CH2MHILL

# Going Forth Safely Into The Field Of Geology



*Howard J. Gordon, CPG, PG*
*HSSE Manager – Commercial Sector*
*Environmental Services Business Group*

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# Learning Objectives

## Understand

- ✓ Basic Safety Concepts
- ✓ Why Safety?
- ✓ What Are Safety Metrics?
- ✓ Various Forms Of Safety Cultures and Approaches

# A Lot Has Changed Since Field Camp….

# Safety Concepts

**The word**

**"ACCIDENT"**

**is disappearing from use at many companies**

# Safety Concepts

## Near Misses, First Aid Cases Injuries And Property Damage Don't Just Happen:

## They are the result of –

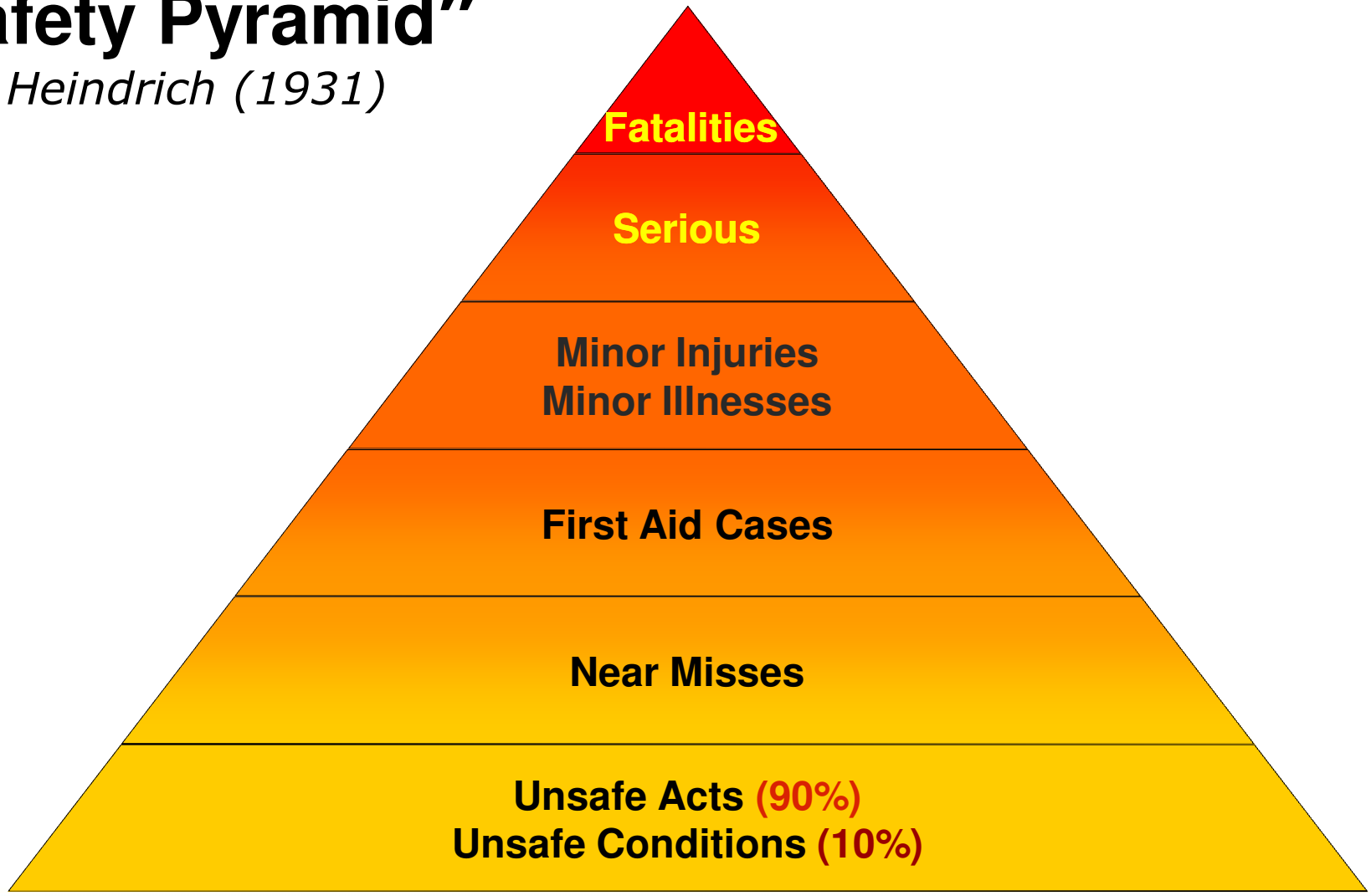
## UNSAFE ACTS

## UNSAFE CONDITIONS

# Safety Concepts

## "Safety Pyramid"

*H.W. Heindrich (1931)*



# Safety Concepts

## Barriers to Safe Work Environments

- Failure to recognize hazards
- Failure to learn from incident root causes
- Inadequate safety management system
- Inadequate training
- No established safety culture
- Personal choice

# Why The Fuss?


- ✓ Employers must ensure a safe work place for all employees – a **moral** and **ethical** issue

- ✓ Federal regulations require an employer to provide a safe and healthful work environment **OSH Act General Duty Clause (5)(a)(1):**

  "Shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees"

  **5(b):**

  " Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct."

- ✓ **Employers & clients will only hire safety-focused employees & subcontractors**

# Performing Work Safely (JHA's, JSA, AHA, etc.)

- ✓ Identifies each hazard associated with a specific task
- ✓ Promotes development of a solution for each identified hazard
- ✓ Encourages training for safe and efficient procedures
- ✓ Helps develop "pre-job" instructions for non- typical jobs
- ✓ Aids in review of operational steps for safety and quality

**Job Hazard Analysis Form**

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**JHA No.:** -_____-____-___-___

**Job Title:** _____ **Date of Analysis:** _____

**Job Location:** _____ **Team Leader:** _____

**Instructions:** The Team Leader will gather the appropriate team, including subject matter experts, operators, and support personnel, to analyze the job for hazards. Using the below table or similar format, address the three phases of this process:

- **Identify Key Job Steps:** Break the job down into individual key steps where work activities are presented in sequential order.
- **Identify Job Hazards:** Create a list of known or potential hazards within each step of the job. Consider hazards associated with the various tools, equipment or other hardware involved in the job. Consider environmental hazards such as thermal stress, biohazards, etc.
- **Identify Safe Practices and Equipment:** List one or more prevention or control measures to address each hazard identified, emphasizing engineering and administrative controls over PPE. Once this has been completed, the JHA Team will determine whether the job can be performed in a manner that eliminates the identified hazards.

| Key Work Steps | Hazards/Potential Hazards | Safe Practices |
|---|---|---|
| | | |
| | | |

# Safety Metrics

**RATES ARE CALCULATED USING THIS STANDARDIZED FORMULA**

**(Number of cases x 200,000 hours) / hours worked**

***From a regulatory standpoint, 1 person works 2,000 hrs / year***

## TRIR = Total Recordable Incident Rate

The number per 100 employees that have been injured or made ill on the job to the extent that their **injury** or **illness is recordable** on the OSHA 300 Log.

## DART = Days Away, Restricted and Transferred

The number per 100 employees that have been injured or made ill on the job to the extent that they:

- **Do not return to work the day following the incident**;
- **Have restrictions** on the extent they can perform their normal work; or
- Have to do a **different job**.

# OSHA 300 Log (MSHA)

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Form approved OMB no. 1218-0176

Establishment name: Consolidation of All MACTEC Operations

City: Alpharetta State: Georgia

| Identify the person | | | Describe the case | | | Classify the case | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (A) Case No. | (B) Employee's Name | (C) Job Title (e.g., Welder) | (D) Date of injury or onset of illness (mo./day) | (E) Where the event occurred (e.g. Loading dock north end) | (F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g. Second degree burns on right forearm from acetylene torch) | CHECK ONLY ONE box for each case based on the most serious outcome for that case: | | | | Enter the number of days the injured or ill worker was: | | Check the "injury" column or choose one type of illness: | | | | | | | Days away injuries | Days away illnesses | # Days away injury | # Days away illness | # Days Restricted - Inju | # Days Restricted - Illne | | | | | | | | | | | |
| | | | | | | Death | Days away from work | Remained at work | | Away From Work (days) | On job transfer or restriction (days) | (M) Injury | Skin Disorder | Respiratory Condition | Poisoning | Hearing Loss | All other illnesses | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Job transfer or restriction | Other record-able cases | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | (G) | (H) | (I) | (J) | (K) | (L) | (1) | (2) | (3) | (4) | (5) | (6) | | | | | | | | | | | | | | | | | | | |
| WFTW1 | | Eng. Tech | 2-3-04 | George Bush Tollway, Dallas | EE tripped over pipe when pulling a wheel barrow backwards | | | X | | | 10 | X | | | | | | | | X | | X | | | 10 | | | | | | | | | | |
| MDC-SWSA | | Laborer | 2-9-04 | SWSA-4 Project Site | Aggravated preexisting hernia | | X | | | 1 | | X | | | | | | X | | X | | X | | 1 | | | | | | | | | | |
| WNOVI1 | | Proj. Admin | 2-11-04 | Office | EE slipped when entering office due to wet feet | | X | | | 4 | | X | | | | | | X | | X | | X | | 4 | | | | | | | | | | |
| WLOSA01 | | Engineering Tec | 2-14-04 | Job Site | Numbing of R arm from repetitive movement using mallet | | | | X | | | | | | | | X | | | X | | | | X | | | | | | | | | | |
| SCHAR3 | | Proj Engineer | 2-26-04 | Office | EE was lifting boxes of soil samples at the office when strained lower back. | | X | | | 2 | 82 | X | | | | | | X | | X | | X | | 2 | | 82 | | | | | | | | |
| SCHAR1 | | Sr. Lab Tech | 3-2-04 | Office-Lab | Testing hinges, they failed, door struck EE - stitches | | | | X | | | X | | | | | | | | X | | | | X | | | | | | | | | | |
| SATLA01 | | Lab Tech | 3-25-04 | Office | EE was pulling wheelbarrow, tripped over concrete blocks and fell injuring back | | | | X | | | X | | | | | | | | X | | | | X | | | | | | | | | | |
| WFLOW1 | | | 12-15-04 | Job Site | EE was repairing a piece of machinery at an awkward position using a hacksaw and pinched a nerve in neck | | X | | | 8 | | X | | | | | | X | | X | | X | | 8 | | | | | | | | | | |
| WSAND4 | | Staff Eng I | 12-16-04 | Office | Struck by falling cubical partition | | X | | | 1 | | X | | | | | | X | | X | | X | | 1 | | | | | | | | | | |
| | | Crafts/Operative | 12-20-04 | Lyndhurst, NY | Slipped on ice when getting out of vehicle. | | X | | | 5 | | X | | | | | | X | | X | | X | | 5 | | | | | | | | | | |
| SNAPL03 | | Eng Tech | 12-28-04 | Auto Accident | Not at fault auto accident. IV struck by OV | | X | | | 3 | | X | | | | | | X | | X | | X | | 3 | | | | | | | | | | |
| | | | 12-29-04 | Oakridge site. | EE injured finger when opening a gate | | | | X | | | X | | | | | | | | X | | | | X | | | | | | | | | | |
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# What is a Safety Culture?

"Culture" is traditionally defined as "a shared set of beliefs, norms, and practices, documented and communicated through a common language."

"…if safety and health values are not consistently (and constantly) shared at all levels of management and among *all* employees, any gains that result from declaring safety and health excellence a "priority" are likely to be short-lived."

**BP Amoco Texas City Refinery Incident Investigation Report (page 23)**

# The Results of NO CULTURE

# Various Names for Safety Culture

Target Zero

BBS (Behavior Based Safety)

Beyond Zero

LPS© (Loss Prevention System)

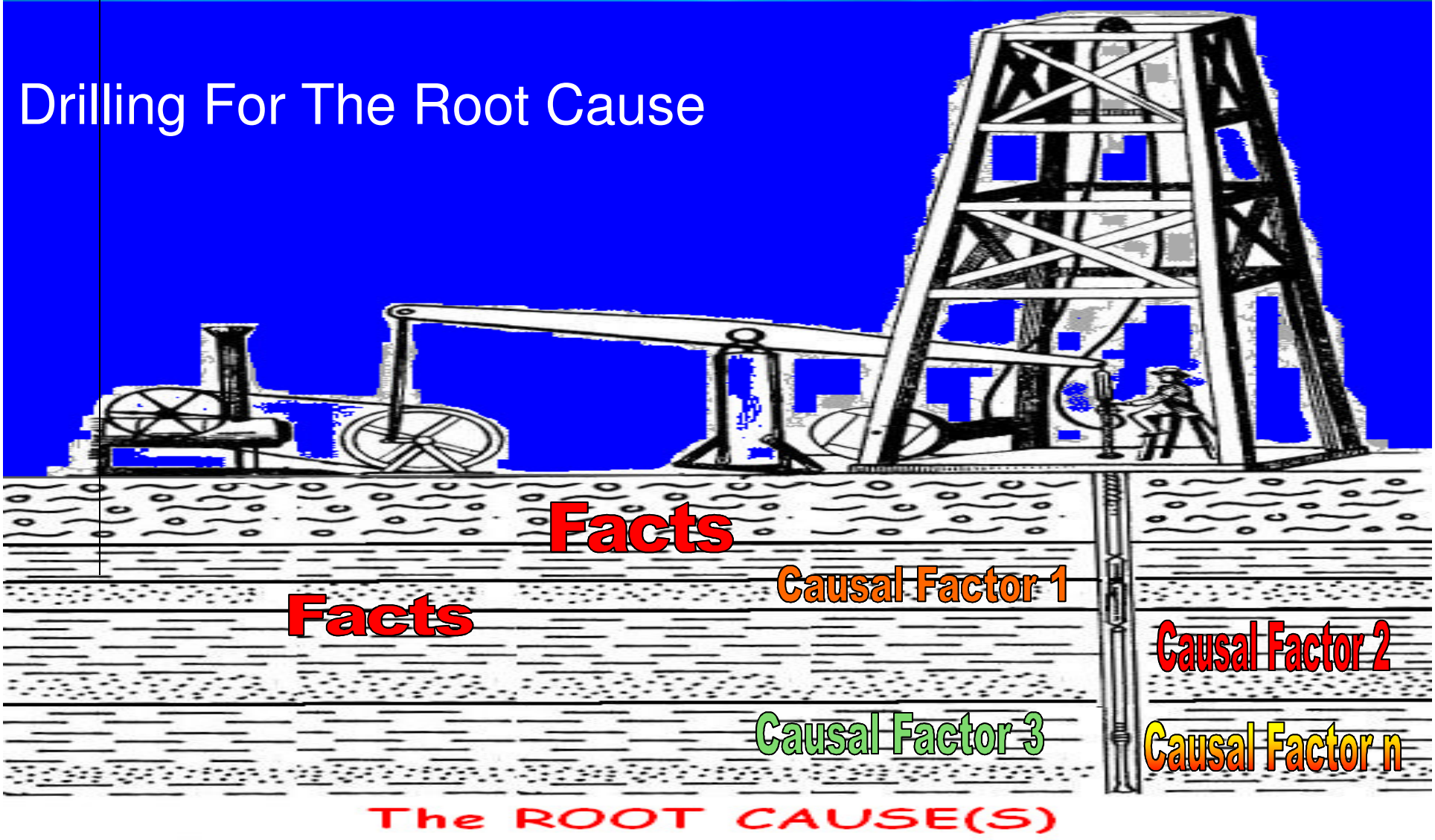
STEP© (Safety Through Everyone's Participation)

ISMS (Integrated Safety Management System)

START© (Safety Through Achieving Recognition Together)

# Incident Investigation

## Drilling For The Root Cause



# Last Words

- ✓ Always know the scope of work you are to perform
- ✓ Always work to a Job Hazard Analysis (JHA) or Health & Safety Plan (HASP)
- ✓ Always follow procedures
- ✓ Ensure you are trained to perform your designated work
- ✓ Always wear your PPE (personal protective equipment)
- ✓ If you feel conditions are unsafe, stop work and talk to your supervisor
- ✓ How you drive on your personal time can impact your job as it impacts your MVR (motor vehicle report)

# QUESTIONS ???