Laurentian University
Université Laurentienne

Group for Research in Injury Prevention (GRIP)

GRIP

Visibility Project Fact Sheet

Haulage Truck Visibility Assessment

OBJECTIVE:
To determine line of sight from the operator's position and the benefit of a camera addition.

Background

Mining haulage trucks continue to be involved in accidents during both underground and surface haulage operations. Vehicle operators are unable to see areas around the vehicle which are critical for safe operation. Mirrors alone have not been able to improve vision to areas associated with poor line of sight. Additional systems such as radio transmitters and receivers, proximity detecting devices and global positioning systems have also been inadequate in providing the required feedback.

A computer simulation program, classic JACK, was used to evaluate line of sight from the operating position of the haulage truck. The benefits of cameras were also evaluated.

Methodology

A Visibility Audit was used to quantify overall visibility around the haulage truck and to provide specific data for each machine component. The research team also developed a Target Audit to identify specific tunnel locations, in the mine, which are obstructed by the vehicle design. The simulated tunnel (10 m. width) was divided into zones related to areas the operator would view when looking forward, to the right and left side of the vehicle and to the back of the vehicle. Data was collected for three heights corresponding to ground obstacles, pedestrian targets and overhead hazards. Analysis was performed at the critical stopping distance to determine if there was a sightline, from the operator's position, to the specified "targets".

Applications

- Line of sight to critical areas around the haulage truck can be determined for any driving scenario and operator posture.
- Recommendations were provided to the mining industry in order to improve line of sight via retrofit design modifications and the use of aids such as cameras
- Feedback was also provided to equipment manufacturers

For more information

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