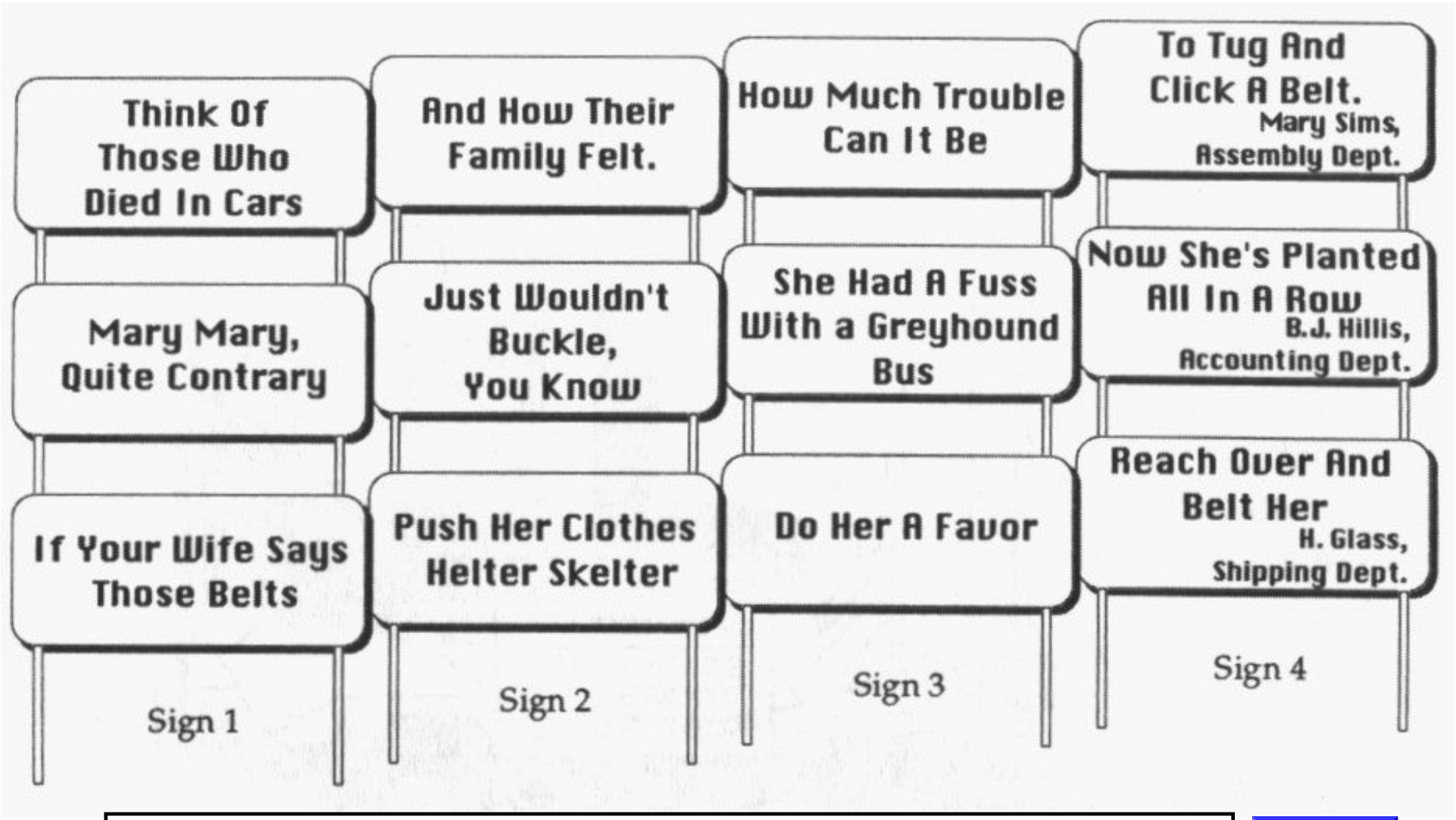
Habituation can cause irresponsive actions to activators

(3) VARY THE MESSAGE

Self explanatory – Safety and health teams can get new ideas by having regular meetings. All miners with a certain job title should meet regularly. New ideas for messages can be obtained by asking miners to share something they did for safety since the last meeting. Miners should also discuss their near misses. Great ideas will come because these testimonies will be personal, genuine, and distinct.

Maslow Principle!

Smart Menu



Changeable signs (vary the message) – notice how the author is given credit for the sign!

Smart Menu

(4) INVOLVE THE TARGET AUDIENCE

Self explanatory – When people contribute to a safety and health effort, their ownership of and commitment to safety increase. Also, when individuals feel a greater sense of ownership and commitment, their involvement in safety achievement is more likely to continue. People feel like they belong and that they have control.

Maslow Principle!

Smart Menu

Smart Menu

Some activators imply ownership and increase actively caring.

A promise card activates a behavioral commitment.

Smart Menu

(5) ACTIVATE CLOSE TO RESPONSE OPPORTUNITY

Activators should be physically positioned close to the location where the action will be performed.

EXAMPLE – post the safe work procedure lists near the locations where electricians will have to perform the work activity on the list.

EXERCISE - A study was performed on the effectiveness of TV commercials in getting drivers to buckle-up. For the control group (the group receiving no messages), the 10-month mean was 8.2% for males and 10.3% for females. Pick the mean you think was for the group getting the TV messages.

8.4% males	11.3% females
15.2% males	20.6% females
30.1% males	47.7% females

Smart Menu

(5) ACTIVATE CLOSE TO RESPONSE OPPORTUNITY

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8.4% males	11.3% females
15.2% males	20.6% females
30.1% males	47.7% females

TV message mean – very ineffective because it was too far removed from the desired action

Smart Menu

(6) IMPLICATE CONSEQUENCES

Activators should have obvious or implied consequences or they may be ineffective. These consequences can be positive and negative. Positive consequences are called incentives and negative consequences are called disincentives. Incentives usually are in the form of some reward, where as disincentives usually are some form of penalty.

The subject of direct consequences as interventions will be discussed later. But for now, ***the amount of power an activator has to motivate actions depends on the consequence it signals.***

Smart Menu

EXAMPLE - The promise card or poster, which is a public declaration, is a powerful activator because there are implied consequences. The social peer pressure involved with this activator is powerful. If the promise is kept, the miner is rewarded with social approval for honoring a commitment. If the promise is broken, the miner will suffer social disapproval because he or she disavowed their commitment.

Smart Menu

ACTIVATOR EXAMPLE

Smart Menu

The most powerful activators imply immediate consequences.

ACTIVATOR EXAMPLE

Company & Mine Name

SAFETY & HEALTH PROMISE

" We (I) promise to:

☐ *Work safely and healthily*

☐ *Ensure the safety and health of ourselves (myself) & others*

☐ *as we (I)* _____

☐ *by* _____

_____ ."

Name	Job Classification	Shift	Date	*"I have discussed this safety promise with this member of my family (or friend)"* (write name and relationship)
Print _____ **Sign** _____				
Print _____ **Sign** _____				
Print _____ **Sign** _____				
Print _____ **Sign** _____				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Supervisor name (print)	Supervisor name (sign)	Title	Date

This poster would be given to a group of miners with the same job title. Let's suppose that one is given to a group of electricians at an underground mine.

Company & Mine Name

SAFETY & HEALTH PROMISE

" We (I) promise to: ☐ *Work safely and healthily*
☐ *Ensure the safety and health of ourselves (myself) & others*
☐ *as we (I)* _____
☐ *by* _____
_____ ."

Name	Job Classification	Shift	Date	*"I have discussed this safety promise with this member of my family (or friend)"* (write name and relationship)
Print _____ Sign _____				
Print _____ Sign _____				
Print _____ Sign _____				
Print _____ Sign _____				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Supervisor name (print)	Supervisor name (sign)	Title	Date

The electricians would be told to come up with a safety or health promise and share the promise with a family member or friend.

Company & Mine Name	**SAFETY & HEALTH PROMISE**

" We (I) promise to: ☐ *Work safely and healthily* ☐ *Ensure the safety and health of ourselves (myself) & others* ☐ *as we (I)* _____ ☐ *by* _____ _____ *."*

Name	Job Classification	Shift	Date	*"I have discussed this safety promise with this member of my family (or friend)"* (write name and relationship)
Print _____ **Sign** _____				
Print _____ **Sign** _____				
Print _____ **Sign** _____				
Print _____ **Sign** _____				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Supervisor name (print)	**Supervisor name (sign)**	**Title**	**Date**

The electricians would then share the promise with a foreman at the mine. If the foreman agrees, they would fill out the poster.

Company & Mine Name	**SAFETY & HEALTH PROMISE**

" We (I) promise to: ☐ *Work safely and healthily* ☐ *Ensure the safety and health of ourselves (myself) & others* ☐ *as we (I)* _____ ☐ *by* _____ _____ *."*

Name	Job Classification	Shift	Date	*"I have discussed this safety promise with this member of my family (or friend)"* (write name and relationship)
Print _____ **Sign** _____				
Print _____ **Sign** _____				
Print _____ **Sign** _____				
Print _____ **Sign** _____				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Supervisor name (print)	**Supervisor name (sign)**	**Title**	**Date**

Let's assume the poster is filled out as shown below:

Company & Mine Name

SAFETY & HEALTH PROMISE

" We (I) promise to: ☐ *Work safely and healthily* ☒ *Ensure the safety and health of ourselves (myself) & others* ☐ *as we (I)* ☒ *by* locking out and tagging the correct visual disconnect before performing cable repairs. *."*

Name	Job Classification	Shift	Date	*"I have discussed this safety promise with this member of my family (or friend)"* (write name and relationship)
Print Joe Johnson Sign Joe Johnson	electrician	Day	7/13/05	Paula Johnson - wife
Print Paul Thacker Sign Paul Thacker	electrician	Hoot Owl	7/13/05	Tom Thacker - brother
Print Lisa Fellows Sign Lisa Fellows	electrician	Evening	7/13/05	Stephanie Caldwell - friend
Print Sign				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Jeff Thompson	Jeff Thompson	Superintendent	7/13/05
Supervisor name (print)	Supervisor name (sign)	Title	Date

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Print Sign				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Jeff Thompson	*Jeff Thompson*	*Superintendent*	*7/13/05*
Supervisor name (print)	**Supervisor name (sign)**	**Title**	**Date**

The poster would then be hung in a prominent location in the travelway.

Company & Mine Name

SAFETY & HEALTH PROMISE

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Jeff Thompson	Jeff Thompson	Superintendent	7/13/05
Supervisor name (print)	Supervisor name (sign)	Title	Date

Once a week, all mantrips would stop at the poster. The promise would be read aloud and discussed.

Company & Mine Name

SAFETY & HEALTH PROMISE

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Jeff Thompson	Jeff Thompson	Superintendent	7/13/05
Supervisor name (print)	Supervisor name (sign)	Title	Date

After one month, this poster would be removed, and another poster filled out by another group of miners would be hung in its place.

Company & Mine Name

SAFETY & HEALTH PROMISE

" We (I) promise to: ☐ *Work safely and healthily* ☒ *Ensure the safety and health of ourselves (myself) & others* ☐ *as we (I)* ☒ *by* ***locking out and tagging the correct visual disconnect before performing cable repairs.*** *."*

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Print _____ Sign _____				

The supervisors at this mine promise to provide the proper incentives, information, training, tools and materials to support these miners in the keeping of this promise.

Jeff Thompson	*Jeff Thompson*	***Superintendent***	***7/13/05***
Supervisor name (print)	**Supervisor name (sign)**	**Title**	**Date**

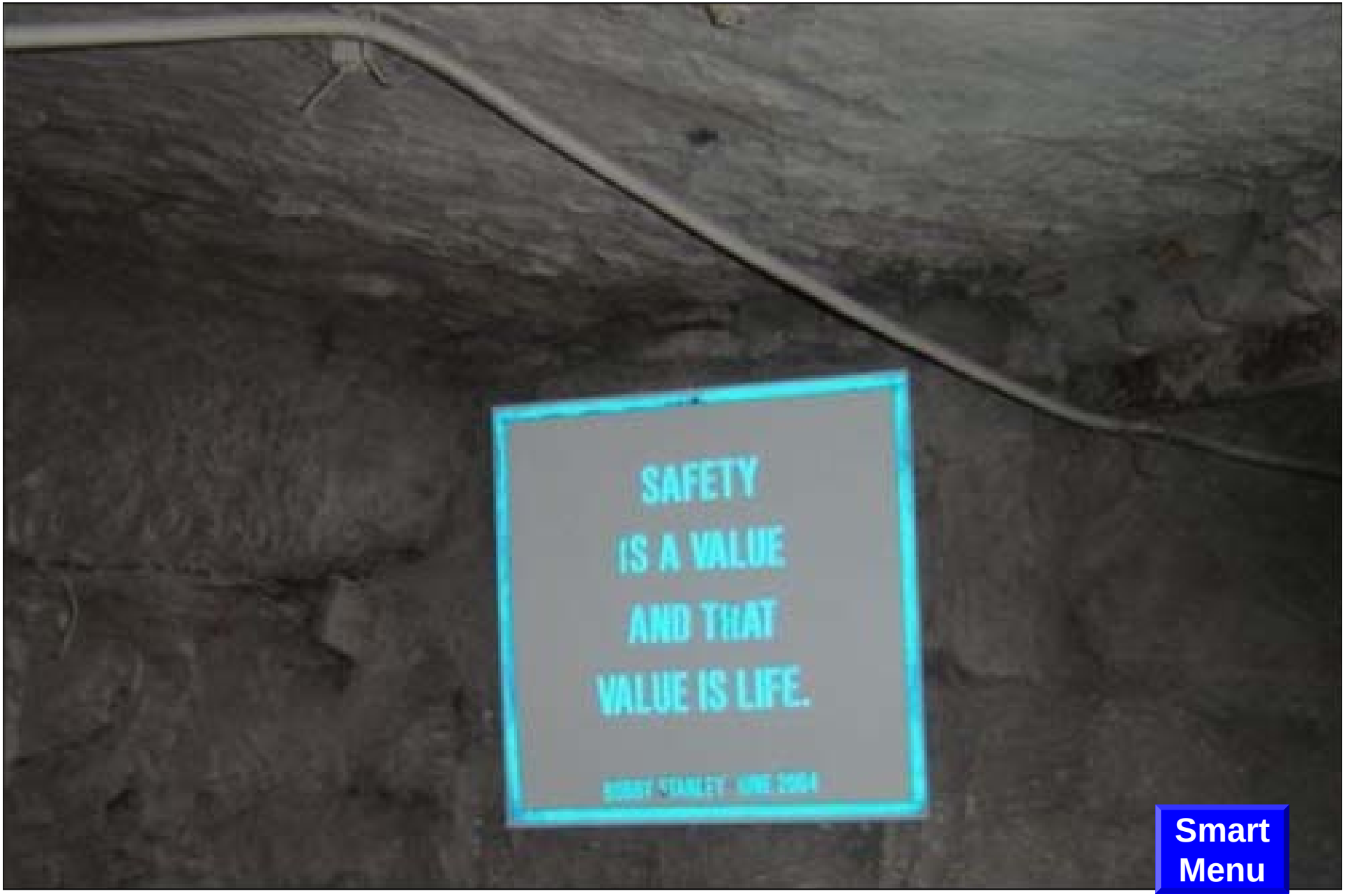
ACTIVATOR EXAMPLE

Alpha Resources Inc.

Paramount Coal Operation

Paramount Coal is using a human factors sign program to enhance their safe work culture. Miners are asked to come up with safety slogans, and everyone who develops a slogan is rewarded by having their slogan displayed on a reflective sign that is hung in the mine. The names of the authors and the dates are placed at the bottom of the signs.

Smart Menu



Smart Menu

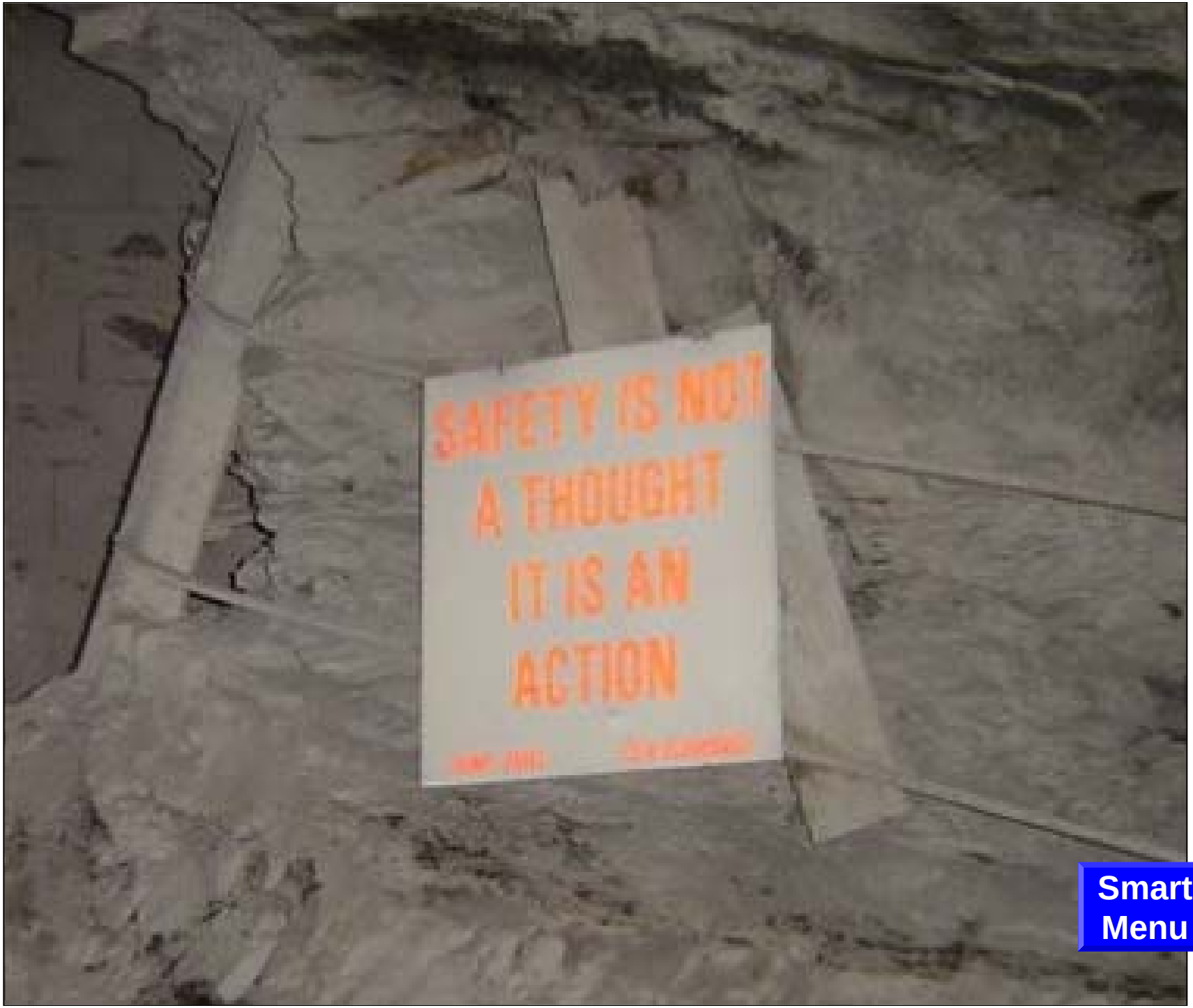

THE KEY
TO A GOOD
LOCKOUT PROGRAM
IS IN YOUR POCKET
Smart
Menu

Smart Menu


SAVE A LIFE,
SAVE YOUR OWN,
SAFETY
ALL YEAR LONG.
SAFETY
SOMETHING
WE CAN LIVE WITH

Smart Menu

Smart Menu



Smart Menu

CONSEQUENCES

The ingenious use and management of incentives, rewards, disincentives, and punishments to motivate workers to work safe. Consequences follow and motivate actions.

Most safe work actions do not provide obvious and measurable feedback to the worker.

In fact, most safety practices have intrinsic negative consequences such as:

(1) Discomfort,

(2) Inconvenience, and

(3) Reduced pace.

These intrinsic negative consequences discourage safe work actions.

Smart Menu

Because of intrinsic negative consequences, there is often a need for intentionally added supportive consequences.

Once again, extra positive consequences are necessary when the natural consequences are insufficient to motivate safe actions and/or discourage safe actions.

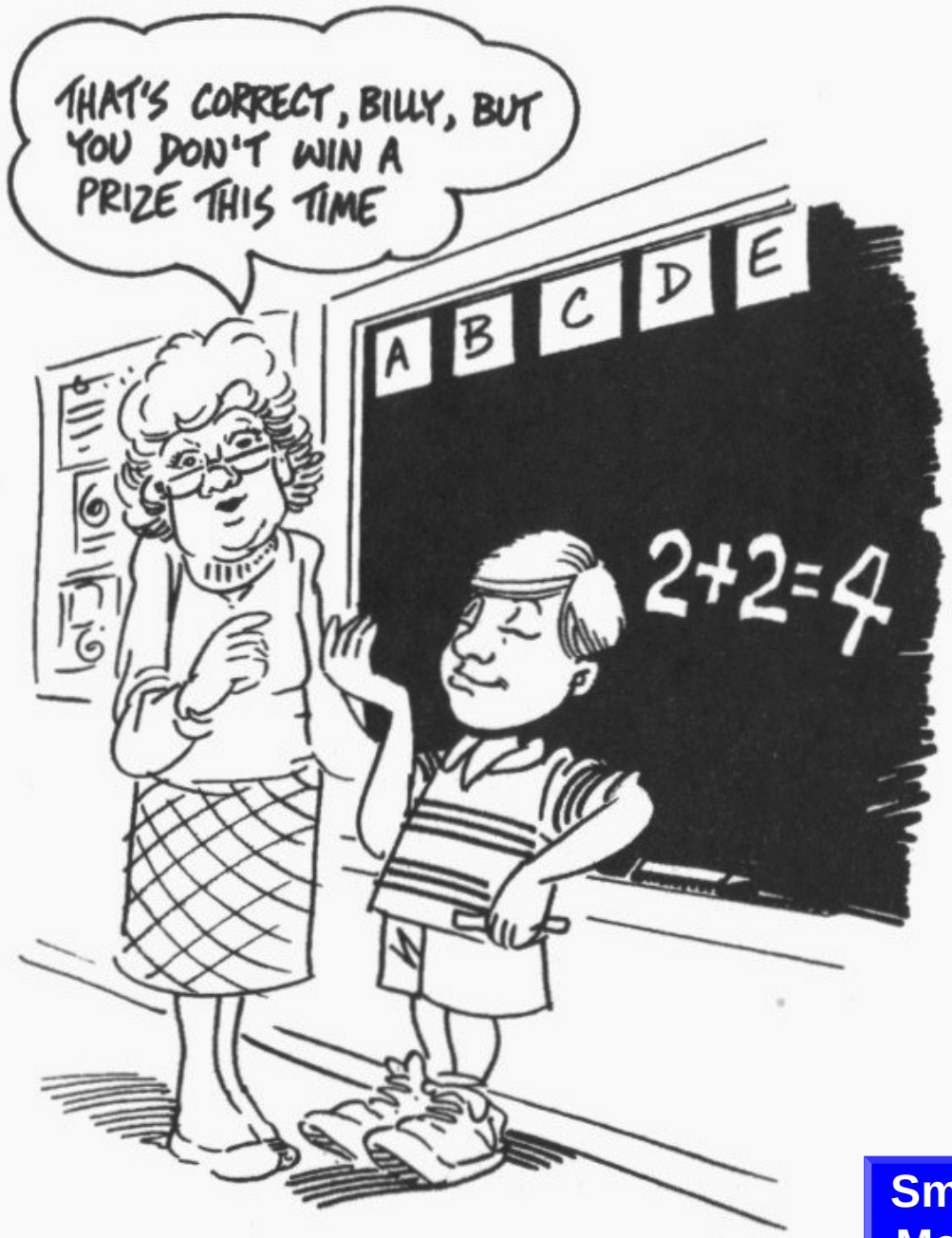
Smart Menu

Intermittent praise, recognition, novelties, and credits redeemable for prizes are powerful consequences that motivate safe actions. These methods are keys to maintaining continuous safe and healthy actions for long periods of time.

It's important that workers perceive doing a task correctly as valuable and rewarding. For this reason, praise and recognition should be intermittent.

Smart Menu

If the teacher displays genuine approval and delight in the student's achievement, an extra reward or consequence might not be needed to encourage good performance.



External rewards can reduce internal motivation.

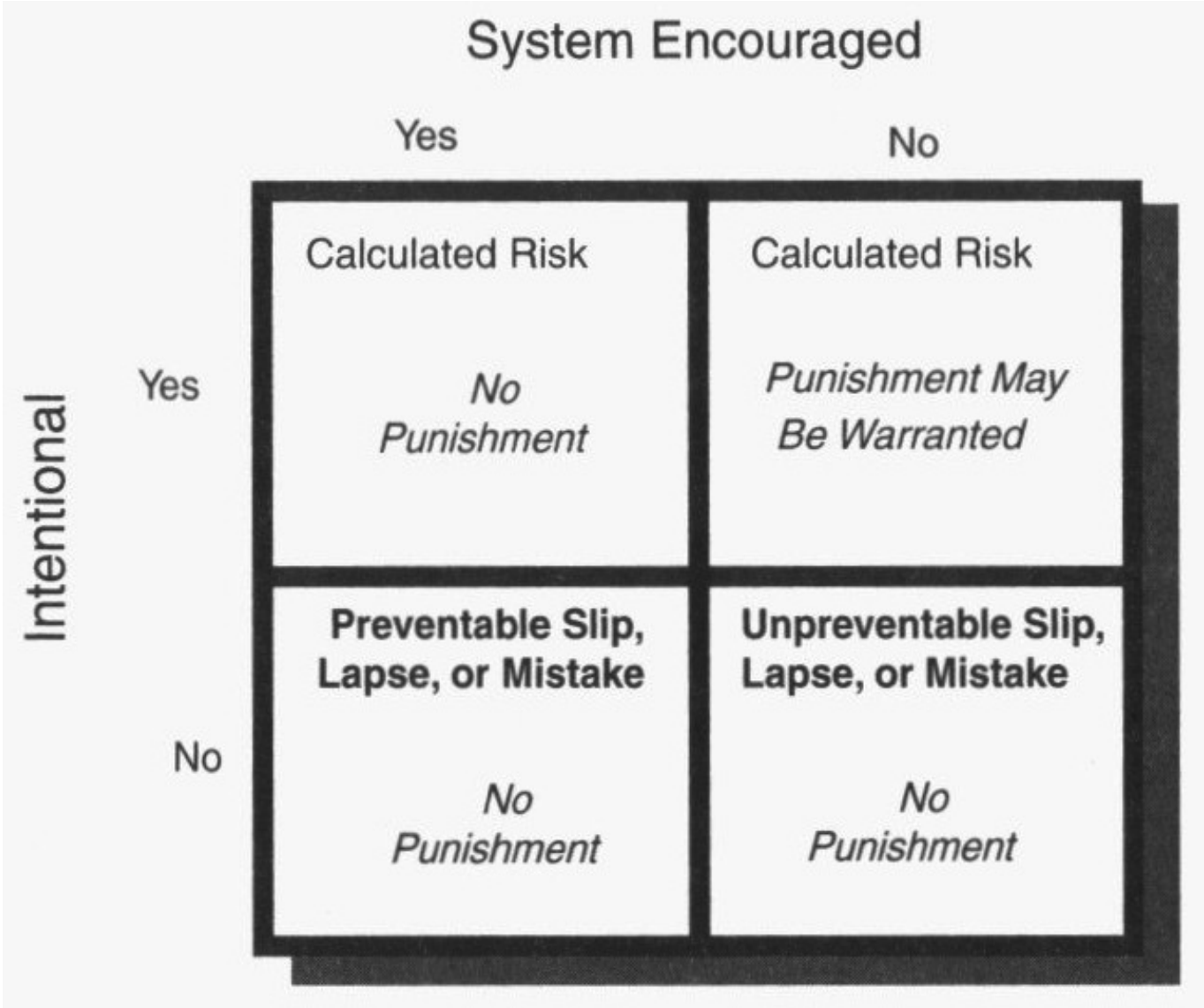
Smart Menu

It’s important that incentives and rewards are not given in a way in which people feel controlled. People must believe that they truly earned the consequence through their own efforts.

Maslow Principle!

Smart Menu

Punishment Consequences



Smart Menu

Punishment is only warranted when the undesirable action is intentional and not encouraged by the work culture

A powerful human factors punishment strategy is to have a worker conduct a root cause analysis of his/her actions. The person should then develop a personal corrective action plan to correct his/her actions. If a supervisor agrees with the plan, the worker should sign the plan. When a person signs a commitment that took some effort to develop, the probability of compliance is greatly enhanced.

Punishments must be fair and everyone must be treated the same!

Smart Menu

REWARDS

An effective incentive/reward program satisfies the following guidelines:

(1) The actions required to achieve a safety reward should be specified and perceived as achievable by all participants.

(2) Rewards should be given soon after safe actions are observed.

(3) Workers should select the rewards they would like to receive. ***MASLOW PRINCIPLE!***

(4) Everyone who meets the criteria should be rewarded.

(5) It is better for many participants to receive small rewards than for one person to receive a big reward.

(6) The rewards should be displayed and represent safety achievement. Coffee mugs, hats, shirts, sweaters, blankets, or jackets with a safety message are preferable to rewards that will be hidden, used , or spent.

(7) Contests should not reward one group at the expense of another.

(8) Groups should not be penalized or lose their rewards for failure by an individual.

(9) Progress toward achieving a safety reward should be systematically monitored and publicly posted for all participants.

Smart Menu

Rewards that miners may choose

Industry Privileges
Time off
Extra Break
Refreshments
Preferred parking
Special assignment

Exchangeable Tokens
Cash
Food coupon
Ticker to an event
Rebate coupon
Gift certificate

Useful Items
Coffee mug
Litter bag, Car wax
Tire gauge
Umbrella, Pocket knife
Flashlight, Pen

Chance to Win a Contest
Lottery ticket
Bingo number
Poker card, Game symbol
Raffle coupon

Promotional Items
Safety button
Bumper sticker
Key chain
Hardhat sticker
T-shirt

Social Attention
Name in newspaper
Posted picture
Letter of commendation
T. V. interview
Handshake, Thank-you card

Smart Menu

A variety of possible rewards are available to motivate safe behaviors in organizational settings.

Raffle drawings that result in few "lucky" winners and many "unlucky" losers can do more harm than good.

Smart Menu

Smart Menu

Rewards with safety messages are special to those who earn them.

Safety contests can motivate unhealthy competition.

Smart Menu

EXAMPLE: The Hoechst Celanese company of about 2,000 employees developed a plant-wide incentive program. When employees were observed performing safe actions, they received immediate praise and a "credit". At the beginning of the year, each worker received a "safety credit card" for tallying ongoing credit earnings. Only the late reporting of an injury was penalized by a loss of credits. At the end of the year employees exchanged their credits for a prize of their choice.

EXAMPLE: In 1994, a Toyota Motor manufacturing plant in Kentucky received 35,000 suggestions from its 6,000 employees. More suggestions were expected in 1995. Here's why. The employees received timely feedback regarding the utility and feasibility of every suggestion. If the suggestion was approved, they were empowered to implement it themselves. Also, the individual or team responsible received 10% of the savings for the first year the suggestion was implemented.

Smart Menu

THANK YOU CARDS

Thank-you cards are incentives and rewards that have been used by many companies with great success.

When workers see a fellow employee working safely, they fill out the card and give it to them.

Smart Menu

Front

C.C. Manufacturing

Thank You for ACTIVELY CARING

Date: _____

Please describe specifically the observed ACTIVELY CARING behavior: (see back for examples)

_____

_____

_____

_____

_____

_____

Observer's Code:

The first letter of the city where you were born	The first letter of your mother's maiden name	The number of the month you were born
_____	_____	_____

Recipient's Code:

The first letter of the city where you were born	The first letter of your mother's maiden name	The number of the month you were born
_____	_____	_____

_____ ¢ **Thank You** Limit: 55 ¢

Observer's Name _____

Recipient's Name _____

Back

Examples of ACTIVELY CARING Behaviors

- Recognizing and correcting an unsafe condition
- Reminding a coworker not to perform an unsafe act.
- Removing or cleaning unsafe objects or debris from a work area.
- Giving positive feedback to a coworker for working safely.
- Reporting a near miss.
- Making a task safer.
- Other

_____

Hoechst Celanese

Elaine George Dave Salyer

Tom Tillman Jim Woods

Department 1490

Smart Menu

Employees can use a thank-you card to recognize each other's safe behavior.

Exxon, Ford, General Motors, and Westinghouse are examples of companies that have used thank-you card programs.

Some companies allowed thank-you cards to be exchangeable for gifts, or displayed them on a bulletin board as a “safety honor roll”.

Some companies put safety messages or logos on the gifts that signified safety achievement.

A few companies set up an additional collection container for thank-you cards. Every card deposited in this container was worth 25 cents to a charity or needy families.

Smart Menu

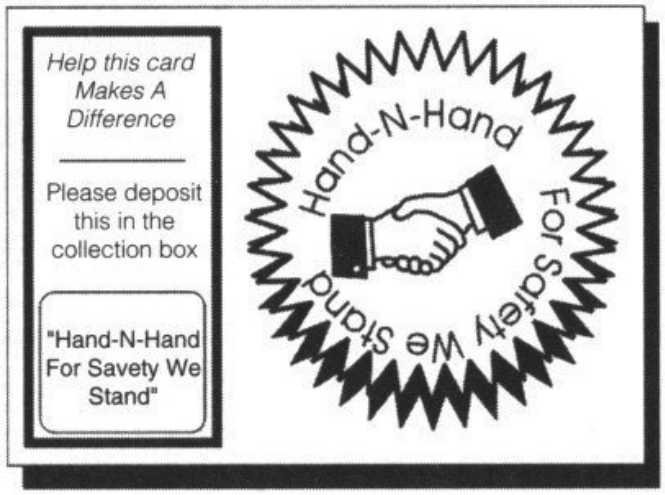
Another company affixed a value of $1.00 to cards deposited in a special box, to purchase toys for disadvantaged children. The children of the employees picked out and delivered the toys.

MYSTERY OBSERVEE PROGRAM – The NORPAC paper mill developed an ingenious program. 35 of 450 workers volunteered to be “mystery-observees”. These volunteers received a coupon for a meal for two at a restaurant. The mill workers were challenged to complete a critical action checklist (CBC) on a co-worker every week. If a worker happened to select a mystery-observee to observe, the mystery-observee gave a reward coupon to the observer. The observer then became a mystery-observee and had the chance to reward someone else.

Smart Menu

One company designed a card with a peel off sticker which allowed the recognized employee to place on his/her hard-hat or dinner bucket.

front of card



back of card

Smart Menu

This Actively Caring Thank-You Card offers reward leverage.

MSHA Thank You Card and Incentive Sticker

Coal FRONT

United States Department of Labor
MSHA
Mine Safety and Health Adminstration

Thank you for

"making the RIGHT decision!"

Coal BACK

"This RIGHT decision was discussed with me"

NAME RELATIONSHIP

Smart Menu

SETTING GOALS

Effective goals are goals that are really activators with implied consequences

“Zero Injuries” should not be specified as a safety goal.

This type of goal holds people accountable for numbers or outcomes they do not believe they can control. This causes negative stress or distress, and encourages under-reporting of accidents. The only control workers have is over their own personal injury.

Furthermore, one injury in the workplace, perhaps resulting from another person’s carelessness, ruins the goal of zero injuries. This leads to a perception of failure and no one likes to feel like a failure.

Instead, “Zero Injuries” should be the *aim* and *purpose* of a safety vision or mission. It should not be the daily goal for workers.

Smart Menu

Goals should focus on the human factor processes that need to be in place to reach the aim of zero injuries.

Goals should:

(A) Define what will happen when the goal is reached (the consequences),

(B) Track progress toward reaching the goal, and

(C) Provide rewarding feedback when intermediate steps are completed. This feedback is in itself is a consequence that motivates continued progress.

It is critical that people asked to work toward a goal "buy in" or believe in the goal.

Smart Menu

Process-focused and achievement-oriented goals **work** because they are not outcome-based and injury-focused. More importantly, these goals are employee driven. Workers are motivated to initiate the safety process because it is their idea. They get involved in the process and own it and they stay motivated because the goals are a roadmap which tell them where they are going, when they get there, and how to follow their progress along the way.

Smart Menu

Human nature is very fragile and delicate. Small changes in how we do business can create huge changes in the safety and health culture at the mine. The changes may seem insignificant, but it can be exactly what is needed.

Smart Menu

IMPORTANT

We should not expect the adding of activators or consequences to improve safety over the long term if powerful consequences exist at a company that encourage at-risk actions. In these cases it is necessary to change the existing system first.

The actions that are motivated are the actions that are performed!

Smart Menu

Questions?

Smart Menu

History & Results
of Human Factors
safety & health

Smart Menu

Human factors safety methods have become popular in the US since 1990 and have been proven to cause workers to:

- Decide to work safe and healthy
- Individually make the change from working unsafe and unhealthily to working safe and healthily
- To reduce accidents by up to 50% in the first year

Smart Menu

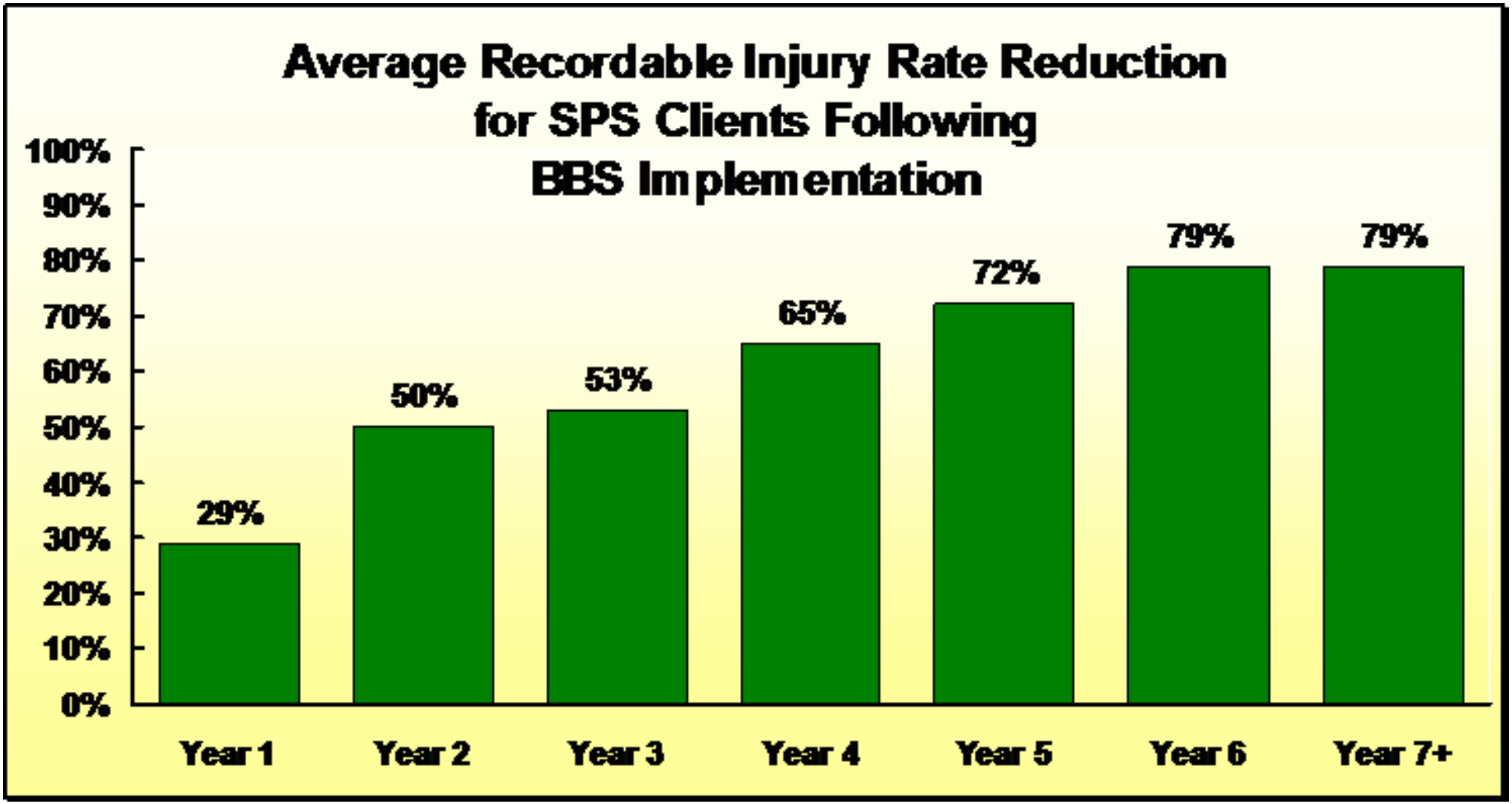
Companies that have Human factors health and safety programs

3M
Trane
Monsanto
Allied Signal
Hewlett-Packard
Lucent Technologies
North Star Steel • UOP
ARCO Chemical • Infineum
Nalco Chemical • Sentry • Bayer
ExxonMobil Chemical • Bechtel • BHP
Westinghouse • Rohm & Haas • PacifiCorp
Pennsylvania Power and Light • Sentry
Pool Well Services • Wisconsin Electric
Cargill Grain • Wellman • Koch Refining • Hercules
Terumo Cardiovascular Systems • Union Pacific Railroad
Pfizer Pharmaceuticals • Chevron Products • Estee Lauder
Eli Lilly • Ultramar Diamond Shamrock • Leprino Foods
L.L. Bean • Weyerhaeuser • Toyota Motor Manufacturing
ARCO Pipeline • Paxon Polymer • Imperial Oil • Rhone-Poulenc • Searle
Corning Cable Systems • BF Goodrich • Advanced Elastomer Systems
National Park Service • Exxon Coal and Minerals • Cargill Steel
Solutia • East Jordan Iron Works • NORPAC • Southern Fineblanking
Tenneco Packaging • Pike Electric • Square D • Rayonier • Warner Lambert
Lockheed • Honeywell • General Dynamics • Sonopress • Great Northern Paper
Borden Chemical • JEA • Freudenberg • Bristol-Myers Squibb • Johnson & Johnson

Smart Menu

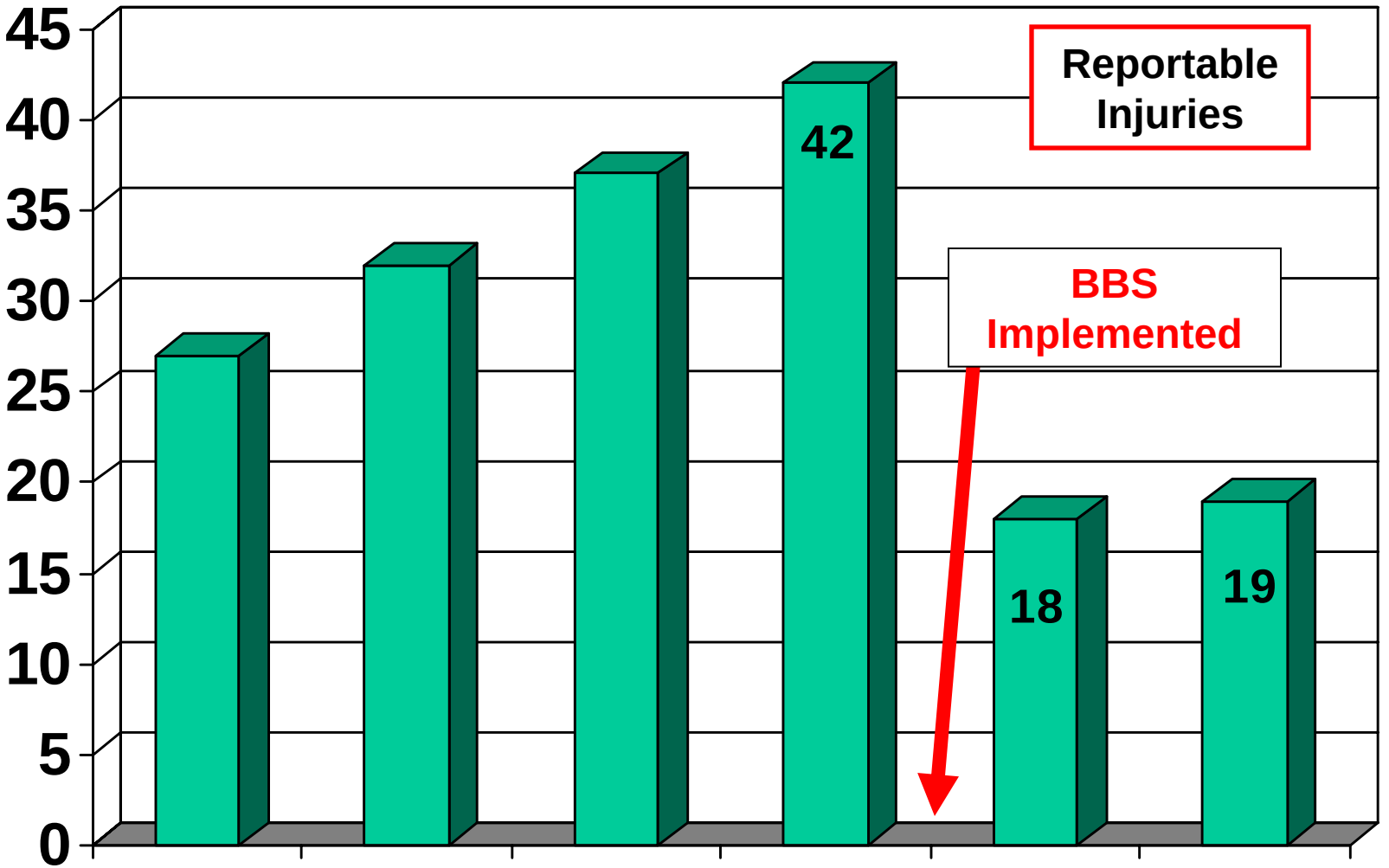
Safety Performance Solutions (SPS) advertises these results (www.safetyperformance.com)

Smart Menu



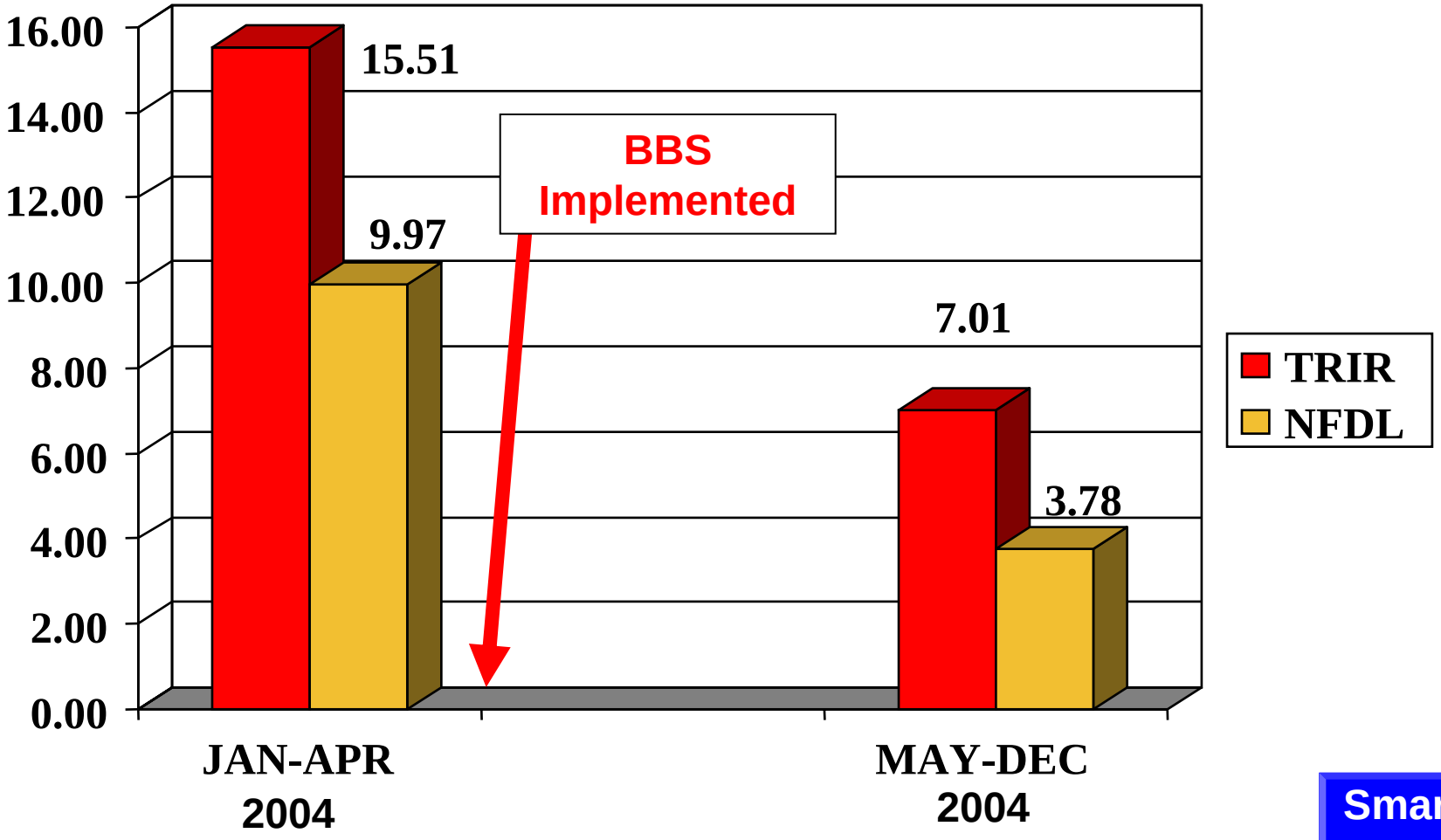
ARCH Coal Inc.

Lone Mountain Processing



Smart Menu

Alpha Resources – Brooks Run Operation
Accident Rate Reduction



Smart Menu

NEWMONT
The Gold Company

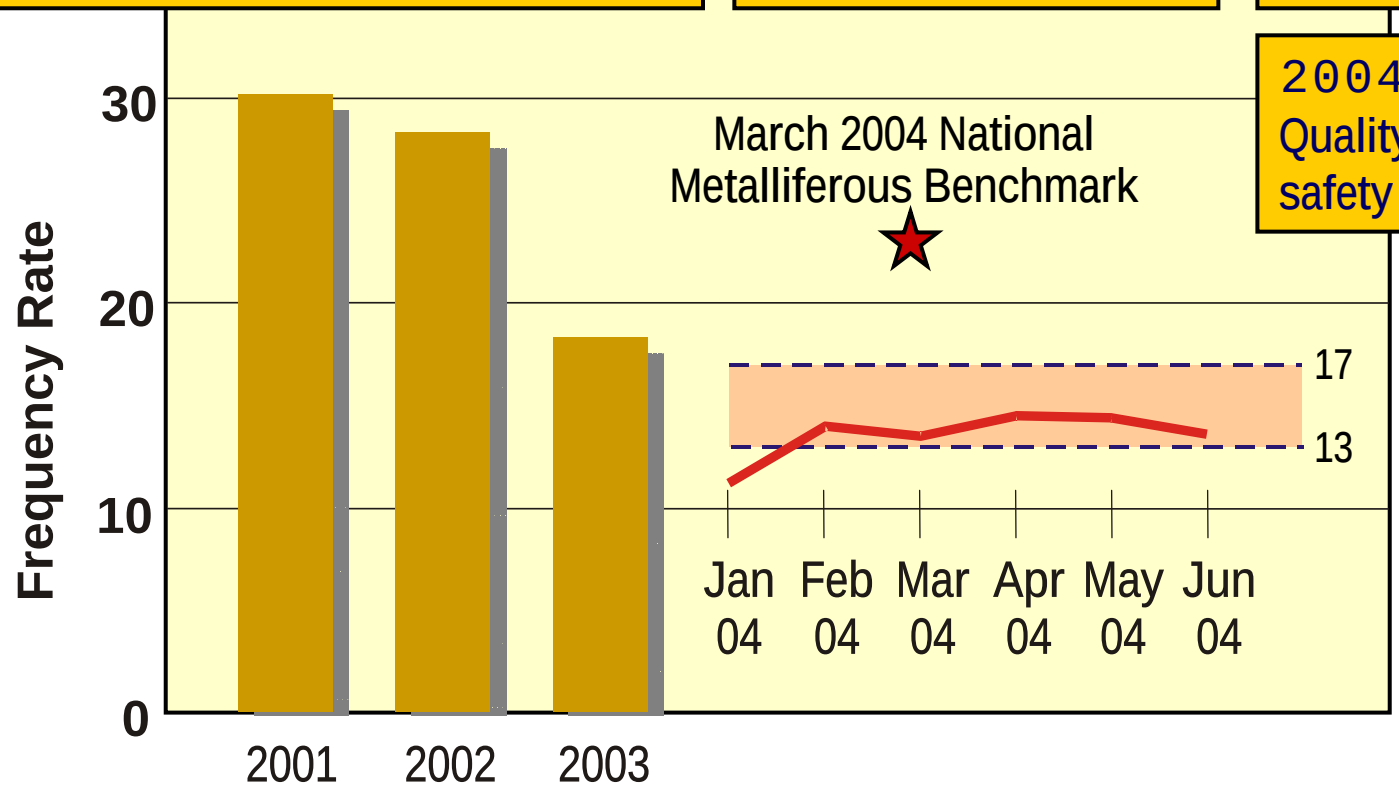
Safety Performance

2001 – Introduction of Newmont Safety System. Safety defined as an individual and organisational value.

2002 – Focus on risk assessment and risk management.

2003 – Focus on Leadership and behaviour.

2004 – Focus on Quality of existing safety processes.

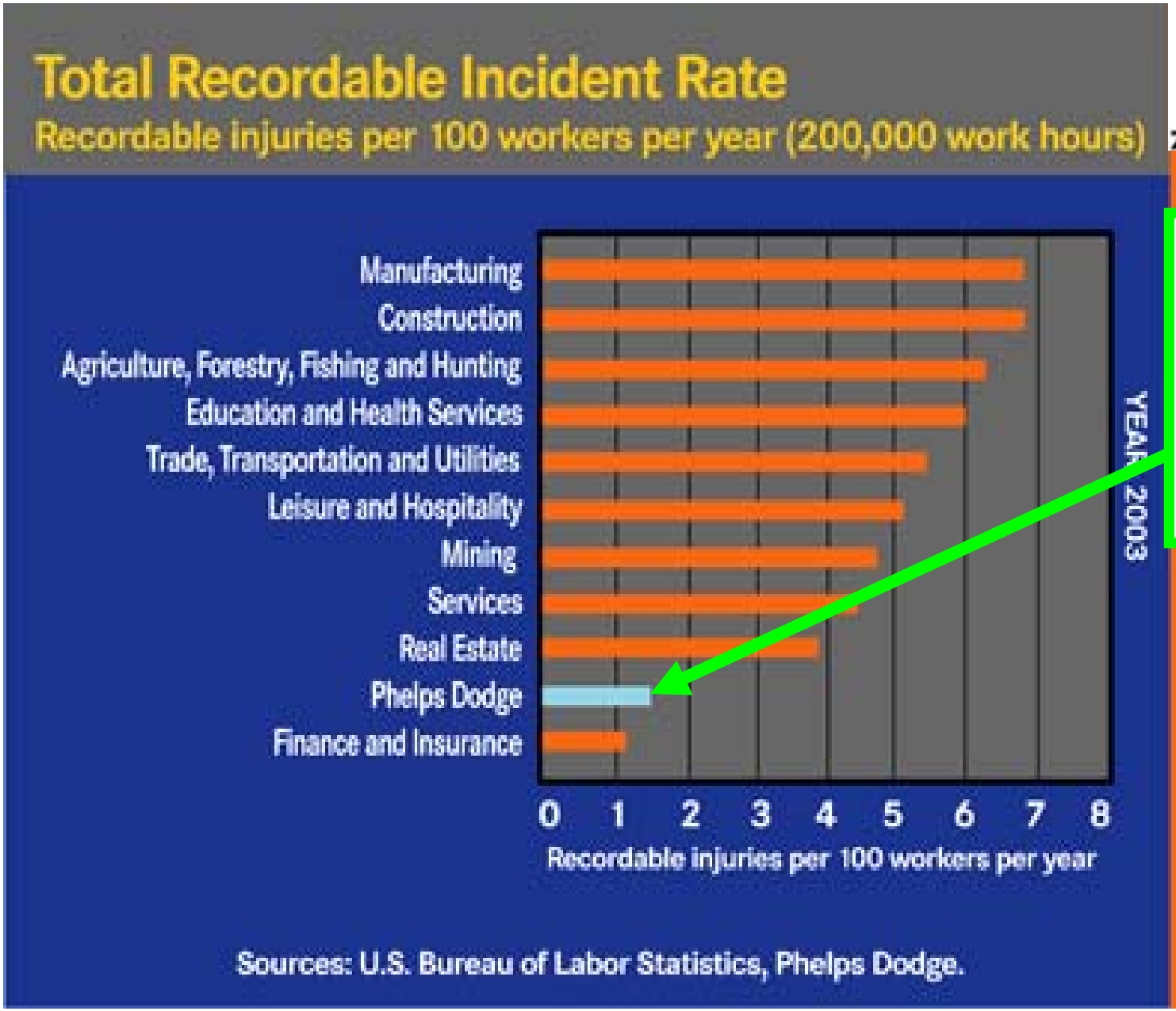


TRIFR Performance Range 2004

Smart Menu

phelps dodge

ZERO AND BEYOND



Behavior-based safety and health program results

Human factors safety & health:

- **DOES NOT point fingers**
- **DOES join hands**
- **DOES NOT place blame**
- **DOES break barriers**

Smart Menu

Most safety & health programs, initiatives, stickers, flyers, bulletins, etc. focus on:

- **WHAT** work practice is desired or undesired & how to do it or prevent it

Smart Menu

- **WHY** work practices are desired or undesired
- **WHO** is required to perform certain work practices
- **WHEN** certain work practices are to be performed
- **WHERE** certain work practices are to be performed

Human factors safety & health focuses on:

- **HOW** to get miners to make the right decisions and perform safe work practices

- It **answers** the age old question, "**HOW** do we get miners to lock-out & tag-out, not go inby supported roof, properly ventilate working areas, etc."

Human factors safety & health focuses on SOLVING the PERFORMANCE problem.

Smart Menu

To do this, human factors safety & health zeroes in on:

- The **ROOT CAUSES** of hazards and unacceptable risks that exist in the mine

- Then it says, “Let’s form a team of supervisory and non-supervisory miners to ***permanently remove and/or mitigate*** these hazards and unacceptable risks.”

Human factors safety & health does not have to focus on WHO was at fault to be effective.

Smart Menu

Questions?

Smart Menu

Action Plan

(1) Train managers & miners on SLAM Risks the SMART Way!

(2) Develop the team or teams!

(3) Give the team or teams the authority to fully implement SLAM Risks the SMART Way!

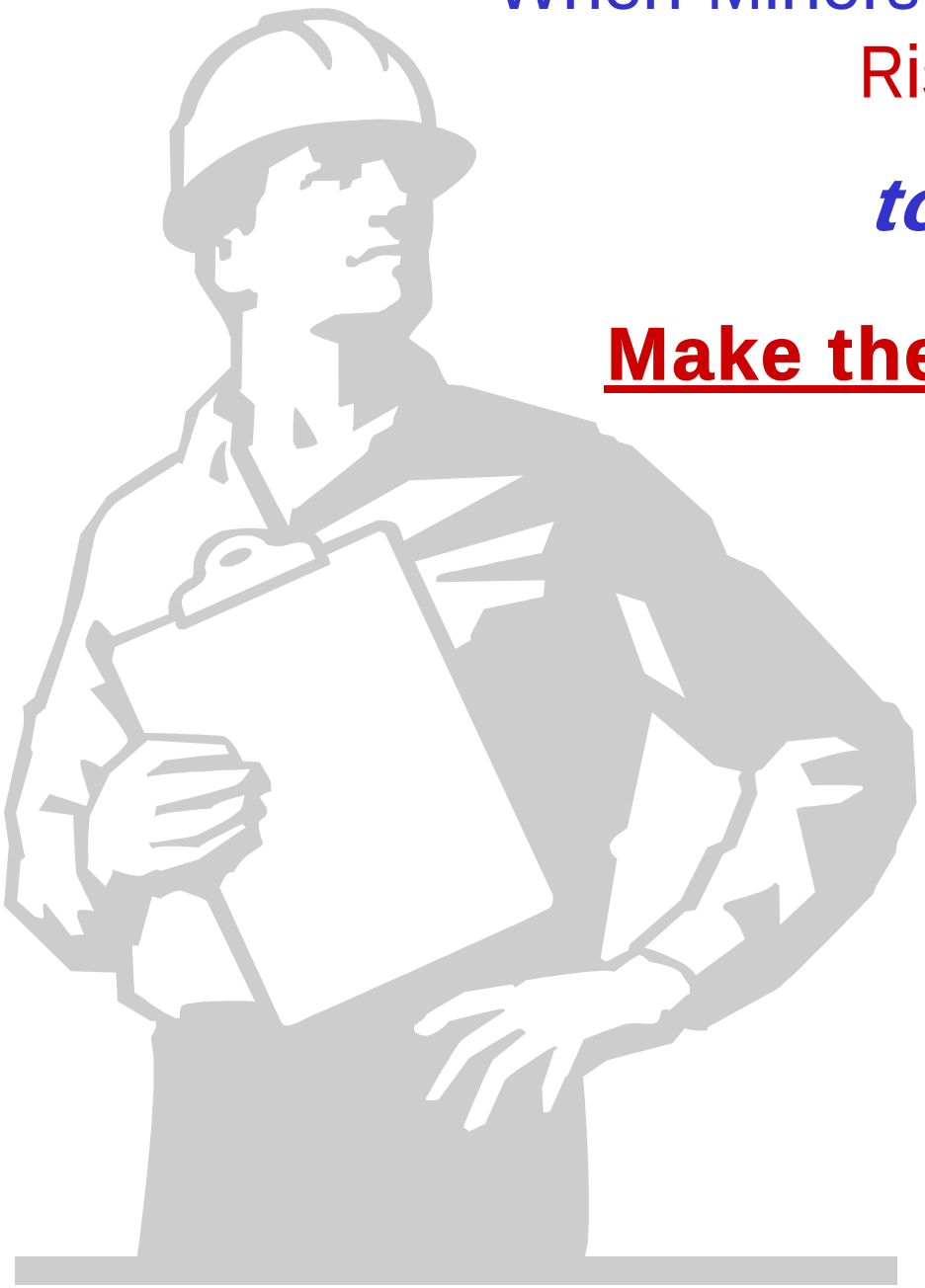
(4) Establish regular meeting times

(5) Closely follow all steps, techniques, and strategies

(6) Handle smaller safety & health issues first to allow time for the new way of thinking to take root. Then tackle larger issues.

(7) Be patient and give the process time to work. Don't abandon the principles if an unfortunate accident occurs. Safety & health victories will come from leadership, ingenuity, diligence, and hard work. ***ARCH, Alpha Resources, and Newmont realized a decrease in accidents of approximately 50% in 12 months or less!***

Main Menu



When Miners & Mine Management are
Risk SLAMMERS

together they

<u>Make the RIGHT Decision</u> and…

U.S. DEPARTMENT OF LABOR

SLAM Risks

the

SMART Way

MINE SAFETY AND HEALTH ADMINISTRATION

The End

References

The Psychology of Safety Handbook
by E. Scott Geller
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