

*This presentation is for illustrative and **general** educational purposes only and is not intended to substitute for the official MSHA Investigation Report analysis nor is it intended to provide the sole foundation, if any, for any related enforcement actions.*

GENERAL INFORMATION

Coal Mine Fatal Accident 2003-17



Operator:	Bledsoe Coal Corporation
Mine:	Beechfork Mine
Accident Date:	June 20, 2003
Classification:	Powered Haulage
Location:	District 7, Leslie Co., Kentucky
Mine Type:	Underground
Employment:	91
Production	4,000 tons/day

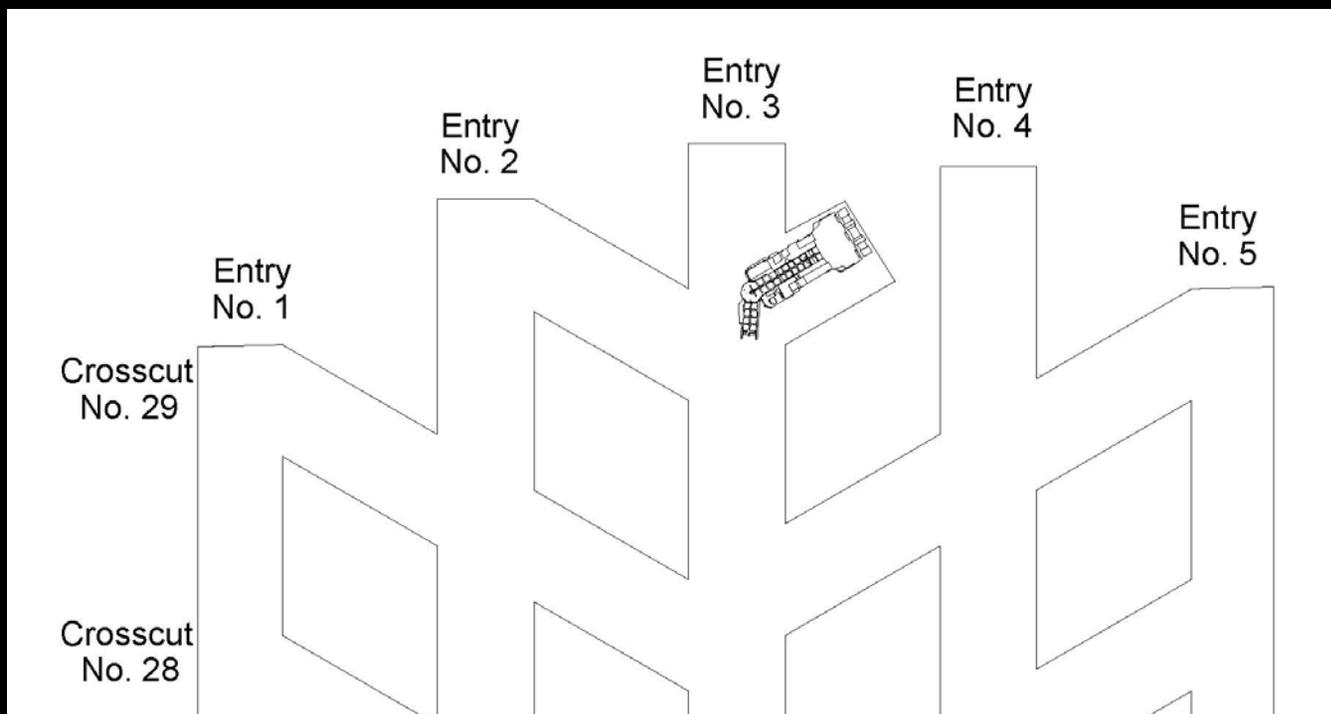
OVERVIEW

Coal Mine Fatal Accident 2003-17

- On June 20, 2003, a 32-year old a third shift section foreman with 13-years mining experience, was fatally injured when he was inadvertently ran over by a S&S 484 battery-powered rubber-tire scoop.
- There were no eyewitnesses to the accident.
- The investigation revealed that the lights provided for the scoop had been relocated, only two of the four lights provided were operative, and there were no reflectors on the front and rear of the scoop.
- The scoop operator's field of vision was through a 10-½ inch opening between the canopy and the top of the scoop frame.
- The victim was located in a blind spot, opposite the operator's compartment, as the scoop was turned into the crosscut.

ACCIDENT DETAILS

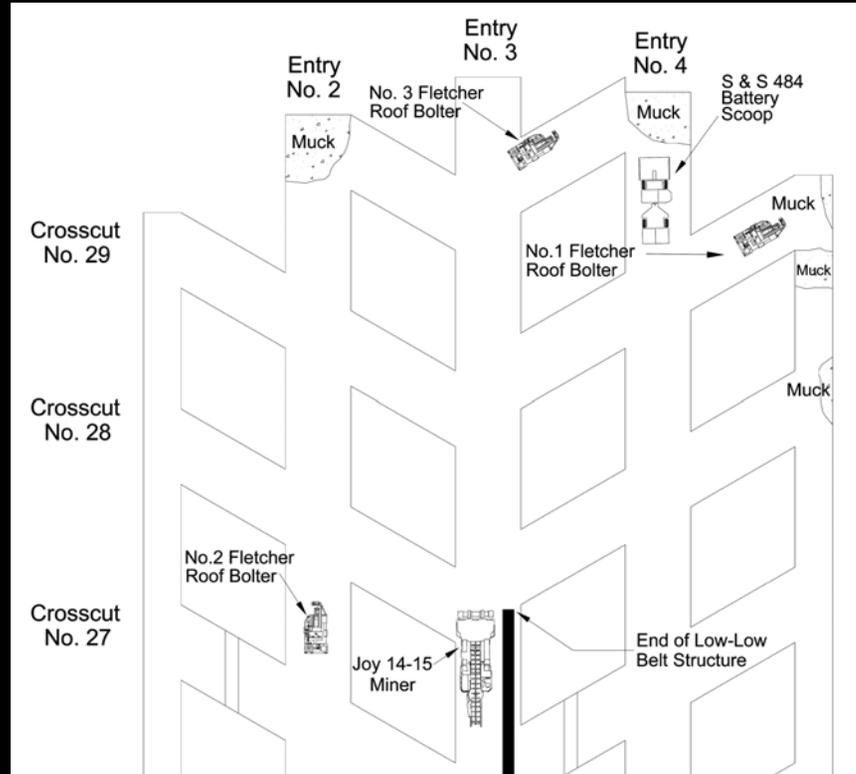
Coal Mine Fatal Accident 2003-17



- Coal was being mined using a remote-controlled continuous mining machine with an attached Long-Airdox mobile bridge haulage system.
- During this time, the victim assisted with hanging curtain for the No. 3 Right working place at crosscut No. 30.
- The victim was last seen at approximately 12:45 a.m. walking toward the No. 2 working place, past the front mobile bridge carrier operator.

ACCIDENT DETAILS

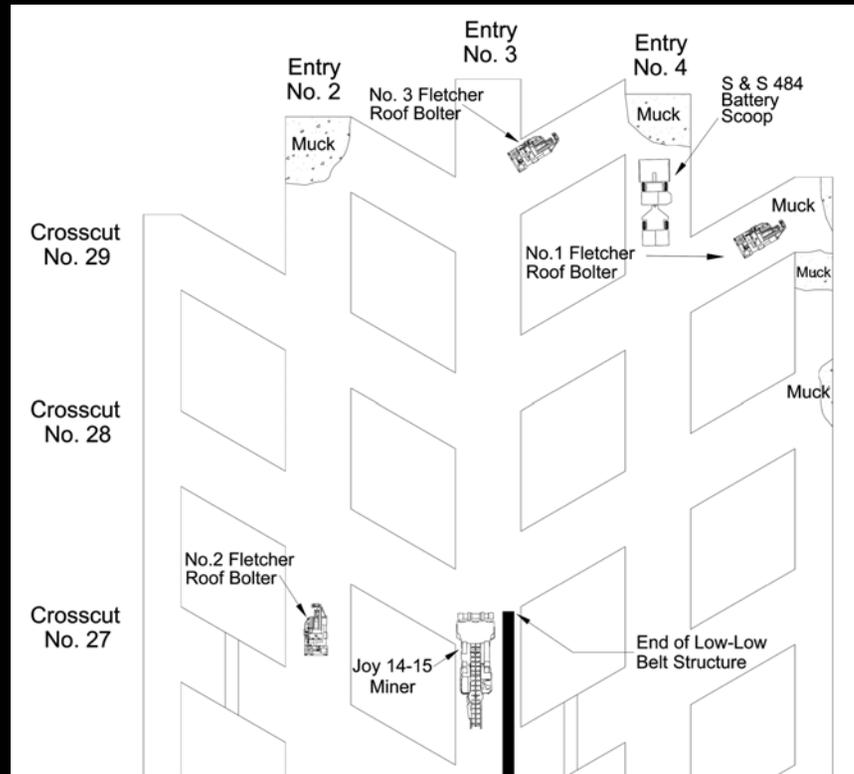
Coal Mine Fatal Accident 2003-17



- After the mining cycle was completed, a belt set-up was needed to enable the continuous haulage equipment to reach the working places.

ACCIDENT DETAILS

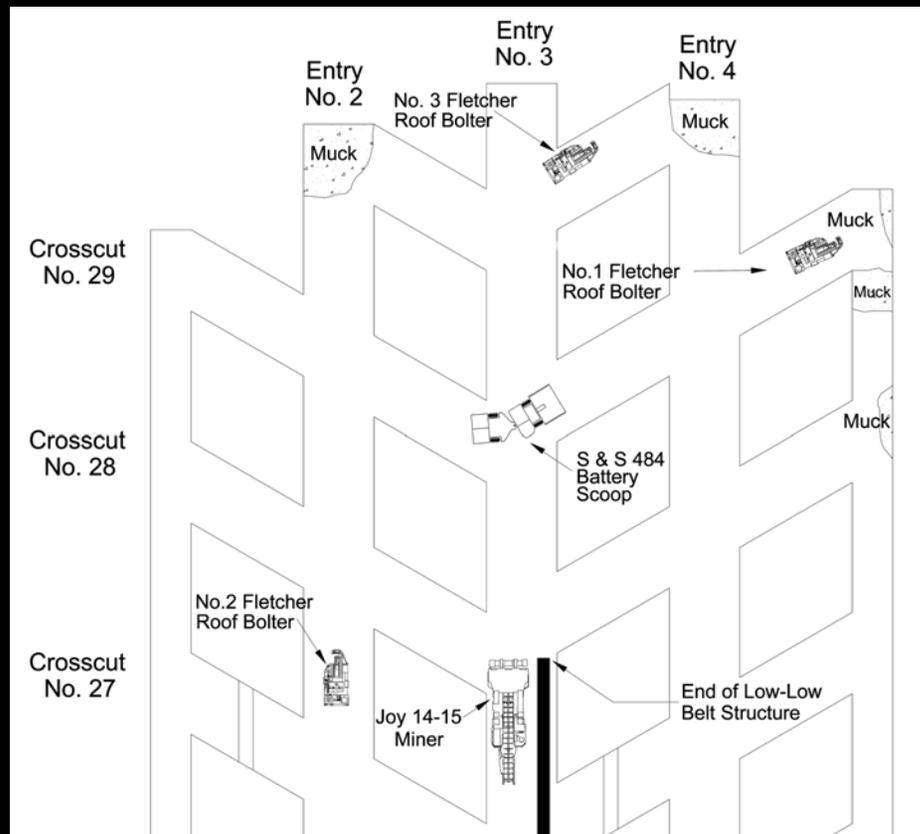
Coal Mine Fatal Accident 2003-17



- A battery-powered scoop was then trammed, bucket first, into the No. 4 entry working place with conveyor belt to be used in the belt set-up.
- The continuous mining machine was trammed to just outby the end of the low-low belt conveyor structure.

ACCIDENT DETAILS

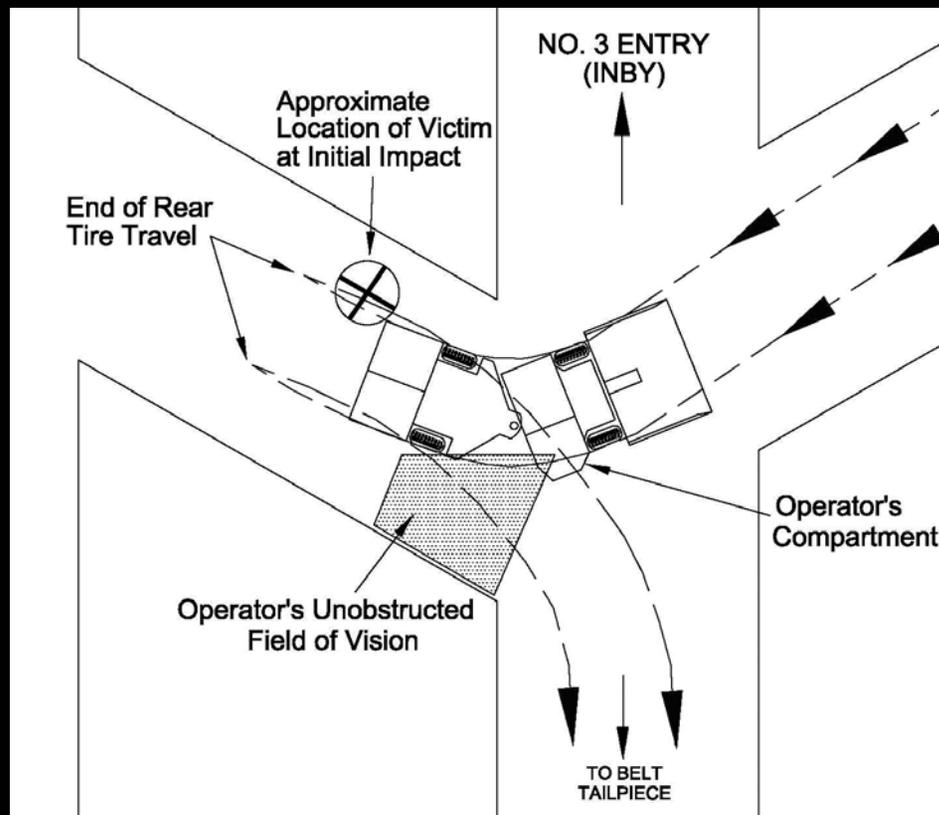
Coal Mine Fatal Accident 2003-17



The scoop was then backed, battery-end first, from the No. 4 entry through crosscut No. 29 to a point between the Nos. 2 and 3 entries, where it was turned and trammed outby to the low-low belt tail-roller.

ACCIDENT DETAILS

Coal Mine Fatal Accident 2003-17



- As the scoop turned into the crosscut, the section foreman was run over by the battery-end of the scoop.
- The scoop operator was not aware of the accident at this time, as the victim was located in a blind spot.

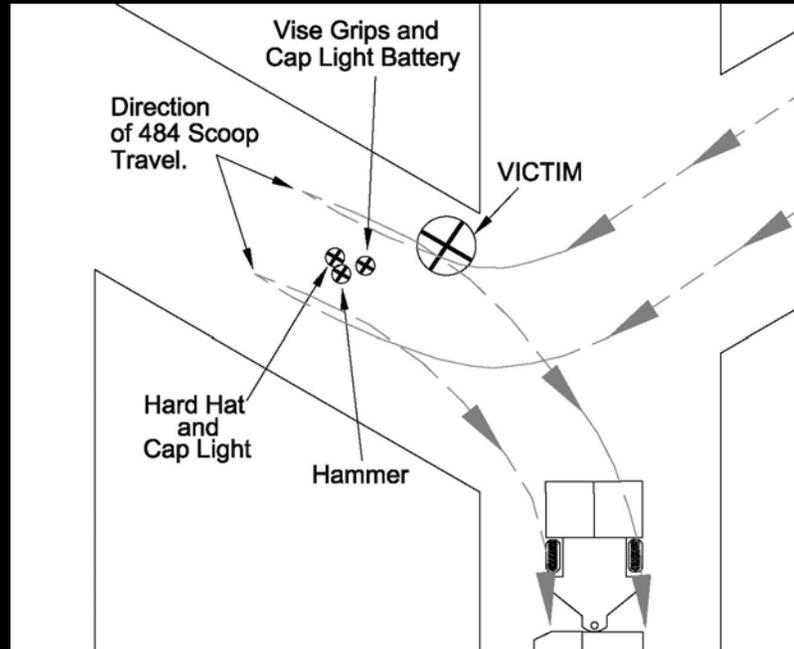
ACCIDENT DETAILS

Coal Mine Fatal Accident 2003-17

- At approximately 1:45 a.m. the scoop was trammed inby along the No. 3 entry and turned, right, into crosscut No. 29, at which time he saw McIntosh laying on the mine floor between No.'s 2 and 3 entries.
- A nearby EMT examined the victim for vital signs and found none.

PHYSICAL FACTORS

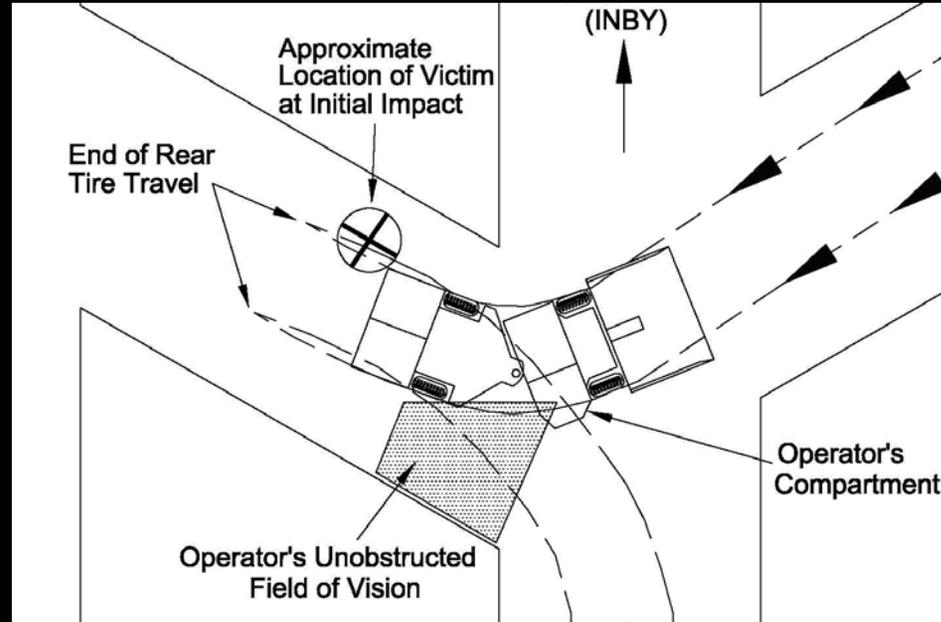
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- The mine height ranged from 48-52 inches at the accident site.
- Scoop tire tracks indicated that it traveled battery-end first into the crosscut for a distance of approximately 16 feet.
- The point of the first impact was approximately thirteen feet within the crosscut.
- Interview statements indicated that the scoop entered this area once.

PHYSICAL FACTORS

Coal Mine Fatal Accident 2003-17



- Crosscuts were turned at 60-degree angles, left and right out of the belt entry. Also, centerlines for crosscuts to the right of the belt were offset ten feet inby those to the left of the belt entry.
- The scoop had to make an acute right turn as it crossed the entry and into the crosscut. This would have obscured the scoop operator's vision along the inby side of the crosscut as the battery-end of the scoop entered the crosscut.

PHYSICAL FACTORS

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- The scoop panic bar shutdown, parking brake, service brake, and tram controls were operating properly.
- The lights on the battery-end of the scoop had been relocated from their approved position, from the bottom of the frame to the top of the frame.
- One front and one rear headlight, both on the operator's side, were inoperable.
- Once the lights were repaired and made operative, the location of the battery-end headlight on the operators' side emitted a glare off a 3-inch high tire fender, located directly in front of the light. This would be discomforting/distracting to the machine operator.
- There were no reflectors on the front and rear of the scoop, as required in the approval.

PHYSICAL FACTORS

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- The scoop was equipped with a canopy for the operator's compartment.
- The scoop operator stated his field of vision while traveling battery-first was directed along his side of the machine toward battery end and he could see the outby corner of the crosscut.
- In this mining height the scoop operator's normal body posture would be in a reclining position.
- The view over the top of the scoop was through a 10½-inch opening between the canopy and the top of the scoop frame. However, the top of the scoop batteries were 7½ inches higher than the top of the scoop frame, further obstructing the operator's field of view. This was caused by metal flanges on both sides of the battery tray that held the batteries, preventing the battery tray from seated down into the scoop frame.

HUMAN FACTORS

Coal Mine Fatal Accident 2003-17

- There were no eyewitnesses to the accident.
- The reason for the victim's presence at the accident location could not be ascertained during the investigation.
- The victim's cap lamp was found in the off position. The cap lamp was tested after the accident and was found to be operative.
- Lack of lighting on the victim, as well as inadequate lighting and reflective material on the scoop, may have lessened the awareness of both the victim and the scoop operator regarding each other's location.
- The victim had received the required training in accordance with Title 30 CFR, Part 48.
- Noise surveys conducted during the accident investigation indicated that the approaching scoop could be heard over the noise generated by the roof-bolting machines.

ROOT CAUSE ANALYSIS

- Causal Factor: The lights provided for the battery-end S&S 484, Battery-Powered Scoop, Serial Number 484-1543, MSHA Approval Number 2G-2831-5, had been relocated without an MSHA approved Field Modification Change.
- Corrective Action: Lights should be installed as approved. Such components may only be relocated after a Field Modification Change is evaluated and approved by MSHA. Operators should apply for such approvals when considering improvements to mining equipment.

ROOT CAUSE ANALYSIS

- Causal Factor: Two of the four lights provided for the S&S 484, Battery-Powered Scoop, Serial Number 484-1543, MSHA Approval Number 2G-2831-5, were not being maintained in an operative condition. The two lights were located on the operators' side, front and rear of the scoop.
- Corrective Action: Lights installed under the MSHA Approval Number 2G-2831-5 shall be well maintained and kept in an operative condition.

ROOT CAUSE ANALYSIS

- Causal Factor: Red light-reflecting tape or reflectors required by MSHA Approval Number 2G-2831-5 for the S&S 484, Battery-Powered Scoop, Serial Number 484-1543, were not provided.
- Corrective Action: Red light-reflecting tape or reflectors (a minimum area of 10 square inches) shall be installed and maintained on the S&S 484 Scoop as required by the approval.

ROOT CAUSE ANALYSIS

- Causal Factor: Restricted field of vision by the equipment operator and the awareness of the equipment location and route of travel by the victim.
- Corrective Action: The operator shall modify the metal flange present on both sides of the battery tray to allow it to be completely seated down into the frame of the scoop. Safety talks were conducted with all miners at the mine site. Emphasizing the urgency of the awareness of personal interaction with mobile equipment, whether being on foot or being the equipment operator.

CONCLUSION

- The third shift section foreman, Jonathan W. McIntosh received fatal crushing injuries when he was inadvertently ran over by the S&S 484 battery-powered, rubber-tired scoop, while the scoop was being trammed into the No. 29, 3 left crosscut, on the 002 MMU.
- The victim's activities at the time of the accident could not be ascertained.
- The accident occurred due to the convergence of several factors existing at the time of the accident:
 - The mine operator failed to maintain the 484 S&S Battery-Powered Scoop, as required by the MSHA Approval Number 2G-2831-5. The lights provided for the scoop had been relocated, only two of the four lights provided were operative and there were no reflectors on the front and rear of the scoop.
 - The scoop operator's field of vision.
 - The scoop operators lack of knowledge as to the location of the victim in the crosscut at the time of the accident.

ENFORCEMENT ACTIONS

104(a) Citation for a violation of 30 CFR 75.503, (Part 18.81 and 18.20(g)): the S&S 484 Battery-Powered Rubber-Tired Scoop, Serial Number 484-1543, approved under MSHA Approval Number 2G-2831-5, is not maintained in permissible condition.

- The mine operator has failed to submit to MSHA a Field Modification of approved permissible equipment as required in Title 30 CFR, Part 18.81.
- The mine operator has relocated two battery-end lights from their original approved (alternate) location as specified in the MSHA Approval, to the top of the scoop frame. Also, as required in Title 30 CFR, Part 18.20(g); (1) Two of the four lights provided, one on the front and one on the rear of the operators' side, were inoperative. (2) There are no reflectors or red light-reflecting tape (a minimum area of 10 square inches) provided at two separate locations on both the front and rear of the scoop.

BEST PRACTICES

- Ensure that personnel maintain themselves at a safe distance from moving machinery, particularly near active roadways.
- Maintain clear visibility with all personnel in your vicinity when operating mobile equipment.
- Never position yourself in an area or location where equipment operators cannot readily see you.
- Maintain equipment in safe operating condition, in accordance with approval requirements.