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SOL (MSHA) V. ENERGY FUELS NUCLEAR
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FEDERAL MINE SAFETY & HEALTH REVIEW COMMISSION
WASHINGTON, D.C.
January 30, 1984
SECRETARY OF LABOR,
MINE SAFETY AND HEALTH
ADMINISTRATION (MSHA)

v. Docket No. WEST 81-385-M

ENERGY FUELS NUCLEAR, INC.

DECISION

This case involves an alleged violation of 30 C.F.R. § 57.6-116, a mandatory blasting standard. A Commission administrative law judge held that the operator, Energy Fuels Nuclear, Inc. (EFNI), did not violate the standard, and vacated the citation. 4 FMSHRC 1970 (November 1982)(ALJ). We granted the Secretary of Labor's petition for discretionary review. For the reasons that follow, we reverse. On September 9, 1980, Bryan Tate, a contract miner at EFNI's underground uranium mine, was injured in a blasting accident. A Department of Labor Mine Safety and Health Administration (MSHA) inspector issued a citation the following day after completing an accident investigation. The citation alleged a violation of 30 C.F.R. § 57.6-116, which provides:

Mandatory. Fuse shall be ignited with hotwire lighters, lead spitters, igniter cord, or other such devices designed for this purpose. Carbide lights shall not be used to light fuses.

On the day of the explosion, Tate drilled about 50 holes in the face and 20 holes in the rib. Working alone, he loaded the holes with explosives with full knowledge of the operator's requirement that two miners be present when loading explosives and lighting fuses. See 30 C.F.R. § 57.6-114. Before igniting the fuses, Tate lit a test fuse to determine how long it would be before the first fuse lit in the round

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detonated the explosives. Using either a propane or butane torch, 1/ Tate proceeded to apply the torch flame directly to the thermalite connectors that had been affixed to the ends of the safety fuses. 2/ This ignition procedure was contrary to EFNI's established policy that miners must ignite multiple fuses by using igniter cord linked to safety fuses by thermalite connectors. See also 30 C.F.R. § 57.6-114.

Although Tate believed that the test fuse indicated that he had 66 seconds remaining, the explosives in the first hole detonated sooner, knocking him to the ground. A 10-12 second delay in the firing of the second two holes, instead of the anticipated 4-5 seconds, permitted Tate to crawl around the corner before the remainder of the round went off. When the rest of the explosives detonated, Tate was injured by flying rock. 3/

The judge concluded that the Secretary did not establish a violation of the cited standard. He reached this result even though both parties had agreed at the hearing that the standard prohibits lighting of thermalite connectors with a torch, and even though the operator stated in its post-hearing brief that it did not deny the fact of violation. The judge construed the standard literally. He distinguished between thermalite connectors and safety fuses. Because he found that Tate used the torch to light the thermalite connectors and that the connectors in turn

1/ From the record it is not clear which type of torch was used, but the conflict is immaterial for purposes of our review.

2/ A thermalite connector is a small metal capsule about 1 to 1-1/2 inches long, filled with an ignition compound that burns with intense heat when ignited. One end of the thermalite connector is crimped onto a safety fuse. The other end has a lip that can be pressed down to secure igniter cord passed under the lip if multiple fuses are to be linked together. Igniter cord is a "fuse, cordlike in appearance, which burns progressively along its length with an external flame at the zone of burning, and is used for lighting a series of safety fuses in the desired sequence." 30 C.F.R. § 57.2. Igniter cord is marked at one-foot intervals, so a series of explosions can be detonated according to the burning rate of the cord. Thermalite connectors can be attached at different points along a length of igniter cord. The miner lights one end of the igniter cord and leaves the blasting area. The cord burns at a speed determined by the burning rate of the particular cord used, igniting each thermalite connector seriatim. The ignition of the compound in the connectors instantaneously ignites the safety fuses. 4 FMSHRC at 1970; Exh. P-2.

3/ The flying rock tore a hole in Tate's back about 3 inches wide and 1-1/2 inches deep. According to Tate, he tried to return to work the next day but was given three days off for disciplinary reasons.

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ignited the fuses, he concluded: "Using a ... torch to light the [thermalite connectors] may violate company policy, but it does not violate the regulation." In dicta, he observed that he would have found a violation if Tate had ignited the fuses directly with a torch. 4 FMSHRC at 1972.

Taking into account the intended purpose of section 57.6-116, we hold that the judge erred in concluding that Tate's use of a torch to light the thermalite connectors attached to the safety fuses did not constitute a violation. The purpose of section 57.6-116 is to accomplish fuse ignition in a safe manner. Safety fuse burns inside its cover. Consequently, there can be difficulty in determining if the fuse, rather than just the cover, has been lit and precisely when ignition of the fuse occurred. When a miner does not know with certainty whether, or for how long, a fuse is burning, he may fail to leave the blasting area in time. The fuse ignition devices specified in the standard accomplish safe and reliable fuse ignition by means of an intensely hot flame and a heat source that does not obscure or conceal evidence of the ignition "spit," a visible jet of flame that shoots out of the safety fuse at the moment its powder core is ignited. 4/ The evidence shows that use of an open-flame torch, such as that used in the present case, may obscure the ignition spit emitted by the safety fuse. Thus, ignition of a safety fuse by use of a torch defeats the purpose of the standard by preventing a miner from accurately determining when and if he has ignited the fuse.

4/ The problems attendant to ignition of safety fuses are described in Exhibit P-6, the E.I. duPont de Nemours and Co., *Blasters' Handbook*, 175th Anniversary Ed. (1977):

The powder core of safety fuse burns inside its wrapping and cannot be seen after the fire from the initial spit. Some brands emit smoke through the wrapping as the powder burns. Visual discoloration on the outside of the fuse is readily apparent; however, this may be some distance behind the point of the burning core. For this reason it is not a reliable indication of where the core is burning. The end spit is a jet of flame about two inches long that shoots out of the end of the fuse the moment it is lighted. It lasts at least a second and is followed by smoke which rises from the end of the fuse.

Here are some important reminders:

The fuse burns at the core and not at its cover. The cover may burn without the ignition of the core. When properly ignited, the core ignites with a jet of flame called the "ignition spit". This spit shows the core is lit. Practice ignition until you know the ignition spit. Persons who fail to recognize the ignition spit, or who are misled by the burning of the cover, have been killed or injured by trying to relight fuse which has been ignited.

Exh. P-6 at 121-22 (emphasis in original).

When a thermalite connector is crimped onto a safety fuse, the spit emitted upon ignition passes through the end of the thermalite connector. Therefore, as with the direct ignition of safety fuses, when igniting thermalite connectors attached to safety fuses it is essential that the ignition spit be observable and recognizable, and that it not be obscured or concealed by the ignition source. The record in this case indicates that application of the open-flame torch to the thermalite connectors could obscure the spit and result in uncertainty as to when and if the safety fuse ignited. Thus, in the present case, the precise hazard sought to be avoided by the standard is created by the miner's application of an open-flame torch to thermalite connectors attached to safety fuses. Keeping in mind that we are interpreting a mine safety standard, we conclude that on the facts of this case the judge erred in interpreting the standard too narrowly. Rather, we find that the miner's application of an openflame torch to thermalite connectors attached to the ends of safety fuses defeats the purpose and is contrary to the intent of 30 C.F.R. § 57.6-116. Therefore, on the facts of this case we find a violation. Accordingly, the judge's decision is reversed, the citation is reinstated, and the case is remanded for assessment of an appropriate civil penalty.

Rosemary M. Collyer, Chairman
Richard V. Backley, Commissioner
Frank F. Jestrab, Commissioner
L. Clair Nelson Commissioner

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