



# Hazard Alert

## Lightning Strikes

Lightning strikes can cause significant, instantaneous damage to heavy vehicles and equipment. To minimize these damages as well as the chances of sustaining a fatal injury, workers must always take precautions for lightning strikes. It is essential for workers to comply with the established safety procedures for operating equipment during electrical storms.

### Incident Summaries

#### Tumbler Ridge, B.C.

On July 15, 2012 at approximately 2300 hours, the driver of 777F haul truck was parked at a waste dump while waiting for an electrical storm to cease. Suddenly struck by lightning, the truck endured significant damage to its rear. Its external left dual was propelled approximately 250 metres from the truck. The rim of the tire was propelled 50 metres further. All four rear tires were blown out and the cab windows shattered. The driver exited the truck and moved to a safe distance. He was not injured.



*This haul truck was struck by lightning while parked at a dump. The truck's rear tires were blown off and propelled some 250 metres. All four rear tires were perforated and detached from the wheels of the truck.*



## Hunter Valley, New South Wales, Australia

In 2007, a large rear dump truck (RDT) was struck by lightning while stationary and unattended. No employees or personnel were injured. Three tires were blown off the truck between two and five minutes after the lightning strike. Two tires (positioned 1 and 3) exploded on the driver's side of the truck and sent debris flying several hundred metres from the vehicle. This caused extensive damage to the truck and other equipment. One complete wheel (weighing 1.6 tonnes) was launched approximately 100 metres from the truck. The flange of the wheel (weighing 250 kilograms) was propelled to the top of a nearby stockpile approximately 275 metres away. The air blast and shockwave created by the lightning strike caused damage to the operator's cab and to other structures and equipment located as far as 230 metres from the truck. The tires were also ejected and landed between 50 and 60 metres from the truck.



*The tension created on the wheel had a force of approximately 270 kilonewtons (equivalent to 27,532 kilograms of weight). This force was strong enough to break 57 1-inch grade 10.9 bolts fastening the flange to the wheel.*



## Safe Work Practices

- ✓ Establish standard operating procedures (SOPs) for work during electrical storms.
- ✓ SOPs may include the following:
  - Directions on where to park during a storm
  - How to respond if lightning should strike a vehicle
  - When to halt operations, including activities such as blasting, cable handling and surveying

## Health, Safety and Reclamation Code for Mines in British Columbia

- ✓ 8.6.13 Every power line blasting switch shall
  - (1) have the live side of the device installed in a box which is fixed, locked and accessible only to the blaster, and
  - (2) incorporate a lightning gap of at least 1.5 metres between the blasting switch and the service switch. This gap shall only be closed by a twist-type plug and cord assembly immediately before firing.
- ✓ 8.6.16 The manager shall ensure that persons engaged in blasting operations underground are warned of an electric storm.
- ✓ 8.6.17 A blaster shall not connect an electric blasting circuit during an electrical storm. Should an electric storm occur while a blasting circuit is connected, all persons shall be withdrawn to a safe distance from the blast site. Access to the blast site shall be guarded until the storm has passed.

**Please Note:** Tire distributors recommend that if machinery has rubber tires and is exposed to events such as lightning strikes, it should be parked in a safe location, at least 300 meters away from all persons, for a minimum of 24 hours.