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MSHA V. WHITE PINE COPPER
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FEDERAL MINE SAFETY & HEALTH REVIEW COMMISSION
WASHINGTON, D.C.
May 12, 1983
SECRETARY OF LABOR,
MINE SAFETY AND HEALTH
ADMINISTRATION (MSHA)

v. Docket Nos. LAKE 81-106-RM
LAKE 81-171-M
WHITE PINE COPPER DIVISION,
COPPER RANGE COMPANY

DECISION

This penalty case arises under the Federal Mine Safety and Health Act of 1977, 30 U.S.C. § 801 et seq. (1976 & Supp. V 1981) ("the Mine Act"). It involves 30 C.F.R. § 57.3-20, which in part states, "Ground support shall be used if the operating experience of the mine, or any particular area of the mine, indicates that it is required." White Pine Copper Division, Copper Range Company ("White Pine") was issued a citation under section 104(a) of the Mine Act for an alleged violation of this metal/nonmetal standard. 30 U.S.C. § 814(a). The citation was issued because mining was being performed under unsupported roof in Unit 56 of the White Pine mine. Unit 56 has a roof composed of massive sandstone. It is White Pine's position that the massive sandstone roof in that unit does not require supplemental roof support such as roof bolts. Accordingly, White Pine began to mine a demonstration drift in Unit 56 in which it intended to roof bolt only as required (i.e., "as needed") by the particular roof conditions. In the remainder of the mine, White Pine continued its practice of uniform roof bolting. The citation involved in this case was issued in the bolting "as needed" demonstration drift. The administrative law judge held that White Pine violated section 57.3-20 and he assessed a penalty of \$250. 1/ The judge based his finding of a violation on two grounds. The first ground was that the condition of the unsupported roof in the particular area of the mine cited -- the demonstration drift -- required roof support. 3 FMSHRC at 2787. The second ground was that the "operating experience" of the White Pine mine also required roof support in the cited area, specifically uniform roof bolting. 3 FMSHRC at 2789.

1/ The judge's decision is reported at 3 FMSHRC 2782 (December

1981)(ALJ).

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We granted White Pine's petition for discretionary review and heard oral argument. 2/ For the reasons that appear below, we affirm the judge's finding of a violation. Our affirmance, however, is based solely on the first ground--that the condition of the mine roof in the cited demonstration drift required roof support. We do not concur in the judge's holding that the "operating experience" of the White Pine mine specifically required uniform roof bolting in that area.

We begin our discussion of this case with an historical overview of White Pine's mining operation. Preliminarily, we note that White Pine operates an underground copper mine approximately nine square miles in size. It extracts the copper ore from the ore body by room and pillar mining. 3/ Accordingly, as part of the mining process, White Pine utilizes pillars of ore as the primary means of roof support. Also, in mining by the room and pillar method White Pine generally employs one of two types of mining configurations. The first type is "full column" mining. Full column mining involves mining through the upper sandstone. It has a roof composed of shale strata, described as "laminated layers". The second type of mining configuration is "parting shale" mining. Parting shale mining utilizes the sandstone found in certain parts of the mine as both the mine roof and floor. 4/

2/ White Pine sought review of the judge's finding of violation only. It did not seek review of the penalty assessment.

3/ "Room and pillar" mining is explained in part as:

A system of mining in which the distinguishing feature is the winning of 50 percent or more of the coal or ore in the first working. The coal or ore is mined in rooms separated by narrow ribs or pillars. The coal or ore in the pillars is won by subsequent working, in which the roof is caved in successive blocks. The first working in rooms is an advancing, and the winning of the rib (pillar) a retreating method.

A Dictionary of Mining, Mineral and Related Terms, U.S.. Department of the Interior (1968).

4/ With regard to White Pine's use of different mining configurations, the miners' representative, United Steelworkers of America (Steelworkers"), notes that "White Pine does not mine into a massive ore body ... where only one type of ground condition is encountered ... [instead,] White Pine follows an ore-bearing strata in which a multitude of ground conditions are encountered." Steelworkers' Br. at 2. Also, with respect to the particular mining configuration to be used, White Pine states:

The mining horizon is determined by the resulting grade

of ore that will be generated. The Geology Department makes the initial determination based upon diamond drill (Footnote continued)

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Parting shale mining: The mid-1950's to the early 1960's White Pine began underground mining operations during the mid-1950's. From approximately the mid-1950's to the early 1960's, it engaged in parting shale mining. Albert Ozanich, the company Safety Director, stated that during the 1950's the normal mining cycle involved "primarily drilling, blasting, mucking ... and some roof bolting." Vol. II, Tr. 51. Ozanich testified that the sandstone roof was supported by pillars of ore and "[s]upplemental support was done by roof bolting in some areas where they encountered a small fault or if the back [i.e., the roof] was burned through upper drilling." Vol. II, Tr. 52. He added that White Pine would occasionally go back and bolt the "old workings" as necessary and, further, that he believed that the main entries to the mine were roof bolted several years after they were mined. Ozanich also testified that parting shale mining, with roof bolting only "as needed", was a practice that was continued at the White Pine mine into the early 1960's.

David Charles, White Pine's Acting General Foreman, and Julio Thaler, its Mining General Superintendent, similarly testified that from the mid-1950's to the early 1960's White Pine did not uniformly roof bolt. Both witnesses stated that the decision as to whether or not to roof bolt was left to the unit foreman. Charles noted, "Roof bolts were installed but generally as time and manpower permitted, behind the active front." Vol. II, Tr. 70. He estimated that the length of the unbolted roof ranged from 150 to 300 feet. In addition, Charles stated that uniform roof bolting was performed when the production unit advanced under less competent sandstone, but that bolting only "as needed" was resumed when the production unit moved under massive sandstone. 5/

Fn. 4/ continued

borings. Vol. II, Tr. 3435. These diamond drill borings enable geologists to determine the thickness of the upper sandstone which is noncopper bearing strata. Vol. II, Tr. 34. Using diamond drill core samples, the Geology Department is able to plot the relative thickness of the upper strata to determine where the sandstone is so thick that it dilutes the ore grade to the point that parting shale mining should be performed to maximize ore grade. Vol. II, Tr. 3436. White Pine Br. at 2.

5/ In preparation for the hearing in this case, Charles inspected "a substantial portion of the early mine workings around the main portal where parting shale mining was done. On the basis of that inspection, Charles prepared Exhibits 0-7 through 0-10, marking in red all the parting shale areas that were not roof bolted. On review, White Pine maintains that Exhibits 0-7 through 0-10 "show significantly large areas where mining without roof bolts occurred in all directions" and that those unbolted and otherwise unsupported areas "still stand".

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Thaler likewise testified that during the time in question, White Pine would "very often" advance headings 150 feet to 200 feet without roof bolting. He stated that the headings were roof bolted "as manpower was available, and often times, they just were not bolted." Vol. III, Tr. 6. Thaler also stated, "Often times, we stopped a shift by putting the bolter in, and they would bolt the entire stretch." Vol. III, Tr. 6-7.

The Steelworkers called several miners as witnesses who testified that during the 1950's it was the practice at the mine not to work under unbolted roof. Some of the miners testified, however, that they had either worked under unbolted roof at times, or had observed other miners working under unbolted roof.

The judge specifically found that uniform roof bolting was not practiced by White Pine during the 1950's. He also found that 60% to 70% of the area mined during that period was roof bolted.

3 FMSHRC at 2784.

Full column mining: The early 1960's

In the early 1960's, White Pine changed from parting shale mining to full column mining. 6/ Thus, it mined through the upper sandstone and had a roof composed of shale. Julio Thaler, the Mining General Superintendent, testified that it was at that time that White Pine began to uniformly roof bolt as part of the mining cycle. He stated that 4-foot and 6-foot mechanical roof bolts were installed on 4-foot centers in the shale roof. 7 / David Charles, the Acting General Foreman, testified that "[i]n full column you will blast, muck and then bolt." Vol. II, Tr. 73 (Emphasis added). Throughout the 1960's White Pine continued to use the full column mining configuration and it continued to uniformly roof bolt.

Return to parting shale mining

In 1977, White Pine began mining Unit 56 of its mine using the parting shale configuration. White Pine chose to mine Unit 56 by the parting shale configuration because of the massive sandstone found there. (As noted earlier, parting shale mining utilizes the sandstone as the roof.) 8/ Roof support in the form of 4-foot and 6-foot mechanical roof bolts on 4-foot centers, earlier adopted in

full column mining, was continued as part of the mining cycle in Unit 56.

6/ White Pine continued to mine by the room and pillar method. It changed only the mining configuration.

7/ Mechanical roof bolts are anchored in the rock strata.

White Pine states that in full column mining the lengths of the mechanical roof bolts changed from a uniform 4-foot length to alternating lengths of 4- and 7-feet, to 4- and 6-foot lengths.

Except for Unit 56 of the mine, all areas of the mine presently use uniform 4-foot resin roof bolts that, in effect, are cemented into the rock strata.

8/ White Pine continued to use the full column configuration in the remainder of its mine.

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In 1979, White Pine changed its bolting practice in Unit 56 from the 4- and 6-foot mechanical roof bolts on 4-foot centers to 4-foot mechanical roof bolts on 4-foot centers. It continued the practice of uniformly bolting the sandstone roof in that unit. White Pine's Mining General Superintendent testified that the practice of uniformly roof bolting was continued in Unit 56 only as a matter of "habit". He stated that the roof was uniformly bolted despite the fact that "we were getting back to parting shale mining where we have a very thick copper sandstone back [i.e., roof], so we are getting back to the similar conditions that we experienced in the early part of the White Pine mine." Vol. III, Tr. 41. It was under those earlier experienced conditions (the mid-1950's to the early 1960's) that White Pine maintains that the roof was bolted on an "as needed" basis only.

The Unit 56 demonstration project

In 1980, White Pine decided to mine Unit 56 without uniformly roof bolting. It believed that uniformly bolting the massive sandstone roof found in that unit was unnecessary. 9/ Instead, White Pine sought to bolt Unit 56 only "as needed" by the particular condition of the mine roof. In order to support its claim that the sandstone roof does not require uniform roof bolting, White Pine initiated a demonstration project. White Pine sought to demonstrate to the Mine Safety and Health Administration ("MSHA") and to the Steelworkers that bolting the massive sandstone roof in Unit 56 only "as needed" rather than uniformly was a safe and lawful mining practice. White Pine's Mining General Superintendent explained:

[W]e developed a two-phase program, primarily to demonstrate and convince the Union and MSHA that mining without bolts in parting shale mining was a viable method worth doing. The first phase was to outline an area that was previously bolted with

four-foot mechanical bolts and begin at one end and retreat and remove the bolts and measure convergence [i.e., the movement of the mine roof]. Following successful completion of that phase, our plans were to go to the active mining front and begin advancing the single drift without bolts under very close monitor, and again, it was a demonstration system to demonstrate to MSHA and the Union and to our employees that it is a safe method.

Vol. III, Tr. 12. 10/

9/ At oral argument, counsel for White Pine stated that White Pine was not arguing that uniform roof bolting is unnecessary in full column mining.

10/ William Carlson, the director of MSHA's Marquette, Michigan, subdistrict office testified that he was informed by White Pine (in February of 1980) that it intended to conduct a roof bolt removal evaluation project in Unit 56. Carlson also testified that he understood from White Pine that it would begin to mine Unit 56 without uniform roof bolting if the bolt removal test indicated that the unbolted roof was stable.

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On February 4, 1980, White Pine initiated the first phase of its Unit 56 demonstration project -- the removal of the roof bolts from an earlier worked-out portion of that unit. The roof bolts were removed by White Pine foremen. Also, the newly unbolted roof was monitored by White Pine personnel for convergence (i.e., movement). 11/

On February 19, 1980, the roof bolt removal phase was halted when an MSHA inspector issued a withdrawal order under section 107(a) of the Mine Act. 30 U.S.C. § 817(a). The withdrawal order charged that the removal of the roof bolts constituted an imminent danger. At the time that the order was issued, the bolt removal phase was approximately 80% completed. Following a successful challenge by White Pine to the imminent danger withdrawal order (White Pine Copper Division, 3 FMSHRC 211 (January 1981)(ALJ)), the Unit 56 roof bolt removal demonstration phase was resumed on February 13, 1981.

11/ White Pine submits that a device known as an "extensometer" can measure downward roof movement to plus or minus .001 inch. White Pine explained its method for monitoring convergence as follows: Closely associated with the development of convergence monitoring has been the use of convergence lights and dial

gauges in production mining.... The light and gauge are mounted on a spring operated device with two extending poles which reach from the floor to the mine roof. The light can be set so that a few thousandths of an inch of roof movement will cause contact on the electrical connection in the light to occur turning the light on. Such movement warns the miner of early movement in the mine roof which could be indicative of developing instability. The dial gauge, when used simultaneously with the light, will measure the total convergence or total movement of the roof over a period of time. It is the increase in the rate of convergence over time ... that warns both the miner and the ground control technician of potential instability before visible signs occur.. Vol. III, Tr. 74-75. Under standard current mining practices, convergence lights are only used with drilling operations at the face. Roof bolting operations use both the convergence light and the convergence dial gauge. [Fn. omitted.] Vol. III, Tr. 26-28.

White Pine Br. at 6 (White Pine's emphasis). The Secretary also offered the following explanation regarding convergence monitoring: Convergence monitoring is a recorded history of movement of the roof in a mine which is used to determine whether a roof has become stabilized or is accelerating towards failure. Measurements are made periodically between permanently anchored reference points in the roof and floor. Such data is then graphed and used to predict the future movement of the roof. Vol. I, Tr. 107.

Secretary's Br. at 5 n.4. In addition, an expert witness testifying on behalf of the Secretary stated that White Pine is a "good practitioner" of the art of roof monitoring. Vol. I, Tr. 89.

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With regard to the results of the roof bolt removal phase, White Pine's Director of Mines, Planning and Engineering stated that over 90% of the roof bolts removed "did absolutely nothing." He described the roof bolts in the Unit 56 massive sandstone as "thumb tacks on a bulletin board" and concluded that "[t]he ultimate results of that bolt removal did confirm our suspicions that the bolts that were functioning did act primarily in pure suspension." Vol. III, Tr. 77. Roof falls ranging from "a couple of inches up to two feet" did, however, occur in the northern ("faulty") area of the bolt removal site. 12/

On February 27, 1981, White Pine began the second phase of its demonstration project by mining a drift in Unit 56 without uniformly roof bolting. White Pine also did not use any other type of supplemental roof support (e.g., steel sets and cedar posts).

Instead, it intended to bolt the massive sandstone roof found in that unit only "as needed" by the particular condition of the mine roof.

White Pine's Safety Director, Albert Ozanich, described Unit 56 as having "basically the same" sandstone composition as the area of the mine worked in the mid-1950's. 13/ With respect to the particular area of Unit 56 where the demonstration drift was mined, Joseph Maher (White Pine's Director of Mines, Planning and Engineering) testified:

The area that we selected in Unit 56 to attempt to demonstrate [that] our limited bolting concept was a viable roof support method, we selected a drift that had a massive sandstone roof.... [T]he no bolt [mining] demonstration area, as it compares to the [demonstration] area we unbolted is probably better because the sandstone ... is thicker. It has a very smooth, well-pronounced parting, well-defined parting at the base of the sandstone, so it generates a very smooth roof. It's very similar in its character to the roof in the southern development of our area that we unbolted, which was in a way,

12/ White Pine's assessment of the roof bolt removal demonstration phase was to some extent disputed by William Letzens, the Secretary's expert witness. Letzens, an MSHA engineer, stated that he did not believe that White Pine totally expected the roof fall in the northern part of the bolt removal demonstration area. Letzens also stated, however, that the southern part of the demonstration area appeared stable after the roof bolts were removed.

13/ A White Pine geologist also testified that Unit 56 seems to be massive sandstone throughout "the whole thickness" and that except for the northeast portion, there are no shale partings (i.e., breaks in the sandstone). He added that it is "unlikely" that a massive sandstone roof that is not interrupted by joints or cracks would break off and fall. An expert witness on the subject of roof control similarly testified on behalf of White Pine that it was "most unlikely" in thick and massive sandstone for slabs of roof to fall.

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very good sandstone. Now, because the sandstone there was five and a half or six feet thick, we knew that sandstone in the no bolt [mining] area is nine or nine and a half feet thick. I would say that it's a better roof.

Vol. III, Tr. 82-83 (Emphasis added).

White Pine used both convergence lights and dial gauges to monitor the movement of the roof in the bolting "as needed" demonstration drift. It was in this demonstration drift that the MSHA inspector issued the citation that is the subject of this case. The circumstances surrounding the issuance of the citation are discussed below.

The Inspection

On March 3, 1981, an MSHA inspector conducted an inspection of Unit 56. The inspector was accompanied by two miners' representatives and a White Pine safety engineer. The inspector first proceeded to the North 103 drift, then to the North 101 drift, and from there to the North 98 drift. Each of those drifts in Unit 56 was uniformly roof bolted with 4-foot mechanical bolts on 4-foot centers. From the North 98 drift, the inspector proceeded to the West 57 drift. There, he noticed a sign that read, "Demonstration Area No Bolt Area."

In the no bolt (i.e., bolting only "as required" by roof conditions) demonstration drift the inspector observed that approximately 32 feet of the roof was unbolted. 14/ That 32 feet of roof was the distance from the working face to the last row of roof bolts in the drift. This indicated to the inspector that more than one mining cycle had been completed under unbolted roof. 15/ He stated that generally, bolts should be no farther than 4 feet from the face.

While in the demonstration drift, the inspector heard a "popping" and "snapping" noise in the unbolted roof. He also observed that some "loose material" had fallen from a three-foot diameter area of the roof where he had heard the noise. In addition, the inspector further observed a "slip" or a "crack" in the unbolted roof. The slip was approximately 27 feet in length, with an "oily substance" around the edge. It began about five feet in front of the bolted portion of the roof and extended diagonally toward the working face.

The inspector subsequently issued a citation alleging a violation of 30 C.F.R. § 57.3-20. The citation read:

14/ As earlier noted, the demonstration area was also unsupported by any other type of roof support.

15/ A mining cycle at the White Pine mine normally advances the unit 10 feet.

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Roof support was not provided in N-94 and W-53 intersection in Unit 56. Prior operating experience of the mine indicates that roof support is required.

Miners were/had been working under the unsupported roof.

(Emphasis added.) 16/ Although the citation referred to the "[p]rior operating experience of the mine" only, the case was tried by the parties on both that theory and the theory that the condition of the mine roof in the demonstration drift also required roof support. See 3 FMSHRC at 2786.

(1) The condition of the mine roof in the bolting "as needed" demonstration drift

We hold that substantial evidence supports the judge's decision that the condition of the mine roof in the Unit 56 demonstration drift required roof support. As already noted, the inspector testified that he heard a "popping" and "snapping" noise in the unbolted roof and that "loose material" had fallen from a three-foot diameter area of the roof where the noise was heard. Those conditions indicated to the inspector that the unsupported roof of the demonstration drift was "unsafe" and that there was a "possibility" of a roof fall. The inspector stated, "Movement, noise, that's the warnings for when there is loose material going to fall." Vol. I, Tr. 28. He described the "loose material" as:

... a brown granular material, which meant to me that there could be a parting up there, which is a seam in the sandstone, which in my opinion, their backs [i.e., the roof] was only as good as the six or eight inches of seam there.

Vol. I, Tr. 30.

William Letzens, the MSHA engineer and expert witness, testified that noise in the roof "normally" indicates that there is an unusual roof condition. He also testified that pieces of loose material falling from the roof further indicates that there is "substantial movement" in the roof and that a portion of the roof is "in a small state of failure". Vol. I, Tr. 91-92. 17/ Letzens also stated that the popping and snapping

16/ The N-94 and W-53 intersection was the only area of Unit 56 that the inspector found to be unbolted.

17/ In that regard, Letzens stated:

Well, whenever a mine roof makes a noise, it might represent a redistribution of stress and a relaxation of the roof, a sag of the roof, or it might represent physical movement of the roof to such an extent that there could be a failure of the roof.

Vol. I, Tr. 76.

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noise indicates that the roof is "potentially unstable". He

admitted, though, that a further evaluation of the roof would be required. 18/

In addition, Albert Goodreau, the White Pine safety engineer who accompanied the inspector likewise testified that he heard "some cracking and popping" in an area of the unbolted roof that measured 2-feet by 3-feet. He also observed loose material on the mine floor measuring "[u]p to an inch maybe" and approximately 4 to 5 inches in diameter. Vol. II, Tr. 114-15, 120-21. Edward Hocking, one of the miners' representatives who was with the inspector in the demonstration drift, described the roof fall as consisting of "small flakes". He stated that the biggest piece was approximately "four-by-six" and "[m]aybe an inch thick, maybe weigh[ing] three or four pounds, if that." Hocking estimated that the loose material fell from a height of 11 feet. Vol. IV, Tr. 48, 55.

There was, however, testimony that the unsupported roof was safe and that roof bolts were not required. Goodreau stated that except for the area of the roof where the loose material developed and the line of discoloration that the inspector believed was a slip, the roof of the demonstration drift "looked good." Joseph Maher (White Pine's Director of Mines, Planning and Engineering) and Jack Parker (a self-employed roof consultant and expert witness testifying on behalf of White Pine) concurred in Goodreau's observation as to the general stability of the unit. Maher additionally testified that popping and cracking noises are normal underground occurrences and are not necessarily indicative of roof instability. He also stated that "loose" in the roof can result from several causes and can occur in either bolted or unbolted roof.

Furthermore, with respect to the convergence data obtained through the monitoring of the demonstration drift roof, Maher testified that the unbolted roof exhibited "stable characteristics". In that regard, Maher stated that the bolted and unbolted roof in the cited drift behaved similarly. William Letzens, the Secretary's expert witness, did not review the convergence data collected from the bolting "as needed" demonstration drift.

On balance, we hold that the testimony of the MSHA inspector, together with the testimony of William Letzens (the MSHA engineer), Albert Goodreau (the company safety engineer) and Edward Hocking (the miners' representative) regarding the popping and snapping sounds in the unbolted roof and the fall of loose material constitute substantial evidence supporting the judge's finding of a violation of 30 C.F.R. § 57.3-20. The fact that the roof fall was not extensive in terms of the amount of loose material that fell, or the area of unbolted and otherwise unsupported roof involved,

does not alter the fact that, as the judge found,

18/ Letzens did not personally observe the unbolted demonstration drift roof. Because of that fact, he was unable to state that the roof was not stable. The thrust of Letzens' testimony on that point, however, concerned the presence of the slip in the demonstration drift and not the fall of loose material.

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roof support was required in the area cited by the inspector. 19/ We are unpersuaded by White Pine's argument that the fact that the inspector proceeded under the unbolted portion of the demonstration drift roof established that roof support was not needed. Whether the inspector walked under the unbolted roof is irrelevant to the question of whether roof support was required.

Although we affirm the judge's decision on the preceding basis, we next address the broad question that is presented in this case. That question is whether the judge was correct in holding that the "operating experience" of the White Pine mine required uniform roof bolting in the Unit 56 demonstration drift. Because of the importance of that question to both White Pine and the miners, 20/ and because as the facts of this case suggest, it is a question that is likely to recur, we believe that some Commission guidance as to what constitutes "operating experience" is necessary.

(2) The "operating experience" of the White Pine mine
The judge held that the "operating experience" of the White Pine mine requires uniform roof bolting in the Unit 56 demonstration drift. 3 FMSHRC at 2789. He stated that the "most relevant evidence" regarding the mine's operating experience is White Pine's "uninterrupted 20 year history of uniform roof bolting." 3 FMSHRC at 2788. 21/ On the basis of that 20-year period, the judge concluded that "the pertinent operating history of the mine requires the use of roof bolts in all areas of the mine." 3 FMSHRC at 2788-89. 22/ For the reasons that follow, we disagree with this conclusion of the judge.

19/ Regarding this first issue, we note that the judge held that only roof support was required. Unlike the issue involving White Pine's "operating experience," the judge did not specify what type of roof support was required. We concur in the judge's treatment of this issue. The only question before the Commission is whether the particular conditions of the cited area required roof support, not which type of roof support.

20/ The Steelworkers note in their brief on review that the issue as to White Pine's operating experience "has all White Pine underground miners' attention awaiting its resolve." Steelworkers

Br. at 1.

21/ The judge's reference is to White Pine's mining practice in the 1960's and 1970's. He afforded White Pine's practice in the 1950's "little weight." 3 FMSHRC at 2789.

22/ The Steelworkers join the Secretary in arguing that the judge's holding is correct. On review, however, the Steelworkers appear to suggest that they might be agreeable to working under unsupported roof in parting shale mining if White Pine develops "a plausible and feasible standard operating procedure." Steelworkers' Br. at 5-6. See Oral Arg. Tr. 70-71.

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First, we hold that the judge erred in taking into account White Pine's past practice in full column mining for the purpose of determining its "operating history" in this case. Here, the parting shale mining configuration was being used in the Unit 56 demonstration drift. Because parting shale mining utilizes the upper sandstone as the roof and because full column mining involves mining through the upper sandstone and has a roof composed of shale strata, we conclude that only White Pine's past practice in parting shale mining is relevant in determining its operating history under massive sandstone roof.

Second, we hold that the judge also erred in determining White Pine's "operating experience" solely on the basis of its prior operating history and not present day experience. While we do not at this time seek to precisely define the contours of the term "operating experience", in view of the fact that section 57.3-20 is intended to protect miners against roof falls, we conclude that a mine's "operating experience" broadly encompasses all relevant facts tending to show the condition of the mine roof in question and whether, in light of the roof condition, roof support is necessary. 23/

Thus, in addition to White Pine's past practice in parting shale mining, other relevant considerations in this case are the results of White Pine's roof bolt removal demonstration project that took place in an earlier worked-out portion of Unit 56, as well as its convergence monitoring results showing the rate of the movement of the roof in the

23/ We note that the term "operating experience" is not defined in 30 C.F.R. § 57.3-20. In that regard, section 57.3-20 states only that, "Ground support shall be used if the operating experience of the mine ... indicates that it is required." (Emphasis added.)

The rulemaking background of section 57.3-20 also fails to indicate what the Secretary of the Interior intended "operating experience" to mean when that standard was promulgated under the former Federal

Metal and Non-metallic Mine Safety Act. 30 U.S.C. § 721 et seq. (1976)(amended 1977). Also, the term "operating experience" is not defined elsewhere in section 57.3 (titled, "Ground control").

Accordingly, we turn to the dictionary for the common usage of that term. There, the key word "experience" is defined:

2: direct observation of or participation in events:

an encountering, undergoing, or living through things in general as they take place in the course of time ...

4: knowledge, skill, or practice derived from direct observation or participation in events: practical wisdom resulting from what one has encountered, undergone, or

lived through ... 5a: the sum total of the conscious events that make up an individual life ... 6: something personally encountered, undergone, or lived through....

Webster's Third New International Dictionary 800 (unabridged 1971) (Emphasis added).

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bolting "as needed" demonstration drift. 24/ The integrity of this sandstone as a roof material should also have been addressed more fully. 25/ In addition, the effect of the depth of the mine upon the sandstone roof, the width of the mine entries and the dimensions of the pillars of ore left standing to support the mine roof would also be pertinent considerations.

Third, even assuming that the "operating experience" of the White Pine mine requires the use of roof support, we disagree with the judge's conclusion that White Pine must forever continue to uniformly roof bolt throughout its entire mine, Unit 56 included.

3 FMSHRC at 2789. Section 57.3-20 provides that if roof support is in fact required, it "shall be consistent with the nature of the ground and the mining method used." Accordingly, under the terms of section 57.3-20, where roof support is necessary White Pine is free to select the specific method of roof support to be used, subject only to the restriction that it be consistent with the nature of the roof and mining method being used and is sufficient to accomplish the purpose of the standard, i.e., the protection of miners from roof falls. Thus, section 57.3-20 does not lock White Pine into uniformly roof bolting in parting shale mining in the Unit 56 demonstration drift simply because it uniformly roof bolted in parting shale mining in the past. Instead, assuming that the operating experience of the mine requires the use of roof support, White Pine has the opportunity to develop and to implement another type of roof control method, so long as that method protects miners against roof falls as contemplated by section 57.3-20. 26/

Our holding therefore is that substantial evidence supports the judge's finding of a violation of 30 C.F.R. § 57.3-20 insofar as it

is based upon the "popping" and "snapping" sound in the unsupported roof of the Unit 56 demonstration drift and the fall of loose material from that area.

24/ Although the judge in fact took the roof bolt removal and convergence monitoring results into account, he accorded those results "little weight" because White Pine failed to show that mining without uniform roof bolting is "as safe as" mining with uniform roof bolting. 3 FMSHRC at 2788. That portion of the judge's decision is discussed, *infra*

25/ In that regard, an expert witness testifying on behalf of White Pine stated that sandstone is a "good rock" with a comprehensive strength of approximately 15,000 PSI (i.e., four times stronger than concrete) and that it is more resistant to changes in the weather than shales and soapstones. Also, White Pine's Mining General Superintendent testified that in the past the massive sandstone roof has converged as much as "three or four feet" due to pillar deterioration without the main roof failing.

26/ Similarly, we note that the first issue in this case involved the question as to whether the particular conditions of the cited Unit 56 demonstration drift required roof support. It did not involve the question as to what specific type of roof support was required. See n.19, *supra*.

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We reject the judge's holding that the operating experience of the White Pine mine requires uniform roof bolting throughout the entire mine and, in particular, in the Unit 56 demonstration drift.

While we do not in this case define the term "operating experience," we conclude that the operating experience of a mine requires the use of roof support if, in a given situation, the mining conditions are such that roof support is necessary. This determination takes into account the operating history of the mine (i.e., its past mining practice) geological conditions, scientific test or monitoring data and any other relevant facts tending to show the condition of the mine roof in question and whether in light of those factors roof support is required in order to protect the miners from a potential roof fall.

Accordingly, for the foregoing reasons the judge's finding of a violation is affirmed. 27/

27/ Contentions of the parties not discussed herein have been fully considered and to the extent that they are inconsistent with this decision are rejected.

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