Accident Trends

• 2021 year to date
  • 10 Powered Haulage accidents that resulted in 11 fatalities
  • Over 200 Powered Haulage injuries
    Highest rate of Powered Haulage fatalities since 2006

• Powered Haulage includes: motors and rail cars, conveyors, belt feeders, longwall conveyors, bucket elevators, vertical manlifts, self-loading scrapers or pans, shuttle cars, haulage trucks, front-end loaders, load-haul-dumps, forklifts, and others.
Accident Trends

Power hauled NFDL Injuries and Rate

Power hauled and Mobile Equipment Fatalities
Accident Trends

**Struck By NFDL Injuries**

- **Struck By NFDL Injuries**
- **Percent of Powered Haulage NFDL**

**Struck By Fatalities**

- **Struck By Fatalities**
- **Percent of Powered Haulage and Mobile Equipment Fatalities**
Surface Equipment Accident Locations

CWS Preventable Fatalities 2003 - 2021

<table>
<thead>
<tr>
<th>Pedestrians</th>
<th>Light Vehicle Occupant</th>
<th>Equipment Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>

CWS Preventable Fatal Accidents 2003 - 2021

<table>
<thead>
<tr>
<th>Fatality by Equipment Type</th>
<th>COAL</th>
<th>MNM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haul Truck</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Front End Loader</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Light Vehicle</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other Equipment</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Vehicles' Physical Location in Relation to Surface Equipment:
- Grey: Pedestrians
- Yellow: Light Vehicle Occupant
- Blue: Surface Equipment Operator
MSHA Powered Haulage Safety Initiative

STAND DOWN FOR SAFETY

POWERED HAULAGE

July 20, 2021

msha.gov/poweredhaulage
MSHA Powered Haulage Safety Initiative

Stand Down for Safety Day

- MSHA Enforcement visited 1,500 mine sites
  - MSHA District Managers
  - MSHA Assistant District Managers
  - Inspectors
  - Educational Field and Small Mines staffing

- Guidance to prevent Powered Haulage and rollover accidents
  - Best Practices
  - Videos
  - Training Resources
  - Stickers
MSHA Powered Haulage Safety Initiative

Materials Available on MSHA.gov

Safety Alert

Powered Haulage Accidents

Stay alert for Powered Haulage Accidents: You Alert! May Alert a colleague or friend that you may be experiencing a health or safety issue.

- Vehicles and equipment use mature technology.
- Well-maintained equipment.
- Vehicles are not subject to the same stresses as other equipment.
- Powered haulage accidents can cause severe injuries.

Safety Alert

Recent Vehicle Rollover Accidents

A recent vehicle rollover accident occurred in a mine. The vehicle was traveling at high speed when it hit a rock outcrop, causing it to overturn. The driver was not wearing a seatbelt and was ejected from the vehicle, sustaining severe injuries.

Conveyor Entanglement Hazards - Best Practices

- Always perform a safety check before operating conveyors.
- Keep the area around the conveyor clean and free of obstructions.
- Use properly trained and qualified personnel.
- Ensure that the conveyor is properly maintained and inspected on a regular basis.

Seat Belt Safety - Best Practices

- Always wear your seat belt when operating a vehicle.
- Do not operate a vehicle with a seat belt that is not properly secured.
- Do not operate a vehicle with a seat belt that is not properly tightened.
- Do not operate a vehicle with a seat belt that is not properly locked.

Report accidents and hazardous conditions. 800-746-2222. MSHA. MSHA.gov/safety

Best Practices

- Never operate a vehicle with a seat belt that is not properly secured.
- Do not operate a vehicle with a seat belt that is not properly tightened.
- Do not operate a vehicle with a seat belt that is not properly locked.
- Do not operate a vehicle with a seat belt that is not properly locked.

Booming Conveyor Belt - Faster Than You Can Imagine

- Always operate the boom at slow speeds.
- Never operate the boom at high speeds.
- Never operate the boom at high speeds.

Hazards Are Not for a Purist

- Hazardous conditions are not for the purist.
- Hazards are not for the purist.

Take It Slow

- Slow down when approaching hazardous areas.
- Never operate at a speed that exceeds the maximum speed limit.
- Never operate at a speed that exceeds the maximum speed limit.

Seat Belt Safety

- Always wear your seat belt when operating a vehicle.
- Do not operate a vehicle with a seat belt that is not properly secured.
- Do not operate a vehicle with a seat belt that is not properly tightened.
- Do not operate a vehicle with a seat belt that is not properly locked.

A seat belt saved this life! After rolling over, the unsecured operator fell from the seat belt and was struck by a rock as he landed through the open window, which then fell upon the machine operator.

MSHA Powered Haulage Safety Initiative

Proximity Detection/Collision Warning Information from Technical Support on MSHA.gov

• Regulation information
• Resource for mine operators to connect with technology providers
• Contact MSHA to request adding links to the page

https://www.msha.gov/proximity-detectioncollision-warning-information-technical-support
MSHA Powered Haulage Safety Initiative

Areas of Focus

- Powered Haulage safety at surface mines
- Powered Haulage safety at underground mines
- Conveyor safety at surface and underground mines
MSHA Powered Haulage Safety Initiative

• Powered Haulage safety at surface mines
  • Improving visibility
  • Communication
  • Traffic management
  • Seat belt use
  • Dumping practices
MSHA Powered Haulage Safety Initiative

• Powered Haulage safety at underground mines
  • Audible and visual warnings
  • Traffic management
  • Cameras and proximity detection
  • Communication and training
MSHA Powered Haulage Safety Initiative

- Conveyor safety at surface and underground mines
  - Equipment guards
  - Working around belt conveyors
  - Crossover safety
  - Conveyor design, installation, and housekeeping
MSHA Potential for Technology

• MSHA Technical Support analyzed fatal surface mining accidents that occurred from January 2003 to July 2021 and found 24 fatal accidents (26 fatalities) that collision warning systems could have prevented.

• MSHA Technical Support analyzed fatal underground mining accidents that occurred on the working section from January 1984 to July 2021 and found 91 fatal accidents that proximity detection systems could have prevented.
• Technology uses at underground and surface mines

• MSHA continues to fully support the increased usage of technology to prevent vehicle to vehicle and vehicle to pedestrian collisions.
  • Proximity detection systems
  • Collision avoidance systems
  • Collision warning systems
Summary

• MSHA Powered Haulage Safety Initiative
• MSHA Potential for Technology
Questions?