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Federal Mine Safety and Health Review Commission
Office of Administrative Law Judges

SECRETARY OF LABOR,
MINE SAFETY AND HEALTH
ADMINISTRATION (MSHA),
PETITIONER

CIVIL PENALTY PROCEEDING

Docket No. CENT 85-4
A.C. No. 29-00096-0350

v.

McKinley Mine

THE PITTSBURG & MIDWAY COAL
MINING COMPANY,
RESPONDENT

DECISION

Appearances: Richard L. Collier, Esq., Office of the
Solicitor, U.S. Department of Labor, Dallas,
Texas, for Petitioner;
John A. Bachmann, Esq., The Gulf Companies,
Law Department, Denver, Colorado, for
Respondent.

Before: Judge Koutras

Statement of the Case

This proceeding concerns a civil penalty proposal filed by the petitioner against the respondent pursuant to section 110(a) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. 820(a), seeking a civil penalty assessment in the amount of \$470 for one alleged violation of mandatory safety standard 30 C.F.R.

77.202. The violation is in the form of a section 104(a) citation, with special "S & S" findings, issued by MSHA Inspector Harold Shaffer on March 6, 1984.

The respondent filed a timely answer contesting the proposed civil penalty assessment, and a hearing was held in Gallup, New Mexico, on June 4, 1985. The respondent filed a posthearing brief, and the arguments presented therein have been fully considered by me in the course of this decision. Petitioner did not file a brief, but I have considered the Solicitor's arguments made during the course of the hearing.

Applicable Statutory and Regulatory Provisions

1. The Federal Mine Safety and Health Act of 1977. Pub.L. 95-164, 30 U.S.C. 801, et seq.
2. Section 110(i) of the 1977 Act, 30 U.S.C. 820(i).
3. Commission Rules, 29 C.F.R. 2700.1 et seq.

Issues

The principal issue presented in this proceeding is (1) whether respondent has violated the provisions of the Act and implementing regulations as alleged in the proposal for assessment of civil penalties, and, if so, (2) the appropriate civil penalty that should be assessed against the respondent for the alleged violation based upon the criteria set forth in section 110(i) of the Act. Additional issues raised by the parties are identified and disposed of where appropriate in the course of this decision.

In determining the amount of a civil penalty assessment, section 110(i) of the Act requires consideration of the following criteria: (1) the operator's history of previous violations, (2) the appropriateness of such penalty to the size of the business of the operator, (3) whether the operator was negligent, (4) the gravity of the violation, and (5) the demonstrated good faith of the operator in attempting to achieve rapid compliance after notification of the violation.

Stipulations

The parties agreed that the respondent's mining operations affect interstate commerce, that the inspection was performed and the citation issued as alleged in the complaint. They also agreed that the respondent produces 15,000,000 tons of coal a year, and that the payment of the civil penalty assessment will not affect the respondent's ability to continue in business (Tr. 4).

Discussion

Section 104(a), "S & S" Citation No. 2070578, issued on March 6, 1984, cites a violation of 30 C.F.R. 77.202, and the condition or practice cited is described as follows:

Coal dust was not prevented from accumulating in dangerous amounts inside the motor control center at the north coal preparation facility transfer building operator room.

Coal dust was spread throughout the inside of the electrical control center. This condition was one of the factors that contributed to the issuance of Imminent Danger Order No. 2070575 dated 3/6/84; therefore, no abatement time was set.

30 C.F.R. 77.702 provides as follows: "Coal dust in the air of, or in, or on the surface of, structures, enclosures, or other facilities shall not be allowed to exist or accumulate in dangerous amounts."

Petitioner's Testimony and Evidence

MSHA Inspector Harold Shaffer, testified as to his mining experience and background, and he confirmed that he has been employed as an electrical specialist since September, 1982. Prior to that he served as an electrical inspector with MSHA since 1977. He identified the subject mine as a bituminous coal strip mine located at Window Rock, New Mexico, and he confirmed that he conducted the mine inspection on March 6, 1984. After completing an electrical spot "classification inspection" at the mine south facility, he proceeded to the north facility (Tr. 8-14).

Mr. Shaffer explained that the metal coal transfer building used to transfer the coal from one belt to another belt housed the motor control room and operator's compartment. The motor control room is located at the top of the building, and the room is approximately 11 feet by 22 feet. The operator sits at a table where his motor controls are located. The controls operate all of the motor and conductor circuits in the building, as well as those located outside the building (Tr. 40-42). He explained that the transfer building operator's compartment is classified as a Class 2, Division 2 hazardous area under the National Electrical Code, Article 500, and that in order to make the area non-hazardous, it has to be purged of coal dust (Tr. 39). All electrical components used in such an area must have UL or FM approval, and all motors have to be totally enclosed. The motor control compartment was classified as Class 2, Division 2, because there were openings into the area (Tr. 44).

Mr. Shaffer stated that the purpose of the electrical component compartment which he cited was to prevent or eliminate coal dust from entering the inside of the compartment which contained electrical components such as line starters, and 3-phase circuit breakers. He identified the compartment in question as a NEMA (National Electrical Manufacturer's

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Association) type 12 enclosure, and in his opinion, it was not effectively maintained to keep coal dust out because the bottom was open (Tr. 14-16).

Mr. Shaffer stated that the opening at the bottom of the compartment cabinet was created when the compartment was fitted over the concrete floor to facilitate the entrance of electrical conduits servicing some 30 to 40 circuits inside the compartment enclosure. The coal dust migrated continuously up and through these conduit openings into the compartment.

Mr. Shaffer stated that when he first entered the compartment control room he observed two electricians and three other individuals cleaning up coal dust. One person was removing coal dust from inside the compartment with a non-approved vacuuming device. He observed that the energized main breaker was exposed, and the other individuals were removing the coal dust from the cabinets and pipes with rags. He estimated that there was coal dust approximately 1/8 to 3/16 of an inch inside the compartment where the conduit entered through the floor, and the dust was present on the conductors as well as the metal bottom portion of the cabinet enclosure. He did not measure the coal dust depths because he could not make accurate measurements due to the fact that the lighting was off and "everything was de-energized" (Tr. 19). In addition, it would be difficult for him to insert his wooden ruler into the bottom recesses of the cabinet and to read the measurement with his glasses on (Tr. 21).

Mr. Shaffer stated that one full time operator is usually working at the cited location, and he had no way of determining how long the cited coal dust condition had existed prior to his inspection. However, he did not believe that the accumulation could have existed for less than 1 day.

Mr. Shaffer believed that the presence of combustible coal dust in the motor control center with starters and breakers which are not dust proof would be hazardous under an abnormal operating condition such as a phase-to-phase fault in the electrical equipment. He identified a photograph of the result of an electrical phase-to-phase fault in a breaker at a coal facility, and he explained that it was an example of what could occur should such a fault take place, but conceded that no coal dust was present when this event occurred (exhibit G-6, Tr. 23). He confirmed that should such an event occur in the presence of coal dust an explosion hazard would be presented because coal dust will explode (Tr. 24).

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Mr. Shaffer stated that the circuit breakers and breaker arc traps would be a potential source of ignition. He identified a Westinghouse circuit breaker produced at the hearing for demonstration purposes, confirmed that it was similar to the breakers in the compartment which he cited on March 6, 1984, and he believed it was a source of ignition since it could produce a spark (Tr. 26). Respondent's counsel stipulated that the circuit breaker used for demonstration purposes, as well as others, is the type used at the cited control center (Tr. 26).

Mr. Shaffer agreed that in order for the circuit breaker or other electrical component inside the compartment to constitute a hazardous ignition source, there must be arcing, sparking, or some other breakdown in the electrical components (Tr. 27). He also agreed that "some type of an explosion" would have to occur to put the coal dust in suspension or produce a "dust cloud," but that any static electricity would not be a problem at all (Tr. 28-29).

Mr. Shaffer stated that he has conducted experiments with regard to the combustibility of bituminous coal dust, and he identified exhibits P-2, P-3, and P-4 as representative samples of the coloration of explosive coal dust in a cubic foot white area. Exhibit P-2 represents 5/100 of an ounce of coal dust; P-3 1/10 of an ounce; and P-4 6/10 of an ounce. He identified exhibit P-4, as the most dangerous in terms of combustibility, and indicated that with the greater amount of coal dust present, the greater the possibility of placing the coal dust in suspension. The coal dust he observed during his inspection was in excess of the amount shown in exhibit P-4 (Tr. 32).

Mr. Shaffer stated that in his experiment with combustible coal dust, he used coal dust similar to the kind which he observed on the day of the inspection, and that he induced an "explosion." He repeated the experiment in the courtroom for demonstration purposes. He explained that he weighed out 7/100 of an ounce of coal dust, placed it in the demonstration chamber, put the coal in suspension by a tube-type device, and then induced an electrical spark with a coil. This resulted in an explosion of the coal dust (Tr. 34-35).

Mr. Shaffer confirmed that the cited conditions were abated when the coal dust was cleaned up and removed from inside the electrical center and operator control room, thereby removing the existing hazard (Tr. 38).

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On cross-examination, Mr. Shaffer identified exhibit R-1 as a copy of a citation he issued at the south mine facility prior to his inspection at the north mine. He confirmed that he issued the citation after finding accumulations of coal dust inside three different electrical compartments which were approximately the same devices as those cited at the north facility. He estimated that the coal dust present at the south facility citation locations might have been 5/100 of an ounce per square foot, or similar to the color of exhibit P-2, the lightest colored coal dust sample. The second location cited was also light in color, and at the third location the accumulations had already been cleaned out. Under these circumstances, and since he did not consider that the coal dust accumulations were enough to present a hazard, he subsequently vacated the citation (Tr. 45-48). He confirmed that he took no coal samples, and that it was possible that the areas may not have been completely all coal dust (Tr. 49).

Mr. Shaffer stated that the coal dust present in connection with the citation at the north facility was black and "paper-thin," and at the bottom of the compartment it was heavier where it entered the compartment through the openings (Tr. 50). He confirmed that the coal dust was inside the component compartment or control center as shown in photographic exhibit R-2. The motor control center consists of the group of electrical cabinets positioned back-to-back, and the photograph represents the face, and there is a similar face on the other side. All of the electrical control for the tipple facility, i.e., the crusher, load-outs, and belts is inside the motor control center (Tr. 52-54). Everything in the building is classified as Class 2, Division 2, and Mr. Shaffer confirmed that it was so classified by MSHA by letter dated May 25, 1977 (exhibit R-3; Tr. 55-56).

Mr. Shaffer stated that the electrical code for a Class 2, Division 2 area does not prohibit accumulations of coal dust, but it does require that the equipment which is in such a location be approved for that location (Tr. 56). He explained further as follows (Tr. 57-59):

Q. But doesn't the National Electric Code in Class 2, Division 2 say that dust accumulations, or the gist of it, I should say, because I paraphrased it, that the dust accumulations are all right so long as they don't interfere with the normal operations?

A. As long as the equipment is approved for location, there's nothing wrong.

Q. So you can have dust accumulations in this area?

A. Right, Yeah, there's nothing says you can't.

Q. But didn't you earlier testify that PNM didn't prohibit--or prevent dust from accumulating in there?

A. That's correct, because the equipment isn't approved for the location.

Q. We seem to be chasing our tail here, Mr. Shaffer, the building's classified for dust and all the devices that are in it have been approved for a Class 2, Division 2 area.

A. Well, whoever approved them, that I don't know. I mean, I was--it ain't my problem that they done it, but the National Electric Code specifically states they got to be approved for the location. You got receptacles in there. You had a heater, I think it was a heater with an air conditioner on it. Neither one of them was UL or FM approved for the location, for a Class 2, Division 2 area.

Q. Are they inside the motor control center?

A. No. But the breakers aren't either.

Q. Are the breakers required to be dust-tight?

A. They can't be dust-tight. That's why you had the cabinet, to keep the dust out.

Q. They're only required to be dust-ignition proof, aren't they?

A. They're not even required to be dust-ignition proof, because they got to be ventilated, because of your RPM temperature build-up, and your conductors and your terminals.

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Q. All those devices though are approved for that area.

A. No, the--inside that compartment is not approved, no, sir, not the--not the electrical components.

When asked what led him to believe that there was a dangerous accumulation of coal dust present when he issued the citation in issue in this case, Inspector Shaffer replied as follows (Tr. 64-65):

A. Just by the color of it and the depth of it.

Q. And why does the color and depth of the coal dust accumulation make it dangerous?

A. Because you have more chance when you have a large amount of coal dust, you get that five-hundredths of an ounce into suspension into a dust cloud, also under abnormal operating conditions, you have a breaker that blows, it's going to put that in suspension and it's going to blow the whole compartment up.

Q. Is coal dust--let me rephrase the question. Was the coal dust that was lying in these cabinets dangerous as it laid there?

A. No, it was not dangerous as it lays, not just laying.

Q. Now, what do you--how would that--let me rephrase the question again. What do you know about the suspendability of coal dust? Have you had any training in that?

A. All I know is what I read, and I read a lot of articles on it.

Q. Now, how would you propose that this coal dust get into suspension?

A. You'd have an--all you'd have to have is a breaker explode.

Q. And how long does a breaker explosion last?

A. Well,--well, once the dust is in suspension, then it don't take that much energy to ignite the dust cloud.

Q. Well, the question I asked you, how long does the breaker explosion last?

A. Well, it would last long enough to put it into suspension, if you had enough coal dust in there, you'd get that much in suspension.

Q. And how violent would a coal--or excuse me, a breaker explosion be?

A. All right. Once the initial would take place, then you would have the promulgation of the rest of the dust going into suspension explosion.

Q. Well, I'm--I'm asking you how violent the explosion would be. You need some kind of energy output to raise the dust, don't you?

A. Yeah, you--once the explosion takes place, it's going to raise everything.

Q. But how violent is the explosion does the breaker? Does it go off like a firecracker? Does it go off like a paper bag being popped? Does it go off like a balloon being broken.

A. Well, it could go almost any way under the conditions, you know, under the fault.

Mr. Shaffer stated that in his 30 years experience with electrical systems, he has seen no multi-case type circuit breakers blow up. He has heard of five or six exploding since he has been with MSHA, and he confirmed that while such an explosion would place coal dust in suspension, the presence of a spark would be required to ignite it. The spark would be present because the conductor and insulation would be on fire if the breaker blew up (Tr. 67).

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Mr. Shaffer believed that the coal dust in the cited control center cabinets would be dangerous because an abnormal fault could put the dust in suspension. He indicated that the distance of the breakers to the coal dust ranged from 8 to 15 inches at different locations (Tr. 68). Absent an abnormal condition, the possibility of a "smoldering fire" existed (Tr. 68).

Mr. Shaffer stated that his prior citation at the south mine was vacated because there was not enough coal accumulations for the areas cited, whereas in the north facility there were enough accumulations for the areas cited (Tr. 71).

Mr. Shaffer confirmed that enough coal dust must be present to put it in suspension, something has to be close enough to put it in suspension, and an ignition source must be present. During normal operating conditions, there would be no existing ignition sources inside the motor control center. Although a hot conductor could ignite the coal, an explosion would not result because the coal dust has to be in suspension before it will explode (Tr. 69-70). He also testified as follows (Tr. 70; 72-73):

Q. So, this quiescent coal dust, this coal dust laying in this cabinet, is only dangerous when it becomes suspended and ignited?

A. That's correct.

Q. And it could only become suspended in these cabinets under a fault or abnormal condition?

A. That's correct.

Q. During normal operation, there is no ignition source?

A. Well, there is an ignition source, the electrical wire and stuff is there, you know. The potential is there. I mean, it's always there. You can't take it away.

Q. This coal dust that was in these cabinets did not interfere with the normal operation of the cabinet--of the electrical devices at the time, did it?

A. No.

Q. So it wasn't dangerous to the operation itself?

A. No, sir, it wouldn't be dangerous to the operation itself, no.

Q. Now, just for clarification of the record, would you tell us again how the coal dust could be placed in suspension in that facility?

A. The only way I see possible, the way it can be put in suspension, under an abnormal condition, with something exploding in there, to put it--to make it get a dust cloud up, then that's the only way.

Q. Are you talking a spark from some of the electrical equipment?

A. We're talking about something exploding in that compartment. You would have to have an explosion to put that dust into suspension and that spark being there at the time then.

Q. So what you're really talking about is two explosions?

A. Yeah, yeah, the first explosion won't make the coal dust, it would only make a dust cloud. Once the dust cloud gets in suspension, you'd get five-hundredths of an ounce, and then you'd have a spark, then you would have ignition.

Q. So you're talking about a little explosion placing it into suspension. Then you're talking about a big explosion after that?

A. Yes, sir

Q. It could--

A. Excuse me, sir. The last one would be according to how much coal dust was there.

And, at Tr. 83-84:

Q. Now, when you saw the coal dust in here, was it in these areas in this whole motor control center, was it generally in flat uniform layers or was it bumpy and ridged?

A. It's more of the smooth.

Q. Nice and layered?

A. Yeah, it's float. It's stuff that settles.

Q. Even around the--the conduit openings where it was coming in, it wasn't ridged up or anything, it was just laying there flat?

A. No, in there, it's more irregular, plus it was on the conductors themselves. It was laying heavily on the conductors, of all conductors.

Q. And are they ignition sources as they lay there?

A. Oh, they definitely are, yes.

Q. Why is that?

A. Well, they--one of them, you could have a fault in one of the circuits, or else one of your motor controls, breakers, could be--it won't trip, it's faulty, and that conductor could be shorted on the other end, it could get red hot.

Q. I see. And that will cause a coal dust explosion?

A. It'll catch on fire.

Q. But it won't cause it to explode?

A. Well, we're only talking about dangerous accumulations now. A fire is also going to give off CO, and if a man's in that room up there, it's possible that he'd be overcome.

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Q. How far would that fire spread across this coal dust that was accumulated in the bottom?

A. I--I personally, I couldn't tell you.

In response to bench question concerning exhibits P-2, P-3, and P-4, Mr. Shaffer stated as follows (Tr. 89-90):

JUDGE KOUTRAS: Now, let's assume that you had observed coal dust or float coal dust the color of P-2, which is the lighter of--would that still be dangerous, in your opinion?

THE WITNESS: Could I see which one is P-2?

JUDGE KOUTRAS: Yeah, it's the first one there. Mr. Collier, I believe, is the lighter one. I believe it's that one. isn't it?

MR. COLLIER: Yes, sir.

THE WITNESS: No, that one I wouldn't.

JUDGE KOUTRAS: If you'd of seen the coal dust--if you'd seen the accumulations of that color, coloration, you wouldn't have issued a citation?

THE WITNESS: No.

JUDGE KOUTRAS: Because you wouldn't consider that to be dangerous?

THE WITNESS: No.

JUDGE KOUTRAS: How about the next one down, the P-3?

THE WITNESS: The next one, I would hesitate now about even writing it as a dangerous accumulation.

JUDGE KOUTRAS: And why is that?

THE WITNESS: That's one-tenth of an ounce. Due to the fact it would be hard to get

five-hundredths of an ounce of that into suspension.

JUDGE KOUTRAS: Okay. Now, you claim that the color that you saw was what's--which is on the last exhibit, P-4 there, and you were of the opinion that was dangerous?

THE WITNESS: Yes, sir.

Respondent's Testimony and Evidence

Ernest Yazzie testified that he is employed by the respondent as the supervisor of safety and training at the McKinley Mine, and has served in that position for 3 years. Prior to this, he served as a company safety inspector and mine foreman, and his total experience with the respondent is approximately 9 years. His duties include supervision of all mine safety activities, keeping compliance records, and accompanying mine inspectors during their inspections.

Mr. Yazzi stated that he was familiar with the mandatory standards found in Part 77, Title 30, Code of Federal Regulations, and he confirmed that he accompanied Inspector Shaffer during his inspection on March 6, 1984, and that the citation was served on him.

Mr. Yazzi stated that Mr. Shaffer began his inspection at the south mine surface facility where he issued a ladder guarding citation, a citation for using a non-approved vacuum cleaner, and a citation for coal dust accumulations on certain electrical compartments (exhibit R-1). However, the citation for dangerous coal dust accumulations charging a violation of section 77.202, was subsequently vacated by Mr. Shaffer. Upon completion of the inspection at the south mine location, he and Mr. Shaffer proceeded to the north coal preparation facility transfer building where the citation in issue in this case was issued at approximately 2:00 p.m.

Mr. Yazzi stated that Mr. Shaffer issued the citation in question after finding coal dust accumulations in the operator's control room at the top loadout and sampler building. The coal dust was found on the operator's motor control panels, and he identified four photographs as the equipment where the accumulations were found to exist (exhibits R-2-a through R-2-d). He stated that when they arrived at the control room, two electricians and the tipple operator were in the process of cleaning the coal dust with rags. Although a vacuum cleaner was present, Mr. Yazzi denied that it was

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being used, but he admitted that it was probably intended to be used to clean up the accumulations, but since it was not approved by MSHA, it was not in fact used.

Referring to photographic exhibit R-2-c, Mr. Yazzi stated that he observed coal dust accumulated inside the opened circuit breaker shown in the photograph and that it was "greyish" in color. He indicated that the coal accumulations he previously observed at the south surface facility cited earlier by Mr. Shaffer were no different than those cited at the north facility location. However, he conceded that the coal dust accumulations which were present at the bottom of the equipment cabinets where a number of cables and conduits entered the enclosures were darker in color, and that this was true at both the south and north facilities. He identified photographic exhibit R-2-a, as the control panel in question, and he indicated that at the time of the inspection at the north facility, the bottom panels had been removed and the openings permitted the coal dust to enter the inside of the entire enclosure.

Mr. Yazzi stated that upon arrival at the cited control room north facility some of the panel doors were open and that the electricians were in the process of opening the other cabinet panel doors to facilitate the cleaning of the coal dust. He confirmed that Mr. Shaffer issued a closure order taking the equipment out of service, and that he did so because the equipment was energized. He explained that the power was on "the main feed lines," but that the electricians turned off each of the individual circuit breakers as the cabinet doors were opened, and that this de-energized all circuits below the breakers. However, Mr. Shaffer insisted that the main power breaker be shut down before the clean up was allowed to continue, and this was done.

Mr. Yazzi confirmed that he discussed the cited conditions with Mr. Shaffer, and that when he asked him why the coal dust accumulations were dangerous or hazardous, Mr. Shaffer replied "if they are black, its dangerous." Mr. Yazzi was of the opinion that the cited coal dust accumulations were not dangerous. He stated that the accumulations were the result of normal operating conditions, and it was his opinion that the accumulations were a "normal four-week" accumulation. He also indicated that such coal dust accumulations are cleaned up on a monthly cycle, but that since the citations were issued, they are cleaned up every 2 weeks (Tr. 123-132).

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On cross-examination, Mr. Yazzi stated that when he arrived at the motor control center some of the cabinet doors were open and the electricians were still opening others. He saw no one using the vacuum cleaner. With regard to the prior citation issued at the south mine, Mr. Yazzi stated that the only difference in the coal accumulations at the north mine was with respect to the color of the coal at the bottom of the control center. It was darker in color (Tr. 137).

Mr. Yazzi believed that the clean-up which was in progress at the time Mr. Shaffer arrived on the scene was simply a coincidence, and the clean-up had just started. Other cabinets in other areas of the building had been cleaned up before Mr. Shaffer arrived at the control room (Tr. 140).

Frank Scott, testified that he has been employed at the mine as an electrician foreman for approximately 7 1/2 years. He has 25 years of experience as an electrician, including work as an electrical contractor. He attended the University of Texas for 3 years taking electrical engineering courses, but he did not receive a degree.

Mr. Scott stated that he was familiar with the electrical equipment which was cited in this case, but confirmed that he was not present during the inspection and did not observe the cited coal dust accumulations. Mr. Scott confirmed that the type of electrical equipment which was cited is subject to routine break-downs and failures, and that while circuit breakers have been known to fail and needed to be repaired or replaced, he has never known any to "blow up." He stated that under normal operating conditions, all of the electrical component parts in question, such as the wiring, breakers, overloads, and fuses are sized so as to preclude the overheating of any wires or cables. They are also designed to prevent arcing across the phases.

Mr. Scott stated that in his experience, he has known circuit breakers to crack or burn internally when they did not "re-set" after tripping due to an overloaded circuit, but he has never known any to physically "blow up" or disintegrate (Tr. 140-146).

On cross-examination, Mr. Scott stated that under normal operating conditions, there is no ready ignition source within the cabinet components of the electrical equipment in question. He stated that while he has observed transformers with fuses which had blown or which had shorted out, he has never known of any which had "blow up." He stated further

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that he could think of nothing which would place the coal dust accumulations into suspension within the electrical component cabinets in question (Tr. 147-152).

Dr. Robert V. Dolah testified that he is a self-employed consultant in the field of all types of fires, gas, dust, and paper explosions, and spontaneous combustion. He was employed with the U.S. Bureau of Mines from 1954 to 1978, when he retired, and he served as head of the group at Pittsburgh and Bruceton, Pennsylvania, which was concerned with fires and explosions. He served as the research director of the Pittsburgh Mining and Safety Research Center. He holds a B.A. in chemistry from the Whitman College, Walla Walla, Washington, and a PH.D. in Organic Chemistry from the Ohio State University (Tr. 153-155). By agreement of the parties, Dr. Dolah's credentials and background were admitted as part of the record in this case (Tr. 155, exhibit R-5).

With regard to the photograph depicting the results of an electrical fire as testified to by Inspector Shaffer, Dr. Dolah stated that had there been coal dust present in that instance in the amount testified to by the inspector, its contribution to the fire would have been miniscule in contributing to the full load compared to the wire insulation which was present (Tr. 157).

Dr. Dolah stated that Mr. Shaffer's estimate of the amount of coal dust one can calculate to provide the minimum explosive concentrations in any electrical compartment is incorrect. He indicated that recent studies conducted by his group indicates that .135 ounces of coal per cubic foot is the minimum explosive concentration. For any reasonable ignition sources that may be present, he estimated that it requires three times that amount to constitute an explosive concentration. Although the blackest coal dust sample as depicted by exhibit P-4 contains 10 times the minimum required explosive concentration, by simply lying inert on a surface area it does not constitute a hazard or a dangerous accumulation. Simply being in the presence of combustible insulation, with nothing burning, the coal dust will not explode. In order to be dangerous, the accumulated coal dust must be capable of being suspended to provide an explosion. Otherwise, the coal dust, at best, will only smolder very slowly, and a thin layer of dust on a metal plate will not smolder (Tr. 158-159).

Dr. Dolah stated that in underground coal mines, methane provides the initial explosion, and the initial dynamic wind from that explosion picks up the coal dust and fire, and this

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results in a propagating coal dust explosion. While there have been instances of explosions in the absence of methane, these were the result of the improper use of non-permissible explosives which dispersed large quantities of coal dust which was present in the working place (Tr. 159-160).

Dr. Dolah could not cite anything that would create a coal dust cloud inside a closed electrical cabinet. Even if a breaker or a starter motor were to fail, an explosion would not be associated with these events. In the photograph of the electrical fire, he did observe evidence of a fire but not an explosion (Tr. 161).

In addition to the creation and presence of a coal dust cloud, Dr. Dolah indicated that sufficient wind must be present to suspend the coal dust. In a series of several investigative research reports completed under his supervision, a large amount of coal dust required winds at 100 miles an hour to place it in suspension. Very fine coal dust requires winds of hurricane force to place it in suspension. Dust which is simply lying on tiles in artificially ridged piles in a "wind tunnel" apparatus required winds of 20 to 30 miles an hour simply to move it (Tr. 161). He could perceive of nothing which would create a wind of this magnitude inside a closed cabinet, and he finds it difficult to understand how any reasonable accumulation of coal dust inside such a cabinet presents a dangerous accumulation (Tr. 162). He further explained as follows at (Tr. 168-170):

Q. Now, in other words, the coal dust wants to stay where it is, is what it amounts to?

A. Yeah, there's no reason for it--it--all dust explosions, except under conditions where we've had--that there was an ample concentration of dust in suspension at the time there was an ignition source, all other dust explosions occur when there is a violent aerodynamic force that picks up the dust and disperses it.

Q. And what you said earlier, you can't conceive of any, having looked at these cabinets, you can't conceive of any event that would supply the necessary energy to suspend the coal in any instance?

A. The only one would be explosion in the whole building.

Q. We wouldn't have to worry about the coal dust then?

A. That's right--well, the coal dust inside these compartments, no.

Q. Now, what about the thermal effects. What if, as Mr. Shaffer testified, there was--there's coal laying on the conductors and the wire can get hot because of a loose connection and start burning and it's--your breaker where it comes through the bottom of the box, you got this sixteenth of an inch or three-sixteenths of an inch of coal dust, and you could have a fire down there that would smolder and get it in suspension somehow?

A. Well, the coal dust could smolder, that coal dust in the immediate proximity to the wire that's--that's hot could smolder, but even in a sixteenth of an inch or even an eighth of an inch layer, that smoldering propagation is not going to propagate away from the fire. And in no way is that smoldering combustion going to lift other dust and create a dust cloud.

Q. What about an electrical fire just on the insulation and a fire for whatever, a fault starts in the cabinet and you get an electrical fire going, vis-a-vis that picture for instance--

A. Yeah.

Q. --will that cause coal dust to go into suspension?

A. No. The conductive forces associated with a fire even like a pretty intense fire that we have here, won't really lift up the dust that's lying on the plate down here at the bottom.

Q. So, you can't get enough thermal wind to disturb it?

A. Well, it's--you see, the winds are going up, and they're not going up all that fast, you know, even in a fireplace in a chimney, and so forth, the actual draft is--it's not going up there miles an hour, let alone the air that's coming in at the bottom, into the--into the fire. That, you know, that's almost immeasurable. You--it's going in, but there's no winds associated with that, even in--in a fireplace.

Q. What then is your conclusion with respect to--and Mr. Shaffer testified that the cabinets had as much dust on as that middle sample, what is your conclusion with respect to the danger--dangerousness, to make up a word, I guess, of that accumulation?

A. Well, I don't--I don't think that it represents a danger, because I cannot see that it contributes a significant additional fuel load in the case of a fire, nor does it--do I conceive--do I--I'm not able to come up with a credible mechanism whereby I can go from this dust layer to a dust cloud. And I must have a dust cloud before I can have a dust explosion.

Q. It must be suspended?

A. Yes.

On cross-examination, Dr. Dolah stated that he finds section 77.202 of MSHA's regulations impossible to apply in all cases. He also stated as follows at (Tr. 171-172):

Q. Let me ask you, do you think it's--it's possible to have an accumulation of--of coal on the floor of a compartment like we talked about today in an amount that would be dangerous?

A. I would think that there was a--there was an increased fire hazard when one has an accumulation in there such that the dust could undergo spontaneous heating. That if there was sufficient dust in there that it significantly increased the fuel load within that--within that compartment. Regardless

of the amount of dust that you have inside the closed compartment, I still have to have some mechanism of getting that dust into suspension before I can conceive of a dust explosion. And if I have a closed compartment, I have to conceive of some external mechanical force that disrupts this compartment, or I have to conceive of an aerodynamic force within the compartment and short of an explosion outside or short of an explosion inside that has to be of an energy that is great compared to what I'm interested in, I can't get this--these aerodynamic forces or these mechanical forces. I can't find a credible mechanism for suspending that coal dust.

Q. Have you considered in all respects, Doctor, the--any extraordinary acts that could occur that could cause an explosion?

A. Well, I mentioned one. That was an explosion outside.

Q. Could cause an explosion inside?

A. Yeah.

Q. You have or haven't considered extraordinary events that might not cause this?

A. Well, I consider that to be most extraordinary. And, at Tr. 173-174; 175-177:

Q. Doctor, could coal dust in the amount of .05, five hundredths of an ounce per cubic feet cause an explosion if put in suspension?

A. That amount, that concentration of coal dust is not in itself ignitable.

Q. Have you personally ever experimented with that amount of coal dust in suspension?

A. No. I have--I have seen the kind of demonstrations that Mr. Shaffer put on, and I've seen those several times. I have seen the Hartman bomb operated on a variety of

dust many times, and I have--I have seen the most recent work that has been published by the Bureau of Mines, and which--which shows that the original numbers are incorrect. And I say there's a great problem of making these measurements. If you look in the literature on this minimum concentration for coal dust, of a dust comparable to Pittsburg coal dust, you'll find numbers running all the way from one-hundredth of an ounce per cubic foot to .23, nearly a quarter of an ounce of--per cubic foot, and all of these numbers have their--have their proponents, but I believe that the most recent work of--beginning in the late 70's and still continuing, done by the Bureau of Mines, I sort of doubt these problems quite reasonably.

JUDGE KOUTRAS: You indicated that, in your opinion, that the specific regulation that we're dealing with, 77.202, is impossible to apply in all cases.

THE WITNESS: In all cases, because it depends on the circumstances, the possibility and what credible mechanisms exist for the suspension of this coal dust.

JUDGE KOUTRAS: Okay, Now, given the facts in this case, given the conditions or practices that the inspector observed, that Mr. Shaffer saw--

THE WITNESS: Yes.

JUDGE KOUTRAS:--with respect to these compartments, can you envision any situations connected with that equipment where this particular regulation would come into play?

THE WITNESS: No, I cannot.

JUDGE KOUTRAS: Now, counsel--Mr. Collier asked you some questions about the--the explosion factor here and Mr. Bachmann asked you some questions on direct with respect to the--the arcing and the propagation and

getting the dust into suspension, and your answers were specifically addressed to an explosion situation.

THE WITNESS: Yes.

JUDGE KOUTRAS: Can you envision these same types of questions applying to a fire situation? In other words, what--what, if any, amount of coal accumulations, let's say just laying on a metal trap or lying in a cabinet, would--would any of that be prone to fire? What would it take to start a fire, let's say in this cabinet, given a given amount of float coal dust?

THE WITNESS: It would really be quite a thick layer, you know, inch or two inches or something like that, because for this coal to fire, you would--I don't even know that two inches is enough, because you have a problem--it's going to oxidize, and in oxidizing, it heats up. So you end up with a balance between the heat that is lost in the environment and the heat that is retained within the sample. It's the heat--some amount of heat is kept in the sample, so that it builds up, it will actually go into glowing conditions, and this we have in the--in spontaneous heating. But if you've got a--a thin layer, you know, something a half inch, or--I'm sure that a half inch would never do it, even with a reactive coal like this, the heat loss to the atmosphere just through--through convective forces and by conduction to the metal plate underneath there, is such that it will never get to a glowing condition. What--what quantity is required in there for a fire to occur within the compartment, would have to be determined for a specific coal, because those coals have different self-heating proclivities, but it's--it's a very substantial amount, it's not this thin layer that we're talking about here.

Inspector Shaffer was called in rebuttal, and he testified that the abatement took approximately 4 hours. He confirmed that during the process of cleaning up the coal dust

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with rags, it could not be placed in suspension (Tr. 179-180).

When asked why he believed the cited accumulations constituted a significant and substantial violation, Mr. Shaffer replied "I have been always told if it's black in color, that it was a dangerous accumulation." Since this was the case, he automatically concluded that the violation was significant and substantial (Tr. 182).

Findings and Conclusions

Fact of Violation

The alleged violation in this case is virtually identical to the facts which led to a prior violation at the same mine site in July, 1983. That case was heard and decided by Judge Broderick on May 17, 1984, Secretary v. The Pittsburgh & Midway Coal Company, 6 FMSHRC 1347, and it is now pending before the Commission on appeal by Pittsburgh & Midway. In that case, Judge Broderick made the following findings (7 FMSHRC 1348-1349):

On June 9, 1983, there was an accumulation of coal dust in the main crusher panel and the heat trace panel. The dust on the base of each panel measured approximately one-eighth of an inch. It was black in color. There was dust on the equipment within each box although most of it had settled to the base. The dust was not in suspension.

The dust had come up through the floor of the room and around the conduits under the panels.

In the normal operation of the main crusher panel and the heat transfer panel, no ignition source, arc or spark is created.

In the event of a phase to phase or phase to ground fault within one of the panels, an ignition could be created. If an ignition occurred, it could put the dust accumulation in suspension and an explosion could result.

Judge Broderick then made the following conclusions and affirmed the violation (7 FMSHRC 1349):

The critical issue in this case is whether the coal dust accumulations existed "in dangerous amounts." There are few cases interpreting this phrase. But see Consolidation Coal Company, 3 FMSHRC 318 (1981) (ALJ); Secretary v. Co-op Mining Company, 5 FMSHRC 1041 (1983) (ALJ). Whether an accumulation is dangerous depends upon the amount of the accumulation and the existence and location of sources of ignition. The greater the concentration, the more likely it is to be put into suspension and propagate an explosion. I accept the inspector's testimony as to the amount of the accumulation and conclude that it was significant. It is true that there were no bare wires or any equipment that would cause arcing or sparking without some equipment failure or defect. But there was energized electrical facilities present and faults or failures in such facilities are common occurrences. I conclude that if the extent of the accumulation is such that it is black in color, and if potential ignition sources are present, the accumulation exists in a dangerous amount.

The Consolidation Coal Company case concerned an accumulation of float coal dust ranging from 1 to 5 inches in a room which housed a coal transfer belt head roller, drive belt, motor and electrical equipment for the belt. The evidence in that case established that the float coal dust covered the entire area of the room, including several ignition sources such as an energized unprotected light bulb in a hooper beneath the belt, a high voltage disconnect switch covered with float coal dust, and the belt rollers. Former Commission Judge Laurenson affirmed an imminent danger order issued by the inspector for these conditions, and in the companion civil penalty case, he affirmed a violation of section 77.202. Judge Laurenson found that the 1 to 5 inches of float coal dust throughout the entire room in question constituted an accumulation within the meaning of section 77.202. He then concluded that by permitting accumulations of dangerous amounts of coal dust in the room, the mine operator violated section 77.202.

The Co-op Mining Company case concerned a decision by former Commission Judge Moore in which he affirmed a violation of section 77.202. Although Judge Moore rejected an inspector's opinion that a mixture of unsuspended coal fines

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and float coal dust could be ignited with a match and could burn as rapidly as gunpowder (black powder), he nonetheless found that the accumulations were combustible and that a source of ignition in the form of a fire in a bucket was in the area where the accumulations were found. He concluded that the accumulations existed in "dangerous amounts."

In his posthearing brief in defense of the violation in question in this case, respondent's counsel cites the Consolidation Coal Company case, as well as the case of Western Slope Carbon, Inc., 5 FMSHRC 795 (April 1983), 2 MSHC 2218 (1983). The Western Slope Carbon, Inc., case concerned an imminent danger order issued by an inspector for an accumulation of float coal dust in excess of an eighth of an inch deep for a distance of 500 feet along several underground mine entries. Judge Carlson found that these accumulations constituted a violation of section 75.400. He noted that the Commission has held that a violation of this coal accumulations standard occurs whenever an accumulation of combustible materials exists. Judge Carlson found that while there was an improper accumulation of float coal dust, it did not constitute an imminent danger. He concluded that the possibility that the dust would be raised into suspension and then ignited was too remote to create the likelihood of a fire or explosion "at any moment". Although Judge Carlson vacated the order, he found that the cited accumulations constituted a violation of section 75.400, and assessed a civil penalty accordingly.

Respondent argues that in order to establish a violation of section 77.202, MSHA must establish that a coal dust accumulation must exist in a location such that under normal operating conditions the dust is susceptible to being put into suspension, that the concentrations of coal dust are such that the suspension would be ignitable, and that during normal operations an ignition source is present, proximate and capable of igniting the suspended dust.

Respondent asserts that the inspector's testimony is full of inconsistencies and misconceptions as to the standard imposed by section 77.202. As an example, the respondent cited the inconsistent testimony of the inspector with respect to the extent of the accumulations he observed, and in particular, his inconsistent estimates as to the depths of the accumulations. Further, respondent cites the inspector's testimony that under normal operating conditions no ignition source existed in the motor control room in question, and his failure to provide a creditable explanation as to how during normal operating conditions, the coal dust in the cabinets

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could get into suspension. With regard to the inspector's reliance on a "catastrophic failure" of an electrical component of sufficient magnitude to put the dust in suspension, the respondent points out that the inspector did not recognize that the failure would also have to be of such duration and such proximity to the suspended dust so as to provide an ignition source. Respondent concludes that section 77.202 does not require an operator to prevent the accumulation of coal dust which is ignitable only during a catastrophic failure of the facility where the dust collects.

The respondent points to the fact that Inspector Shaffer conceded that coal dust at rest by itself does not constitute a dangerous accumulation, and that he agreed that the coal dust must be put in suspension, that the ignition source must be proximate, and that during normal operating conditions no ignition sources exist inside the motor control center. The respondent maintains that Inspector Shaffer issued the citation solely on the basis of what he perceived to be the black color of the coal dust accumulations regardless of whether or not the other elements of a dangerous accumulation were present.

Citing the testimony of its witnesses, the respondent asserts that it has clearly demonstrated that a dangerous accumulation of coal dust did not exist inside the cited electrical control center. Respondent cites the testimony of its safety supervisor Yazzie that the accumulations were "grayish black" in appearance, no thicker than a newspaper, and that he could see the compartment paint through the coal dust. Respondent also cites the testimony of its electrical supervisor Scott that the amount of coal dust described by Inspector Shaffer did not constitute a dangerous accumulation, and that the dust could not be placed in suspension inside the cited cabinets. Mr. Scott also testified that he did not believe that the electrical components could "blow up" as testified to by Inspector Shaffer, and he confirmed that on numerous occasions he has observed coal dust accumulations exactly as described by Mr. Shaffer, and as an electrician he was not concerned about the existence of that dust in the electrical components.

Respondent cites an earlier citation issued by Inspector Shaffer for another violation of section 77.202 at the respondent's south mine on the same day he issued the citation in question in this case. Respondent points out that the citation was subsequently vacated and withdrawn because MSHA could not prove that a dangerous accumulation of coal dust

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existed. Respondent asserts that even when the evidence concerning the dust accumulation is viewed in the light most favorable to the petitioner it appears that there could have been no more than 1/8 inch of difference in the amount of coal dust found in the south mine electrical control cabinets and the north mine electrical control cabinets. Respondent asserts that Inspector Shaffer did not adequately or satisfactorily explain why 1/8 inch to 3/16 of an inch of coal dust constituted a dangerous accumulation at the north mine while slightly less than that amount did not constitute a dangerous condition at the south mine.

Finally, the respondent maintains that the un rebutted testimony of its expert witness Dr. Van Dolah, clearly and unequivocally demonstrates that the conditions observed by Inspector Shaffer did not constitute a dangerous accumulation of coal dust in violation of section 77.202. Respondent asserts that Dr. Van Dolah's testimony refuted the inspector's belief that coal dust might propagate a fire, and that Dr. Van Dolah could conceive of no credible situation where the coal dust accumulation in the electrical cabinets in question could be put into suspension and ignited in such a manner to create a dangerous situation. Further, respondent concludes that in order for such a situation to occur, the act which precipitated the suspension of coal dust would have to be so violent that the additional danger presented by any coal dust present would be insignificant when compared to the danger proposed by the catastrophic failure itself.

In this case, Inspector Shaffer issued his citation on the afternoon of March 6, 1984. Earlier that day, he inspected the respondent's south mine surface facility and issued a citation for a violation of section 77.202, after observing "dangerous amounts" of coal dust accumulations in the crusher motor control room and in two electrical component and panel compartments. The violation was abated after the "dangerous amounts" of coal dust accumulations were removed from the three cited areas (exhibit R-1).

I take note of the fact that the prior citation, as well as the one in issue in this case, are both framed in identical language. In both instances, Inspector Shaffer stated that dangerous amounts of coal dust were permitted to accumulate inside electrical compartments. Mr. Shaffer confirmed that in connection with the earlier citation, he determined that the float coal dust he observed constituted a dangerous accumulation because of its color and depth (Tr. 64). However, I note that in both instances Inspector Shaffer did not

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use the phrase "float coal dust" on the face of the citations, nor did he indicate the extent or amounts of the accumulations he purportedly observed. He simply concluded that coal dust was permitted to accumulate in dangerous amounts.

The respondent established that the earlier citation issued by Inspector Shaffer was subsequently vacated and that MSHA's Dallas Regional Solicitor's Office filed a motion to withdraw the citation during the course of a civil penalty proceeding filed against the respondent in *Secretary v. Pittsburgh & Midway Coal Co.*, Docket No. CENT 84-77 (exhibit R-4). The citation was withdrawn because MSHA believed that it did not have sufficient evidence to prove that the amount of coal dust cited by Inspector Shaffer constituted a dangerous amount, and that it was not possible to measure the dust. MSHA Counsel Collier confirmed that he was unaware of the prior citation (Tr. 61).

Inspector Shaffer confirmed that the coal accumulations he cited in this case were float coal dust, and he determined this simply by visual observation (Tr. 88). He explained that the accumulations were black in color and similar to the example shown in exhibit P-4. Had the accumulations been the colors depicted in exhibits P-2 and P-3, he would not have issued any citations because the colors were less than "black," which indicated to him something less than dangerous accumulations (Tr. 89-90). He described the float coal dust he observed as "smooth," "nice and layered stuff that settles," rather than "bumpy and ridged" (Tr. 83).

Mr. Shaffer stated that he observed some coal dust three-sixteenths of an inch at the bottom of one of the cabinets, but that it was dark and that he could not see too well without his glasses. He indicated that he could see the dust "silhouette above the height of the conductor when I brushed it off," and that he estimated the amount "by feel", but that he did not measure it with a ruler (Tr. 119-120). He confirmed that while it was possible to sample this dust, he had nothing with him to put the samples in. He conceded that without sampling, he would have no way of knowing the combustible content of the dust (Tr. 120).

Inspector Shaffer confirmed that clean-up was accomplished by wiping up the coal dust with rags, and he indicated that this was the only method that could be used (Tr. 180). He stated that the clean-up took about 4 hours, and when asked why he believed the violation was "significant and substantial," he replied "I have been always told if it's black in color, that it was a dangerous accumulation," and

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that in such a situation, he "automatically" makes a finding that the violation is "S & S" (Tr. 182).

Respondent's safety supervisor Yazzie, who accompanied Inspector Shaffer during his inspection, testified that the cited coal dust accumulations were "grayish black" in color, were "newspaper thin," and that he could see the cabinet compartment paint through the dust. Although the coal dust at the very bottom of one of the cabinets in the north mine was darker in color than the dust inside the cabinets, there was no significant difference in the coal dust coloration at the south or north mine areas. Mr. Yazzie also stated that while the miners cleaning up the cited accumulations intended to use a vacuum cleaner to clean up the coal dust, they did not do so and the dust was cleaned up by wiping it up with rags. He described the dust as "light dust" and confirmed that it was similar to "dusting a table at home" (Tr. 131). He estimated that it took about 2 hours to abate the conditions (Tr. 136).

Inspector Shaffer conceded that coal dust simply laying in the cabinets is not dangerous, and that it would not interfere with the normal operation of the cabinets or the electrical components inside the cabinets. In these circumstances, he would not consider the presence of such dust to be dangerous to the operation of these components. He further conceded that under normal operating conditions, there are no ignition sources present inside the motor control center in question. However, he believed that the electrical wiring would be a potential source of ignition, but conceded that such an ignition source must be close enough to the coal dust to put it in suspension, and that the only way it could be placed in suspension is by a fault or an abnormal condition (Tr. 69-70). Should such a fault or abnormal condition exist, an explosion would have to occur inside the cabinet in order to place the coal dust in suspension. Once the coal was in suspension, an arc or ignition would have to occur before the coal was ignited, and the extent of any such explosion would depend on the amount of coal dust present (Tr. 74-76).

Electrical supervisor Scott testified that under normal operating conditions no potential source of ignition existed inside the electrical cabinets in question, and that the coal dust could not be placed in suspension. He discounted Inspector Shaffer's testimony that a breaker could "blow up." Mr. Scott has 25 years of experience as an electrician, including work as an electrical contractor, and he indicated that the electrical components inside the cabinets are fused

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and sized in such a manner as to preclude the overheating of any wires or cables, and that they are designed to prevent arcing. Although Mr. Scott alluded to instances of fuses blowing out or shorting, and cracking or burning internally when they did not reset, he knew of no instances of any which had "blown up" with such force as to suspend coal dust. He knew of nothing which could place the dust in suspension inside the cabinets.

Dr. Van Dolah testified that on the basis of the testimony of Inspector Shaffer, he could not support any conclusion that section 77.202 was violated. Dr. Van Dolah testified that the amount of coal dust testified to by Inspector Shaffer did not present a danger because "I am not able to come up with a credible mechanism whereby I can go from this dust layer to a dust cloud, and I must have a dust cloud before I can have a dust explosion." Conceding that an accumulation of coal dust may pose a possible fire hazard, Dr. Van Dolah emphasized the fact that before one can conclude that the coal dust posed a fire hazard, the specific combustible properties of the coal must be established, and there must be an amount of coal dust present to significantly increase the potential fuel load. He believed that the amount of float coal dust which must be present inside the cabinets to present a possible fuel load for a fire would be "quite a thick layer, you know, inch or two inches or something like that, . . . I don't even know that two inches is enough . . ." (Tr. 176). Dr. Van Dolah stated that coal dust in the amount of .05, of five hundredths of an ounce per cubic feet is not itself ignitable (Tr. 173-174).

Dr. Van Dolah confirmed that he examined the electrical cabinets cited by Inspector Shaffer, and he testified that except for an explosion of the entire building where these cabinets were located, he could not conceive of any event that would supply the necessary energy to place the coal dust described by Inspector ShaffeTIIin suspension (Tr. 168). Conceding that coal dust in proximity of a hot wire could smolder, even in a one-sixteenth or one-eighth of an inch of coal dust, such a smoldering condition would not propagate away from that location, and in no way will any smoldering combustion lift other coal dust and create a dust cloud (Tr. 169). Dr. Van Dolah found it quite difficult to imagine any explosion of an electrical circuit breaker that would blow up a multi-case breaker with such violence that the winds associated with that explosion would place the coal dust in suspension (Tr. 166).

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Dr. Van Dolah alluded to past coal dust explosion experiments conducted at the Bruceton experimental mine, and he emphasized the fact that there must be an initial explosion, either by the introduction of methane or a massive amount of explosives, a dispersion of the dust cloud in the air, and the resulting propagation of the explosion. He could conceive of no dust cloud being created inside a closed electrical cabinet (Tr. 160).

Dr. Van Dolah took issue with Inspector Shaffer's testimony concerning the coal dust experiments he conducted. He stated that the amount of coal dust one can calculate to provide the minimum explosive concentration in any compartment was incorrectly stated by Inspector Shaffer, and that more recent studies by his own group has shown the incorrectness of the data relied on by Mr. Shaffer. Dr. Van Dolah stated that the fact that the coal dust in question was lying in the cabinet says nothing about the hazard associated with it. In his opinion, for coal dust to be dangerous, it has to be capable of being suspended by some mechanism in order to provide an explosion. Otherwise, coal dust, at most will only smolder very slowly, and a thin layer of coal dust on a metal plate, in fact, will not smolder (Tr. 158). Referring to the darkest sample of coal dust introduced at the hearing Dr. Van Dolah stated that the coal dust simply lying on a surface or on an insulator does not constitute a hazard or a dangerous accumulation because its simply there. As long as the insulation is there, the coal dust is not burning and it is not going to explode (Tr. 159).

I find the testimony of Mr. Scott, Mr. Yazzie, and Dr. Van Dolah to be credible, and that it effectively refutes the testimony offered by Inspector Shaffer to support his theory of a possible explosion within the electrical cabinets. I cannot conclude that MSHA has established that in the normal course of operation, an electrical component inside the cabinets could cause the dust to be placed in suspension, thereby propagating an explosion or a fire. As for the inspector's theory of a "catastrophic" explosion of a circuit breaker or other electrical component inside the cabinet, I simply find no credible support for the inspector's belief that this could occur. I accept the testimony by Mr. Scott and Dr. Van Dolah as a credible refutation of any such unlikely event.

With regard to inspector's observations concerning the extent of the coal dust accumulations in question, I cannot conclude that MSHA has established that the amounts present were sufficient to pose a hazard of a fire or an explosion.

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Nor can I conclude that they were dangerous. Inspector Shaffer's testimony concerning the extent of the accumulations is rather equivocal. On direct examination, he testified that the coal dust was approximately 1/8 to 3/16 of an inch thick. He also indicated that the lights were out inside the cabinet and that he had difficulty in seeing, and that he could not measure the depths with a ruler. On cross-examination, he testified that the coal dust was "paper thin" or 1/16 of an inch (Tr. 50).

Dr. Van Dolah's un rebutted testimony is that a dangerous accumulation of coal dust for purposes of a fire hazard are such coal dust accumulations which are at least an inch or two in depth, and that in order to present an explosion hazard, the coal dust must be capable of being placed in suspension. The un rebutted testimony is that the cited accumulations were cleaned up with rags, and I find Mr. Yazzie's testimony that the accumulations were "grayish black," "paper thin," and consisted of a "light dust" similar to ordinary household dust to be credible.

On the basis of all of the evidence and testimony adduced in this case, I conclude and find that MSHA has failed to establish that the float coal dust accumulations cited by Inspector Shaffer were dangerous within the meaning of section 77.202. I am convinced that Inspector Shaffer's conclusion that the accumulations were dangerous were based on a rather cursory evaluation of the circumstances presented to him at the time of his inspection. He simply observed float coal accumulated in and around the electrical compartments and concluded that they were dangerous. He candidly admitted that he is of the opinion that accumulations of coal dust which are black in color are ipso facto dangerous accumulations.

Unlike underground mandatory standard section 75.400, which prohibits accumulations of coal dust in active workings or on electrical equipment, section 77.202 prohibits the accumulation of coal dust only in dangerous amounts. Accumulations which are not dangerous are not prohibited. On the facts of this case, the respondent does not dispute the existence of the cited float coal dust accumulations. Its dispute lies with the finding by the inspector that the accumulations were dangerous. I agree with the respondent's contention that in order to establish that such accumulations are in fact dangerous, MSHA must establish that they present a realistic fire hazard, or that they are susceptible of being placed in suspension in close proximity to a readily available ignition source capable of placing them in suspension, thereby fueling or propagating an explosion. On the facts of this case, I conclude

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and find that MSHA has failed to establish either of these hazards or dangers by a preponderance of any credible evidence. Accordingly, the citation IS VACATED.

ORDER

In view of the foregoing findings and conclusions, the section 104(a) Citation No. 2070578, issued on March 6, 1984, IS VACATED, and this proceeding IS DISMISSED.

George A. Koutras
Administrative Law Judge