Timber Times

Partners for Healthy Forests

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SPECIAL POINTS OF INTEREST

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Safety Flyer

Hello All,

Logging is dangerous work, and safety has always been a primary focus for CTIA. I hope these monthly safety flyers contribute to your company safety program and to the safety of you and your crews.

Please share this safety flyer with your employees, contractors, or fellow loggers. If you'll send me their email address, we'll add them to our list. Our goal is safety for every logger, trucker, and mill worker in Colorado.

If you find an interesting article or an OSHA related issue, please share with me so I send to our email list or incorporate into a future Safety Flyer.

Molly

The Colorado Timber Industry Association (CTIA) is an association of small, family-owned businesses committed to logging, processing and performing service work in the forests of Colorado. We are exceptional partners to the public and private stewards of our valuable and beautiful forests. We embrace Best Management Practices (BMPs) and sustainable forestry. To meet these values, we host annual continuing education classes on BMPs and conduct field audits to demonstrate our accountability to high quality, active management designed to promote long term forest health.

Lightning Safety Awareness

WHAT IS A LIGHTNING STRIKE?

Lightning is a discharge of the electricity produced by a thunderstorm. As the thunderstorm develops, many small particles of ice within the storm clouds bump together. These collisions create a positive charge at the top of a cloud and a negative charge at the bottom. As this continues, a second positive charge builds up on the ground beneath the cloud. It is concentrated around the highest objects such as hills, trees, buildings, equipment and even people. When the difference between the electrical charge in the cloud and on the ground becomes great enough to overcome the resistance of the insulating air between them, an electrical current flows instantly. This is a lightning strike.

The electrical potential in a lightning strike can be as much as 100 million volts. Lightning strikes can occur over distances as great as 60 km (40 mi). Lightning travels both in front of and behind a thunderstorm, so strikes can occur before or after rain. Lightning can hit in the same place and often spreads out 18 m (60 ft) over the soil around the strike point.

Thunder always accompanies lightning. When lightning occurs, the air through which it travels is instantaneously heated to a temperature in excess of 28 000 °C (50,000 °F). The air expands rapidly due to this heating, then quickly contracts as it cools. It is this contracting shock wave that we hear as thunder.

Lightning Safety

Despite of the popular myth that being struck by lightning is an unlikely event, the statistics show that lightning strikes occur frequently. In many areas of the world, lightning strikes are second only to flooding as the greatest cause of storm related death and injury. Although only 10% of lightning strike victims are killed (virtually all from cardiac or respiratory arrest) over 70% of survivors suffer severe, life-long injury and disability including memory loss, fatigue, chronic pain, dizziness, sleeping difficulty and the inability to complete several tasks at one time.

Forestry professionals are at high risk because their work is outdoors and close to known strike points such as tall trees and heavy equipment. Loggers can increase their chances of avoiding a lightning strike by following a few simple safety practices.

1. Designate a member of your crew to:
- Monitor daily weather forecasts
- Observe local weather conditions
- Alert all other members of the crew when a possible lightning threat develops

2. When a storm moves nearby, don't start or continue any work that cannot be stopped immediately.
3. Anticipate a high-risk situation and take action early by moving to a low-risk location. Do not hesitate. If there is lightning, you are in danger.
4. Obey this rule: If you see lightning, flee. If you hear thunder, clear.
5. Do not follow the now obsolete guideline to take shelter when the time between seeing lightning and hearing thunder is 30 seconds or less. This does not provide sufficient time to ensure safety. Always follow step 4.
6. Remain in your safe location for 30 minutes after the last sight of lightning or the last sound of thunder.

The safest location during lightning activity is inside a fully enclosed and substantially constructed building such as a house, office, school or shopping area. These are safest because of the electrical wiring and plumbing they contain. Should lightning strike, the electrical current will travel through the wiring or plumbing into the ground. When such a building is nearby, always seek shelter there first.

Unfortunately loggers do not often work close to buildings and therefore other alternatives must be considered. Sheds, weather shelters, hunting blinds, tents and other partially open or small structures are not safe as they lack the electrically grounded components of larger buildings. They are intended for sun or rain protection only. Do not seek shelter from lightning strikes inside these structures.

The second safest location during lightning activity is inside a fully enclosed car, van, truck or bus with a metal roof and metal sides. The electrical energy of a lightning strike to these vehicles is carried to ground by the conducting outer metal surfaces. This is called the skin effect. Do not seek safety from lightning strikes in vehicles with fiberglass or plastic body shells or in convertible-top vehicles as they do not offer skin effect lightning protection.

Heavy forestry equipment such as a skidder, loader, feller buncher or forwarder with a fully enclosed rollover protective structure (ROPS) offers the advantage of the skin effect and is therefore safe in electrical storms. However, machines with a rollover canopy only are not safe against lightning strikes as they are open to electrically conductive rainwater and do not benefit from the skin effect. Operators of these machines must exit the cab and get to a safer location.

Rubber tires on motor vehicles and heavy equipment do not increase safety from lightning strikes. Lightning has already traveled a great distance through the air to strike the vehicle. In comparison, a few inches of rubber offers absolutely no additional insulation.

To summarize, if you are outside and see lightning or hear thunder, get inside. Run to the nearest building, motor vehicle or fully enclosed ROPS cab immediately.

If you are already inside a building, don't watch the storm from open windows or doorways. Stay in inner rooms. Stay well away from corded telephones, electrical appliances, lighting fixtures, radio microphones, electrical sockets and plumbing pipes and fixtures.

If you are already inside a motor vehicle or fully enclosed ROPS equipment cab, stay inside. Don't step outside of the vehicle to move to another shelter. Very dangerous electrical pathways to ground may go through you. Shut down all operation, turn off the engine and close the doors and windows. Sit squarely in the seat with your hands in your lap and feet flat on the floor mat. Do not touch any metallic objects referenced to the outside of the vehicle including door and window handles, control levers, foot pedals, the steering wheel and cab interior walls. Do not touch radios or telephones connected to an outside antenna.

If you are caught outside and have no where else to go:

1. Avoid wide-open areas where you project above the surrounding landscape.

2. Seek shelter in a low place, such as a ditch, ravine, valley, canyon or cave.

3. Get away from open water such as ponds or streams.

4. Do not take shelter under any isolated tall trees or small groups of trees.

5. Seek shelter amongst the dense, thick growth of the shortest trees.

6. Avoid entering any small enclosures or shelters.

7. Do not seek shelter under motor vehicles or heavy equipment.

8. Keep clear of any materials that can conduct electricity such as wire fences and gates, metal pipes, poles, rails and tools.

9. Stay at least 15 m (50 ft) away from metal objects such as a fuel tank, vehicle or machinery.

10. Stay at least 5 m (16 ft) apart from anyone else so that lightning won't travel between you.

11. Do not use a telephone except for emergencies.

If you feel your skin tingling, your hair stands on end, if light metal objects vibrate or you hear a crackling sound, lightning is probably about to strike. You only have a few seconds to act:

1. Put your feet together. Crouch down in a baseball catcher's position. Hold your head down. Cover your ears to protect them against the noise of the thunder.

2. Do not lie flat on the ground. By touching as little of the ground as possible, the lightning may not move across the ground to you.

What if a co-worker has been struck by lightning?

1. You can touch the victim immediately; there is no residual electrical charge.

2. Call your local emergency response telephone number immediately.

3. If the victim has no pulse, their heart has stopped or they have stopped breathing, start cardiopulmonary resuscitation (CPR) or mouth-to-mouth resuscitation immediately. Use a portable defibrillator if one is available.

4. If possible, move the victim to a building as soon as possible. Remember, you can get hit by lightning too.

Helpful Links

http://www.lightningsafety.noaa.gov

http://www.lightningsafety.com

https://loggingsafety.com/publications/lightning-storm-safety-procedures/

http://www.tigercat.com/safety/

http://www.lightningsafety.noaa.gov/stats/59-15state_ltg_fatalities.pdf