Underground Mine Safety Alerts Meeting Kit

WHAT’S AT STAKE

Anyone working underground to mine hard minerals such as ore containing gold, silver, iron, copper, zinc, nickel, tin, and lead may be exposed to many hazards. The same processes are used for mining hard gems like diamonds. Soft rock miners excavate softer minerals like salt or coal.

WHAT’S THE DANGER

UNDERGROUND MINE DANGERS

Mine Cave-Ins. Cave-ins, explosions, toxic air, and extreme temperatures are some of the most perilous hazards observed to take place in underground mining.

Powerful and hazardous airblasts can occur causing flying debris and falling rocks that can block tunnels, maim workers, release toxic or explosive gases, or cause flooding.

Often cave-ins occur due to the less predictable hazard of seismic activity – earth tremors and earthquakes that can result in further landslides and earthfall.

Cave-ins can also be caused by improper mining activities – such as blasting or so-called retreat mining.

Mine Explosions. Mines are often home to many dangerous gases including carbon monoxide, hydrogen sulfide, methane, and carbon dioxide. Gases are produced or released during mining operations including drilling and blasting by mining machinery such as diesel and gasoline motors. The most common gas to cause underground mine explosions is methane. Methane is a colourless, odourless, highly flammable, and highly explosive noxious gas that occurs naturally and gets trapped in coal layers.

Poor Air Quality In Mines. Gases in mines are a hazard for explosions, along with other contaminants in the air – dust and fumes – can have a serious effect on the air quality that the miners breathe. Many of the gases found are toxic and have the ability to displace oxygen from the air causing asphyxia in humans. Without enough oxygen to the brain, headaches, nausea, and dizziness will occur, and can ultimately result in death when the oxygen concentration drops below 6%.

Respiratory Illnesses In Miners. Miners are regularly exposed to harmful contaminants in the air such as silica dust and other mineral dust. This puts them at a greater

risk of developing respiratory illnesses such as pneumoconiosis, aka the black lung and silicosis.

Mining In Extreme Temperatures. Even in the most remote places where temperatures drop as low as -50°C. Or as high as 60°C. Extreme conditions can make for perilous working conditions, with miners not only having to worry about the extreme temperatures damaging their equipment, but the risk of their own health and safety.

UNDERGROUND MINE WORKER PREVENTATIVE SAFETY MEASURES

- Speak with the area supervisor before going underground to note any hazards.
- Inspect the workplace for existing and potential hazards before work begins.
- Review logs and crossover notes for any indication of seismic events, poor ground conditions, standing water, or other hazards noted between shifts.
- Inspect all equipment and machinery for any defects before work begins.
- Keep tools and equipment in good working order.
- Ensure the appropriate personal protective equipment is available and used as intended.
- If required, ensure any radios or personal gas detectors are in good working condition and understand the proper use of these tools.
- Practice good housekeeping.
- Scale the rock when entering a workplace.
- Wash down the workplace, paying special attention to areas that have been recently blasted.
- Know the location of the nearest refuge station and escape route. Know the emergency response plans.
- Use atomizers or other dust control methods as required.
- Avoid awkward body positions and take frequent breaks.
- Learn safe lifting techniques.
- Have the required training and signoffs before beginning any task or operating a piece of mobile equipment.
- Ensure proper precautions are taken for working in extreme heat, cold, or wet conditions.

BEST UNDERGROUND SAFETY TAKEAWAYS

1. **Assess Hazards.** the critical step to mitigate safety risks. Putting together a plan is a good starting point.
2. **Maintain A Culture Of Safety.** A strong safety culture ensures that high standards are set for safety.
3. **Wear Personal Protective Gear.** PPE is equipment worn to minimize exposure to various hazards.
4. **Keep Equipment In Perfect Shape.** Inspect equipment regularly, replace essential parts when necessary.
5. **Improve Visibility.** In underground operations, visibility is always an issue.
6. **Manage Noise and Vibration.** In quarrying, powerful mining equipment and explosions cause vibration and noise.
7. **Maintain Ideal Temperatures.** Miners are exposed to a wide range of temperatures, which puts their bodies under stress.
8. **Mining Ventilation.** Workers in mines are at risk of being poisoned if they breathe in the toxic gases in nature.

FINAL WORD

Any organization’s mine health and safety act must be applied in the corporate culture. Everyone is responsible for their safety. This is particularly critical in

high-risk sectors like underground mining. Regular training is key to reducing the number of incidents resulting in injuries and deaths.