

## **Surface Mobile Equipment Safety Program**

### **Identifying, analyzing, and countering hazards and risks associated with surface mobile equipment.**

The Surface Mobile Equipment Safety Program Rule requires mine operators to assess mine-specific hazards and risks, identify actions to reduce accidents related to surface mobile equipment, and develop and implement a flexible safety program tailored to local mining conditions and operations. Mine operators can review the lists in this document to help recognize and identify potential mobile equipment hazards at their mine. Once all hazards have been identified for a mine, the mine operator can evaluate the risks they present to miners and incorporate appropriate actions in their safety program or template. These sample lists are not all-encompassing.

The lists augment guidance that MSHA previously developed to help miners, mine operators, and contractors prevent accidents caused by working with, on, or near mobile equipment and powered haulage equipment. [PROTECTING MINERS - POWERED HAULAGE EQUIPMENT SAFETY GUIDANCE](#) contains information on hazard recognition, best practices, links to videos and training resources, and other materials.

#### **General condition of mobile equipment and operator practices:**

- Pre-operational examination of mobile equipment
- Braking, steering, and hydraulic systems
- Wheels and tires
- Lights (headlights, tail and brake lights, turn indicators, dashboard, cab interior, special, auxiliary or spotlights)
- Cab access, cleanliness, and order
- Cab ventilation, heat and air conditioning
- Seats and seat belt/harness provision, condition, and use
- Operator's visibility (glass; windshield wipers; mirrors; rear-facing and blind spot cameras)
- Horns; back-up and reverse travel alarms, use of spotters

#### **Collision, rollover, and unintended movement potential:**

- Between equipment of similar size
- Between large and small equipment
- Between equipment and pedestrians

- Vehicle recognition (lights, flags)
- Parking and unattended vehicles (off-shift, temporary, work breaks, and breakdowns), buckets, forks, dippers lowered to the ground
- Parking brake and wheel chocking (provision of and procedures for using)
- Preoperational examinations: locations and procedures
- Rollover Protection Systems/Falling Objects Protection Systems

**Design, construction and maintenance of roadways:**

- Roadway's width, vertical and horizontal alignment, curvature, grades
- Road surface condition and maintenance
- Berms and guardrails
- Blind spots, congestion, overhead or near-roadway structures or obstructions
- Dust suppression
- Traction during inclement weather
- Traffic patterns, speed, and control
- Dark and low-light operation
- Pedestrian safety

**Unsafe or hazardous operation of mobile equipment, including on mine roadways and dump sites:**

- By operators: alertness, distractions, visibility
- Near water courses, quarry sumps, lakes, or ponds
- Near banks, drop-offs and highwalls
- Around stockpiles: backing, dumping, dump site restraints, and reclaiming material
- Loading and dumping, including dump site restraints
- Stockpile building, reclaiming, and dumping over highwalls
- Raising loaded dump bed on non-level terrain

**Unsafe or hazardous operation of rail-mounted equipment:**

- Track and switch condition; rail gauge
- Movement and parking of locomotives and railcars
- Locomotive brakes and sanders; railcar brakes (condition and use); use of wheel chocks, derailleurs, etc.
- Railcar access ladders and top of car platforms
- Railcar spotting, loading, and unloading procedures
- Fall prevention and protection

- Movement and maintenance of multiple cranes in same craneway
- Account for braking/stopping during inclement weather (wet/icy tracks)

**Ineffective communication between:**

- Operators of loaders, excavators, and haul trucks
- Operators of quarry and non-quarry equipment
- Operators of large and small equipment
- Operators of vehicles and pedestrians
- Members of rail crews
- Crane operators and support and maintenance personnel
- Mobile equipment operators and maintenance personnel, contractors, customers, vendors, or delivery services

**Inadequate or ineffective maintenance or repair of mobile equipment:**

- Incomplete or inadequate scheduled inspections or preventative maintenance
- Untimely or incomplete correction of defects on equipment that affect safety
- Inadequate response to unexpected or unplanned maintenance and repair
- Failure to block or chock mobile equipment to prevent hazardous movement or hazardous descent of equipment or parts.
- Inadequate procedures for tagging out and repairing equipment

**Disclaimers**

MSHA is providing best practices, methods, lists of equipment, templates and example programs as guidance to assist operators in developing and updating a surface mobile equipment safety program. This guidance is not all inclusive and is for informational purposes. Because each mine has unique conditions and features, each operator is responsible for tailoring its surface mobile equipment safety program to meet its individual mine's needs. (30 U.S.C. § 952(b))

As part of the agency's cooperative programs with its Alliance partners, State grantees, and others, MSHA is providing mining industry-developed templates as guidance in developing and updating your mine-specific surface mobile equipment safety program. (30 U.S.C. §§ 952(b), 962)

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their services, products, or resources. (Department of Labor Manual Series ((DLMS) 9-100, 123B.5.c)

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