MAI-2003-22

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Metal and Nonmetal Mine Safety and Health

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Dimension Stone)

Fatal Powered Haulage Accident

October 30, 2003

Grindstone
Classic Stone LLC
Port Hope, Huron County, Michigan
Mine I.D. No. 20-03160

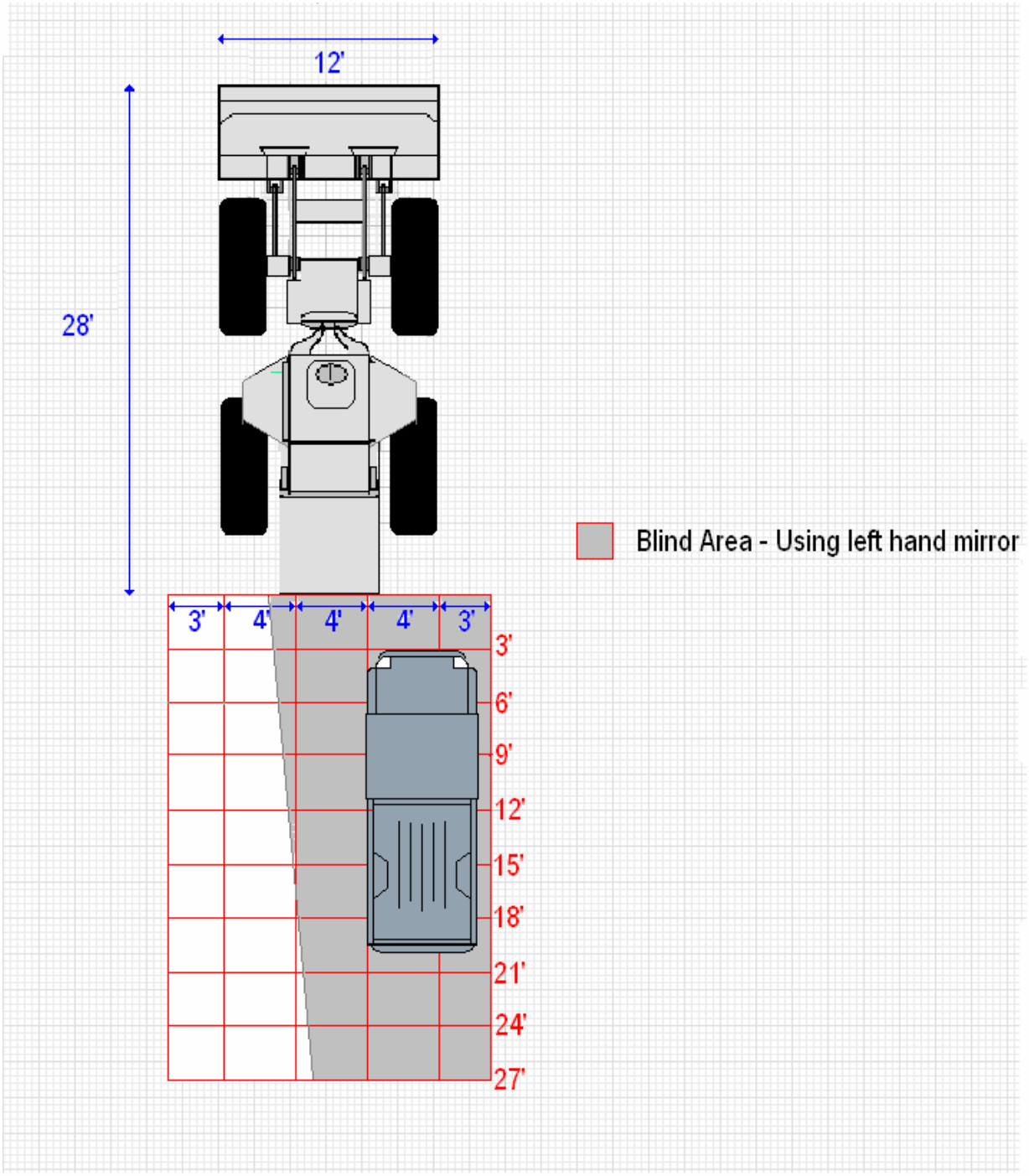
Investigators

Stephen W. Field
Mine Safety and Health Inspector

Ronald Medina
Mechanical Engineer

Jon A. Montgomery
Mine Safety and Health Specialist

Originating Office
Mine Safety and Health Administration
North Central District
515 West First Street, Room 333
Duluth, MN 55802-1302
Michael Hancher, Acting District Manager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Blind Area - Using left hand mirror

OVERVIEW

On October 30, 2003, Bradley T. Talaski, equipment operator, age 22, was fatally injured when a front-end loader backed into the pick-up truck he was operating. The loader operator was traveling on a dead end, single lane, dirt mine road to check a fox trap.

The accident occurred because the loader operator was unaware that the pick-up truck was located directly behind the loader. He looked over his left shoulder, placing the pick-up truck in a blind area.

GENERAL INFORMATION

Grindstone (pit), a surface, dimension shale, landscape stone operation, owned and operated by Classic Stone LLC, was located at Port Hope, Huron County, Michigan. The principal operating official was Christopher R. Deering, general manager/president. The mine was normally operated one, 8-hour shift, five days per week. Total employment was two persons.

Shale was drilled and blasted, then mined with an excavator. The material was separated using a forklift, front-end loader, or by hand. The landscape stone was placed on pallets and loaded onto over-the-road flatbed trucks with a forklift. The shale rubble was loaded into over-the-road haulage trucks with a front-end loader. The finished products were used locally in the construction industry.

The last regular inspection of this operation was completed on May 15, 2003. Another inspection was conducted following this investigation.

DESCRIPTION OF ACCIDENT

On the day of the accident, Bradley T. Talaski (victim), reported for work at 6:50 a.m., his normal starting time. Daniel D. Musolff, mechanic/equipment operator, started the front-end loader to warm it up, while two over-the-road haulage trucks waited to be loaded with shale rubble. Talaski stayed in the scale house while the loader warmed up.

At about 7:30 a.m., Musolff loaded the first truck and traveled in the loader to the west side of the pit to load the second truck. Before he loaded the truck, he went on a dead end road to the northwest corner of the pit to check a fox trap. Talaski followed in his pick-up truck, but Musolff was unaware that he had left the scale house and was behind the loader.

When Musolff came to the end of the road, he could see from the loader's cab that the fox trap was empty. He looked over his left shoulder, started to back up, felt the back end of the loader rise upwards, and stopped. After Musolff realized that he had backed over the victim's pick-up truck, he immediately pulled forward, exited the loader, and called 911 on his cell phone.

Rueben C. Saldana, driver of the truck waiting to be loaded, was on the bench below the accident site. He saw Talaski driving his truck behind the loader and witnessed the accident. Saldana went to the scene and called 911 on his cell phone.

At 8:45 a.m., a local doctor pronounced the victim dead at the scene. Death was attributed to crushing injuries to the chest.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 9:20 a.m. on October 30, 2003, by a telephone call from Christopher R. Deering, general manager/president, to Donald Stefaniak, mine safety and health inspector. An investigation began on the same day. An order was issued pursuant to Section 103(k) of the Mine Act to ensure the safety of miners.

MSHA's accident investigation team conducted a physical inspection of the accident site, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

DISCUSSION

Location of the Accident

The accident occurred on a dead end, single lane, dirt mine road located in a field at the northwest corner of the pit. The road was approximately 20-30 feet wide and 100 yards long. The weather conditions at the time of the accident were clear and dry.

Front-end Loader

The 1988 Kawasaki wheel loader, Model 110Z2, had an articulated frame and was powered by a six-cylinder, 425 horsepower, Cummins, Model KT19C, turbocharged diesel engine. The operating weight of the loader was approximately 94,000 pounds. The transmission had three forward and three reverse speeds, and a neutral position. No defects were found with the headlights, horn, and front and rear wipers. The throttle system was evaluated and no defects were found.

Brakes

The loader was equipped with air-over-hydraulic, caliper-disc service brakes on all four wheels. The service brake could be applied using either of two pedals, one on each side of the steering column. Pushing the left side pedal also engaged the transmission in neutral. The parking brake consisted of a spring applied, pneumatically released, driveline drum brake. All the service brake discs were clean.

Service brake and parking brake tests were conducted on a grade with a fully loaded machine. The service brake stopped and held the loader when either the brake pedal or brake/neutralizer pedal was pushed. The parking brake also held the loader.

Back-up Alarm - The audible back-up alarm functioned when the gear selector was placed in reverse.

Steering - The steering wheel was mechanically linked to a steering valve. The steering valve controlled the hydraulic oil flow to the steering cylinders. No steering defects were found.

Mirrors - The operator's compartment was equipped with four convex rearview mirrors. Two were inside the compartment and two were outside. The two inside mirrors were 8 inches by 5 inches in size, and were located near the top of the windshield to the left and right of the operator. The two outside mirrors were 11-½ inches high and 8 inches wide, and were located on the left and right sides of the operator's compartment. The mirrors and window glass were clean.

Visibility Survey - Four figures showing the results of a visibility survey are included in Appendix C. Figures 1 and 2 show the blind spot area for a loader operator looking at the left outside mirror. Figures 3 and 4 show the area that can not be seen using any of the four mirrors. The right rear tire of the loader ran over the front left side of the pickup truck, indicating that the truck was behind the right side of the loader. This created a blind area for the loader operator who stated he was looking over his left shoulder.

Training and Experience

Talaski had a total of one year, 26 weeks, and three days as an equipment/backhoe operator. He had received training in accordance with 30 CFR, Part 46.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following causal factor was identified:

Causal Factor - The loader operator was unaware that a pick-up truck was located directly behind him when he backed up.

Corrective Action – Establish procedures that require smaller vehicles to maintain a safe distance from large mobile equipment until eye contact is made or approval obtained from the equipment operator. The procedures should also require that the equipment operators check all mirrors prior to moving equipment and ensure that all persons are clear. They should sound the horn to warn unseen persons that the equipment is going to move. All employees should be trained and knowledgeable regarding these procedures.

CONCLUSION

The accident occurred because the loader operator was unaware that the pick-up truck was located directly behind the loader. The loader operator did not use the rearview mirrors of the loader prior to backing up. He looked over his left shoulder, placing the pick-up truck in a blind area.

ENFORCEMENT ACTIONS

Order No. 6138781 was issued on October 30, 2003, under Section 103(k) of the Mine Act:

> A fatal accident occurred at this operation on October 30, 2003, when a 1990 Kawasaki 110Z-2 rubber-tired front-end loader backed into a pick-up truck. This order is issued to assure the safety of all persons at this operation. It prohibits all activity at the accident scene, located in the northwest corner of the quarry perimeter, until MSHA determines that it is safe to resume normal mining operations in the area. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations to the affected area.

This order was terminated on October 31, 2003, after the investigation into the accident was completed.

Approved By: Date: January 5, 2004

Michael Hancher
Acting District Manager
North Central District

APPENDIXES

A. Persons Participating in the Investigation

B. Persons Interviewed

C. Visibility Survey

APPENDIX A

Persons Participating in the Investigation

Classic Stone LLC

Christopher R. Deering	general manager/president
Daniel D. Musolff	mechanic/equipment operator

Kolar Construction

Rueben C. Saldana	truck driver/witness

Mine Safety and Health Administration

Stephen W. Field	mine safety and health inspector
Ronald Medina	mechanical engineer
Jon A. Montgomery	mine safety and health specialist

APPENDIX B

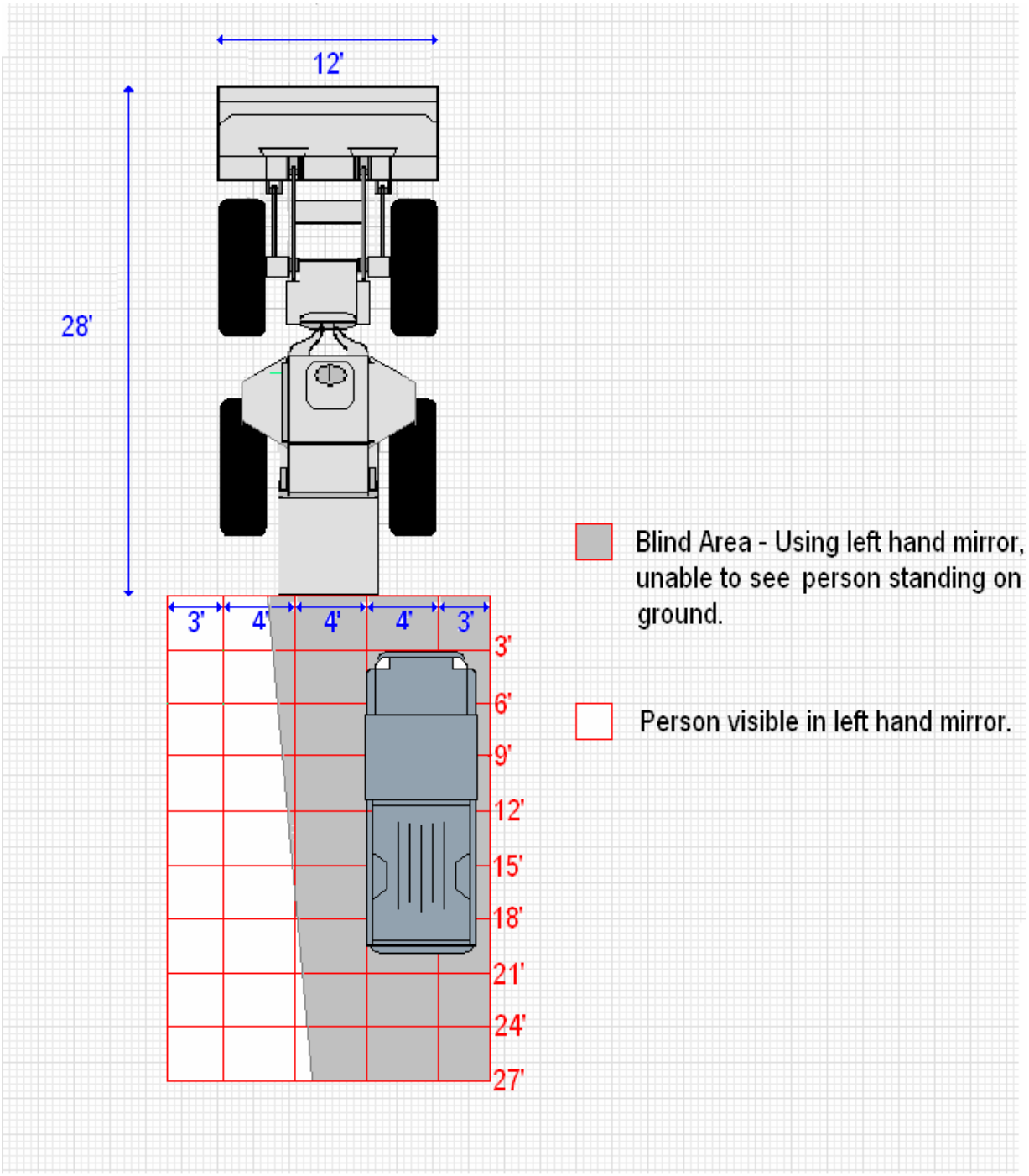
Persons Interviewed

Classic Stone LLC

Christopher R. Deering	general manager/president
Dennis J. Duncan	mechanic/equipment operator

Kolar Construction

Rueben C. Saldana	truck driver/witness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Blind Area - Using left hand mirror, unable to see person standing on ground.
Person visible in left hand mirror.

Figure 1

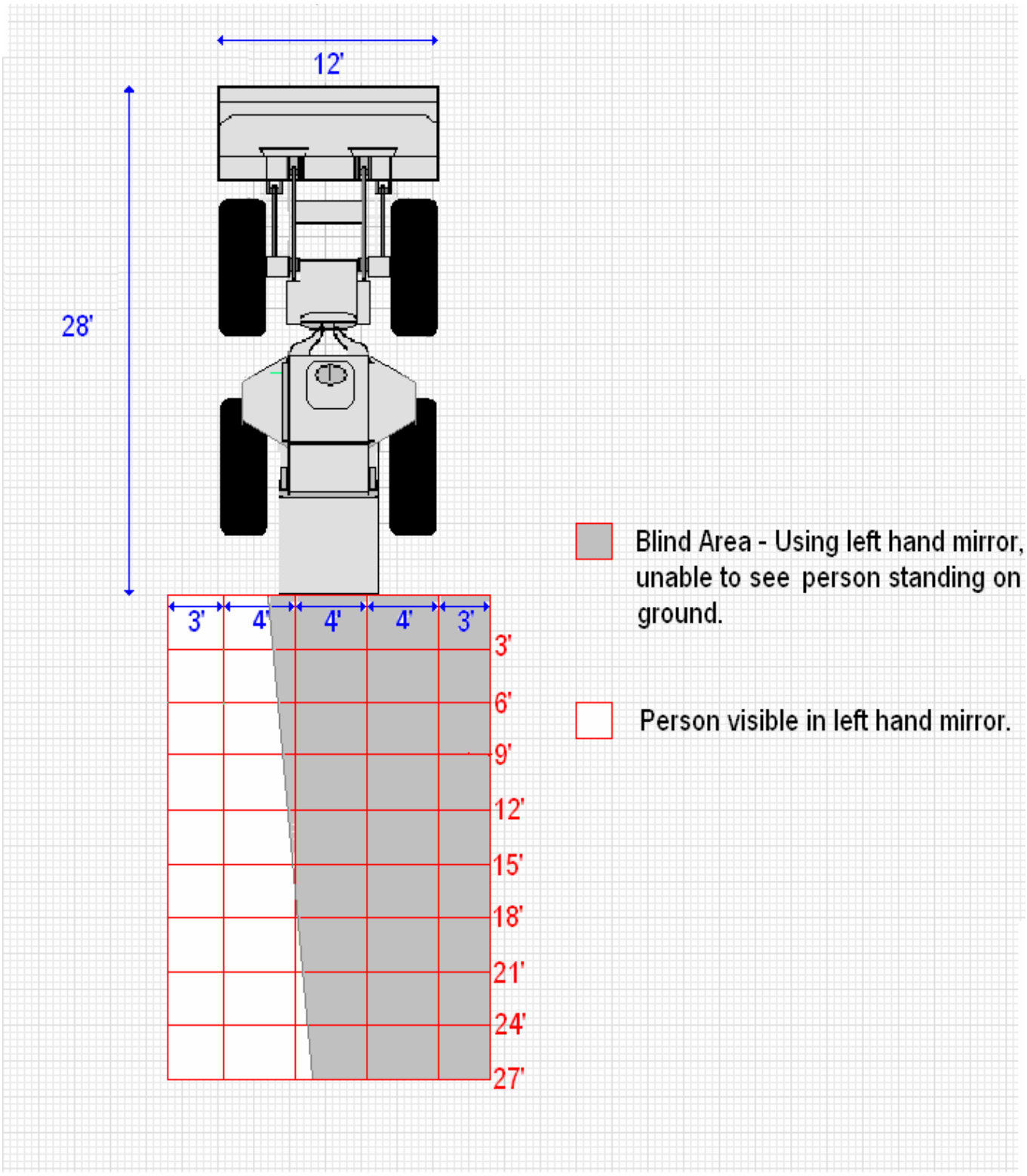
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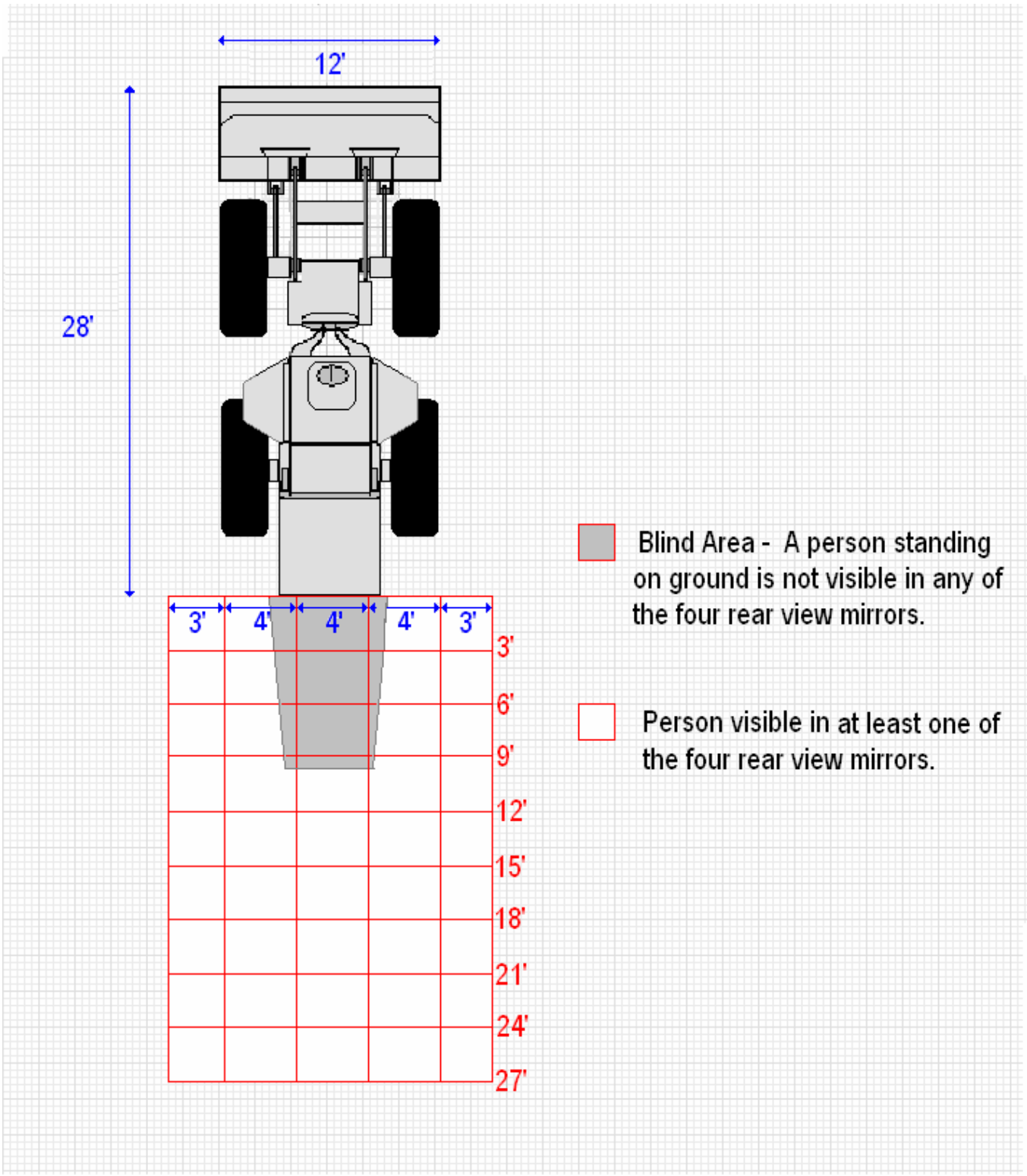
Figure 2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Blind Area - A person standing on ground is not visible in any of the four rear view mirrors.
Person visible in at least one of the four rear view mirrors.

Figure 3

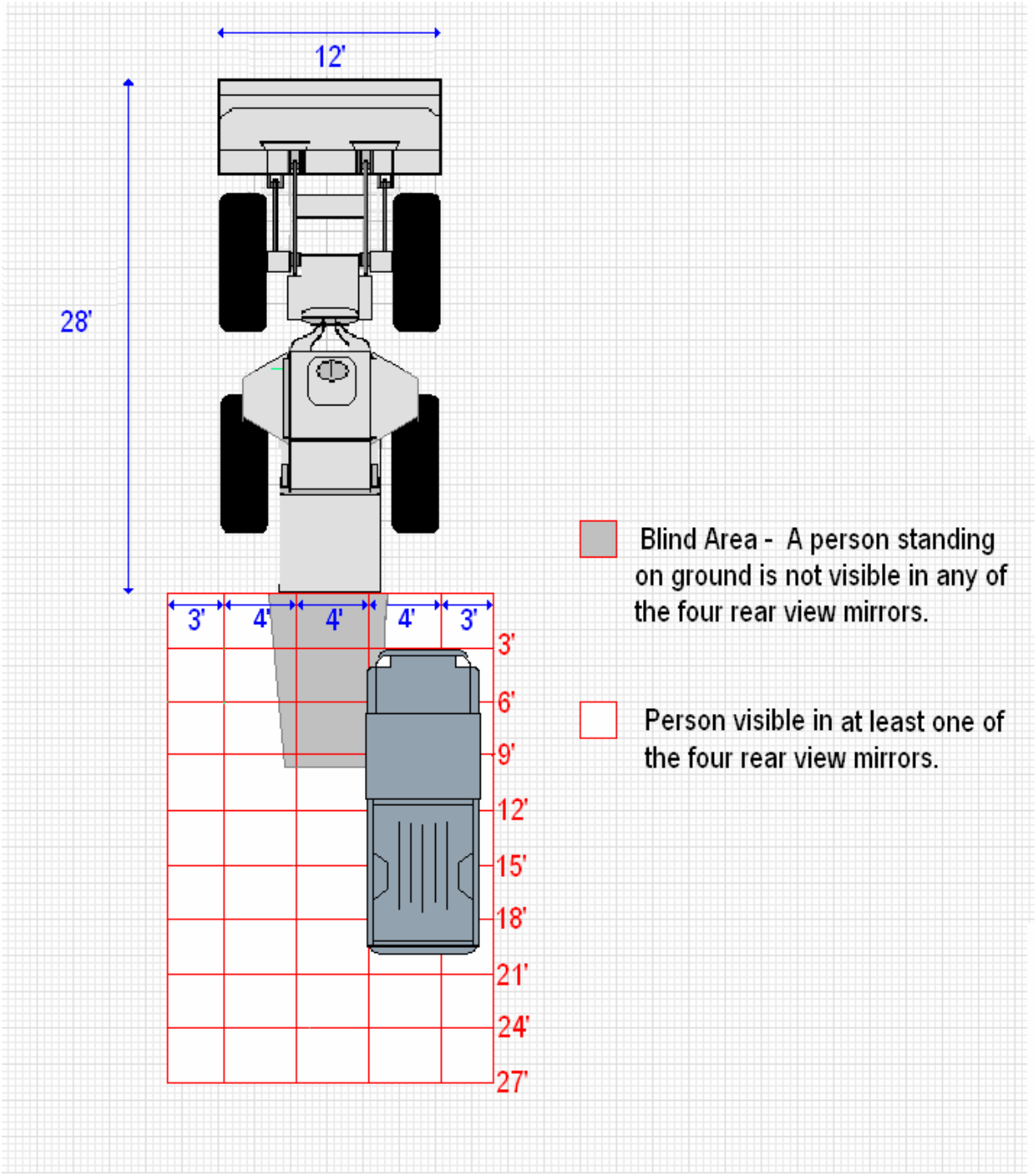
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Figure 4