SEAT BELT USE ON MOBILE EQUIPMENT

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Overview

- Regulations and Violation History
- Fatal Accident Data Analysis
- Fatal Accident Examples
- Awareness Campaigns
- Stakeholder Roles
- Potential Solutions
- Seat Belt Saves
- Best Practices

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REGULATIONS
AND
VIOLATION HISTORY

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30 CFR Seat Belt Regulations

- 56/57.14130 Roll-over protective structures (ROPS) and seat belts [for surface equipment].
- 56/57.14131 Seat belts for [surface] haulage trucks.
- 77.403-1 Mobile equipment; rollover protective structures (ROPS).
- 77.1606 Loading and haulage equipment; inspection and maintenance.
- 77.1710 Protective clothing; requirements.

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§56/57.14130 Roll-over protective structures and seat belts [for surface equipment].

(a) Equipment included. Roll-over protective structures (ROPS) and seat belts shall be installed on—

(1) Crawler tractors and crawler loaders;

(2) Graders;

(3) Wheel loaders and wheel tractors;

(4) The tractor portion of semi-mounted scrapers, dumpers, water wagons, bottom-dump wagons, rear-dump wagons, and towed fifth wheel attachments;

(5) Skid-steer loaders; and

(6) Agricultural tractors.

§56/57.14130 Roll-over protective structures and seat belts [for surface equipment].

(g) Wearing seat belts. Seat belts shall be worn by the equipment operator except that when operating graders from a standing position, the grader operator shall wear safety lines and a harness in place of a seat belt.

(h) Seat belts construction. Seat belts required under this section shall meet the requirement of SAE J386, “Operator Restraint System for Off-Road Work Machines” (1985, 1993, or 1997), or SAE J1194, “Roll-Over Protective Structures (ROPS) for Wheeled Agricultural Tractors” (1983, 1989, 1994, or 1999).

(i) Seat belt maintenance. Seat belts shall be maintained in functional condition, and replaced when necessary to assure proper performance.

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§56/57.14131 Seat belts for [surface] haulage trucks.

(a) Seat belts shall be provided and worn in haulage trucks.

(b) Seat belts shall be maintained in functional condition, and replaced when necessary to assure proper performance.

(c) Seat belts required under this section shall meet the requirements of SAE J386, “Operator Restraint System for Off-Road Work Machines” (1985, 1993, or 1997), which are incorporated by reference.

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§77.403-1 Mobile equipment; rollover protective structures.

(a) All rubber-tired or crawler-mounted self-propelled scrapers, front-end loaders, dozers, graders, loaders, and tractors, with or without attachments, that are used in surface coal mines or the surface work areas of underground coal mines shall be provided with rollover protective structures (hereinafter referred to as ROPS) in accordance with the requirements of paragraphs (b) through (f) of this section, as applicable.

(g) Seat belts required by §77.1710(i) shall be worn by the operator of mobile equipment required to be equipped with ROPS by §77.403-1.

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§77.1710 Protective clothing; requirements.

Each employee working in a surface coal mine or in the surface work areas of an underground coal mine shall be required to wear protective clothing and devices as indicated below:

(i) Seatbelts in a vehicle where there is a danger of overturning and where roll protection is provided.

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§77.1606 Loading and haulage equipment; inspection and maintenance.

(a) Mobile loading and haulage equipment shall be inspected by a competent person before such equipment is placed in operation. Equipment defects affecting safety shall be recorded and reported to the mine operator.

(c) Equipment defects affecting safety shall be corrected before the equipment is used.

FATAL ACCIDENT EXAMPLES

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Coal Fatality

Engineering Support Fire Protection
TECHNICAL SUPPORT
United States Department of Labor
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Mine Safety and Health Administration
Mine Emergencies Laboratory Support

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MNM Fatality

AWARENESS CAMPAIGNS

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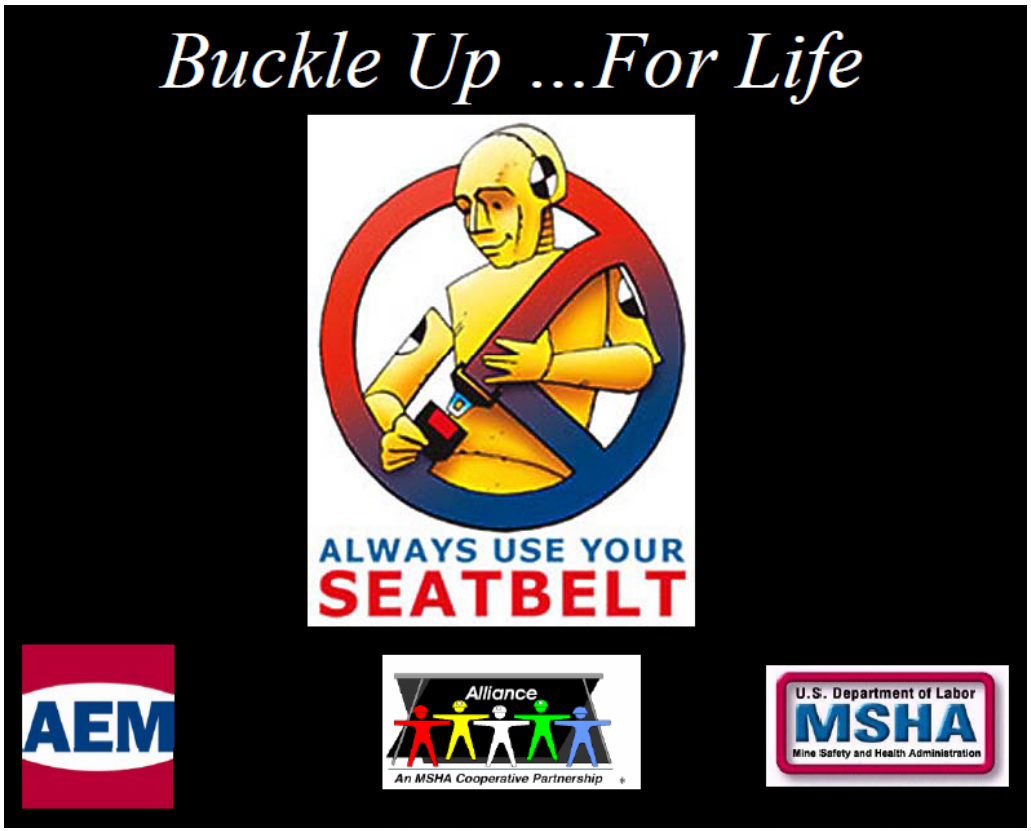
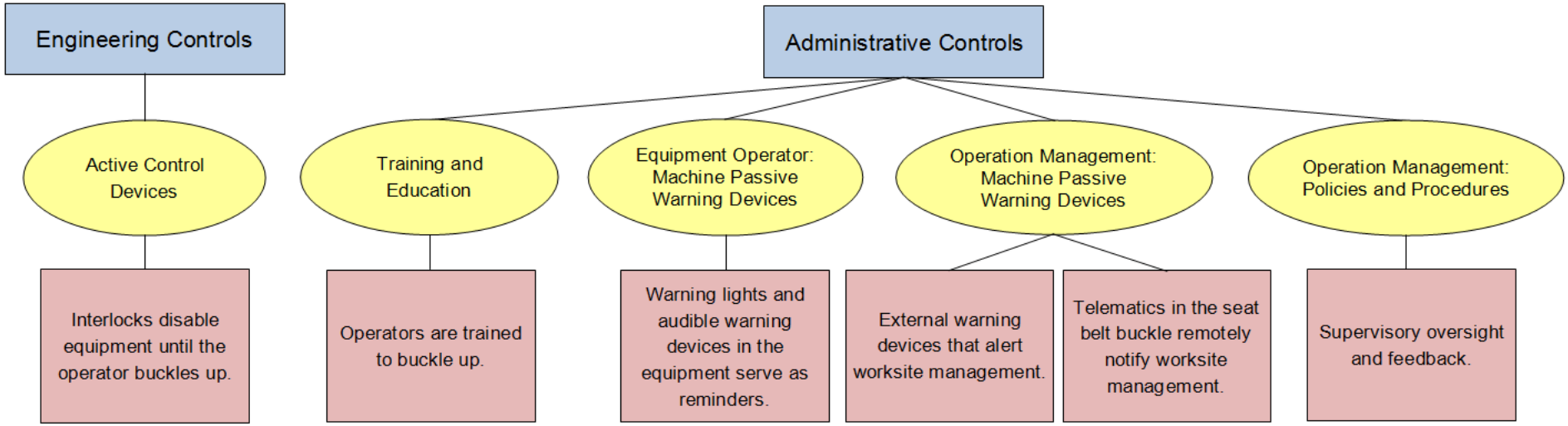
Previous Campaigns



Seat Belt Tampering Alert

https://www.msha.gov/sites/default/files/Alerts%20and%20Hazards/seat-belt-tampering-alert-oct-2016.pdf

Seat Belt Safety Alert



https://arlweb.msha.gov/alerts/Seat%20Belt%20Alert%20Oct%202016.pdf

Seat Belt Safety Tip

Best Practices:

- Always wear a seat belt.
- Examine and maintain seat belts according to regulations and manufacturer recommendations.
- Never jump from a moving piece of equipment. Remain in the cab with the seat belt secured.
- Wear seat belts **to** the job, **at** the job, and **from** the job.

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TECHNICAL SUPPORT
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Additional Seat Belt Resources

- MSHA/AEM Seat Belt Use on Mobile Equipment Report
  - https://www.aem.org/AEM/media/docs/Safety/Seat-Belt-Use-Mobile-Equipment.pdf
- Stay in the Cab & Keep it on
  - https://www.youtube.com/watch?v=NjHDUhWA6Lo
- Catalog of Training Products
  - https://arlweb.msha.gov/TRAINING/prodintr.htm
- NHTSA Expanding the Seat Belt Program Strategies Toolbox
  - https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/812341_seatbeltprogramstrategies.pdf

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STAKEHOLDER ROLES

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Stakeholder Roles

- Original Equipment Manufacturer (OEM)
  - Design, testing, manufacturing
  - Provide training materials and manuals
- Equipment Dealer
  - Interface between OEM and mine operator
- Regulatory Agencies
  - Enforce regulations
  - Distribute safety and awareness material
- Mine Operator
  - Implement and enforce policies and procedures
- Equipment Operator
  - Has the ultimate decision whether or not to use the seat belt provided

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POTENTIAL SOLUTIONS

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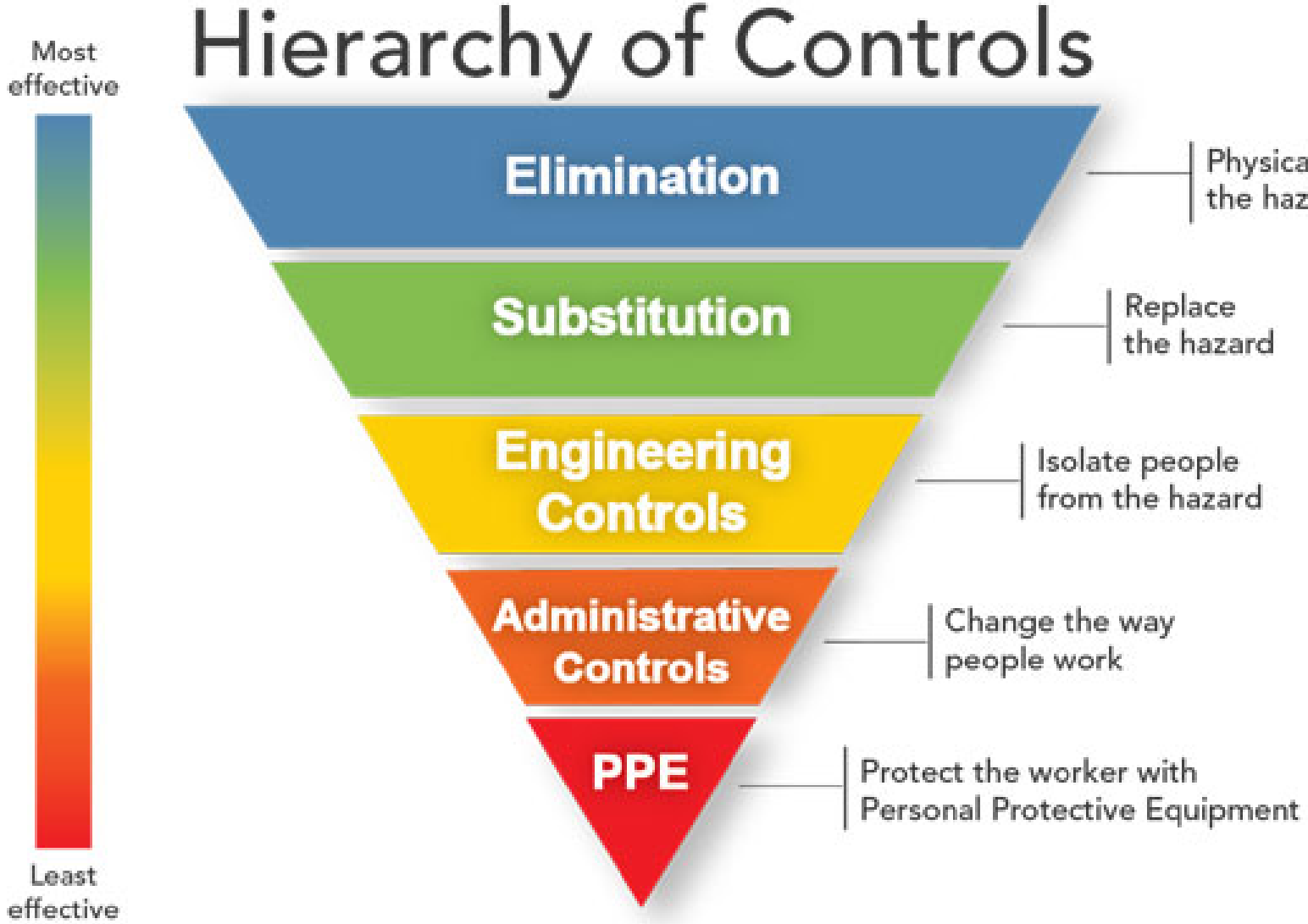
Hierarchy of Controls



Source: NIOSH

Administrative Control Solutions

- Passive warning devices
  - Nuisance alarm, warning lights
- High visibility and rigid seat belts
- Remote telematics
- Training and education
- Regulations, policies, procedures
- *Advantages*
  - Ease of implementation and training
  - Requires minimal resources and cost
- *Disadvantages*
  - Ineffective for equipment operators who refuse to wear seat belts

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Engineering Control Solutions

- Active control interlocks
  - Seat switch
  - Ignition switch
- *Advantages*
  - Difficult to defeat
  - Requires seat belt usage to operate machine
  - Minimal management oversight
- *Disadvantages*
  - Possible unintended consequences
  - Design complexity may increase cost

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SEAT BELT SAVES

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Articulated Haul Truck

https://arlweb.msha.gov/Alerts/Seat%20Belt%20Save.pdf

Water Truck

https://www.msha.gov/sites/default/files/Alerts%20and%20Hazards/Surface-Truck-Feb15.pdf

Front End Loader

BEST PRACTICES

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Best Practices for Trainers

- Suggest implementation of a “condition of employment” seat belt policy
  - Zero tolerance for nonuse or misuse
- Provide effective training
  - Orientation programs that set expectations of seat belt use
  - Personal stories to engage the miners
  - Stickers, handouts, best practice cards
  - Meaningful incentives
- Ensure miners understand that seat belts are proven to save lives and they are ultimately responsible for buckling up

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