Mineral and Petroleum Extraction Safety Meeting Kit



Hundreds of thousands of people work in oil and gas extraction in the United States. Work in this industry involves physical labor, 24/7 operations, heavy machinery, hazardous chemicals, often-remote locations, and all-weather conditions, resulting in an elevated risk of physical harm.

MAIN HAZARDS IN PETROLEUM EXTRACTION ? HEALTH, SAFETY, ERGONOMIC, MACHINE.

A.ÿ Health

1. **Diesel Particulate Matter.** Diesel engines power a variety of machinery, vehicles, and equipment on a drilling site. Workers might be exposed to harmful levels of diesel particulate matter during the operations.
2. **Fatigue.** Workers might experience fatigue due to long shifts and when working multiple days in a row.
3. **Hazardous Chemicals.** Workers who use hazardous chemicals during work processes, might be exposed to hazardous by-products of oil and gas drilling. The degree of potential hazard depends on individual chemical properties and toxicity.
4. **Hydrocarbon Gases and Vapors (HGVs) and Low Oxygen Environments.** Gases and vapors continue to pose hazards on oil and gas well sites.
5. **Hydrogen Sulfide.** Oil and gas wells can release hydrogen sulfide and expose workers to hydrogen-sulfide gas.
6. **Naturally Occurring Radioactive Material (NORM).** NORM might be released from oil and gas formations. Workers at risk of exposure include those who handle pipes and equipment that might have been contaminated with NORM.
7. **Noise.** Oil and gas workers can be exposed to harmful noise levels during equipment operation.
8. **Silica.** Workers might be exposed to respirable crystalline silica during processes that use sand.
9. **Temperature Extremes.** Well-site workers are exposed to extreme temperatures.

B. Safety Hazards

1. **Vehicle Collisions.** Workers and equipment are required to be transported to and from well sites. Roughly 4 of every 10 workers killed on the job in this industry are killed as a result of a highway vehicle incident.
2. **Struck-By/ Caught-In/ Caught-Between.** Workers can be exposed to struck-by/caught-in/caught-between hazards from multiple sources, including moving vehicles or equipment, falling equipment, and high-pressure lines.
3. **Explosions and Fires.** Flammable gases, such as well gases, vapors, and hydrogen sulfide, can be released from wells, trucks, production equipment or surface equipment such as tanks and shale shakers. Ignition sources can include static, electrical energy sources, open flames, lightning, cigarettes, cutting and welding tools, hot surfaces, and frictional heat.
4. **Falls.** Workers might be required to access platforms and equipment located high above the ground.
5. **Confined Spaces.** Safety hazards associated with confined space include ignition of flammable vapors or gases. Health hazards include asphyxiation and exposure to hazardous chemicals.

C. Ergonomic Hazards

1. Oil and gas workers might be exposed to ergonomics-related injury risks, such as lifting heavy items, bending, reaching overhead, pushing and pulling heavy loads, working in awkward body postures, and performing the same or similar tasks repetitively.
2. Electrical and Other Hazardous Energy

Workers might be exposed to uncontrolled electrical, mechanical, hydraulic, or other sources of hazardous energy if equipment is not designed, installed, and maintained properly.

D. Machine Hazards

1. Oil and gas extraction workers may be exposed to a wide variety of rotating wellhead equipment, including top drives and Kelly drives, draw works, pumps, compressors, catheads, hoist blocks, belt wheels, and conveyors.

BEST SAFE PRACTICES TO PROTECT WORKERS

1st Step is to know the hazards. It all starts with the job safety analysis process to identify the hazards and find solutions.

2nd Step is to establish ways to protect workers which includes developing and implementing safe practices for:

- Chemical handling; exposure
- Chemical storage
- Electrical work
- Emergency response
- Equipment/machine hazards
- Fall protection
- Fire protection
- Hot work, welding, flame cutting operations
- Power sources (lockout/tagout provisions)
- Working in the heat, long shifts

3rd Step is to provide personal protective equipment (PPE). When engineering controls alone cannot protect worker overexposure to chemicals, noise, or other hazards, the employer must provide PPE.

- Communicate the hazards, and train workers.
- Have a plan for contractor safety and training.

ACCIDENT PREVENTION TIPS FOR WORKERS

1. Have A Training Program in Place.
2. Keep The Field Clean and Clear.
3. Check Your Tools and Facilities Regularly.
4. Encourage Safety Communication.

FINAL WORD

The major concern for employers, regularly, trade associations, industry groups and local communities is to ensure safety for the thousands of workers in the oil and gas extraction business. The understated goal of all parties is to provide special protections to reduce and mitigate the hazards of the petroleum extraction business.