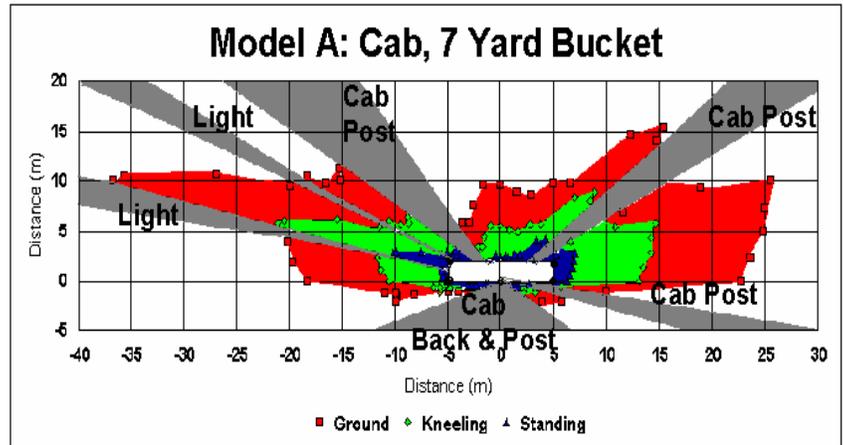## Visibility Project Fact Sheet

Line of Sight Assessment - 1

OBJECTIVE: To investigate operator line of sight (field method) from underground mining vehicles.

Model A: Cab, 7 Yard Bucket

Background

Data from 1986-2001 published by the Mines and Aggregates Safety and Health Association found that 15.4% of all load haul dump, LHD, accidents were due to impaired visibility (striking other vehicles, walls and pedestrians). Upon recommendations from two Coroner's Juries, an investigation into the visibility from the LHD operator's compartment was undertaken.

However, no consistent criteria or method existed for evaluating line of sight around underground mining vehicles. Existing methods outlined in ISO, SAE and FERIC standards were not immediately applicable to testing in an underground mine environment due to limited space. As a result, the research team utilized aspects from several of these methods in order to develop a new method for evaluating line of sight.

Methodology

Using an adapted FERIC line-of-sight method, primary causes of restricted visibility were identified (i.e. cab posts, light posts, bucket lip, boom hoses, engine cover, wheel well covers, remote box, fire extinguisher).

A summary of the data collection protocol is outlined below:
1. Establish a point of origin based on the operator's position
2. Position a light filament in the cab of the vehicle (represents operator's eye position)
3. Mark 1m increment measurement sites around the machine to create a rectangle grid
4. Record the height, from ground, where the light is visible, at each measurement site (record machine feature resulting in line of sight blockage)

Data collected in the field is used to create a line of sight diagram (figure above).

Applications

- The field line of sight method can be used to identify the primary causes of restricted and impaired visibility
- This method can also be used during safety demonstrations to illustrate the hazard of impaired visibility in an underground mine environment
- Shadow diagrams can be used to clearly illustrate the machine components resulting in impaired visibility. Manufacturers can use this information when considering design changes.

For more information

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