



INDUSTRIAL WEATHER HAZARDS

TOOLBOX TALK: Industrial Weather Hazards

RATTLIR Safety Series – "Strike Before It Bites"

Purpose

Industrial facilities such as power plants, substations, switchyards, and pipeline facilities face significant risks from changing weather conditions. Understanding how weather affects workers, equipment, and operations is essential to maintaining a safe work environment. This toolbox talk provides a comprehensive overview of weather hazards, exposure risks, equipment impacts, and decision-making considerations.



Industrial Weather Hazards Overview

Industrial sites are highly exposed to weather conditions that can deteriorate rapidly and create dangerous situations:

- High winds that compromise scaffolding, lifts, cranes, and mobile equipment.



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- Heavy rain producing slick surfaces, flash flooding, or reduced braking performance.
- Snow and ice creating severe slip hazards and affecting access roads and walkways.
- Fog reducing visibility for operators, drivers, and workers on foot.
- Lightning risks around tall stacks, substations, open yards, and cranes.
- Microbursts or wind tunnels between buildings increasing localized risk.

Worker Exposure and Environmental Stressors

Weather strongly influences worker safety and physical performance:

- Extreme heat leading to dehydration, heat exhaustion, or heat stroke.
- Cold temperatures causing frostbite, hypothermia, and impaired dexterity.
- Wind chill accelerating heat loss and reducing worker performance.
- Wet gloves and PPE reducing grip strength and tool handling.
- Fog or blowing snow impairing worker visibility and hazard recognition.
- Layered clothing restricting mobility, especially when climbing or lifting.

Equipment and Facility Impacts

Weather can compromise equipment performance and plant operations:

- HRSG plumes or steam drift obscuring visibility near equipment or personnel.
- Icing on transformers, breakers, valves, or instrumentation.
- Conductor galloping causing mechanical stress or clearance hazards.
- Reduced braking and traction for forklifts, trucks, and UTVs.
- Rain or fog interfering with optical sensors and detection systems.
- Wind loading affecting mobile cranes, manlifts, and aerial platforms.

Weather Monitoring and Decision Making

Proactive monitoring ensures safe and timely operational decisions:

- Checking NOAA, NWS, and onsite instrumentation for weather alerts.
- Following lightning-proximity protocols such as the 10-mile rule.
- Adhering to equipment-specific wind-speed shutdown thresholds.
- Evaluating visibility before operating mobile equipment or performing lifts.
- Identifying site-specific microclimates that amplify local hazards.
- Coordinating weather stoppages with dispatch, OCC, or system operators.



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Emergency Response Considerations

Severe weather may require changes to emergency plans or evacuation routes:

- Accounting for flooding that may restrict emergency access or evacuation.
- Ensuring emergency lighting functions during fog, heavy precipitation, or power variations.
- Pausing nonessential operations during dangerous weather conditions.
- Sheltering personnel during lightning, severe wind, or tornado warnings.

Discussion Questions

- Do you understand the weather hazards that may impact today's operations?
- Are you aware of how severe weather affects equipment and worker safety?
- Do you have the proper PPE and mitigation plan for today's weather conditions?

RATTLIR Takeaway

Weather hazards in industrial environments evolve quickly and compound with facility-specific risks such as steam plumes, elevated structures, electrical systems, and nighttime operations. Proactive monitoring, early recognition of deteriorating conditions, and conservative decision-making protect both personnel and equipment. RATTLIR strikes before it bites by anticipating hazardous changes, maintaining strong situational awareness, and acting early to prevent weather-related incidents.