

April 29, 2009

Response to Comments on the Program Policy Letter (PPL) concerning Guidance for Compliance with Post-Accident Two-Way Communications and Electronic Tracking Requirements of the Mine Improvement and New Emergency Response Act (MINER Act) of 2006

Background

On December 18, 2008, the Mine Safety and Health Administration (MSHA) published in the Federal Register a notice announcing the issuance of a draft PPL that provided mine operators guidance in implementing: (1) alternatives to fully wireless post-accident two-way communication between underground and surface personnel and (2) electronic tracking systems, both of which are required by the MINER Act. The two-way communication alternatives (or “partially wireless” systems) include infrastructure underground and untethered devices worn by miners to provide communications with surface personnel. The draft PPL was issued in accordance with Executive Order (EO) 12866 on Regulatory Planning and Review, as amended by EO 13422 (January 18, 2007), and the Bulletin for Agency Good Guidance Practices (Good Guidance Bulletin), adopted by the Office of Management and Budget.

In accordance with the Good Guidance Bulletin, MSHA made the draft PPL available on the Agency's website for comment. MSHA also made available on the Agency's website preliminary estimates of costs associated with implementing the MINER Act requirements under the guidance in the PPL. MSHA invited the public to comment on the guidance in the PPL, as well as the preliminary cost estimates. The comment period closed on January 8, 2009.

On January 16, 2009, MSHA issued the final PPL, which is available on the Agency's website. This document is a response to comments received on the draft PPL.

Discussion

General. The final PPL provides guidance to assist mine operators in implementing post-accident two-way communication systems between underground and surface personnel and electronic tracking systems through their Emergency Response Plans (ERPs), as required by the MINER Act. The MINER Act requires, by June 15, 2009, a plan be submitted that provides for a post-accident communication system between underground personnel and surface personnel via a wireless two-way medium and an electronic tracking system that permits surface personnel to determine the location of any persons trapped underground. If these provisions cannot be adopted, the MINER Act requires that ERPs set forth an alternative means of compliance that

approximates, “as closely as possible, the degree of functional utility and safety protection provided by the wireless two-way medium and tracking system” referenced.

Some commenters supported the issuance of a PPL, but suggested that the performance provisions in the PPL should be minimum requirements rather than guidance. Other commenters requested that MSHA withdraw the PPL and initiate rulemaking. One commenter requested that MSHA modify its draft PPL to make it consistent with West Virginia state law, or accept compliance with existing state requirements. Several commenters stated that fully wireless communications technology either is commercially available now or will be commercially available by late 2009. These commenters took exception to MSHA’s conclusion in the draft PPL that wireless communication systems are not likely to be technologically feasible by June 15, 2009. One commenter suggested that unique circumstances in thin seam mining will make implementation of the PPL more difficult.

MSHA believes that the Agency’s interpretation of “wireless” communications reflects the state-of-the-art with respect to this technology; that is, that the wireless technology was not developed for use in underground coal mines at the time of enactment of the MINER Act, and it is not likely to be completely developed by June 15, 2009. Therefore, MSHA issued a final PPL to address interim acceptable alternatives to fully wireless communication systems. In addition, as technological advances are made and become available, MSHA will update the guidance in the PPL, and District Managers will review existing ERPs to consider the manner in which intervening advances in electronic tracking systems may enhance miners’ ability to evacuate or otherwise survive in an emergency. In addition, the District Manager exercises discretion to approve ERPs developed by mine operators that address mine-specific conditions.

Consistent with the MINER Act, the final PPL provides guidance to all underground coal mine operators. MSHA cannot and does not create binding obligations through PPLs or other guidance documents. Given significant time constraints, competing regulatory objectives, the evolving nature of communications and tracking technology, and the MSHA District Managers’ ability to assure compliance with the MINER Act on a mine-by-mine basis, the Agency determined that guidance was the most appropriate method at this time for assuring compliance with the communication and tracking provisions of the MINER Act. However, MSHA will consider formal rulemaking in the future.

Two-Way Communication System Specific Provisions

General Considerations. In the final PPL, the Agency clarified certain provisions in the draft PPL and responded to comments. The final PPL provides examples of currently available technologies that may be capable of best approximating a fully wireless communications system including, but not limited to, leaky feeder, mesh, Wi-Fi and medium frequency systems. A commenter stated that “Wi-Fi” or some other term should be included so as to not exclude fiber systems. In response to comments, the final PPL includes the term “Wi-Fi.”

The final PPL, like the draft PPL, provides that the untethered device should be readily accessible to each group of miners working or traveling together and to any individual miner working or traveling alone. Some commenters requested that MSHA define the term “readily accessible.” The PPL does not define the term “readily accessible” because the term is used in existing MSHA standards and regulations. Under the PPL, a “readily accessible” untethered device would be quickly obtainable and unobstructed.

The final PPL, like the draft, provides for communication in the form of two-way voice and/or two-way text messages. Several commenters suggested that MSHA require both voice and text. The PPL does not require both voice and text because the MINER Act requires that miners be able to communicate, which can be done through voice or text. Further, most currently available systems provide voice or text, but not both.

Coverage Area. The final PPL clarifies the draft PPL and states that the communications system must provide coverage throughout each working section in a mine rather than continuous coverage. Some commenters requested that MSHA define the terms “working section” and “intersection” used in the draft PPL. The PPL does not define the term “working section” because the term is defined in 30 C.F.R. §75.2. In addition, the PPL clarifies that communication must be provided throughout each working section. Although the PPL does not use the term “intersection,” communication must be provided in the intersections that are part of the working section.

Some commenters opposed MSHA’s inclusion of intersections in the concept of coverage in the working section. Some stated that coverage for working sections should not include intersections because coverage of all entries and crosscuts presents significant operational and maintenance challenges. Others stated that coverage generally should be limited to normal work stations throughout the mine. Some commenters stated that Congress intended all areas of the mine to

be covered. Coverage throughout the working section is technologically feasible and communications between underground and surface personnel provides important information to rescuers. The final PPL clarifies that coverage be throughout the working section, which would include intersections inby the loading point of the section.

The final PPL, like the draft PPL, states that the communications systems also generally should provide continuous coverage along the escapeways and a coverage zone both inby and outby strategic areas of the mine. The final PPL includes a clarification that strategic areas are those areas where miners are normally required to work or likely to congregate in an emergency and can include belt drives and transfer points, power centers, loading points, SCSR caches and other areas identified by the District Manager. The final PPL, like the draft PPL, further provides that while a coverage zone of 200 feet inby and 200 feet outby strategic areas normally should be adequate, the District Manager may require longer or shorter distances given circumstances specific to the mine.

Some commenters opposed District Manager discretion in determining coverage areas. District Managers' discretion on coverage areas is included in the final PPL because mining conditions vary from mine-to-mine and ERPs are based on circumstances specific to the mine.

Some commenters stated that coverage should be "near" continuous along escapeways, belt entries, and main track/travel entries. Other commenters stated that there is no rationale for requiring "strategic area" coverage. Not all belt drives, transfer points, and power centers will be strategic areas that should be provided with coverage. The final PPL clarifies that strategic areas that should have coverage are those locations where miners are normally required to work or likely to congregate in an emergency. For individual mines, strategic areas that require coverage will be in the mine's ERP based on mine-specific conditions. In addition, the final PPL does not include "refuge alternatives" as an example of a strategic area in which coverage generally should be provided because the communications systems are required by the Refuge Alternatives final rule under 30 C.F.R. § 75.1600-3. The final PPL, like the draft PPL, provides that miners who work in bleeders or other remote areas of the mine that are not provided with communications coverage should follow an established check-in/check-out procedure or an equivalent procedure. While miners may be required to work in bleeders or other remote areas, given commercially available technology, the PPL provides for a check-in/check-out procedure or an equivalent procedure for these locations unless the operator requests, and the District Manager approves, an alternative procedure in the ERP.

Standby Power for Underground Components and Devices. The final PPL, like the draft, provides that stationary components (infrastructure) generally should be equipped with a standby power source capable of providing sufficient power to facilitate evacuation and rescue in the event the line power fails or is cut off. The final PPL states that in many mining situations, at least 24 hours of standby power based on a 5% transmit time, 5% receive time, and 90% idle time duty cycle (denoted as 5/5/90) should be adequate, but mine-specific conditions may warrant more or less standby power capability. Several commenters requested that standby power be at least 48 hours. Twenty-four hours should provide sufficient and appropriate standby power. Therefore, this provision is unchanged from the draft PPL.

In addition, the final PPL states that in many mining situations, at least 4 hours of operation in addition to the normal shift duration (12-hour minimum total duration) based on a 5/5/90 duty cycle should be adequate for untethered devices, but mine-specific conditions may warrant more or less capability. Some commenters stated that the duty cycle in the draft PPL was not representative of a normal shift and therefore the untethered devices may fail to function in a practical underground mining application. In response to comments, the final PPL includes a clarification that the total operation time may be achieved via spare portable devices or cached batteries if the device is approved for battery replacement in the hazardous area.

Surface Considerations. The final PPL clarifies the draft PPL. It states that the surface portion of the communication system generally should be equipped with standby power to ensure continuous operation in the event the line power is interrupted.

Some commenters stated that surface components do not need to be located in the communications facility where a person is always on duty as long as the components can be accessed, and that the components should be located in a secure area. In response to comments, the final PPL clarifies that, regardless of the place in which the components are located, the communication system should be configured to allow communication between underground personnel and the communication facility required under 30 C.F.R. §75.1600-1 where a person who is always on duty when miners are underground can receive incoming messages and respond immediately in the event of an emergency.

Other commenters stated that the communication facility must be at each individual mine surface and manned by an employee at that operation. Under existing 30 C.F.R. §75.1600-1, a telephone or two-way communication facility must be located on the surface within 500 feet of all main portals; the final PPL does not change this requirement.

Survivability. The final PPL clarifies the draft PPL. It states that the post-accident communication systems generally should provide redundant signal pathways to the surface component. Some commenters stated that the “redundancy” provision is confusing and that the systems should be based on mine-specific risk factors. MSHA recognizes the importance of increasing the likelihood of two-way communication capability, particularly if communication through one system or pathway is lost. The final PPL clarifies that redundancy can be achieved by two or more systems installed in two or more entries, or one system with two or more pathways to the surface; so that a failure in one system or pathway does not affect the other system or pathway. The final PPL does not preclude consideration of mine-specific risk factors in engineering a redundant post-accident communication system.

The final PPL, like the draft PPL, states that if system components (communications or tracking) must be installed in areas vulnerable to damage (such as in front of seals), protection against forces that could cause damage should be provided. Some commenters stated that the term “vulnerable to damage” is vague and requested that MSHA define this term. Other commenters stated that burying or hardening lines could adversely impact the performance of the system and could significantly compromise functionality. MSHA recognizes that due to varying conditions in underground mines, areas that are vulnerable to damage can differ between mines. MSHA believes that there are hardening techniques that can be used without compromising the communication system’s capability. Therefore, the final PPL does not include a definition of the term “vulnerable to damage.”

Maintenance. Regarding maintenance of both the communications systems and electronic tracking systems, the final PPL clarifies the draft PPL. It states that the equipment manufacturer generally should provide a maintenance schedule and checklist to the mine operator. The mine operator should: (1) establish and follow a procedure to provide communications/tracking during system or component failures in the event that an accident occurs before the failure can be corrected, and this procedure should include restoring at least 24 hours of standby power for the infrastructure; (2) examine the infrastructure and verify on a weekly basis that it is maintained in proper operating condition, and in the event of any failure that results in the loss of communication or affects the tracking capability of the system, repairs should be started immediately and the system restored to operating condition, and a record of the examination should be kept and made available to an authorized representative of the Secretary and miners; (3) examine the untethered communication devices and tracking devices worn by miners on a daily basis to verify that they are maintained in proper

operating condition; and (4) follow the manufacturer's maintenance recommendations.

Some commenters stated that mine operators should follow the manufacturer's maintenance recommendations and that miners should check the untethered device on a daily basis. These commenters stated that such examinations do not need to be conducted by a qualified person. In response to these commenters, the final PPL does not include the reference to 30 C.F.R. § 75.512-2 concerning weekly examinations by a qualified person as required by 30 C.F.R. § 75.153 (Electrical work; qualified person). Rather, the final PPL provides for examination of the infrastructure on a weekly basis and examination of untethered/tracking devices on a daily basis.

Other commenters requested that MSHA require training on maintenance for each shift. Training is covered under MSHA's existing standards.

Electronic Tracking System Specific Provisions

Performance. The final PPL clarifies the draft PPL and states that while the required capabilities of a particular tracking system will depend on mine-specific conditions, an effective electronic tracking system generally should be capable of: (1) determining the location of miners on a working section to within 200 feet; (2) determining the location of miners in escapeways at intervals not exceeding 2000 feet; (3) determining the location of miners within 200 feet of strategic locations; (4) determining direction of travel at key junctions in escapeways; and (5) determining the location of miners within 200 feet of refuge alternatives. In addition, the final PPL clarifies that strategic areas are those locations where miners are normally required to work or likely to congregate in an emergency and can include belt drives and transfer points, power centers, loading points, SCSR caches and other areas identified by the District Manager (example: A reader is placed 200 feet or less from each strategic location).

MSHA received comments both in support of and opposed to the tracking distances for both working sections and escapeways. Some commenters stated that 200 foot tracking coverage on a working section including intersections is unreasonable and lacks justification. Others questioned the reliability of "micro-tracking" in the working section. Some commenters stated that coverage should be no more than 200 feet in all areas including escapeways, and that tracking should be used for personnel only. Some commenters wanted to exclude areas such as the working section, belt drives and transfer points and power centers. Other commenters provided a range of tracking distances including 5,000 feet in the escapeways, +/- 100 feet tracking for both the working section and escapeways, 1000 feet in the working section, 25 feet radially and 50 feet linear,

and within 500 feet of the active face and 2000 feet outside working areas. Based on MSHA's experience in previous mining emergencies and rescue efforts, the Agency believes that the distances in the PPL meet the intent of the MINER Act given currently available technology. Tracking of miners in the working section is technologically feasible and provides important information to rescuers.

Further, in response to comments, the final PPL does not include "refuge alternatives" as an example of a strategic area. Rather, the final PPL provides as a separate provision that the tracking system generally should be capable of determining the location of miners within 200 feet of refuge alternatives. This change emphasizes the importance of refuge alternatives in post-accident situations.

Standby Power for Underground Components and Devices. The final PPL, like the draft PPL, provides that stationary components (infrastructure) should be capable of tracking persons underground during evacuation and rescue efforts, even upon loss of mine power. Further, the final PPL, like the draft PPL, states that in many circumstances, the capacity to provide a minimum of 24 hours of continuous tracking operation after a power loss should be sufficient. Some commenters stated that there should be at least 48 hours of standby power after power loss. One commenter stated that 24 hours standby power is sufficient. One commenter stated that 24 hours standby power is too long and may create safety hazard because of additional batteries. Twenty-four hours provides sufficient and appropriate standby power to determine the locations of persons trapped underground during a rescue operation. The improved emergency response capability provided by 24 hours of standby power offsets the safety concern imposed by the use of additional batteries. Therefore, this provision is unchanged from the draft PPL.

In addition, the final PPL, like the draft PPL, states that an individually-worn/carried tracking device (e.g., a tag) generally should provide a low power warning. Further, to facilitate evacuation and rescue efforts, the individually-worn/carried tracking device should provide at least 4 hours of operation in addition to the normal shift duration (12 hour total minimum duration). One commenter stated that the standby power requirements for stationary components (infrastructure) and individual tracking devices are inconsistent. Not all individual tracking devices are capable of providing 24 hours of standby power; therefore, this provision in the final PPL is unchanged from the draft PPL.

Capacity. The final PPL, like the draft PPL, states that tracking system components (readers) must be capable of tracking the maximum number of persons, including visitors, expected to be in a coverage area. One commenter stated that it is important that groups be tracked properly at vehicle speeds up to

15 mph when they are traveling together by vehicle. The MINER Act requires tracking of any persons trapped underground and, under the final PPL, the mine operator is responsible for tracking all persons underground.

Surface Considerations. The final PPL clarifies the draft PPL. It states that the tracking system should be configured to allow monitoring the location of miners underground from the communication facility required under 30 C.F.R. § 75.1600-1 where a person is always on duty when miners are underground and should include the capability to display the location of all miners underground. In addition, the person should be trained in the operation of the tracking system. One commenter stated that the communication facility must be at each individual mine surface and manned by an employee at that operation. Under existing 30 C.F.R. §75.1600-1, a telephone or two-way communication facility must be located on the surface within 500 feet of all main portals and this is where the person monitoring the tracking system should be located. Further, the final PPL, like the draft PPL, states that location data should be stored for two weeks so that it will be available for evacuation and rescue of persons underground, as well as for accident investigations. One commenter stated that routine tracking data should be stored for 2 weeks only in an emergency. Based on MSHA's experience, MSHA believes that if operators regularly maintain location data for two weeks after it is collected it will be available following an accident.