

engages in a mining process known as "mountaintop removal," in which successive layers of materials that overlie three coal seams are fractured by blasting and removed, thereby permitting extraction of the exposed seams. The topmost layer of material is called the "overburden." Material lying between the seams is called the "innerburden." Blasting the innerburden is called a "bottom shot." On December 19, 1983, Hobet was bottom shooting to remove the innerburden covering the deepest of the coal seams. The innerburden consisted of sedimentary slate ranging in depths of up to 12 feet. The drilling pattern consisted of 91 bore holes, 7-7/8 inches in diameter and drilled on 14-foot centers. The holes ranged in depth from 3-1/2 to 12 feet.

A five-member crew, including certified blaster David Pauley, was responsible for loading and detonating the explosives. Pauley selected the blasting caps and determined the blasting pattern. Under Pauley's direction, the crew placed blasting caps and primers in the bore holes, then loaded the bore holes with pre-measured waterproof "wet bags" of an ammonium nitrate fuel oil mixture ("ANFO"). Fifteen-pound bags were loaded into the shorter bore holes, while either one or two 40-pound bags were loaded into the deeper holes. The holes were stemmed with drill cuttings and the blasting cap wires were connected in series to a lead wire.

The acting shot foreman had personnel and equipment withdrawn to a location behind a spoil bank at a distance in excess of 1,100 feet from the blasting site. Blasting crew member Barton Lay ran out a spool of lead wire a distance of 500 feet, spliced the end to a second spool and ran it out another 500 feet. He then connected the lead wire to the shooting battery. The shooting battery was positioned in front of the bucket of a front-end loader, near an open space between two parked vehicles. Pauley, Lay, and another crew member remained in the open near the shooting battery in order to detonate and observe the blast. After the shot was detonated, two rocks were observed coming from the center of the blast. The three men sought cover between the parked vehicles. Lay was struck by one of the rocks as it fell between the trucks, approximately 1,115 feet from the blasting pit. Lay sustained severe permanent injuries, including paralysis below his chest. Following an investigation of the accident by the department of Labor's Mine Safety and Health Administration, Hobet was issued a withdrawal order under section 107(a) of the Mine Act and a citation under section 104(a). The order and citation each alleged a violation of section 77.1303(h) and each contained the following identical description of the violation:

[A] practice prevailed of the blasting crew being permitted to position themselves in the open

blasting area and not under suitable blasting shelters to protect the miners endangered from flyrock. Also, the blasting area from which the

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blasting was detonated, ranged in distances from approximately 700 to 1,115 feet from the material to be blasted and on numerous occasions the flyrock extended to the area where the blast was detonated and beyond. The order was terminated and the citation was abated after additional training for blasting personnel was completed and a new blasting procedure was implemented. The new blasting procedure provided that blasts would be detonated and that all persons would be withdrawn at least 1,500 feet from the shot.

The judge concluded that the validity of the withdrawal order was dependent upon the existence of the alleged violation of section 77.1303(h). 7 FMSHRC at 1812-13. As to the violation, the judge considered the crucial issue to be whether Hobet had a practice "of blasting from an open area where flyrock could reasonably be expected to cause injury." 7 FMSHRC at 1813. He stated that, "evidence of many prior bottom shots throwing flyrock in excess of 1000 feet establishes a blasting area -- that is, an area in which flying material could reasonably be expected to cause injury -- in excess of 1000 feet." Id. He further concluded that Hobet did not clear or remove all persons from the blasting area before detonating shots. Id. The judge recognized that the number of bore holes and the shot pattern may affect the size and location of the blasting area and that these factors played some part in determining where miners positioned themselves before detonation. 7 FMSHRC at 1813.14. However, the judge stated that the evidence clearly established that Hobet followed a practice of blasting from an area which flyrock frequently reached and that it did not have or follow a plan that would ensure removal of miners from areas where flyrock reasonably could be expected. 7 FMSHRC at 1814.

We hold that the judge erred in concluding that the Secretary proved a violation of section 77.1303(h). On its face, section 77.1303(h) specifies alternative means for protecting miners from the threat of concussion or flyrock caused by blasting: Either all persons shall be cleared and removed from the blasting area or suitable blasting shelters shall be provided. To establish a violation of the standard based on a failure to clear and remove all persons from the blasting area, the Secretary must prove that an operator has failed to clear and remove all persons from the "blasting area," as that term is defined in section 77.2(f). This requires the Secretary to establish the factors that a reasonably prudent person familiar with mine blasting and the protective purposes

of the standard would have considered in making a determination under all of the circumstances posed by the blast in issue. The Secretary must then prove that the factors were not properly considered or employed. See, e.g., Magma Copper Co., 8 FMSHRC 656, 660 (May 1986); U.S. Steel Corp., 6 FMSHRC 2908, 2910 (August 1984); U.S. Steel Corp., 5 FMSHRC 3, 5 (January 1982); Alabama By.Products. 4 FMSHRC 2128, 2129 (December 1982).

An operator's pre-shot determination of what constitutes a blasting area is based not only upon the results of prior shots, but also depends upon a number of variables affecting the upcoming shot.

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These variables may include, but are not limited to, the amount and type of explosive used, the depth of the holes that constitute the shot, the topography, and the expertise and prior experience of the blaster. See Austin Powder Co., 5 FMSHRC 81, 123 (January 1983)(ALJ). 2/

Here, the Secretary failed to offer sufficiently specific evidence regarding Hobet's lack of consideration of the various factors that affected flyrock generation on December 19, 1983, or on previous occasions when Hobet blasted. The MSHA inspector stated that in the process of investigating the accident, he could not recall inquiring about or otherwise determining the composition of the material being blasted, the depth and diameter of the bore holes, or the amount of the explosives used, and the inspector did not ask Pauley whether he had considered these factors. I Tr. 130-31, 137-38. The inspector did offer his opinion that the blasting area on December 19, 1983, was in excess of 1 400 feet. I Tr. 130, 137, 139-40. The opinion was derived from Pauley's statement during the accident investigation that the furthest distance flyrock had traveled previously was in excess of 1,400 feet. I Tr. 139-40.

We conclude, however, that a determination of what constitutes a blasting area which is based solely upon a statement of the furthest past projection of flyrock is not sufficient to establish what reasonably might be expected in a given situation without also considering the appropriate variables that effect flyrock projection. Hobet, on the other hand, offered evidence which supports a finding that appropriate variables for determining the blasting area were considered by Hobet's employees prior to blasting. Pauley testified that between December 1979 and December 1983, he detonated approximately 1,880 shots at Hobet's No. 21 Surface Mine. 111 Tr. 149. He also testified that in his experience with shots like the one that caused the injury to Lay --that is, shots comprised of 91 bore holes, 7-7/8 inches in diameter on 14-foot centers, loaded with wet bags of ANFO and detonated with electric blasting caps .. he had never seen flyrock travel over 1,000 feet.

III Tr. 194. This testimony was not refuted. Considering the above factors, and the composition of the innerburden which he was shooting on December 19, 1983, Pauley testified that he expected flyrock to travel 150 to 200 feet. III Tr. 194-95.

2/ At the hearing, on both direct and cross examination, the inspector who issued the withdrawal order and citation identified similar variables that he believed should be considered by an operator in determining the blasting area. I Tr. 50-51, 126-27. Among the factors he identified were the composition of the material being blasted, the depth and diameter of the bore holes, the configuration of the shot, the amount of explosives used, whether bulk ANFO or wet bags were used. the delay pattern of the shot, and the amount of stemming in the bore holes.

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During oral argument before the Commission, counsel for the Secretary stated that if Hobet had taken the factors identified above into account prior to detonating individual shots and on that basis determined the blasting area, Hobet "would have achieved compliance with ... the regulation. O.A. Tr. 24. Pauley's undisputed testimony establishes that he did take those factors into consideration in determining the blasting area prior to detonating the shot on December 19, 1983.

Because the judge based his finding of a violation solely upon the distance flyrock previously had traveled and because substantial evidence is not present in the record that Hobet, in the December 19 blast or as a practice, failed to clear and remove all persons from the blasting area as required by 30 C.F.R. § 77.1303(h), the judge's decision is reversed and the order and citation are vacated. 3/

Ford B. Ford, Chairman

Richard V. Backley, Commissioner

Joyce A. Doyle, Commissioner

James A. Lastowka, Commissioner

L. Clair Nelson, Commissioner

3/ Given our disposition, we do not reach the question of whether Hobet, as a practice, failed to provide suitable blasting shelters.

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