FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

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2 SKYLINE, 10th FLOOR
5203 LEESBURG PIKE
FALLS CHURCH, VIRGINIA 22041

June 11, 1998

SECRETARY OF LABOR,	:	CIVIL PENALTY PROCEEDING
MINE SAFETY AND HEALTH	:	
ADMINISTRATION (MSHA),	:	Docket No. WEST 98-1
Petitioner	:	A. C. No. 24-00108-03538
v.	:	
	:	Big Sky Mine
BIG SKY COAL COMPANY,	:	
Respondent	:	

DECISION

Appearances: Kristi Floyd, Esq., Office of the Solicitor, U. S. Department of Labor, Denver, Colorado, Ned D. Zamarripa, Conference and Litigation Representative, Mine Safety and Health Administration, Lakewood, Colorado, for the Secretary; Michael O. McKown, Esq., LaTourett, Schlueter & Byrne, St. Louis, Missouri, for Respondent.

Before: Judge Barbour

This civil penalty cases arises under section 105(d) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. ' 815(d) (Mine Act or Act)). The Secretary of Labor (Secretary), on behalf of the Mine Safety and Health Administration (MSHA), seeks the assessment of a civil penalty against Big Sky Coal Company (Big Sky) for an alleged violation of 30 C.F.R. ' 77.404(a), a mandatory safety standard requiring equipment be maintained in safe operating condition or be removed immediately from service. The Secretary alleges the violation occurred at the company=s Big Sky Mine, a surface coal mine located in Rosebud County, Montana. The Secretary also alleges the violation was a significant and substantial contribution to a mine safety hazard (S&S violation). She proposes a penalty of $362.

Big Sky denies it violated the standard and contests the Secretary=s S&S allegation. The case was heard in Miles City, Montana.

THE DISPUTE

The parties are at odds over whether a nylon ply bias tire on a 150-ton dump truck was in unsafe operating condition.[1] Most of the tire=s tread was gone, and there were five areas on the tire where the rubber was worn away and various layers of nylon ply were exposed. The Secretary maintains the tire was so worn it was not safe. The company maintains the tire was not unsafe and the tire=s condition did not violate section 77.404(a).

THE CITATION

Citation	Date	30 C.F.R. '	Proposed Penalty
4366332	5/6/97	77.404(a)	$362

The citation states in part:

> The 150[-]ton . . . bottom dump haul truck . . . is not being maintained in a safe operating condition. The . . . tubeless nylon left rear inside tire is in an unsafe condition. The tire has 5 flat spots worn through the tread area and into the nylon cords. The size and depth of the flat spots are: 6" x 15" worn through 5 layers, 8" x 15" worn through 6 layers, 7" x 13" worn through 6 layers, 10" x 15" worn through 13 layers, and 6" x 11" worn through 4 layers . . . (Gov. Exh. 2).

STIPULATIONS

The parties stipulated, among other things: (1) that the company is engaged in coal mining operations that affect interstate commerce; (2) that the company is the owner and operator of the mine; (3) that the mine is subject to the jurisdiction of the Act; (4) that the administrative law judge has jurisdiction over the case; (5) that the subject citation was properly served on the company; (6) that the proposed penalty will not affect Big Sky=s ability to continue in business; (7) that the company demonstrated good faith in abating the alleged violation; (8) and that the company is a large operator. The parties also stipulated to the accuracy of MSHA=s assessed violations history (See Tr. 8-10; Joint Exh. 1).

THE EVIDENCE

Herbert J. Skeens is the MSHA inspector who issued the citation. He is employed in the agency=s Denver, Colorado office, MSHA District 9. He has been an inspector for the past

[1] Throughout the hearing, the subject tire and tires like it, were frequently referred to as Agiant tires@.

5 years. Prior to working for MSHA, he had 18 years of experience in the mining industry, first in the eastern coal fields, then in the west. His experience included the operation and maintenance of equipment using off-road tires similar to the subject tire. Skeens operated 50-ton and 85-ton haulage trucks, but never a 150-ton truck. After working for MSHA, his training included approximately one day of instruction specific to off-road tires.

One of Skeens= assignments was inspecting the Big Sky Mine. At the mine, coal is stripped, loaded into off-road dump trucks, and taken to the hopper and/or stockpiles. On the morning of May 6, 1997, Skeens went to the mine to inspect the dump trucks and other equipment. The inspection was part of a complete inspection of the mine. During the inspection, Skeens was accompanied by Gordon Brannon, the mine=s safety director, and David Pemble, the representative of miners (Tr. 49).

While conducting the inspection, Skeens observed the subject dump truck in operation. The truck was a bottom dump truck, which means it discharged its load from the bottom, rather than through a tailgate. The truck consisted of two sections. The front section contained the engine and the operator=s compartment. It was supported by two wheels, which steered and turned the truck (Tr. 59, see also Tr. 138).

The trailer section was supported by eight wheels, four dual wheels on the front and four dual wheels on the back. The front wheels received the power that drove the truck (Tr. 59, see also Tr. 138). The rear wheels supported the trailer bed and the majority of the trailer=s load (see Tr. 163, 182; Exh. R-6). The rear wheels were located approximately 30 to 35 feet from the truck operator (Tr. 58).

All of the wheels on the trailer were equipped with nylon ply bias tires. When new, each tire cost between $5,000 and $5,500 (Tr. 113,143). Each tire had a rim diameter of 49 inches and an outer tread layer that gave the tire Aa certain amount of wear@ (Tr. 53). Under the tread layer were six ply pockets made of nylon cords and rubber. The six ply pockets were fused together with rubber. The ply pockets were approximately 2 inches deep (Tr. 222).

Each ply pocket consisted of four plies of nylon cords (a Afour-ply@) that ran diagonally across the tire (Tr. 214-216, 225-226). The nylon plies looped around an interior base of bundled steel wires (the Abeads@ Tr. 83, 87). The beads anchored the nylon plies (Tr. 83, 212). The nylon cords ran at opposite angles to each other, and gave the tire its strength (Tr. 51, 83). Air was contained by the inner rubber of the tire (Tr. 51).

When Skeens saw the truck, it had dumped its load of coal and was starting the return trip to be reloaded. Skeens asked the driver to stop. Skeens climbed into the cab and talked to the driver to Asee how [he] felt about the brakes and steering@ (Tr. 50). Skeens then got out of the cab and inspected the underside of the truck and the tires, working his way from the front to the back (Id.). He concluded all of the tires were in good condition except the trailer=s left rear inside tire. In his opinion, it was not safe. The tread was worn from the tire, something that in itself Skeens did not regard as a problem; however, there were five other areas of wear where the nylon

plies were exposed and severed. In Skeen=s opinion, these areas made the tire unsafe.

Skeens measured the surface size and the depth of the damaged areas and counted the severed plies (Tr. 59, 61, 113). The largest worn area, the one that caused Skeens the most concern, measured 10 by 15 inches on the surface, and, Skeens believed, the area extended to a depth of 13 plies. Skeens speculated the worn areas were caused by the brakes locking and the truck skidding (Tr. 67).

Skeens asked Brannon to look at the worn areas, which he did (Tr. 60). Dave Pemble also looked at the tire. A short time later Mike Schranz, the company=s maintenance manager, joined the group, and he too examined the tire (Tr. 58, 144).

Skeens believed the severed plies compromised the tire=s structural integrity by lessening its strength. Skeens feared if the tire was not removed from the truck, the tire would blow out or otherwise fail. The wear was to the point where either a hole could be punched in the tire or the remaining plies Ano longer [would] withstand the pressure or load . . . upon them@ (Tr. 54). If the tire suffered a blowout, anyone in the vicinity of the tire was likely to be injured, perhaps fatally, by flying debris or pieces of the tire. Miners who might be endangered were those checking the tire=s air pressure, fueling the truck, inspecting the truck, or inspecting a truck parked behind the subject truck (Tr. 33-34). Moreover, if the tire blew out while the truck was operating, the blowout could cause the rear of the truck to pull to one side thereby endangering the driver and anyone in the truck=s path (Tr. 64).

Skeens testified a blowout could be caused by rocks or debris in the roadways. He noted roadways at the mine were composed of crushed scoria. (AA local term for melted or partly melted rock surrounding burned-out coal beds in the Western United States@ (American Geological Institute *Dictionary of Mining, Mineral and Related Terms* 484 (1996); see also Tr. 105-106)). Skeens described the scoria as forming Aa very good road base,@ but added, Ait has its negatives too. In that . . . it is so rough that it causes abnormal wear on tires. And if you get big chunks of it, you can easily cut a tire and cause damage to it@ (Tr. 70).

Erik Sherer, an MSHA mining engineer, who had seen pictures of the tire, noted other stresses to which the tire was subject. There was a stress from air pressure inside the tire. The stress, varied during the mining cycle, from when the tire was cold to when it heated up as the truck was driven. Or, as Sherer put it, Afrom cold pressure to hot pressure and back again@ (Tr. 92). Additional stresses were added when the tire ran over ruts or when the truck was accelerated, slowed, or turned (Tr. 93).

Sherer was asked how damage to the plies related to the safe operation of the truck. He maintained, in effect, if half the total number of plies were damaged, the tire had to be twice as strong to be used safely (Tr. 944, 126, 245-246). He believed the worn areas of the tire were large enough to cause a Asignificant decrease@ in the strength of the tire in those areas (Tr. 98).

Sherer described the damage around the largest worn area as egg shaped, and testified that when the nylon cords were cut, as they were in this area, the tire was weakened. While its strength was Arelatively intact@ closer to the bead, in the worn areas it was weak. Moreover, where it was weak, it was more subject to severe rock cuts, and hence to punctures and blowouts (Tr. 244-245). Sherer believed the tire was Aone hundred percent worn out@ (Tr. 95).

Witnesses for Big Sky maintained the tire was not unsafe. Glen Whitear, a tire consultant with 43 years of experience working in the tire industry, explained in detail the way nylon ply bias tires are constructed (Tr. 213-216). Because the plies are layered in opposite directions and at an angle, they cross one another and give the tire added strength. He stated when Ayou look at the total picture of that tire and the integrity of that tire, a very, very small portion of that overall strength . . . has been affected@ (Tr. 215).

Whitear counted the number of damaged plies in the worst area after it was cut out and removed from the tire (Resp. Exh. 13). He could not get a precise count, but he estimated that of the 24 plies, between 9 and 11 remained undamaged (Tr. 225). He found that almost an inch of the original 2 inches of the interior rubber and nylon remained untouched, and Whitear explained why this was more than sufficient to bear the weight put upon the tire (Tr. 227, 337).

All of Big Sky=s witnesses maintained the tire was unlikely to experience a blowout. Brannon and Shranz described how haulage roads at the mine were constantly graded to remove rocks and other debris that might cause a puncture (Tr. 152, 167, 183-184) and how the dump trucks are equipped with CB Radios so the truck operators can communicate the location of potential hazards to one another (Tr. 153-154, 184).

Further, Big Sky=s witnesses uniformly testified that nylon bias ply tires rarely end their lives in catastrophic failure. Rather, they ware down to the last four-ply and then go flat (Tr. 156, 183, 219-221, 223). This is true, even if the tires are punctured (Tr. 175).

Whitear acknowledged the tire could suffer a blowout if it became overheated, something with which Scherer agreed (Tr. 218, 122-123), or if it became overinflated. However, company witnesses who felt the tire testified there was no indication it had overheated (Tr. 157,188), or that it was overinflated.

Finally, the company=s witnesses felt that even if a blowout occurred, there was no reasonable likelihood an injury would result. They maintained if the truck was operating, the blowout would not have significantly affected the truck=s steering or braking capacity (Tr. 140, 191, 221). Further, they noted that Skeens allowed the inspection party to stand in the immediate vicinity of the truck for at least 10 minutes while they looked at the tire, and that he did not express any concern for the party=s safety (Tr. 146-147, 156).

THE VIOLATION

The Commission has held section 77.404(a) imposes two duties: (1) to maintain equipment in safe operating condition; and (2) to remove unsafe equipment from service immediately (*Peabody Coal Company*, 1 FMSRHC 1494, 1495 (October 1979)). The A[d]erogation of either duty violations the regulation@ (Id.; see also *Ambrosia Coal & Construction Co.*, 18 FMSHRC 1552, 1556 (September 1996)).

A tire is an essential part of a truck. It is Aequipment@ that comes within the meaning of the standard. When Skeens first observed the tire, it had not been removed from service but rather was on the operating truck. Therefore, if the tire was in unsafe condition, Big Sky violated the regulation. The issue of whether the tire was safe to operate is resolved by determining whether Aa reasonably prudent person familiar with the factual circumstances surrounding the allegedly hazardous condition, including any facts peculiar to the mining industry, would recognize a hazard warranting corrective action@ (See *Alabama By-Products Corporation*, 4 FMSHRC 2128, 2129 (December 1982) (involving identical standard applicable to underground coal mines)). The burden of proof is on the government.

For the following reasons, I conclude the Secretary did not prove a reasonably prudent person, familiar with the tire in question and the circumstances under which it was used at the Big Sky Mine, would have expected the tire to blowout.

Skeens testified the hazard he feared was that the tire Adefinitely@ would blow out because (1) it had worn to the point it would be punctured more easily; or, (2) it had worn to the point the plies no longer would withstand the pressure in the tire or the load the tire carried (Tr. 33, 54). When the tire catastrophically failed, he believed those individuals in close proximity to the tire would be injured, perhaps fatally (Tr.33-35). Also, he feared if the blowout occurred while the truck was moving, the driver could loose control of the truck, which would subject the driver and any person in the path of the truck to serious injury (Tr. 64). While, the testimony establishes the tire could have blown out, it falls short of establishing a reasonable person would have expected it to do so.

Whitear, had more experience in the tire industry and knew more about the manufacture of nylon ply bias tires and their use in the mining industry that any other of the witnesses. He acknowledged any tire can suffer a catastrophic failure, even a brand new tire (Tr. 219). His testimony was confirmed by Schranz, who had actually seen a new tire self-destruct when it ran over a rock (Tr. 191). However, Whitear also testified that blowouts of nylon ply bias tires, even those that have been worn to the point of the subject tire, are very infrequent (Tr. 186. 220). Given their construction, rather than experience catastrophic failure, such tires are much more likely to simply deflate and go flat.

Whitear explained when a tire is kept in service until it wears through to the last four-ply, Aa pretty good thing happens@ (Tr. 220). The remaining ply Aisn=t strong enough to have stability and it begins to hinge, and that hinging causes flexing of the liner and puts a small hole in the liner and allows the tire to vent itself safely@ (Id.). Even when such a tire is punctured, it usually vents safely. Whitear=s contention that the puncture of a tire did not invariably result in a blowout was confirmed by Shranz. He testified he had seen the blade of a front end loader puncture a nylon ply bias tire, and rather than blow out, the tire just Alost its air@ (Tr. 186).

Even more compelling was the testimony of Brannon, who had worked at the mine for 25 years. He agreed that whatever their state, most nylon ply bias tires do not end their lives by blowing out. Rather, they Ajust . . . don=t hold air anymore@, and they go flat (Tr. 156). He credibly stated, AI=ve never seen one blow@ (Id., emphasis added). Because such giant tires usually end their lives by going flat, the practice at the mine is to Aput the bad tires or the worn out tires on the rear and wear them out@ (Tr. 158).

Shranz agreed Avery few@ tires suffer blow outs and he could not recall the last one to do so (Tr. 183). Even Sherer, MSHA=s mining engineer, confirmed catastrophic failures are Arelatively rare@ and mosãt tires end their useful lives with a slow release of air pressure (Tr. 247, see also Tr. 121).

Given the testimony of those with the most experience in the construction and use of the tire and with the use of similar tires at the mine, I find a reasonable person familiar with the tire and its use at the mine would have expected the tire simply to Ago flat,@ even if punctured, and would not have anticipated its catastrophic failure.

I also find, in any event, the Secretary did not establish the tire was likely to be punctured. The evidence is clear that the presence of large rocks and debris that might have caused a puncture was not a problem at the mine. Skeens testified that loose coal, even in large pieces, was not a concern because it would be crushed when run over. Although Skeens believed pieces of scoria could Aeasily cut a tire@ (Tr. 70), neither he nor the Secretary=s other witnesses disputed the testimony of Big Sky=s witnesses that the haulage roads at the mine usually were kept free of rocks and debris. In this regard, I note the testimony of Brannon that the haulage roads were constantly graded to remove extraneous material and Schranz=s testimony that at least one grader worked full-time on this during each of the mine=s three shifts (Tr. 152, 167,183-184). Further, I note Skeens= acknowledgment the drivers communicated Apretty well@ on their CB Radios, and I conclude it likely they would have avoided potential hazards the graders missed (Tr. 70).

Nor did the Secretary establish that a puncture was more likely because of the worn spots. Whitear, measured the thickness of the remaining plies at the point of worst wear and found that approximately half of the original material was left (Tr. 222). He testified that tire manufacturers Aoverbuild and over strengthen . . . [giant] tires considerably@ (Tr. 232). I accept his first-hand measurement, and his unrefuted testimony. It is common knowledge safety margins are manufactured into products.

The Secretary did not introduce any evidence to establish exactly what the remaining strength of the tire was at the worst of the worn spots and how likely this made a puncture.

Sherer, in effect, stated that with half the plies damaged, the tire had to be twice as strong, but his speculation is not a substitute for the kind of expert testimony that might have aided the Secretary=s case. Given the lack of any credible testimony regarding the remaining strength of the tire in the worn areas, especially in the worst of the worn areas, I discount Scherer=s opinion the tire was A100 percent worn out@ (Tr. 95).

Nor do I perceive a basis in the record to conclude it reasonably likely a blowout would have been triggered by causes other than a puncture. Whitear testified the catastrophic failure of nylon bias ply tires can be due to excessive heat, which builds up air pressure, which, in turn, can cause the tire to disintegrate (Tr. 218). Sherer too believed air pressure and heat could put stress on the tire (Tr. 92). Whitear, the most knowledgeable witness, testified the critical temperature was over 238 degrees Fahrenheit **C** a temperature discernable by touch **C** and the critical air pressure was 25 percent over the tire=s PSI rating (Tr. 217-218). Whitear also observed that heat buildup can be caused by Along distance hauls at high speeds[,] . . . [e]xtreme over-loading[,] . . . [o]r tires run[ning] underinflated@ (Tr. 217).

There is no evidence to lead to a conclusion the tire was subject to overheating and/or excessive air pressure. While Skeens agreed air pressure and heat are important indicators of tire safety, he did not measure either because he did not have an air pressure or a heat gauge with him (Tr. 48, 60). However, he touched the tire and did not find its temperature abnormal (Tr. 60-61, 67). Brannon and Schranz, who also touched the tire, agreed (Tr. 152, 188).

Further, there is no evidence the truck traveled long distances at high speeds, or was in the practice of hauling while overloaded or with its tires underinflated. Indeed, Whitear=s testimony that coal is a relatively light mineral and that it is Avery tough@ to overload the truck was not challenged (Tr. 227).

Because I conclude the Secretary did not establish that a blowout was reasonably likely to occur, I need not reach the issue of whether an injury was reasonably likely in the event of the tire=s catastrophic failure. Nevertheless, I note Skeen=s acknowledgment that of the ten tires on the truck, the subject tire was the most safely positioned (Tr. 70), and Sherer=s belief that even a catastrophic failure of the tire would not jeopardize the truck=s stability and would have Avery little@ to do with its steering and/or braking (Tr. 117). I also note Schranz agreed with Sherer that if the tire lost air, it would not cause the driver to loose control of the truck (Tr. 191).

Finally, because there is no indication that Skeens considered proximity to the tire to be hazardous during his inspection **C** testimony he allowed the inspection party to remain in the vicinity of the tire for at least 10 minutes was not challenged (Tr. 146-147, 156) **C** the credibility of his fear that the tire endangered miners conducting air pressure readings, fueling the truck, or inspecting the truck is questionable (Tr. 34).

For all of these reasons, I conclude the Secretary failed to prove there was a hazard warranting correction. My conclusion should not be read as critical of the inspector. Skeens conscientiously did what he thought the law required based upon what he saw, and what he saw was a cause for concern. Whitear admitted the tire appeared to be badly damaged (Tr. 214), and

he described the area of greatest wear as Alook[ing] terrible@ (Tr. 226). However, the law requires the citation be judged by what a reasonably prudent person familiar with facts would have concluded, or, put another way, whether the cited equipment could have been used safely by miners (*Southern Ohio Coal Co.*, 13 FMSHRC 913, 915 (June 1991)), since if so, a reasonable person could not have concluded it was unsafe.

What appears Aterrible,@ may or may not be safe. In any event, the burden of establishing reality behind the appearance is the Secretary=s. Because the Secretary failed to satisfy this burden, the citation must be vacated.

ORDER

For the reasons set forth above, Citation No. 4366332 is **VACATED,** and this proceeding is **DISMISSED**.

David Barbour
Administrative Law Judge

Distribution:

Kristi Floyd, Esq., Office of the Solicitor, U. S. Department of Labor, 1999 Broadway, Suite 1600, Denver, CO 80202-5716 (Certified Mail)

Michael O. McKown, Esq., LaTourett, Schlueter & Byrne, P.C., Commerce Bank Building, 11 South Meramec Avenue, Suite 1400, St. Louis, Mo 63105-1793 (Certified Mail)

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Further, there was not evidence that dump truck was

Generally, as tires are worn they are rotated from the steering and drive wheels to the rear wheels of the tractor (Id.). (Gordon Brannon, Big Sky=s safety manager, described the way a tire=s location is usually determined by the tire=s condition. AWe usually keep the front steering tires in immaculate condition, the drivers in pretty fair condition and the worn tires placed on the inside of the dual [rear tires]@ (Tr. 170). Mike Schranz, the mine=s maintenance supervisor agreed, AWe=ll put the new tires on the steering axle. We will remove the tires from the steering axle and put those on the drivers, and the most worn tires will be put back on the trailer@ (Tr. 182).) The wheels support the bed of the truck, including coal when the truck is loaded. The wheels of the front section move right and left, left and right, to allow the truck to turn. The eight rear wheels move forward and backward only.

(Skeens guessed the tire contained a total of approximately twenty plys (Tr. 52).) (The tire also had minor cuts in it, but Skeens did not believe these posed a problem (Tr. 63). The damaged areas extended into the carcass of the tire and, in Skeens view, the severed plys lessened the tire=s strength and compromised its structural integrity. Skeens speculated the worn areas were caused when the brakes locked and the truck skidded (Tr. 67). Skeens asked Brandon to look at the worn areas, which he did (Tr. 60). Skeens estimated that he, Brandon and Pemble were in the immediate vicinity of the tire for 10 minutes (Tr. 61).

Even though he acknowledged that of all the truck=s tires the cited tire was in the safest position (Tr. 70), Skeens believed it nonetheless posed a danger to miners. Mike Schranz, the company=s maintenance manager, totally disagreed, and staed that even if the tire lost air there was no danger of the truck=s driver losing control of the vehicle (Tr. 191). Skeens described the roads at the mine as Apretty well kept@, although at times coal from loaded trucks could spill into the road (Tr. 69). However, if haulage trucks run over coal, the trucks crush it and the coal poses no danger to tires.

On the other hand, safety manager Brannon maintained the haulage roads used by the trucks were constantly graded to keep rocks and debris off the roads (Tr. 152). There is a grader working full time on the roads during each of the mine=s three shifts (Tr. 167). Indeed, Schranz testified two graders work on the roads during the first shift (Tr. 183). In addition to rocks, the graders

remove snow and mud from the road (Tr. 167). According to Schranz, most, if not all of the time, there is one grader available to clear rocks and debris from the mine=s haulage roads (Tr. 184). Skeens also acknowledged all of the trucks at the mine are equipped with CB radios and that the truck operators communicate Apretty well most of the time@ (Tr.70, see also Tr. 184). Therefore, operators can usually avoid rocks (Tr. 70, see also Tr. 153-154). Brannon maintained on the day the citation was issued the roads were in good condition (Tr. 153).

Skeens believed the company knew or should have known about the damage because the worn areas were visually obvious and, judging by the extent of the wear, the damaged areas probably had existed for several weeks. The tire was required to be preshift examined, and the defective tire should have been observed and removed from the truck as a result of these examinations.

Skeens agreed measurements of a tire=s air pressure and heat are important indicators of the safety of a tire (Tr. 48). This is because heat causes the tire=s air pressure to rise. Also, if there is enough heat, it can start to break down the components of the tire by melting the rubber (Tr. 55). However, Skeens did not have a pressure gauge or heat gauge with him and therefore, he did not measure the pressure (Tr. 60). Nor did he test for heat, although he felt the tire and did not believe it radiated any significant heat or that its temperature was abnormal (Tr.60-61, 67). Nevertheless, he believed the damage was extensive enough to be a violation of section 77.404(a), whether or not he conducted the tests (Tr.60).

Skeens was asked if MSHA had a policy when a tire should be removed from service. He stated, Athe only thing I know ... is in the program policy manual [PPM] it tells ... that worn tires ... would be a violation of [section] 77.404(a)@ (Tr. 56.) (With regrard to MSHA interpretation of section 77.404(a), the PPM states in part, AThe presence of defects, such as worn tires . . . could indicate that [machinery and equipment subject to the regulation] are not maintedsafe operating condition. Therefore a violation of [section 77.404(a) would exist if such defects rendered the equipment unsafe to operate@ (Exh. P-2 at 7).) He agreed, however, the PPM did not define what Aworn@ means. Moreover, there is no written policy regarding when a worn tire should be removed. Nor had Skeens ever been told by any person at MSHA when a worn tire should be removed (Tr. 71).

Erik Schere, an MSHA mine engineer, agreed MSHA has no guidelines regarding when a tire should be removed from service. Except that it should be removed when it Acould affect the safety of the people exposed to [it]@ (Tr. 107). However, Schere noted that Aas the tread wears down, the tire might be subject to increased likelihood of damage@ (Tr. 112).

Gordon Brannon, Big Sky=s safety manager, stated he was not aware of any MSHA policy regarding worn tires. He stated, AMSHA does not have a policy on what to do with worn tires. You can go back to the manufacturer and ask them, and they have no policy. Basically, it=s up to the companies when to change these tires out@ (Tr. 157). (Glenn Whitear, who spent approximately 43 years working in the tire business and testified as a tire consultant for Big Sky, stated that the rubber companies with who me was familiar (Bridgestone, Toyota, Yokohama, Goodyear, and Firestone, Ahad no written policy saying that a tire is unsafe at. . . [a] certain status

or . . . [a] certain point@ (Tr. 220).)

According to Skeens, although MSHA has no announced policy on allowing operators to use tires to the point where they will not longer hold air, a practice know as Arun out@, the agency does not consider it a safe practice (Tr. 56-57). He testified he spoke with his supervisor about it in an Ain-house discussion@ and they reached a Aconclusion ... that ... we were not going to allow a mine operator to run these tires until they destroy themselves or until they blow out@ (Tr. 71-72), that Awhen you see a significant amount of wear on [a] tire, particularly when the plies are starting to show damage, then it=s time to remove that tire from service and not allow it to blow out and kill somebody@ (Tr. 72). For example, Nevertheless, Skeens testified he was told by Mike McGuire, an engineer with MSHA who has since retired, that MSHA has a policy of regarding a tire has having reached a danger point when 20% of the its plies have been worn through (Tr. 64-65). Although the policy was not in the PPM, Skeens stated he used it as a Arule of thumb@ (Tr. 65).

Asked when an operator has violated section 77.404(a), Skeens testified, A[w]hen the tire shows significant wear and the damage is down into the nylon plies in a bias tire ... [a]nd come back to some of my discussions with ... McGuire, when you surpass 20 percent, then you=re too far. You=re beyond the line that=s out-of-service criteria@ (Tr. 73). He added, AI have told the operators that . . . when the plies of that tire start showing wear, then somewhere we=ve got to make a decision that it is time to pull this thing out of service and not just keep running it and waiting on it to blow out, because it will (Tr. 74).

Brannon testified that the fifrst time he heard about the using the 20 percent guideline as a standard for the removal of worn tires was during the close out conference after the inspection during which the citation was issued, but he stated th never had seen any written policy to that effect and that officials at Fletcher Cobre tire had told him there was no such policy (Tr. 158).

Erik Schere, an MSHA mine engineer also testified for the Secretary. Schere holds a masters degree in mining engineering from the Colorado School of Mines. Schere testified to a long work experience with several companies involved in surface mining. He stated that from almost Aday one@ of his work experience he was involved with tires like the one at issue (Tr. 81). He described bias ply tires as getting they strength from the nylon plies. The rubber in the tire adds very little strength to the tire. Primarily, its function is to maintain the air in the tire and to bond together the time materials (Tr. 83). The nylon cords or plies run at a 30° to 40° angle from bead to bead, up one sidewall, across the tread area, and then down the other sidewall. The cords are layered in the tire and bonded to the tire structure by rubber (Tr. 83, 87). (The Abeads@ are steel wires, bundled together, on the inside edges of the tire . The bead helps to secure the tire to the rim and to serve as anchoring points for the nylon plies (Tr. 83, 212). The tread area of the tire is for wear resistance and traction (Tr. 83). Sherer believed there were a total of 20 nylon plies in the tire (Tr. 87-88). In general, Shere thought a bias ply tire of the type in question could be used safety for Atwo to three thousand [hours], maybe four thousand hours at the top end@ (Tr. 89). The plies also help contain the air within the inner core of the tubeless tire (Tr. 90). On the

other hand, Brannon testited a tire could be used up to 7,000 hours (Tr. 172), Shranz testified the company could get 8,000 of useful life from the type of tire cited (Tr. 187).

On the other hand, Glenn Whitear, a tire consultant who testified for Big Sky, disagreed with Sherer=s assessment. He explained that in the rea of the worst damage there would still be about wo inches on both sides of the damaged area that are a Asolid structural mass of four ply and rubber@ (Tr. 215). He believed the remaining plys that existed were Atotally strong and structured@ (Tr. 216). The fact that the plies were cut meant that the tire had lost the strenth of the ply to support its load (Id.). Although he acknowledged the loss of strength was somewhat offset by the fac the plies were bonded together with rubber and the rubbers could continue to hold some of the load for a period of time (Tr. 99).

Sherer believed, given the condition of the tire, it was reasonably likely the tire would blowout, and if that happened, reasonable to expect chunks of tire and/or gravel from the roadway to be projected from the tire or from its immediate vicinity and miners standing behind the tire would be subject to injury (Tr. 100). This would include miners conducting a preshift inspection of the truck and miners who checked the tire pressure (Tr. 105-106).

Because of the position of the tire, Sherer did not believe the tire jeopardized the stability of the truck (Tr. 117). Also, he stated it had Arelatively little to do with the [truck=s] steering and very little to do with the braking characteristics@ (Id.). (Big Sky=s safety manager, Gordon Brannon, agreed the cited tire was not involved in the steering of the truck (Tr. 140), and the mine=s maintenance manager, Mike Schranz, testified if the tire lost air it would pose no danger or losing control of the truck to the truck=s operator (Tr. 191). In addition, Whitear described the position of the tire as A@the safest . . . on the truck (Tr. 221).). Rather, AThe possible hazard ... is a blowout and projectiles being thrown ... and hitting people@ (Id.). The tire could fail if it hit a rock, or it could fail if it was run until it debonded; or, it could fail from its own internal air pressure (Tr. 118). He described the likelihood of an injury resulting from state of the tire as Anot a large likeliuhood, but that likelihood exists@ (Tr. 247). He stated he never would have Arun a tire to that point of damage@ (Tr. 119).

Shere acknowledged that all tires don=t end their lives in catastrophic failure, that they can simple go flat over time (Tr. 121). In fact, Schranz maintained most punctures result in tires going flat rather than exploding (Tr. 186). Further, even new tires can fail from a manufacturing defect or from a rock penetration or from heat buildup (Tr. 122-123). He described nylon ply tires as Acomplex@ with Amany modes@ for failure which a visual inspection cannot always indicate, although a visual inspection can indicate some problems (Tr. 124). Further, according to Whitear, catastrophic failure of a tire was when there is a sudden relases of air from the tire in a devastating explosion and the plys rip from one bead to the other (Tr. 214). In Whitear=s view, such a failure can be caused by overheating, which is over 238 degrees Fahrenheit (Tr. 218). If a tire reaches this point, a person can feel the heat when the person touches the tire (Id.). Moreover, if the tire gets hot enough, the tire literally will explode (Id.).

According to Whitear, catastrophic failure also can be caused by Arunning over an extremely large rock at high speed@ (Tr. 219). When this happens, the tire breaks from bead to bead. This can happen to a new or to a used tire (Tr. 219). In fact, because a new tire is not as strong as a worn tire (a new tire is not fully Acurred@ or run long enough so the heat fully melds together the rubber and the nylon plys (Tr. 218-219)) Whitear believed catastrophic failure also could happen with a new tire (Tr. 219).

Whitear also explained that when a tire is kept in service until it Afinally wears through most of the ply and the tire is worn to the last four ply, then Aa pretty good thing happens. That four ply isn=t strong enough to have stability and it begins to hinge, and that hinging causes a flexing of the liner and puts a small hole in the liner and allows the tire to vent itself safely (Tr.210-220). He maintained that is why Ayou don=t get catastrophic failures from wearing tires out, even running them to destruction@ (Tr. 220). Indeed, according to Whitear, Avery few@ tires end their useful lives with Acatastrophic failures@ (Tr. 220). (Sherer agreed such failures are Arelatively rare@ (Tr. 247).) Rather, most end with a slow release of air pressure (Id.). (Sherer also agreed with this (Tr. 247).) According to Whitear A90 to 95 percent of the mines run their tires to wear-out destruction . . . . until the cord actually has worn through all of the ply down to th[e] last ply pocket and then it flexes and lets the air out@ (Tr. 221, see also Tr. 233). (Sherer disputed this. He testified that in his experience 30 to 50 percent of tires are removed from service long before they will not hold air (Tr. 245). Whitear maintained in 43 years he Anever [had] seen an injury or a problem with that on . . . a tractor-trailer setup@ (Id.). He also believed most tires are not removed from service prior to the time they no longer hold air (Tr. 233-234).

Sherer speculated that it would not be usual for 3 percent to 5 percent of the tire to be consumed by wear in the course of a month (Tr. 115). However, Sherer did not know if the tire was new or used when it was placed on the truck (Tr. 117). Nevertheless, given the condition of the tire, Sherer stated he was surprised it had not failed before it was cited (Id.). Even though he acknowledged approximately half of the plies remained, he still believed the tire was unsage because Ait had roughly half of the remaining strength@ (Tr. 246). The area of greatest damage in the tire was Ajust a weak area ... that is subject to greater potential for bruises, cuts, et cetra (Id.).@

After Skeens wrote a citation charging the company with a violation of section 77.404(a), the tire immediately was removed from service (Tr. 62, 147).

Big Sky called Gordon Brannon as its first witness. He is the safety manager at the mine. His supervisor is the mine manager, Curt Belden (Tr. 133-134). Brannon explained that Big Sky is a subsidiary of Peabody Holding Co., which is the largest coal producer in the country (Tr. 134). The mine produced a total of four million tons of coal in 1997.(Tr. 135). There are a total of 122 employees (Tr. 136).

There are two draglines at the mine that strip overburden (Tr. 136). In addition, there are 11 haulage trucks (Tr. 136). The type of truck cited is a Abelly dumper,@ meaning it discharges from under the truck bed. The truck has a capacity of 150 tons (Tr. 137; see Exh. R-1).

Brannon stated that he has been working in the safety field at the mine for the past 25 years. As the safety manager, Brannon travels with MSHA inspectors during their inspections, and the accompanied Skeens during the inspection of May 6, 1997(Tr. 135-136, 142). Dave Pemble, the miner=s representative, also was present (Tr. 142). The inspection party went to the area where the trucks dumped their loads, because it was the safest place in which to pull the trucks over to inspect them. The cited tire was on the first truck inspected (Tr. 142-143).

Brannon and Shranz were near the front of the truck when Skeens motioned for them to come to the rear of the truck. When they got to the rear Skeens told them the tire was unsafe and he was going to cite a violation (Tr. 145). Brannon saw Skeens measure the flat surfaces on the tire. Neither Brannon nor Shranz saw Skeens take an air pressure measurement or measure the heat the tire was giving off (Id., Tr. 188). While Skeens was measuring the flat spots, Brannon, Pemble, and the truck driver, stood next to the tire and watched. Brannon did not believe at that time that he, or anyone else, was in danger (see Tr. 156), and Skeens did not express any concern for the safety of anyone who then was close to the tire (Tr. 146-147). He stated, AI didn=t think the tire was a problem@ (Tr. 146). He described himself as Akind of surprised@ when he learned Skeens was going to write the citation (Id.). He maintained that in the past 25 years he has been at the mine, the company never received a similar citation (Twr. 158). Brannon felt the tire and did not feel any heat (Tr. 152). In addition, the nine other tires on the truck were in good condition (Tr. 157). Schranz too felt the tire, he stated it did not feel any warmer than other tires on the back axle (Tr. 188).

Brannon noted most tires do not end their lives by blowing out. Rather, Ajust . . . don=t hold air anymore (Tr. 156)@. They just go flat (Id.). In fact he mainted that the usual practice at the mine was to Aput the bad tires or the worn out tires on the rear and wear them out (Tr. 158)@. They are used until Athey just don=t hold air anymore,@ and, he added, AI=ve never seen one blow@ (Id., see also Tr. 165). Shranz testified Avery few@ tires blew out (Tr. 183). He could not recall the last one to do so (Id.). Big Sky has no written policy regarding removing tires from use. Schranz decides when to take them out of service (Tr. 170).

After the tire was removed from the truck, Brannon took pictures of it (see Exh=s R7, R8, and R9). He also Acrawled inside@ the tire to tray to determine if there was any interior damage (Tr. 150). He described the inside of the tire as Aa perfectly clean, real good tire@ (Id.). In addition, Schranz and two mechanics cut out the section of the tire that was most worn away in order to determine how much rubber was left (Id.).

Brannon was asked why he believed the tire was not unsafe. He stated that Big Sky had an engineer measure all five flat spots. The flat spots constituted less than 5% of the surface area of the tire. Also, the tire had 24 ply layers and in the worst spot about half of the rubber was left, or about one inch of rubber (Tr. 154, see also Tr. 169, 174-175). (However, Brannon admitted he did not count the undamaged plys and although he testified he believed 12 plys remained in tact, he agreed did not dispute he stated the number was seven when he was deposed (Tr. 161-162). On the other hand, Schranz, who counted the remaining plys testified there were eleven left (Tr. 191, 195). Schranz testified he actually counted the plies. He agreed that more than half of the plys were damaged (Tr. 195), but he added Amore than 50 percent of the actual thickness of

that section of that tire was left@ (Tr. 195). (Whitear, who examined the tire and who actually measured ply area of the tire in the area of the damage after the area was cut from the tire, testified the total thickness of the body ply was l 7/8ths inch and that 31/32nds of an inch remained (Tr. 222).) Further, when Schranz looked inside the tire he could see that the tube was intact. Therefore, air was being retained inside the tire. Also there were no bruises, cuts or abrasions on the outside of the tire, an observaiton with which Whitear agreed (Tr. 151, 223). He acknowledged, however, that when tires are checked during the pre-shift inspection, the person doing the checking stands next to the tire (Tr. 163-164). He also acknowledged that with half the rubber missing in the most damaged spot, it was more likely a rock could push through into the tire (Tr. 175). Further, if a tire is gong to be punctured, he testified a tire is most likely going to be punctured on its tread area, not on its sidewall (Tr. 200).Still, if that happened he believed air Ajust seeps out@, that the tire would not experience a blowout (Tr. 175). Finally, Brannon testified he understood that a worn tire generates less heat than a new tire and Aactually is safer than a new tire@ (Tr. 176). On the other hand, Shranz testified that he had seen a new tire blow out when it ran over a rock that a worn tire could experience exactly the same phenomenon (Tr. 191). Shranz did not believe the tire was unsafe because AIt was an inside dual [tire], which is 55 feet or better from where the operator sits@ and A[t]here [are] no people on the ground where that truck operates@ (Tr. 192). In addition, after the cross sectional area was cut from the tire, Schranz examined the lining of the tire. (The tire lining holds the air.) He could not find any defects in the lining (Tr. 192-193). Nor did he observe any cuts or gouges in the sideqall (Tr. 193).

Schranz was asked how much useful life he believed was left in the tire. He estimated Aanywhere from two to five hundred hours@, which, he agreed, was Aalmost at the end of its useful life (Tr. 193). He acknowledged the tire was purchased by the company in a used condition and was placed on the rear of the trailer in the position it was found by the inspector (Tr. 203). He agreed when it was placed on the trailer in a Apretty used@ condition (Id.). Still, he estimated Aabout 95 percent of the tire ... was still in very good shape@ when the tire was taken off the trailer (Tr. 193).

Schranz was ãasked if a rock penetrated through the area of the tire where it was most extensively damaged, if it wasn=t possible it could have caused a blowout and reuslted in debris flying through the air. He replied if the most damaged area was on the ground the and the rock penetrated the tire at that point,@it could have blown some debris in the air (Twr. 205). He did not believe the tire would have disintegrated so that pieces of the tire were propelled into the air, but gravel from road could have been propelled because Adepending upon the orifice it was exiting, it could be quite a bit of air coming out of a small hole@ (Id.). Finally, he thought it was Apossible@ the tire was more likely to be punctured when there was less rubber to protect the tire from being penetrated (Id.).

The last witness for Big Sky was Glenn Whitear. He was employed by Uniroyal for twenty years, where he held various jobs including a giant tire development engineer. Whitear stated eight or nine of the years he spent with Uniroyal were spent solely working with giant tires. He estimated that about 90 percent of his time he worked with the mining industry and its use of giant tires. After he left Uniroyal, Whitear worked for J.W. Brewer Tire Co., a large distributor of giant tires located in Colorado. During his four years at Brewer, he assisted the giant tire sales

department. He then moved to Utah and did much the same job for the next six years with Superior Tire. Finally, he worked for the next fifteen years for Cobra Tire where he assisted sales by conducting engineering studies on giant tires Whitear estimated that before he retired in 1997, he spent approximately 43 years working with giant tires and 90 to 90 percent of his time working with issues that arose with their use in the mining industry (Tr. 208-210). He agreed the industry is Aa pretty heavy user of giant tires@ (Tr. 209-210).

Whitear explained how bias ply tires are constructed. They have a built in safety factor. Although he did not know what the factor was, he explained the manufacturers Aoverbuild and overstrengthen and underrate [the load factors] of these [giant] tires considerably@ (Tr. 232). He also agreed that a 42-ply rated tire contains 24 actual plys. Acording to Whitear even though the tire in question looked like it had been seriously damaged in the worst area in question, he asked that the safety of the tire Anot be judged on the bais of what visually happens when you look at the tire@ (Tr. 214). Rather, he explained the important thing to consider was Athe integrity of the tire@ (Id.). Whitear stated:

> We=re looking at the overall strength of the tire. That damaged area, the worst area, the longest, the widest was 14 inches. You take 54 inches on this ply pocket and subtract 14 inches and you=ve got 40 inches left. That means that on each side of that damaged area there=s still 20 inches on both sides ... that are a solid structural mass of four ply and rubber (Tr. 214-215).

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Tire repair and maintenance at the mine is performed by Fletcher Cobre Tire, a contractor of Big Sky. Usually, Fletcher sends a person to inspect tires on a monthly basis. Schranz, the mine=s maintenance manager, explained the Fletcher personnel visually examine the tires and check their air pressure. In addition, they give Big Sky written reports of their inspections. The reports include the presonnel=s recommendation for tire rotations or tire removals (Tr. 181). In addition, truck drivers and supposed to check daily all of a truck=s tires (Tr. 147-148). To the best of Brannon=s knowlege, the cited tire was never reported by the truck=s driver to be unsafe (Tr. 148). Schranz estimated Fletcher personnel last checked the cited tire between 20 and 30 days before the citation was issued (Tr. 198).

At the mine the policy is to move tires as they wear to the rear inside wheels (Tr. 152). It is the safest place for a tire (Id.).

Mike Schranz is the maintenance manager at the mine. He is responsible for the maintenance of large equipment at the mine (Tr. 178-179). He has had twenty three years of experience in maintenance work. As maintenance manager, Schranz is responsible for maintence records that are kept on such equipment, including the records kept on the ten haulage trucks used at the mine (Tr. 181). Shranz stated it was the company=s policy to use a tire as much as possible (Tr. 183).

Skeens explained the damaged to the tire penetrated through the tread layer and into the carcas of the tire, severing the various levels of ply that give the tire its strength. He feared if the

tire were not removed from the truck, it would blow out or otherwise fail and anyone in the vicinity of the tire likely would be injured. He believed that if the tire continued to be used, it definently would blow out or otherwise fail.