FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

OFFICE OF ADMINISTRATIVE LAW JUDGES
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June 10, 2009

SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA), Petitioner	:	CIVIL PENALTY PROCEEDINGS
	:	Docket No. WEVA 2006-853
	:	A.C. No. 46-08791-090341 01
	:	
	:	Docket No. WEVA 2006-854
	:	A.C. No. 46-08791-090341 02
v.	:	
	:	Docket No. WEVA 2007-666
	:	A.C. No. 46-08791-121866
	:	
WOLF RUN MINING COMPANY, Respondent	:	Sago Mine

DECISION

Appearances: Robert S. Wilson, Esq., Office of the Solicitor, U.S. Department of Labor, Arlington, Virginia, for the Petitioner;
R. Henry Moore, Esq., Jackson Kelly PLLC, Pittsburgh, Pennsylvania, for the Respondent.

Before: Judge Feldman

These civil penalty proceedings concern Petitions for the Assessment of Civil Penalty filed pursuant to section 110(a) of the Federal Mine Safety and Health Act of 1977, as amended ("Mine Act"), 30 U.S.C. § 820(a), by the Secretary of Labor against the respondent, Wolf Run Mining Company ("Wolf Run"). The petitions seek to impose a total civil penalty of $32,278.00 for 36 violations of mandatory safety standards contained in 30 C.F.R. Parts 75 and 77 of the Secretary's regulations governing underground coal mines that allegedly occurred at Wolf Run's Sago Mine.

These matters were heard on October 21 through October 23, 2008, in Fairmont, West Virginia. The parties have presented Motions for Approval of Partial Settlement with respect to 31 of the 36 cited violations that are the subject of these proceedings. Wolf Run has agreed to pay $25,257.00 rather than the $28,339.00 civil penalty initially proposed by the Secretary for the 31 settled citations. The parties' joint motion for approval of their settlement terms shall be granted.

The Secretary seeks to impose a total civil penalty of $3,939.00 for the remaining five citations in issue. All of these citations allege a violation of section 75.521, 30 C.F.R. § 75.521, of the Secretary's mandatory safety standards that pertain to the installation of lightning arresters on "ungrounded and exposed power conductors and telephone wires." The citations concern power lines, power cables and telephone lines that run from the surface to underground areas of the mine. The citations were issued as a result of the Mine Safety and Health Administration's (MSHA's) investigation of the Sago Mine explosion on January 2, 2006. It has neither been contended nor shown that the conditions cited in the subject citations contributed to the explosion.

To determine if the Secretary's interpretation and enforcement of section 75.521 prior to the Sago Mine accident was consistent with her position in these proceedings, the record was left open for the Secretary to submit MSHA's history of enforcement of section 75.521 prior to January 2, 2006. The Secretary filed the requested documentation on January 28, 2009. The information was marked for identification and is admitted as Government Exhibits 25, 26 and 27. On March 23, 2009, the Secretary filed additional documentation and joint stipulations, marked for identification as Government Exhibit 28, concerning Sago Mine's Carbon Monoxide (CO) monitoring system. Government Exhibit 28 is admitted as Wolf Run does not object to its admission. The post-hearing briefs, exchanged by the parties on April 10, 2009, and the parties' replies filed on May 15, 2009, have been considered in the disposition of these matters.

I. Statement of the Case

On January 2, 2006, an explosion occurred at approximately 6:26 a.m. in Wolf Run's Sago Mine. At the time of the explosion, 29 miners were underground. Twelve miners were killed, and one miner was seriously injured. The explosion occurred inby the 2 North Mains seals, and destroyed all ten of the seals used to separate that area from the active portion of the mine.

At the time of the explosion, the area in the vicinity of the mine was experiencing a storm, accompanied by heavy rain and lightning. Before entering the mine, some Sago miners observed lightning strikes near mine property. After an extensive accident investigation, MSHA concluded that methane in an inactive sealed area apparently was ignited by lightning. The ignition and resulting explosion destroyed the seals, causing portions of the active mine to fill with toxic levels of carbon monoxide.[1]

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[1] This information is taken from MSHA's Sago accident investigation report issued on May 9, 2007. This information is for background purposes. It is not dispositive of the citations in issue.

The Sago mine tragedy heightened MSHA's awareness with regard to the hazards associated with lightning strikes. Consequently, MSHA's accident investigation included a complete inspection of all electrical equipment at the mine. As a result of its investigation, MSHA issued the subject five citations that raise issues concerning the applicability of section 75.521. This mandatory standard governs lightning arresters on segments of ungrounded and exposed power conductors and telephone wires that are located on the surface before they enter an underground mine.

Section 75.521 states:

> Each *ungrounded, exposed* power conductor and each ungrounded, exposed telephone wire that leads underground shall be equipped with suitable lightning arresters of approved type *within 100 feet of the point where the circuit enters the mine*. Lightning arresters shall be connected to a low resistance grounding medium on the surface which shall be *separated from neutral grounds by a distance of no less than 25 feet.*

(Emphasis added).

The heightened safety related lightning concerns that have arisen in the aftermath of this disaster do not alter the Secretary's burden of demonstrating that the cited conditions constitute violations of section 75.521. *Garden Creek Pocahontas Co.*, 6 FMSHRC 2148, 2152 (Nov. 1989). The purpose of the lightning arrester requirement in section 75.521 is to prevent or minimize the risk of energy from a lightning strike on the surface of a mine from entering into the underground portions of the mine. That is why the language in section 75.521 requires the installation of lightning arresters on "ungrounded" power conductors that are separated from the neutral ground field.

The Secretary argues that all power conductors entering an underground mine are subject to the provisions of section 75.521, even if they are insulated and contained in grounded cables. Generally speaking, a power cable contains ground wires and current carrying power conductors. The Secretary asserts that insulated power conductors in jacketed cables are "ungrounded" because it is only the ground wire in the cable that is "grounded."

As discussed herein, it is undisputed that connecting conductors contained in a grounded cable to a lightning arrester ground field would violate the 25 foot separation of ground fields specified in section 75.521. Thus, the Secretary argues, in essence, it should be inferred that a mine operator is prohibited from connecting power cables entering an underground mine to a neutral ground.

However, a regulation may not be interpreted to mean what an agency intended but did not express. In addition, disconnecting cables that extend underground from the neutral ground medium would remove ground fault protection. Consequently, for the reasons discussed, the

lightning arrester provisions of section 75.521 do not apply to cables that are connected to neutral grounds because, in the event of a lightning strike, electrical energy would be transmitted from the surface through the underground mine from lightning arrester ground field to the neutral grounds.

II. Findings of Fact

a. The Power System

Wolf Run's Sago Mine is located in Upshur County, West Virginia. Power to the mine was delivered from the French Creek substation, located approximately two miles from the mine. (Joint Ex. 1; Gov. Ex. 9). Power from French Creek was transmitted through overhead transmission lines to a branch transmission line that extended to the mine substation. *Id.*

As discussed below, a lightning arrester is a device that limits the overvoltage caused by lightning or other electrical surges by providing an electrical path between an ungrounded conductor and the earth which is used as the grounding medium. (Joint Ex. 1). The transmission lines from the French Creek substation to the mine substation were protected by various electrical devices including lightning arresters. *Id.*

Transformers located at the mine substation reduced the voltage of the branch transmission line for underground distribution. *Id.* Electrical devices, including lightning arresters located in the mine substation, provided protection for the underground distribution system. *Id.* The segments of the high voltage shielded power cables on the surface were equipped with lightning arresters before the cables entered the underground area of the mine. *Id.* Power centers were located throughout the mine to reduce the voltage for use on underground equipment. *Id.* With the exception of one underground power center, all underground power centers contained surge protectors which serve a similar purpose as lightning arresters. (Tr. 785-87).

The branch transmission line from the mine substation also supplied power to the surface facilities and equipment. (Joint Ex.1; Gov. Exs. 9, 12). The voltage was reduced for the surface fan by pole-mounted transformers. *Id.* The power circuit utilizing these transformers was protected by lightning arresters. (Joint Ex. 1; Gov. Exs. 9, 23; Tr. 84-85). The same pole had a cable that supplied power for the surface conveyor belts. (Joint Ex. 1; Gov. Exs. 9, 23).

The transmission lines bringing power from the French Creek substation were grounded. The grounding consisted of two grounded neutral conductors that were installed above the power conductors from French Creek to the branch circuit leading to the mine substation. (Joint Ex. 1). One neutral conductor was continued from the branch circuit to the mine substation. *Id.* This conductor was installed below the power conductors and connected to the ground bed for the mine substation and surface electric equipment. *Id.* The lightning arresters on the

surface were linked to the ground bed at the mine substation and grounded at the power poles. (Gov. Ex. 23; Tr. 85-87, 327, 382, 691). The substation and lightning arrester ground beds were inspected thoroughly by MSHA inspectors and determined to be in compliance with the requisite minimum 25 feet of separation dictated by section 75.521. (Tr. 724).

A second ground bed or medium, located on the surface, also known as the neutral ground, was used for the grounding of the underground cables and equipment. (Gov. Ex. 9; Tr. 691). This ground bed was created by grounding the underground cables and equipment to the underground frame of the belt conveyor. The belt conveyor frame was grounded to the neutral ground field on the surface. (Tr. 833-35). As previously noted, this neutral ground bed for underground equipment was separated by more than 25 feet from the ground bed located under the substation that was used to protect the surface equipment and that served as the lightning arrester ground bed. (Gov. Ex. 9; Tr. 334).

Government Exhibit 9 is an annotated diagram of the Sago Mine power system and ground fields that has been appended to this decision and will be referred to hereinafter as Appendix I. It delineates the surface area from the underground portion of the mine. It illustrates the electricity path from the French Creek substation to the Sago Mine substation. It depicts the neutral ground field for underground equipment, located on the surface, designated as "earth" and the ground field for surface equipment, including lightning arresters, that is located under the mine substation. Appendix I reflects that the neutral ground and substation ground fields are separated by at least 25 feet. Appendix I also depicts the frame of the belt conveyor that extends from the surface underground. It demonstrates how the conveyor frame was used as a ground medium between the underground equipment and the neutral grounds.

b. Lightning Arresters

As noted, a lightning arrester, connected to power conductors, limits the overvoltage caused by lightning or other electrical surges by providing an electrical path between an ungrounded conductor and the earth which is used as the grounding medium.[2] (Joint Ex. 1). It is similar to the overvoltage protection provided by surge protectors. (Tr. 642, 786). Lightning arresters vary in size and have different voltage ratings. (Tr. 784). They are sized for the amount of current in the cable they are protecting. (Tr. 432).

MSHA Inspector Arthur Wooten testified that lightning arresters are designed to protect against both direct and indirect lightning strikes. (Tr. 204, 239). Lightning strikes from as much as a mile away can cause a surge of energy on power conductors. (Tr. 206, 240). The purpose of lightning arresters is to direct the excess energy into the ground so that it does not enter the mine. (Joint Ex. 1; Tr. 194, 223). A lighting arrester has air gaps over which the normal current level

[2] This decision contains redundancies because it concerns technical electrical circuitry issues. The essential concepts that provide the basis for this decision have been repeated for the sake of clarity.

cannot arc. However, if there is an overvoltage on the line, the current will jump that air gap and the lightning arrester will direct the excess energy through a path to ground. (Tr. 194 – 96). As noted, the lightning arrester ground field was located at the ground bed for surface equipment located under the substation.

Wooten explained that in the absence of lightning arresters, the energy from a lightning strike would not be dissipated into the ground. Rather, the excess energy from a lightning strike would enter the mine by way of the power conductors and energize the frames of equipment resulting in a shock or electrocution hazard. (Tr. 316). The excess energy could also cause arcing that would pose a fire hazard, and an ignition source for methane. (Tr. 220, 240-42).

c. Underground Equipment and Surface Equipment Ground Fields

The Secretary's regulations governing electrical safety in the construction industry define a "ground" as "[a] conducting connection . . . between an electrical circuit or equipment and the earth . . . ." 29 C.F.R. § 1926.449. The "neutral grounds" in this case consist of a low resistance ground bed that is established on the surface area of the mine. (App. I). It also consists of all of the underground equipment and the ground wires that are attached to the ground bed. (Tr. 383-84). The underground equipment and ground wires are attached to the surface ground bed through the frame of the belt conveyor. (App. I). As noted, the neutral ground field for underground equipment at the Sago Mine is depicted on Appendix I and labeled "earth." (Tr. 380).

Ground fault protection for surface equipment is located on the surface under the substation. The lightning arrester ground field is also located under the substation. (App. I; Tr. 325-26). At the Sago Mine there were several lightning arresters that were attached to overhead high voltage power lines. (Tr. 326). They were connected to ground by solid copper conductors and a "butt ground" at a power pole. (App. I; Gov. Ex. 23; Tr. 327). A butt ground is a copper wire that runs down a power pole to the earth. (Tr. 338). The butt ground at the base of the power poles is linked to the ground bed located under the mine substation.

d. The Hazard Posed by Connecting Ground Fields

In order to appreciate the hazard created by connecting ground fields, it is helpful to envision an illustration of the effect of connecting the lightning arrester ground bed to the neutral grounds at the Sago Mine. Think of an electrical path entering the mine from the surface in the shape of a capital "U." A lightning arrester ground field is created on the surface at the top of one end of the "U," in this case under the substation. The curved bottom of the "U" represents the power to the equipment located underground. The remaining top of the "U" is the site of the neutral grounds, also located on the surface. (*See* App. I). At Sago Mine, the lightning arrester ground field located at one end of the "U," would be connected, through the metal conveyor

frame ground medium, to the neutral ground field at the other end of the "U." Since lightning induced energy travels through conductors in all directions, in the event of a lightning strike, an electrical surge would be directed through the underground mine.

Inspector Wooten analogized an electrical circuit to a waterline with several branches. When a water valve is opened, water flows through all segments of the waterline. (Tr. 315). So too, lightning induced energy travels through electrical cables in all directions. (Tr. 315-16). A ground medium provides electrical energy with a path of least resistance to ground. (Tr. 315). A problem arises when a lightning arrester is connected to a ground field that is less than 25 feet from a neutral ground field. (App. I; Tr. 334). Under such circumstances, when ground fields are in close proximity, any overvoltage can be transferred from one ground field to the other. The hazard of overvoltage is heightened when the neutral grounds and the lightning arrester ground field create a path of least resistance because the ground wire in the power cable is connected to the metal frame of the belt structure. In such cases, the conduit of the metal conveyor frame connects the lightning arrester ground field to the neutral ground field, providing a direct circuit for lightning energy to travel through the mine, a hazard that the separation provision of section 75.521 is intended to prevent. As Inspector Wooten explained, "[i]t's easy to get those two [ground fields] shorted together." (Tr. 323).

James Honaker, an MSHA electrical engineer who participated in the Sago Mine accident investigation, also explained that lightning arresters could not be installed on power conductors that are grounded from underground power centers through the conveyor belt frame to the neutral ground because ". . . you would have the two ground fields tied together." (Tr. 868-69, 833-34). Honaker noted that such a grounding system would violate section 75.521 that requires the lightning arrester ground field to "be separated from neutral grounds by a distance of not less than 25 feet." (Tr. 869, 874-75, 877). Thus, the determinative fact in these matters is that overhead high voltage power lines or power cables located on the surface, that are connected to the lightning arrester ground field at the substation, may not be connected to the neutral grounds.

e. Citations

Citation Nos. 7583316 and 7583317 – Battery Charger Cables

As noted, all five citations in issue allege a violation of section 75.521 of the Secretary's mandatory safety standards. This regulatory standard applies to ungrounded and exposed power conductors that are located on the surface before they enter an underground mine. If lightning arresters are installed, this mandatory standard requires the lightning arrester ground field to be separated from the neutral grounds by a distance of at least 25 feet.

Citation Nos. 7583316 and 7583317 essentially cite the same condition on two separate cables. (Gov. Exs. 2, 3). The rated capacity of each cable was 2,000 volts. (Tr. 274). Each cable supplied 575 volts of power to different battery chargers on the surface. The chargers were used to charge battery powered man trips. (Tr. 264-65). As shown in Appendix I, the

cables were attached to, and received power from, a power center that was located in an underground section of the mine. (Tr. 270-71). The power center was grounded through the metal frame of the belt conveyor to the neutral ground field on the surface. The Secretary asserts each cable required lightning arrester protection because it was exposed on the ground from the point where it exited the mine until its connection to each battery charger.

These two cited cables contained six conductors, three of which were phase wires that conducted power, two ground wires and a ground check monitor wire. (Tr. 273, 289). The three phase conductors in each cable were each separately insulated and were contained, along with the ground wires and monitor wires, in a protective outer jacket. (Joint Stip. 23, 27; Gov. 21; Tr. 427). The cables were undamaged and intact in that there were no bare power conductors along the length of the cables. (Joint Stip. 27; Gov. Ex. 21).

Wooten testified that the two ground wires and the check monitor wire were not required to be connected to lightning arresters because they were grounded. The purpose of the ground wires is to cause the circuit breaker to trip in the event of a fault or short circuit. (Tr. 277). The ground wires serve no protection against an overvoltage on the power conductors caused by a lightning strike. (Tr. 278).

Wooten stated that the three phase power conductors are not grounded because they are current carrying conductors that are not connected to ground. (Tr. 277). The power conductors must remain ungrounded in order to energize equipment without tripping a circuit breaker. (Tr. 861). In the event of an overvoltage of current on the conductors from a lightning strike, the conductors would carry the excess current into the mine because there was no path to ground. (Tr. 278). Lightning arresters would dissipate the electrical energy from a lightning strike by providing a path for the electrical current to go to ground on the surface rather than to the underground mine.

Wooten also testified about the significance of the requirement in section 75.521 that "[l]ightning arresters shall be connected to a low resistance grounding medium on the surface which shall be separated from neutral grounds by a distance of not less than 25 feet." The neutral ground "is a low resistance ground bed that has to be established for the underground power source." (Tr. 383). The neutral grounding medium consists of the ground field on the surface, all of the equipment in the underground portion of the mine, and the ground wires connected to that equipment. (Tr. 384). The purpose of the neutral ground is to dissipate the electricity from the frames of equipment located inside the mine in the event of an electrical fault in the system. (Tr. 384).

At the Sago Mine, underground power centers and equipment were connected and grounded to the neutral ground field on the surface through the medium of the metal frame of the belt structure. As a result of the connection from the cited cables to the power center and to all underground electrical equipment, in the absence of lightning arresters, a lightning strike on the cited cables would result in a direct path of elevated electrical current through the power

conductors and on to all electrical face equipment. (Tr. 284). The installation of lightning arresters would have provided a path to ground for any excess current before it had a chance to enter the mine. (Tr. 284-285).

However, both Inspectors Honaker and Wooten testified that creating a lightning arrester ground field for a cable entering an underground mine when the cable is connected to the neutral ground creates a significant hazard because, in effect, it ties the two ground fields together. (Tr. 398-400, 868). As previously noted, the purpose of a lighting arrester is to direct to ground an overvoltage from a lightning strike on a power conductor. When the voltage goes to ground, it creates an electrical field, the extent of which will depend upon many factors, including the amount of current and the conductivity of the soil. (Tr. 314). As noted above, if the neutral ground for the underground electrical equipment is too close to the lightning arrester grounding medium, or, in this case, where the neutral ground and lightning arrester ground are connected, lightning current that is transmitted by a lightning arrester to ground can feed back to the neutral ground through the grounding system for the underground mine equipment. (Tr. 393-400). This would result in the frames of the equipment becoming energized by lightning, thus exposing miners to an electrical hazard. (Tr. 399).

Inspector Wooten considered the power conductors to be "ungrounded" as specified in section 75.521 because they were carrying current and not directly connected to ground. (Tr. 277). Wooten considered the power conductors to be "exposed" as specified in the cited mandatory standard, even though the conductors were insulated and contained in a protective outer jacket, because they were exposed to the atmospheric effects of lightning before entering the underground mine.

The inner insulation serves two functions. Namely, it prevents a short circuit by separating the conductors, and, it protects persons who handle cables from electrical shock hazards by preventing contact with energized copper leads inside the wires. (Tr. 205, 218). Insulation does not provide protection against overvoltage caused by lightning which can be as high as one million volts. (Tr. 220). Wooten gave no evidentiary significance to the outer jacket of the cable because it primarily is designed to protect the inner insulated lead wires from damage.

Wooten determined the power conductors were "exposed" because they did not satisfy any of the criteria in MSHA's Policy Manual that constitutes an unexposed conductor. (Tr. 291). Namely, the conductors were not provided with metallic shields; jacketed by a ground metal covering or enclosure; installed under grounded metal framework; buried in the earth; or made of triplex or quadraplex that is supported by a ground messenger wire. (Gov. Ex. 8).

Thus, Wooten issued Citation Nos. 7583316 and 7583317 alleging violations of section 75.521 because he considered the insulated power conductors contained in the cables powering the battery chargers to be ungrounded, exposed power conductors that lacked lightning arrester protection. Wooten designated the citations as significant and substantial (S&S) because

he believed the electrical hazard created was reasonably likely to result in serious or fatal injuries in the event of a lightning strike. (Tr. 291). Wooten attributed the cited violations to a moderate degree of negligence because the cables were visible on the surface and they were examined on a weekly basis. (Tr. 317).

Significantly, because the installation of lightning arresters would contravene the 25 feet minimum separation of ground fields on cables that were already connected to the neutral grounds, Wolf Run did not install lightning arresters to abate the citations. Rather, Wolf Run abated the citations by removing the cables from the underground power source and, instead, connecting the cables to the battery chargers from a power source on the surface. (Tr. 324). The Secretary proposes a civil penalty of $1,238.00 for each of these citations concerning the battery charger cables.

Citation No. 7583340 – High Voltage Overhead Lines

As previously noted, the belt structure which extended from the surface area of the mine into the underground portion of the mine was connected through the grounding medium to the underground power centers, as well as all underground electrical equipment. (Tr. 375). As depicted in Appendix I, Wooten observed that lightning arresters were attached to high voltage lines suspended outside of the underground mine. The lightning arresters were grounded to a "butt ground" at a power pole. (Tr. 327, 337, 348). As noted, a butt ground is a copper wire that runs down a power pole to the earth. (Tr. 338). Several lightning arresters were connected to the butt ground. The butt ground was connected to the ground bed under the substation. (App. I). A static line was also attached to the butt ground. (Tr. 330, 358). A static line is a line that runs above high voltage power lines and provides an umbrella like protection from lightning. (Tr. 348-49, 374).

The ground wire for a power cable that was supplying power to surface belts was attached to the butt ground. (App. I; Tr. 379). The ground wire also was connected to a segment of the metal frame of the belt structure on the surface. The metal frame of the conveyor extended from the surface into the underground portion of the mine where it served as the medium to the neutral ground. (Tr. 330, 351). These connections caused the neutral ground to be common with the lightning arrester ground, thus defeating the purpose of section 75.521. (Tr. 340). Through these connections, the energy from a lightning strike had a path from the surface through the underground mine as a result of the belt metal frame that served as the means of grounding underground equipment to the neutral ground field. (Tr. 352).

Wooten explained that the manner in which the ground fields were initially established was not the problem. The location of the lightning arrester ground field, at the butt ground, was more than 25 feet from what was originally established as the neutral ground field. (*See* App. I). As noted, the problem was the connection of the lightning arresters to the belt frame through the ground wire for a power cable that was supplying the surface belts. (Tr. 241, 370). That connection eliminated the separation of the butt ground and substation

ground fields from the neutral grounds. (Tr. 398-400). Electrical current from a lightning strike would have a path to the butt ground, from the butt ground to the ground wire for the power cable, along that ground wire to the belt frame, and then into the underground portion of the mine.

As a result of his observations, Wooten issued Citation No. 753340. The citation states:

> The lightning arresters grounding medium was not separated from the neutral grounds by a distance of 25 feet. The arresters were wired in a manner that would not prevent the frames of the equipment being used underground which are connected to the neutral grounding field from becoming energized in the event of a strike on the surface. The arrester ground was connected to the frames of the surface belt structure which are entering the mine and are connected to the mine track and all underground electrical equipment.

(Gov. Ex. 4).

Citation No. 753340 was abated by disconnecting the ground wire from the belt frame. Wooten designated the violation as S&S because of the three distinct hazards it contributed to: an electrocution hazard; a fire hazard; and an ignition source hazard. (Tr. 400). Inspector Wooten testified that an injury was reasonably likely to occur because there was a direct path for electrical current to travel from the lightning arresters to the metal frame of the belt structure, which extended into the underground portion of the mine, and to every piece of electrical equipment in the mine. (Tr. 401).

The power pole where the butt ground was attached, and the belt frame where the ground wire was connected, were located on the surface area of the mine where people traveled on a daily basis. In fact, the power pole was just outside the building where the mine manager and the chief electrician's offices were located. Furthermore, the surface electrical equipment was subject to monthly examinations. Consequently, Inspector Wooten designated the respondent's negligence as moderate because the condition was obvious and in plain view. (Tr. 404). The Secretary proposes a civil penalty of $963.00 for Citation. No. 7583340.

Citation No. 7582485 – Water Pump Cable

Wooten noted that a 120 volt power cable supplying power from the fan house on the surface to an underground water pump at the No. 10 crosscut in the track entry was not provided with a lightning arrester. (Joint Stip. 16; Gov. Ex. 1). The power cable contained a ground wire and copper wires that conducted electricity. Like the cables supplying power to the battery chargers, the ground wire and the power conductor wires were separately insulated and contained within an outer protective jacket. However, the ground wire was improperly connected because it was conducting electrical current. (Tr. 212-13; Gov. Ex. 10). There were no bare power conductors along the length of the cable. As with the battery power cables, Wooten considered

the power conductors in the water pump power supply cable to be "exposed" because there was no metal shielding or other accepted methods of protection or enclosure as enumerated in the Secretary's policy manual. (Gov. Ex. 8).

Consistent with battery cable Citation Nos. 7583316 and 7583317, Wooten issued Citation No. 7582485 citing the water pump power supply cable for an alleged violation of section 75.521 because of Wolf Run's failure to install lightning arrester protection on "exposed" power conductors. Unlike the cited violations for the battery charger cables, the water pump supply cable was not grounded to the conveyor frame or otherwise attached to the neutral ground medium.

For an injury to occur, Wooten explained that a person would have had to be in contact with the pump at the moment that a lightning strike caused a surge on the cited conductors. (Tr. 260). He also testified that the cited condition did not pose a reasonable likelihood of fire because the area around the pump was wet. (Tr. 262). Thus, Wooten characterized the cited violation as non-S&S because the pump was isolated from other equipment in the mine. (Tr. 260). The cited cable had rock dust on it and appeared to have been in place for some time. (Tr. 192). Wooten concluded that the level of negligence was moderate because the pump is required to be examined on a weekly basis. (Tr. 262). Like the battery cable citations, the cited condition was abated by removing the cable from the fan house and powering the water pump from a cable connected to an underground power source. (Tr. 262). The Secretary proposes a civil penalty of $60.00 for Citation No. 7582485.

Citation No. 7335233 – Telephone and Trolley Wires

Citation No. 7335233 cites an alleged violation of section 75.521 because lightning arresters were not provided on a telephone wire nor a trolley phone wire that lead from the surface into the underground portion of the mine. (Gov. Ex. 5). Kevin Hedrick, an engineer with MSHA's Technical Support Group, testified that he observed the cited conditions. However, Hedrick is not authorized to issue citations because he is not an authorized representative of the Secretary. Consequently Inspector Russell Dresch, who played a supervisory role in the accident investigation, issued the Citation No. 7335233. Dresch did not observe the conditions cited in Citation No. 7335233. Rather, he based the citation on Hedrick's observations.

Hedrick has been employed by MSHA as an electrical engineer for 25 years. (Tr. 597) His participation in the accident investigation included assisting the electrical team in its inspection of the environmental monitoring and communication systems at the Sago Mine. (Tr. 600). Hedrick stated there were two different communication systems - - a hard wired paging telephone system and a trolley phone system. The paging system allowed communication between the dispatcher's office on the surface to approximately 20 pagers hard wired at various locations throughout the mine. (Tr. 602). The trolley phone system allowed communication from the surface to occupants of man trips in the track entry.

Both the telephone and trolley systems had wires that were connected to the dispatcher's office and entered the mine at the portal of the track entry. Hedrick testified that he examined the telephone and trolley wires from the dispatcher's office to the mine portal with the exception of a portion of the lines that were buried. (Tr. 605, 610, 626). There was approximately 400 feet of line that ran from the dispatcher's office to the mine portal. (Tr. 613). There were no lightning arresters connected to either of the wires. (Tr. 626).

The trolley phone wire consisted of two wires that were contained in a single jacket up to the portal. At that point, the two wires were separated. One wire was suspended along the roof as an antenna for the length of the track. The other trolley wire was attached to the track and grounded at the mouth of the portal. Since this trolley wire was grounded before entering the mine, it did not require a lightning arrester. (Tr. 615 -18, 621). The wire that was hung along the roof above the track was grounded to the end of the track at the furthest point in the mine. (Tr. 677-79). Therefore, any lightning energy on the roof trolley wire conductor could be transmitted into the mine until it reached ground at the end of the track. (Tr. 680). As a consequence, Hedrick believed the trolley wire attached to the mine roof required a lightning arrester. (Tr. 622). The telephone wire also consisted of two conductors, neither of which were grounded. Consequently, Hedrick determined both conductors were required to be equipped with lightning arresters. (Tr. 623-24).

Hedrick and Dresch opined that their understanding of the term "exposed," as it is used in section 75.521, is that it refers to being exposed to the atmospheric effects of lightning. (Tr. 632, 671). Hedrick repeated Wooten's testimony that lightning arresters are designed to provide a path to ground for an overvoltage that occurs as a result of lightning. (Tr. 627, 630). Hedrick stated that lighting arresters would significantly reduce the amount of overvoltage that would enter the mine in the event of a lightning strike. (Tr. 631) Hedrick stated that the transmission of energy from a lightning strike would pose a hazard in the form of a shock hazard, a fire hazard and an ignition source hazard. (Tr. 635-36).

Government Exhibit 24 is an annotated photograph that has been appended to this decision and will be referred to hereinafter as Appendix II. It presents a view of the surface area of the Sago Mine including the overhead power lines and the conveyor belt assembly. It illustrates the paths of the telephone and trolley phone cables until the point where they enter underground at the portal of the track entry.

Dresch designated the cited violation as S&S in nature because he believed it was reasonably likely that a shock or electrocution injury caused by the ungrounded communication wires would result in lost workdays or restricted duty. (Tr. 681). The cited condition also created a fire and an ignition hazard as a result of heat that would be generated by an overvoltage on the lines in the event of a lightning strike. Because the telephone system was a hard wired system, Dresch concluded that the dispatcher and the miners were regularly exposed to serious injury should a lightning strike occur. (Tr. 682). Dresch believed injury was less likely with respect to the trolley system because persons would not be in direct contact with the trolley wire. (Tr. 683-84).

Dresch considered the lack of lightning arresters to be an obvious condition in that the wires were visible on the surface of the mine, and mine electrical equipment was examined monthly by qualified examiner personnel. Dresch acknowledged that MSHA inspectors apparently did not recognize the need for lightning arresters during previous inspections. (Tr. 685). Consequently, the negligence attributable to Wolf Run for the cited violation was deemed to be moderate.

The cited violation was abated by installing a lightning arrester on each of the telephone paging wire conductors located outside the mine, and installing one lightning arrester on the outside portion of the trolley wire conductor that was suspended from the mine roof. (Tr. 685). As noted, the trolley wire that was grounded to the track at the mouth of the track entry did not require a lightning arrester. (App. II). The Secretary proposes a civil penalty of $440.00 for Citation No. 7582485.

f. Post-Hearing Submissions

At the conclusion of the hearing, the record was left open for the Secretary to submit MSHA's history of enforcement of section 75.521 prior to the January 2, 2006, Sago explosion. This information was requested to determine if the Secretary's interpretation of section 75.521 has been affected by the Sago Mine accident.

On January 28, 2009, the Secretary submitted citations reflecting her relevant enforcement history with respect to lightning arresters prior to January 2, 2006. The citations were divided into three categories. Four citations concerned insulated power cables (Gov. Ex. 25); 35 citations concerned communication or carbon monoxide (CO) monitoring systems (Gov. Ex. 26); and 18 citations concerned conditions where the lightning arrester ground field and the neutral ground field were not separated by at least 25 feet (Gov. Ex. 27). The citations do not reflect whether the cited power cables, communication lines or CO monitoring systems were grounded to a common neutral ground or otherwise grounded.

III. Disposition

a. Regulatory Framework of Section 75.521

The "language of a regulation . . . is the starting point for its interpretation." *Dyer v. United States*, 832 F. 2d 1062, 1066 (citing *Consumer Prod. Safety Comm'n v. GET Salvinia, Inc.* 447 U.S. 102, 108 (1980)). So we must examine the language used by the Secretary in promulgating section 75.521 as a mandatory safety standard. Section 75.521 provides:

> Each *ungrounded, exposed* power conductor and each ungrounded, exposed telephone wire that leads underground shall be equipped with suitable lightning arresters of approved type within 100 feet of the point where the circuit enters the

mine. Lightning arresters shall be connected to a low resistance grounding medium on the surface which shall be *separated from neutral grounds by a distance of no less than 25 feet.*

(Emphasis added).

The cited mandatory standard has three components. The meaning and applicability of these components are disputed by the parties. The three elements of the section 75.521 are: (1) the subject power conductor must be "exposed;" (2) the subject power conductor must be "ungrounded;" and (3) the lightning arrester ground field must be separated from the neutral grounds by a distance of at least 25 feet. In this case, the cited standard requires interpretation because the operative terms "exposed" and "ungrounded" are subject to different meanings.

When the meaning of the provisions of a regulatory standard are disputed, the courts and this Commission have deferred to the Secretary's reasonable interpretation of the regulation. *Energy West Mining Co. v. FMSHRC*, 40 F. 3d 457, 463 (D.C. Cir. 1994); *accord Sec'y of Labor v. Western Fuels - Utah, Inc.*, 900 F. 2d 318, 321 (D.C. Cir. 1990) ("agency's interpretation of its own regulation is 'of controlling weight unless it is plainly erroneous or inconsistent with the regulation'"), *quoting Bowls v. Seminole Rock & Sand Co.*, 325 U.S. 410, 414 (1945) (other citations omitted). Thus, we address whether the Secretary's proffered meaning and application of section 75.521 is entitled to deference.

b. The Term "Exposed"

As a threshold matter, the meaning of the term "exposed" power conductors as contemplated by the cited regulation must be resolved. To support the fact of the alleged violations of section 75.521, the Secretary seeks to explain the meaning of an "exposed" power conductor by relying on the provisions in the MSHA Program Policy Manual for enforcement of section 75.521 that enumerate when a power conductor is "not exposed." The policy manual states:

75.521 Lightning Arrester; Ungrounded and Exposed Power Conductors and Telephone Wires

Conductors that are (1) provided with metallic shields; (2) jacketed by a ground metal covering or enclosure; (3) installed under grounded metal framework; (4) buried in the earth; or (5) made of triplex or quadraplex that is supported by a grounded messenger wire, *are not considered exposed for the length so protected.* If the trolley wire of a d.c. system is paralleled by an exposed feeder cable, one lightning arrester would provide protection for both if they are connected together near the lightning arrester.

Lightning arrester ground fields shall be maintained with as low a resistance to earth as possible, preferably less than 5 ohms and no more than 25 ohms. *Lightning arrester ground fields shall be separated from neutral ground fields by*

at least 25 feet. This distance prevents lightning surges from being transmitted to the neutral field where they could momentarily energize the frames of equipment grounded to the neutral ground field.

Mines using single-phase power originating at the power company's secondary and extending underground cannot normally comply with this Section due to the power company's practice of connecting the lightning arrester ground to the grounded neutral which also connects to the center tap of the transformer, unless an isolation transformer is installed or the power company isolates the lighting arrester ground from the center tap ground and a separated neutral ground field is established.

(Emphasis added). (Gov. Ex. 8).

Since the cited conductors satisfy none of the enumerated five requirements in the policy manual, the Secretary asserts the power conductors are exposed despite their insulation and containment in an outer cable jacket. The Secretary may not rehabilitate ambiguous mandatory standards by simply explaining in MSHA's policy manual what she intended to, but did not say. Rather, regulatory interpretations contained in policy manuals or opinion letters, not arrived at through notice-and-comment rulemaking, lack the force of law and are not entitled to *Chevron* style deference. *Edward Christensen, et al. v. Harris County, et al.*, 529 U.S. 576, 586-87 (2000) (citing *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984) (a court must give effect to agency's reasonable interpretation of an ambiguous statute); *Bulk Transportation Services, Inc.* 13 FMSHRC 1354, 1360 (Sept. 1991) (policy manuals are expressions of general policy and are not binding regulations); *King Knob Coal Co.*, 3 FMSHRC 1417, 1420 (June 1981) (the express language of a statute or regulation "unquestionably controls" over material in MSHA'S policy manual) (citations omitted).

Although I am not persuaded by the Secretary's reliance on MSHA's policy manual, Subpart K of Part 1926 of Title 29 of the Secretary's regulation concerning electrical safety in the construction industry is instructive. 29 C.F.R. Subpart K of Part 1926. Section 1926.449 contains the definitions that are relevant to electrical safety. 29 C.F.R. § 1926.449. Section 1926.449 reflects that the term "exposed" electrical cables has several meanings depending on the term's context:

When referring to live parts, the definition of "exposed" is "[c]apable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts not suitably guarded, isolated or insulated."

When referring to wiring methods, Section 1926.449 defines exposed as "[o]n or attached to the surface or behind panels designed to allow access."

Wolf Run, relying on the functional purpose of insulated wires, as in the first definition in section 1926.449, argues that the term "exposed" in section 75.521 applies to live electrical conductors capable of contact. Wolf Run contends that the conductors in the charger cables, the water pump cable, and the telephone and trolley wires were not exposed because they were covered by insulation and/or housed in an outer jacket. Therefore, Wolf Run argues that the subject conductors are not governed by the lightning arrester provisions of section 75.521.

The Secretary, on the other hand, relies on a definition of "exposed" that is similar to the wiring method definition in section 1926.449. The Secretary argues that insulated power conductors prevent electrical shorts rather than protect against overvoltage. (Tr. 205). Similarly, she asserts the outer jacket of the cable is designed to protect the inner leads from damage rather than provide protection against lightning. (Tr. 218). Thus, despite the insulation and outer jacket, the Secretary maintains that the subject power conductors are "exposed" because the aboveground portions of the cables containing them are exposed to the weather related atmospheric effects of lightning.

The Secretary's interpretation of a regulation is reasonable where it is "logically consistent with the language of the regulation and . . . serves a permissible regulatory function" *General Elec. Co. v. U.S. E.P.A.*, 53 F.3d 1324, 1327 (D.C. Cir. 1995) (citation omitted). Here, section 75.521 seeks to mitigate, by means of lightning arresters, the hazard posed by the transmission of electrical energy from a lightning strike on the surface to the underground mine. Thus, the focus of the cited standard is on power cables that are situated on the earth's surface and "exposed" to lightning. It naturally follows that the term "exposed conductors" refers to the location outside the underground mine, rather than their method of insulation and protection from human contact.

Moreover, the Secretary's interpretation that the term "exposed" refers to location, rather than wiring method, is consistent with the language of section 75.521 that requires "suitable lightning arresters of approved type within 100 feet of the point where the circuit enters the mine." Thus, the Secretary's interpretation of "exposed" is consistent with both the language and the purpose of the cited standard. Consequently, the Secretary's interpretation that the term "exposed" refers to power conductors that are located on the surface, rather than buried or otherwise physically shielded from a lightning strike, is manifestly reasonable.

c. The Term "Ungrounded"

Having concluded that power conductors contained in aboveground portions of cables that run underground are "exposed," the focus shifts to whether the cited power conductors are "ungrounded." Wolf Run contends the subject power conductors are grounded if the power cable is grounded, regardless of the method of grounding. The Secretary takes the view that it is the ground wire in the cable that is grounded rather than the power conductors. In this regard, she emphasizes that the power conductors are not separately grounded because they carry electrical energy. Consequently, the Secretary asserts that power conductors in exposed cables located aboveground are governed by section 75.521 even if the power conductors are contained in an insulated cable that is connected to a neutral ground.

The Secretary's concept of an "ungrounded power conductor" is fundamentally flawed because: it is inconsistent with the technical definition; it is inherently inconsistent with the separation requirements of section 75.521; it is contrary to the language in MSHA's policy manual;[3] and it undermines the purpose of the mandatory standard.

As a threshold matter, the Secretary's proffered meaning of "ungrounded" is contrary to the mining industry definition of the term. The industry definition of a "grounded power conductor" is:

> *An insulated or bare cable that* constitutes one side of a power circuit and *normally is connected to ground.* It differs from a ground wire in that a grounded power conductor normally carries the load current while the equipment it serves is in service.

Am. Geological Inst., *Dictionary of Mining, Mineral, and Related Terms*, 247 (2d. Ed. 1997) (emphasis added).

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[3] The relevant provision in the policy manual states:

> Lightning arrester ground fields shall be separated from neutral ground fields by at least 25 feet. This distance prevents lightning surges from being transmitted to the neutral field where they could momentarily energize the frames of equipment grounded to the neutral ground field.

(Gov. Ex. 8).

Moreover, the Secretary's proposed meaning of the term "ungrounded power conductor" places the Secretary in the unenviable position of arguing that a mine operator must comply with the first requirement of section 75.521, *i.e.*, installation of a lightning arrester, even though such compliance would violate the second requirement of this standard, *i.e.*, separation of the ground fields. Rather, the logical meaning of section 75.521 is that it requires that conductors in cables that extend from the surface to the underground mine must be grounded to either a lightning arrester ground field, or a neutral ground field, but not both.

In addition, the Secretary's view that conductors in an insulated grounded cable are "ungrounded" undermines the purpose of section 75.521. As previously noted, if the ground fields are connected, the purpose of section 75.521 – to minimize the lightning energy that enters underground – would be frustrated because excess lightning energy could by conveyed through the underground mine from ground field to ground field. That is why the requirements in section 75.521 of installing lightning arresters, and, separating the lightning arrester ground field from the neutral grounds by a distance of at least 25 feet, are mutually exclusive. In other words, it is impossible to separate a lightning arrester ground field from a neutral ground field on a cable that has ground fault protection.

In the final analysis, the installation of lightning arresters on power conductors in a cable that is grounded to the neutral ground is prohibited by section 75.521 because it would violate the 25 foot minimum separation. Thus, the Secretary's interpretation that power conductors contained in insulated cables that are connected to a neutral ground system are governed by section 75.521 is unreasonable. Rather, the term "ungrounded" in section 75.521 refers to cables entering a mine that are not grounded. Therefore only power conductors in ungrounded cables are subject to this mandatory standard. As Inspector Honaker testified, installing lightning arresters on conductors in grounded cables is "doomed to failure." (Tr. 877).

In reaching the conclusion that conductors must be connected to lightning arresters, or connected through the neutral grounds, but not both, I am cognizant of the Secretary's legitimate goal, particularly in light of the Sago explosion, of mitigating the danger posed by lightning. The Secretary argues, in essence, that section 75.521 implicitly prohibits connecting exposed cables entering underground to the neutral grounds. However, "a regulation cannot be construed to mean what an agency intended but did not adequately express." *Phelps Dodge Corp. v. FMSHRC*, 681 F.2d 1189, 1193 (9th Cir. 1982) (citations omitted).

Moreover, as explained by Inspector Wooten, lightning arresters and neutral grounds address different hazards. Lightning arresters mitigate the hazard posed by lightning strikes by dissipating electrical energy before it enters the mine. (Tr. 384). Neutral ground mediums provide ground fault protection from electrocution by causing circuit breakers to trip in the event of a short circuit in electrical mining equipment. (Tr. 277). If the Secretary wishes to subordinate the hazard posed by short circuits to the hazard posed by lightning she should do so by rulemaking. In other words, if the Secretary wishes to prohibit cables that enter an

underground mine from being connected to a neutral ground, or prohibit powering underground equipment from an aboveground power center, she should do so explicitly through a notice-and-comment rulemaking rather than by inference and/or policy manual.[4]

However, cables that run from the surface underground that are truly "ungrounded" present an important distinction because they do not thwart the purpose of section 75.521. In this regard, the installation of lightning arresters on power connecters contained in such cables would be consistent with the purpose of section 75.521 -- to direct an electrical surge to the lightning arrester ground field and away from the underground mine. Thus, the Secretary's contention that conductors in *ungrounded cables* (that are not connected to neutral grounds) are governed by section 75.521 is reasonable as it is consistent with the plain meaning of the regulation.

By way of summary, power conductors contained in cables connected to the neutral ground fault medium are not subject to the provisions of section 75.521 because they are not "ungrounded". Similarly, power cables, telephone wires and trolley wires that are not grounded are subject to section 75.521. Having determined that section 75.521 applies to power conductors in ungrounded cables that enter underground, we turn to the disposition of each of the subject citations.

d. Citation No. 7583340 – High Voltage Overhead Lines

As previously noted, Citation No. 7583340 states:

> The lightning arresters grounding medium was not separated from the neutral grounds by a distance of 25 feet. The arresters were wired in a manner that would not prevent the frames of the equipment being used underground which are connected to the neutral grounding field from becoming energized in the event of a strike on the surface. The arrester ground was connected to the frames of the surface belt structure which are entering the mine and are connected to the mine track and all underground equipment.

(Gov. Ex. 4).

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[4] MSHA's current application of section 75.521 apparently is a matter of first impression. As Wooten explained, "[i]t's an unusual situation to find this like this because usually [mine operators] want to power everything that's on the surface from the surface and ground everything to that. And everything that's underground to the underground source." (Tr. 321).

Citation No. 7583340 was issued because the lightning arrester ground for the overhead high voltage lines was connected to a ground wire for the power cable supplying the surface belts which in turn was connected to the conveyor belt frame on the surface. The problem arose because the underground portion of the conveyor frame was the medium used to connect the underground equipment to the neutral grounds. This condition clearly constitutes a violation of the 25 feet separation required in section 75.521. Citation No. 7583340 exemplifies why section 75.521 does not apply to power conductors in cables that are connected through the neutral ground medium.

To abate the citation Wolf Run was required to remove the ground wire for the power cable supplying the surface belts from the belt frame. In effect, removal of the ground wire separated the lightning arrester ground field from the neutral grounds.

Having determined the fact of the violation, we turn to the S&S issue. As a general proposition, a violation is properly designated as S&S in nature if, based on the particular facts surrounding that violation, there exists a reasonable likelihood that the hazard contributed to by the violation will result in an injury or an illness of a reasonably serious nature. *Cement Division, National Gypsum*, 3 FMSHRC at 825. In *Mathies Coal Co.*, 6 FMSHRC 1 (January 1984), the Commission explained:

> In order to establish that a violation of a mandatory safety standard is significant and substantial under *National Gypsum*, the Secretary of Labor must prove: (1) the underlying violation of a mandatory safety standard; (2) a discrete safety hazard -- that is, a measure of danger to safety -- contributed to by the violation; (3) a reasonable likelihood that the hazard contributed to [by the violation] will result in an injury; and (4) a reasonable likelihood that the injury in question will be of a reasonably serious nature.

6 FMSHRC at 3-4; *see also Austin Power Inc. v. Secretary*, 861 F.2d 99, 103-04 (5th Cir. 1988), *aff'g* 9 FMSHRC 2015, 2021 (December 1987) (approving *Mathies* criteria).

In *U.S. Steel Mining Co., Inc.*, 7 FMSHRC at 1129, the Commission explained its *Mathies* criteria as follows:

> We have explained further that the third element of the *Mathies* formula "requires that the Secretary establish a reasonable likelihood that the hazard contributed to will result in an event in which there is an injury." *U.S. Steel Mining Co., Inc.*, 6 FMSHRC 1834, 1836 (August 1984). We have emphasized that, in accordance with the language of section 104(d)(1), it is the contribution of a violation to the cause and effect of a hazard that must be significant and substantial. *U.S. Steel Mining Company Co., Inc.*, 6 FMSHRC 1866, 1868 (August 1984) (emphasis in original).

The Commission subsequently reasserted its prior determinations that as part of any S&S finding, the Secretary must prove the reasonable likelihood of an injury occurring as a result of the hazard contributed to by the cited violative condition or practice. *Peabody Coal Company*, 17 FMSHRC 508 (April 1995); *Jim Walter Resources, Inc.*, 18 FMSHRC 508 (April 1996).

Resolution of whether a particular violation of a mandatory standard is S&S in nature must be made assuming continued normal mining operations. *U.S. Steel Mining*, 7 FMSHRC at 1130. Thus, consideration must be given to both the time frame that a violative condition existed prior to the issuance of a citation, and the time that it would have existed if normal mining operations had continued. *Bellefonte Lime Co.*, 20 FMSHRC 1250 (Nov. 1998); *Halfway, Inc.*, 8 FMSHRC 8, 12 (Jan. 1986).

While unpredictable and random, lightning is an ever present danger during severe weather conditions. Lightning's unpredictability and randomness must not be confused with the severity or likelihood of the hazard. For example, it obviously is inadvisable, if not extremely dangerous, to stand under a tree during an electrical storm. So too, it is dangerous to expose underground miners to an electrical surge because high voltage overhead power lines entering the mine are not effectively equipped with lightning arrester protection.

Although I have not concluded that a violation of the provisions of section 75.521 governing lightning arresters is a *per se* S&S violation, the particular circumstances of this violation warrant an S&S designation. Significantly, the power line inadequately protected was a high voltage line capable of carrying a significant surge of electrical energy underground. Such a surge would create an electrocution hazard to miners who were in contact with, or in the vicinity of, the conveyor frame or underground equipment. An electrical surge is also an ignition source that could result in a fire or explosion. The Sago tragedy is a testament to the serious hazard presented by exposing miners to lightning related dangers. Thus, the facts surrounding the cited violation, when viewed in the context of continued underground mining operations, in an environment that is unprotected from high voltage lightning related hazards on a daily basis, support the Secretary's assertion that the cited condition constituted an S&S violation and was serious in gravity.

The Secretary has adequately supported her assertion that the cited violation was attributable to a moderate degree of negligence in that the condition was in plain view and subject to monthly electrical inspections. Wolf Run is a large mine operator that timely abated

the cited condition. The Secretary's proposed $963.00 civil penalty is consistent with the penalty criteria in section 110(i) of the Mine Act.[5] 30 U.S.C. § 820(i). **Accordingly, a $963.00 penalty shall be imposed for Citation. No. 7583340.**

e. Citation Nos. 7583316 and 7583317 – Battery Charger Cables

Citation Nos. 7583316 and 7583317 essentially cite the same condition on two separate power cables connected to battery chargers on the surface from a power center that was located in an underground section of the mine. (App. I; Gov. Exs. 2, 3). The underground power center was grounded through the metal frame of the belt conveyor to the neutral ground field on the surface. The power cables cited in Citation Nos. 7583316 and 7583317 were used to supply power to the No. 4 and No. 8 battery chargers, respectively. The cited conditions were abated by removing the cables from the underground power source and supplying power to the chargers from a power source located on the surface.

Section 75.521 prohibits connecting lightning arresters to power conductors that are connected to the neutral grounds. This is illustrated by the condition cited in Citation No. 7583340 concerning the high voltage overhead lines that was abated by disconnecting the lightning arrester ground from the neutral ground conveyor frame medium. Since the cited power cables in Citation Nos. 7583316 and 7583317 were connected to the neutral ground medium through the frame of the underground conveyor, the power conductors contained in the cables are exempt from the provisions of section 75.521. **Accordingly, Citation Nos. 7583316 and 7583317 shall be vacated.**

f. Citation No. 7582485 – Water Pump Cable

Citation No. 7582485 states:

> The 120 volt underground cable supplying power from the fan house to the No. 3 pump at the [N]o. 10 cross cut in the track entry was not provided with a lightning arrester.

(Gov. Ex. 1).

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[5] In determining the appropriate civil penalty, section 110(i) provides, in pertinent part:

> . . . the Commission shall consider the operator's history of previous violations, the appropriateness of such penalty to the size of the business of the operator charged, whether the operator was negligent, the effect on the operator's ability to continue in business, the gravity of the violation, and the demonstrated good faith of the person charged in attempting to achieve rapid compliance after notification of a violation.

Unlike the power cables supplying the battery chargers, the cited power cable, connected from the fan house located on the surface, to the pump located underground, was not connected to the conveyor frame or otherwise connected to the neutral grounds. The pump was not otherwise grounded as the ground wire was conducting electric current. The cited condition was abated by powering the pump from an underground power source.

Since the cable was not connected to the neutral ground medium or otherwise grounded, the cable was not exempt from the lightning arrester provisions in section 75.521. Thus, Wolf Run's failure to attach lightning arresters to the conductors contained in the cable supplying power to the water pump constituted a violation of section 75.521.

I concur with the Secretary's designation of the cited condition as non-S&S in nature. The water pump was located in an area of the mine that was isolated from other mine equipment. For injury to occur, a miner would have to be in contact with the water pump the moment a lightning strike caused a surge in the power cable. Fire was unlikely because of the damp conditions in the vicinity of the pump. The negligence attributable to Wolf Run is moderate because the pump was examined on a weekly basis. **Consistent with the penalty considerations in section 110(i) of the Mine Act, the $60.00 civil penalty proposed by the Secretary is an appropriate penalty that shall be assessed for Citation No. 7582485.**

g. Citation No. 7335233 – Telephone and Trolley Wires

Citation No. 7335233 states:

> The exposed telephone wire and trolley phone wire that lead underground are not equipped with suitable lightning arresters of approved type within 100 feet of the point where circuits enter the mine. No lightning arresters were found.

(Gov. Ex. 5).

Both the cited telephone wire and trolley wire were connected from the dispatcher's office on the surface through the portal of the track entry underground. (App. II). The telephone wire, consisting of two conductors, was hard wired to approximately 20 pagers underground. Neither telephone conductor was grounded. Consequently, each conductor required a lightning arrester in accordance with section 75.521.

The trolley wire consisted of two wires that were separated at the track entry portal. One wire was grounded by connecting it to the track at the mouth of the track entry. (App. II). This wire did not require a lightning arrester because it did not extend to an underground area of the mine.

The other trolley conductor served as an antenna. It was hung along the roof from the mouth of the track entry to the farthest end of the track where it was grounded. A lightning arrester was installed on this trolley conductor to abate the citation. The citation was also abated by installing a lightning arrester on each of the ungrounded telephone conductors. The Secretary proposed a civil penalty of $440.00 for Citation No. 7335233.

The parties have jointly stipulated that similar insulated power conductors for a CO monitoring system at the Sago Mine, that also originated at the dispatcher's office, were equipped with a transient voltage suppressor for protection against lightning. (Gov. Ex. 28). Significantly, consistent with this decision, the parties' stipulations describing the CO monitoring system that was protected from lightning do not reflect that the system's conductors were grounded.

Section 75.521 applies to the telephone wire as neither of the two telephone conductors was grounded. Accordingly, Wolf Run's failure to provide lightning arrester protection for the telephone conductors constituted a violation of the cited mandatory standard. However, Wolf Run was not required to attach a lightning arrester to the grounded trolley wire suspended on the track roof because it was grounded to the end of the track at the furthest point in the mine. (677-80). I reach this conclusion based on Wooten's testimony that current carrying conductors that are connected to ground are not governed by section 75.521. (Tr. 277).

With respect to the question of S&S, the Secretary contends that serious injury is reasonably likely because the dispatcher and miners are regularly exposed to the telephone line paging system. In evaluating the likelihood of injury, it is significant that, unlike high voltage overhead power lines that are capable of carrying an excess electrical surge, the telephone conductors are thin wires that have a relatively low voltage capacity of 12 volts. (Tr. 644). A lightning surge can create over one million volts. (Tr. 220). Consequently, it is likely that a lightning power surge would destroy the subject telephone conductors before they entered the mine, a distance of approximately 400 feet from the dispatcher's office to the mine portal. (Tr. 613). Thus, it is reasonably likely that lightning induced energy distributed through these low voltage lines would be interrupted before it could create a significant ignition source or electrocution hazard. (Tr. 644). Consequently, viewing the circumstances surrounding the cited violation in their entirety, it cannot be said that the hazard contributed to by the violation, *i.e.,* a transfer of a high degree of electrical energy into the mine, causing serious or fatal injuries, is reasonably likely to occur.

In view of the above, Citation No. 7335233 shall be modified by deleting the portion of the citation concerning the trolley wires, and by reflecting that the cited condition was non-S&S in nature. The record reflects the violation was attributable to a moderate degree of negligence based on the failure of detection during weekly mine inspections. **Consistent with the statutory penalty criteria in section 110(i), a civil penalty of $60.00 shall be imposed for Citation No. 7335233.**

I note, parenthetically, that my conclusion that power conductors may be connected to either a lightning arrester field or the neutral grounds, but not both, is consistent with MSHA's enforcement history prior to the Sago mine accident. Specifically, the determination that section 75.521 applies to the ungrounded water pump power cable, but does not apply to grounded battery charger power cables, is consistent with the relevant history of citations furnished by the Secretary. In this regard, none of the four citations relied on by the Secretary involving power cable violations of section 75.521 reflect that the cited cables were attached to ground. (Gov. Ex. 25). Similarly, the 35 citations submitted by the Secretary that concern communication and monitoring systems do not reflect the systems were connected to a neutral ground. (Gov. Ex. 26). Finally, the 18 citations submitted concerning past violations in instances where both the lightning arrester ground and neutral grounds were tied to a common medium, such as a conveyor frame, are similar to the overhead power line violation that has been affirmed in these proceedings. (Gov. Ex 27).

Moreover, the outcome in this case is consistent with the enforcement history of section 75.521 prior to the Sago disaster that was related by Inspector Wooten. Wooten noted that he has issued citations for: communication wires that lacked lightning arresters; power lines that violated the 25 foot minimum ground field separation; and damaged lightning arresters that needed of replacement. (Tr. 318-19). However, Wooten's testimony does not reflect any history of citations that were issued because power cables connected to neutral grounds did not have lightning arrester protection.

In the final analysis, the Secretary seeks to require, through an implicit interpretation of section 75.521, that surface equipment must be powered from a power source located on the surface, and, underground equipment must be powered from an underground power source. Alternatively, if the equipment and power sources are not co-located underground or on the surface, in lieu of installing lightning arresters, the Secretary, consistent with MSHA's policy manual, seeks to require power cables on the surface to be buried, enclosed in a ground metal covering, or provided with metallic shields. However, the explicit language of section 75.521 governs over the Secretary's proffered implicit meaning and the provisions of the policy manual.

IV. Settlement and Total Liability

These civil penalty proceedings concern a total of 36 citations, 31 of which have been settled. The total civil penalty initially proposed by the Secretary for the 36 citations was $32,278.00. Pursuant to the parties' settlement terms, Wolf Run has agreed to pay $25,257.00 rather than the $28,339.00 civil penalty initially proposed by the Secretary for the 31 settled citations. The reduction in civil penalty is based on a reduction in the degree of negligence attributable to Wolf Run with respect to several of the subject citations. I have considered the representations and documentation submitted by the parties and I conclude that the proffered settlement is appropriate under the criteria set forth in Section 110(i) of the Act. Consequently, the parties' motions to approve settlement shall be granted.

The Secretary proposes a total civil penalty of $3,939.00 for the five citations that have been adjudicated in these matters. These five citations are Citation No. 7582485 in Docket No. WEVA 2006-853; Citation Nos. 7583316 and 7583317 in Docket No. WEVA 2006-854; and Citation Nos. 7335233 and 7583340 in Docket No. WEVA 2007–666.

Citation Nos. 7583316 and 7583317 in Docket No. WEVA 2006-854 have been vacated. A total civil penalty of $1,083.00 has been assessed in these proceedings for the three remaining citations, consisting of a $60.00 civil penalty for Citation No. 7582485 in Docket No. WEVA 2006-853, a $60.00 civil penalty for Citation No. 7335233 in Docket No. WEVA 2007-666, and a $963.00 civil penalty for Citation No. 7583340 in Docket No. WEVA 2007–666. Consequently, Wolf Run's total liability is $26,340.00.

ORDER

Consistent with this Decision, **IT IS ORDERED** that Citation No. 7583340 in Docket No. WEVA 2007–666 **IS AFFIRMED**.

IT IS FURTHER ORDERED that Wolf Run Mining Company shall pay a civil penalty of $963.00 in satisfaction of Citation No. 7583340.

IT IS FURTHER ORDERED that Citation No. 7335233 in Docket No. WEVA 2007–666 **IS MODIFIED** by deleting the significant and substantial designation, and that Wolf Run Mining Company shall pay a $60.00 civil penalty for the cited condition.

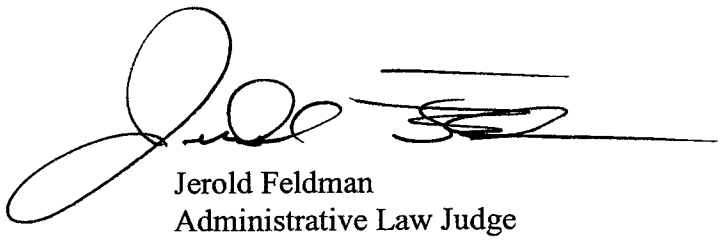
IT IS FURTHER ORDERED that Wolf Run Mining Company shall pay the $60.00 civil penalty proposed by the Secretary for Citation No. 7582485 in Docket No. WEVA 2006–853 that **IS AFFIRMED**.

IT IS FURTHER ORDERED that Citation Nos. 7583316 and 7583317 in Docket No. WEVA 2006-854 **ARE VACATED**.

IT IS FURTHER ORDERED that the parties' motions to approve partial settlement **ARE GRANTED**. Consistent with the parties' settlement terms, **IT IS ORDERED** that Wolf Run Mining Company shall pay a total civil penalty of $25,257.00 in satisfaction of the remaining 31 citations that are in issue in these proceedings.

Consistent with the total civil penalty assessment of $1,083.00 for the five citations that were adjudicated in these matters, as well as the parties' settlement terms, **IT IS ORDERED** that Wolf Run Mining Company pay, within 40 days of the date of this decision, a total civil penalty of $26,340.00 in satisfaction of the 36 citations that are in issue in these proceedings.

IT IS FURTHER ORDERED that, upon receipt of timely payment, the civil penalty proceedings in Docket Nos. WEVA 2006–853, WEVA 2006–854 and WEVA 2007-666 **ARE DISMISSED**.



Jerold Feldman
Administrative Law Judge

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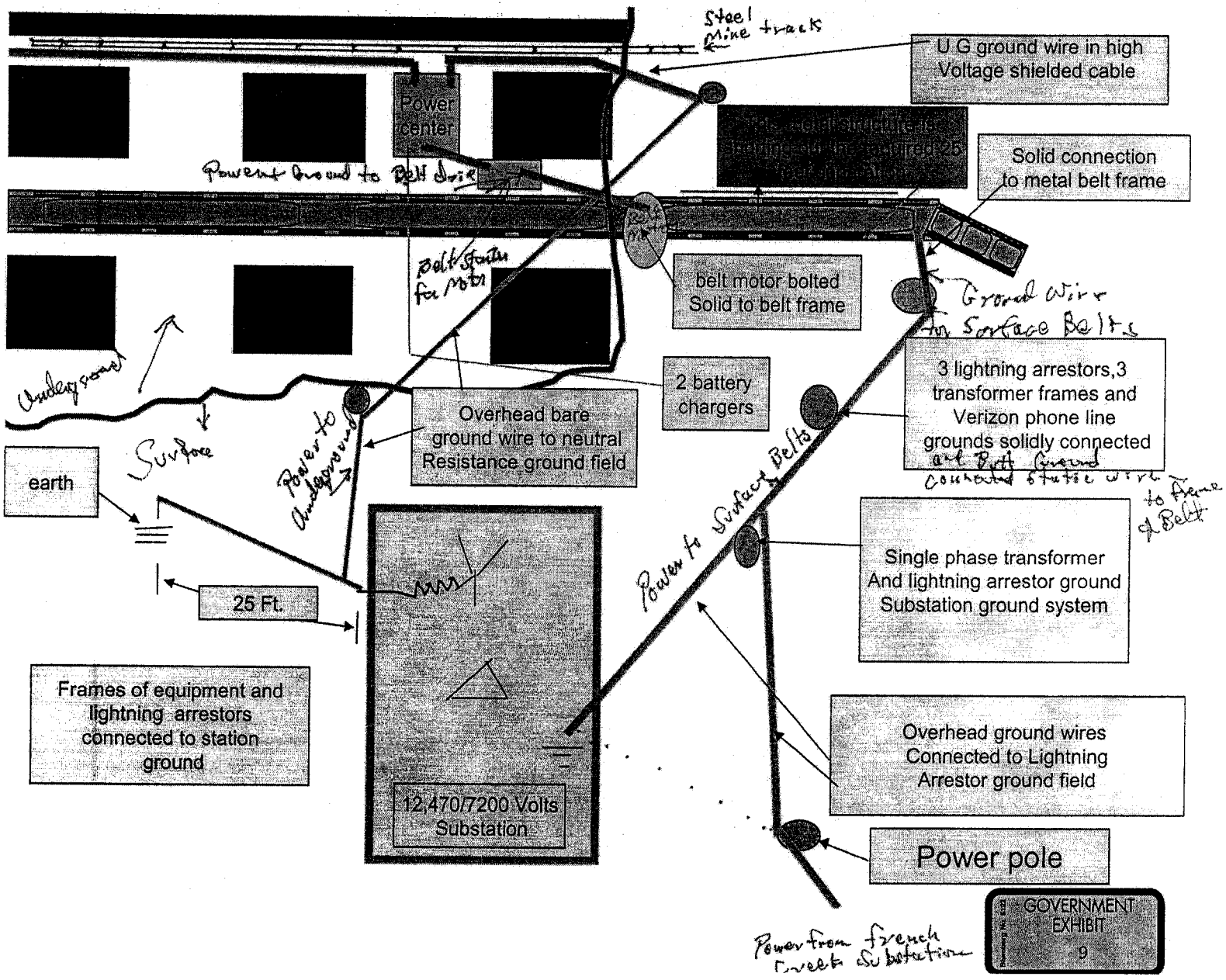
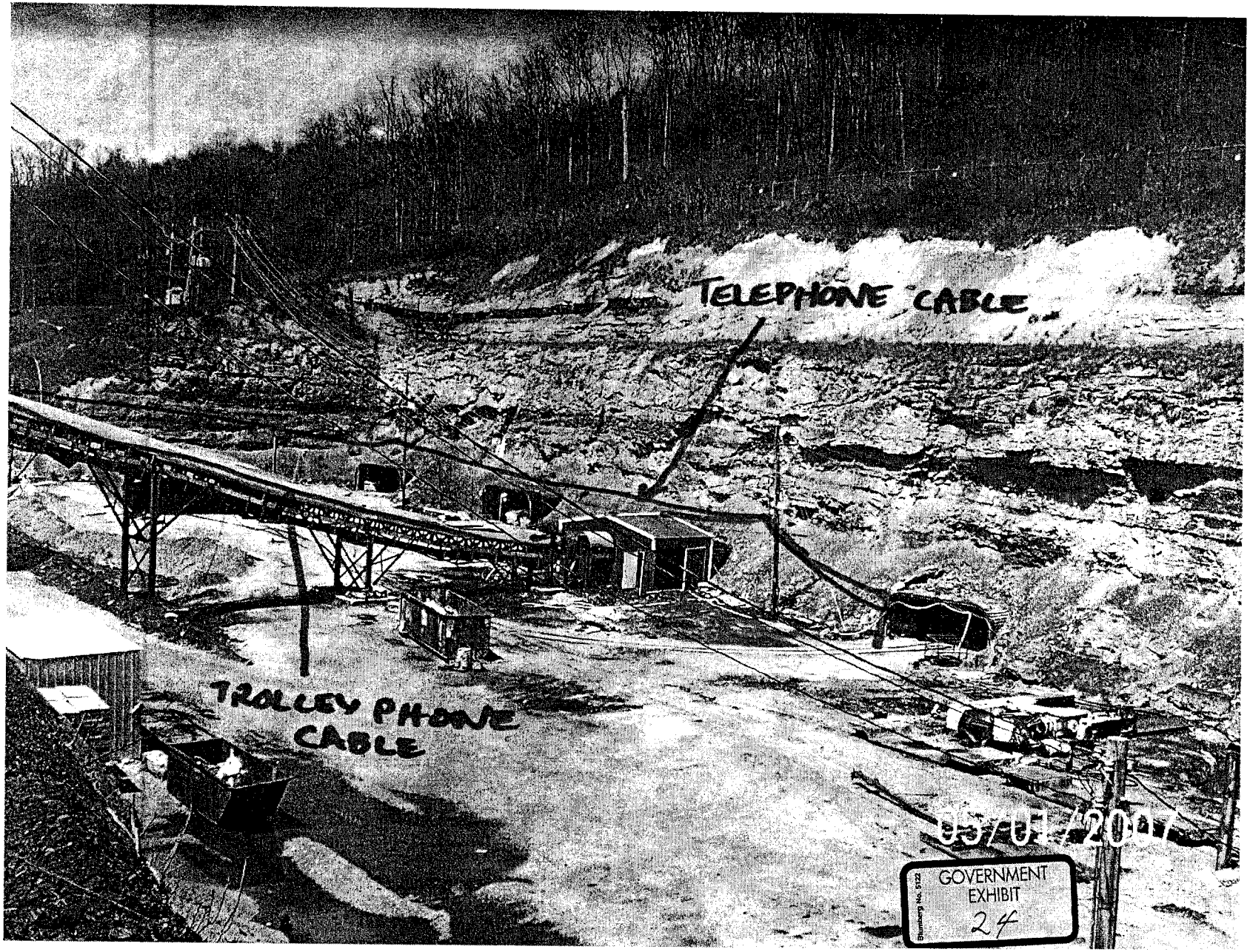

Steel Mine tracks
U G ground wire in high Voltage shielded cable
Power center
Solid connection to metal belt frame
belt motor bolted Solid to belt frame
Ground Wire for Surface Belts
2 battery chargers
3 lightning arrestors,3 transformer frames and Verizon phone line grounds solidly connected
Underground
Surface
Overhead bare ground wire to neutral Resistance ground field
earth
Power to Underground
Power to Surface Belts
Single phase transformer And lightning arrestor ground Substation ground system
25 Ft.
Frames of equipment and lightning arrestors connected to station ground
Overhead ground wires Connected to Lightning Arrestor ground field
12,470/7200 Volts Substation
Power pole
Power from French Creek Substation
GOVERNMENT EXHIBIT 9

APPENDIX I


TELEPHONE CABLE
TROLLEY PHONE CABLE
GOVERNMENT EXHIBIT 24

APPENDIX II