communications

Global Security & Engineering Solutions
3750 Centerview Drive
Chantilly, VA 20151
Tel: (703) 708-1400; Fax: (703) 708-5700
www.L-3com.com

January 8, 2009

To Whom It May Concern:

Attached to this memorandum, please find L-3 Communications Global Security & Engineering Solutions Division comments to the Mine Safety and Health Administration (MSHA) Draft Program Policy Letter (PPL) dated December 12, 2008 "Guidance for Compliance with Post-Accident Two-Way Communications and Electronic Tracking Requirements of the Mine Improvement and New Emergency Response Act (MINER Act)." In addition, this correspondence contains the version of the Draft PPL against which our comments are based (this version was found at this URL: http://www.msha.gov/REGS/COMPLIAN/PPLMEN.HTM).

L-3 Communications would also like to take this opportunity to express its view concerning the statement in the Draft PPL on page 2 that states, "...fully wireless communications technology is not sufficiently developed at this time, nor is it likely to be technologically feasible by June 15, 2009..." L-3 Communications is of the firm belief that its ACCOLADE Wireless Mesh Mine Communications system, developed under a research and development contract from the National Institute for Occupational Safety and Health (NIOSH), and with significant input from personnel at MSHA, is a *fully wireless* communications technology which meets the safety requirements as outlined by the MINER Act. Moreover, the L-3 ACCOLADE wireless communications system is currently available to industry and has received approvals from both MSHA and the State of West Virginia. It is in full production and available for mine installation immediately.

L-3 appreciates this opportunity to provide comments to the draft PPL and looks forward to working with MSHA to finalize the document. Should you have any questions regarding the materials provided, please do not hesitate to contact Mr. Victor Young, 703-293-7867 or victor.young@L-3com.com.

Sincerely,

John P. Floris
Senior Vice President and General Manager
Security Solutions Group
Global Security & Engineering Solutions
A Division of L3 Communications

COMM-17

L-3 Communications Proposed Changes to MSHA Program Policy Letter No. P08- , "Guidance for Compliance with Post-Accident Two-Way Communications and Electronic Tracking Requirements of the Mine Improvement and New Emergency Response Act (MINER Act)

Page #	Existing Language	L-3 Proposed Change	Comment
3	"General Considerations – An alternative to a fully wireless communications system used to meet the requirements of the MINER Act for post-accident communication either can be a system used for day-to-day operations or a stored system used in the event of an accident."	"General Considerations – An alternative to a fully wireless communications system used to meet the requirements of the MINER Act for post-accident communication ~~either can be~~ as a system used for day-to-day operations ~~or a stored system used~~ and in the event of an accident."	Any communications system which is proposed to meet the requirements of the MINER Act should also be used for day-to-day operations in order to ensure continual evaluation of system functionality and maintain personnel familiarity with system features and capabilities. A "stored" system would not necessarily allow these goals to be achieved. In addition, a system which has "day-to-day" utility, as well as an intended safety application, would increase the likelihood that a mine owner would select that system for use in their mine.
3	"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."	"The untethered device should be readily accessible to each group of miners working or traveling together (with a minimum of two radios for every group) and to any individual miner working or traveling alone."	Providing this minimum number of untethered devices to a group of miners will increase the level of communications and tracking coverage within a mine (in alignment with the goals of the MINER Act) and increase the level of communications redundancy to the group itself (e.g., in cases where the group is divided or one of the group's radios is damaged). This provision will also help to reduce potential safety situations where a miner without communications becomes separated from the group either during day-to-day operations or more importantly, during emergency incidents.

Page #	Existing Language	L-3 Proposed Change	Comment
3	"Provide communication in the form of two-way voice and / or two-way text messages."	"Provide communication in the form of two-way voice and ~~/ or~~ two-way text messages between below- and above-ground personnel, as well as between miner and miner."	The ability to use both voice and text to transmit messages will provide the greatest range of options for contacting miners in situations which may impede one form of communication or the other: noisy environments (text instead of voice); visually-impaired/dusty environments (voice instead of text); and for relaying specific or detailed information to them. Conversely, it is also necessary to give the miner similar options for transmitting messages to the surface component. In addition, the ability to have miner-to-miner communications (a peer-to-peer) capability will help to increase operational effectiveness in the mine (e.g., direct calls to electricians or requests for a mantrip).
3	"Be capable of sending an emergency message to each of the untethered devices."	"Be capable of sending an emergency message (via voice and text message) to each of the untethered devices. This emergency message shall be accompanied by visual and/or audio signals to notify the miner of its receipt. In addition, the untethered device shall also have the capability to send an emergency voice and text message to the surface, accompanied by visual and/or audio signals to notify surface personnel of its receipt."	The ability to use both voice and text to transmit an emergency message to the untethered device will provide the greatest range of options for contacting miners in situations which may impede one form of communication or the other: noisy environments (text instead of voice); visually-impaired/dusty environments (voice instead of text); and for relaying specific or detailed information to them. Conversely, it is also necessary to give the miner the ability to transmit an emergency message to the surface component, to immediately notify surface personnel of safety-related or hazardous situations. The use of an automated notification signal for the receipt of an emergency message at both the portable device and the surface component will provide a more reliable capability to notify personnel when specific emergency-related attention is warranted.

Page #	Existing Language	L-3 Proposed Change	Comment
4	"The system also generally should provide continuous coverage along the escapeways and a coverage zone both inby and outby strategic areas of the mine, such as belt drives and transfer points, power centers, loading points, refuge alternatives, SCSR caches and other areas identified by the District Manager."	"The system also ~~generally should~~ shall provide ~~continuous~~ coverage along the escapeways and a coverage zone both inby and outby strategic areas of the mine, such as belt drives and transfer points, power centers, loading points, refuge alternatives, SCSR caches and other areas identified by the District Manager."	With the potential for mine accidents to occur at any time, and in various locations, when personnel may be working or transiting in areas other than the working section, it is important that communications coverage be provided in all relevant mine areas. In addition, this coverage capability will allow mine supervisors to enhance the efficiency of their day-to-day operations by improving communications with all mine personnel.
4	"Miners should follow an established check-in / check-out procedure or equivalent procedure when assigned to work in bleeders or other remote areas of the mine that are not provided with communications coverage."	"~~Miners should follow an established check-in / check-out procedure or equivalent procedure when assigned to work in bleeders or other remote areas of the mine that are not provided with communications coverage.~~" "The communications system shall have the ability to automatically notify (through visual and/or audio signals) both the miner and monitoring personnel at the surface when the miner is entering an area of potentially reduced communications coverage."	The use of an automated notification signal for both the portable device and the surface component will provide a more reliable capability for all below- and above-ground personnel to recognize when miners are entering an area of potentially reduced communications coverage.
4	"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."	"Stationary components (infrastructure) ~~generally should~~ shall 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."	Due to the potential long duration of mine rescue situations, it is imperative that stationary infrastructure components of the mine communication system have a battery duration which far exceeds the duration of a mine rescue. The use of the term "generally" implies that this critical requirement is instead optional.

Page #	Existing Language	L-3 Proposed Change	Comment
4	"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) generally should be adequate, but mine-specific conditions may warrant more or less standby power capability."	"~~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) generally should be adequate, but mine-specific conditions may warrant more or less standby power capability.~~" "A minimum of 48 hours of standby power duration will be required. As greater duration batteries become available, these updated systems should be incorporated into the ERPs."	Due to the potential long duration of mine rescue situations, it is imperative that stationary infrastructure components of the mine communication system have a battery duration which far exceeds the duration of a mine rescue. A 48-hour minimum duration power supply will ensure that miners have an improved ability to communicate throughout an entire mine rescue situation, and be aligned with minimum shelter duration requirements previously outlined by MSHA.
4	"Portable devices, such as hand-held radios, generally should provide sufficient power to facilitate evacuation and rescue following an accident."	"Portable devices, such as hand-held radios, ~~generally should~~ shall provide sufficient power to facilitate evacuation and rescue following an accident."	Due to the potential long duration of mine rescue situations, it is imperative that miner portable communication devices have a battery duration which far exceeds the duration of a mine rescue. The use of the term "generally" implies that this critical requirement is instead optional.
4	"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 generally should be adequate, but mine-specific conditions may warrant more or less capability."	"~~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 generally should be adequate, but mine-specific conditions may warrant more or less capability.~~" "A minimum of 24-hours of power duration based on continuous operation and a 5 / 5 / 90 duty cycle. As greater duration portable device batteries become available, these updated systems should be incorporated into the ERPs."	Due to the potential long duration of mine rescue situations, it is imperative that miner portable communication devices have a battery duration which far exceeds the potential duration of a mine rescue situation. A 24-hour minimum duration power supply will ensure that miners have an improved ability to communicate throughout an entire mine rescue situation.

Page #	Existing Language	L-3 Proposed Change	Comment
5	"The post-accident communication system generally should provide redundant signal pathways to the surface component."	"The post-accident communication system ~~generally should~~ shall provide redundant signal pathways to the surface component."	Redundant pathways to the surface are critical / necessary to ensure that communications are maintained post-accident. The use of the term "generally" implies a sense that this requirement is instead optional.
5	**[New entry.]**	6. Survivability e. In the event that a portion of the system is completely cut-off from the surface and the rest of the network, the cut-off portion of the system shall continue to provide local communications service to the untethered devices in that area.	Underground communications are still required and necessary even in "cut-off" situations. Moreover, the ability to continue to provide communications service to the untethered devices will allow miners in that local area to effectively coordinate their escape or barricade activities.
5	"Check the standby power and functionality of the system and the untethered devices on a weekly basis as required by 30 C.F.R. § 75.512-2."	"Check the standby power and functionality of the system and the untethered devices on a ~~weekly~~ remote, real-time basis ~~as required by 30 C.F.R. § 75.512-2~~. Any potential system or component problem (e.g., loss of network communications or a component failure indicator) shall be accompanied by a remote alarm notification system (audio and visual signals) for personnel stationed at the surface."	With the weekly diagnostic requirement as outlined by 30 C.F.R. § 75.512-2, the system and untethered devices could potentially become inoperable for 6+ days, between inspections, without the knowledge of the mine operator. Remote, real-time monitoring and alarm notification would allow for potential problems to be immediately identified and resolved, thus ensuring fully-functional system operation at all times and availability in emergency situations.
6	"While the required capabilities of a particular tracking system will depend on mine-specific circumstances, and effective electronic tracking system generally should be capable of…"	"~~While the required capabilities of a particular tracking system will depend on mine-specific circumstances, and effective electronic tracking system generally should be capable of…~~" "An effective electronic tracking system shall be capable of…"	Tracking system capabilities should be standardized to the greatest extent possible to enhance their usability and effectiveness (e.g., ease of installation or repair) by companies with multiple mine operations. Moreover, the importance of achieving a high-degree of real-time tracking of mine personnel, at all times and in all mine areas, is critical to assisting with mine rescue operations. The use of the term "generally" implies a sense that this requirement is instead optional.

Page #	Existing Language	L-3 Proposed Change	Comment
6	"Determining the location of miners on a working section including all intersections to within 200 feet."	"~~Determining the location of miners on a working section including all intersections to within 200 feet.~~" "Determining the location of miners on a working section to 200 Circular Error of Probability (CEP) when measured at all intersections under nominal conditions (e.g., no vehicles blocking reader or antennas)."	CEP is a good and recognized approach. As defined, CEP implies a 50% accuracy rate when taking sample measurements.
6	"Determining the location of miners in escapeways at intervals not exceeding 2000 feet."	"~~Determining the location of miners in escapeways at intervals not exceeding 2000 feet.~~" "Determining the location of miners in escapeways to 1000 feet Circular Error of Probability (CEP) when measured in the escapeways under nominal conditions (e.g., no vehicles blocking reader or antennas)."	CO monitors on the belt are required to be 1000 feet apart. Since many belt entries also serve as escapeways, it would be a benefit during emergency operations to identify areas where CO monitors have determined a hazard so miners could be notified and redirected. CEP is a good and recognized approach. As defined, CEP implies a 50% accuracy rate when taking sample measurements.

Page #	Existing Language	L-3 Proposed Change	Comment
6	"Determining the location of miners within 200 feet of strategic locations such as belt drives and transfer points, power centers, loading points, refuge alternatives, SCSR caches, and other areas deemed appropriate by the District Manager (example: a reader is placed 200 feet or less from each strategic location."	"~~Determining the location of miners within 200 feet of strategic locations such as belt drives and transfer points, power centers, loading points, refuge alternatives, SCSR caches, and other areas deemed appropriate by the District Manager (example: a reader is placed 200 feet or less from each strategic location.~~" "Determining the location of miners at strategic locations such as belt drives and transfer points, power centers, loading points, refuge alternatives, SCSR caches, and other areas deemed appropriate by the District Manager to 200 feet Circular Error of Probability (CEP) when measured under nominal conditions (e.g., no trucks blocking reader antennas)."	CEP is a good and recognized approach. As defined, CEP implies a 50% accuracy rate when taking sample measurements.
6	"Stationary components (infrastructure) should be capable of tracking persons underground during evacuation and rescue efforts, even upon loss of mine power. In many circumstances, the capacity to provide a minimum of 24 hours of continuous tracking operation after a power loss generally should be sufficient."	"Stationary components (infrastructure) ~~should~~ shall be capable of tracking persons underground during evacuation and rescue efforts, even upon loss of mine power. In many circumstances, the capacity to provide a minimum of ~~24~~ 48 hours of ~~continuous~~ tracking operation after a power loss ~~generally should~~ shall be sufficient."	Due to the somewhat unpredictable nature and location of mine accidents and the potential long duration of mine rescue situations, it is imperative that stationary infrastructure components of the tracking system always have a battery duration which far exceeds the duration of a mine rescue. A 48-hour minimum duration power supply will ensure that miners are able to potentially be tracked throughout an entire mine rescue situation. The use of the term "generally" implies a sense that this requirement is instead optional.

Page #	Existing Language	L-3 Proposed Change	Comment
6	"An individually-worn / carried tracking device (e.g., a tag) generally should provide a low power warning."	"An individually-worn / carried tracking device (e.g., an untethered device ~~a tag~~) ~~generally should~~ shall provide a low power warning."	Untethered devices such as communications devices can also serve as tracking devices and should be included as a representative sample. The knowledge of whether or not a tracking device is functional, at any time, is critical to ensuring that a miner is aware of and can solve, in advance, any problems which may impede the ability to track them in a mine. The use of the term "generally" implies a sense that this requirement is instead optional.
6	"To facilitate evacuation and rescue efforts, the individually-worn / carried tracking device generally should provide at least 4 hours of operation in addition to the normal shift duration (12-hour total minimum duration)."	"~~To facilitate evacuation and rescue efforts, the individually-worn / carried tracking device generally should provide at least 4 hours of operation in addition to the normal shift duration (12-hour total minimum duration).~~" "To facilitate evacuation and rescue efforts the individually-worn / carried tracking device ~~should~~ shall provide a minimum of 24-hours of power duration. As greater duration tracking device batteries become available, these updated systems should be incorporated into the ERPs.	Due to the potential long duration of mine rescue situations, it is imperative that individually-worn / carried tracking devices have a battery duration which far exceeds the potential duration of a mine rescue situation. A 24-hour minimum duration power supply will ensure that there is an improved ability to tracking miners throughout an entire mine rescue situation.
7	"Scanning rate – In order to provide timely and relevant information, the tracking system generally should be capable of updating (refreshing) location data at least every 60 seconds."	"Scanning rate – In order to provide timely and relevant information, the tracking system ~~generally should~~ shall be capable of updating (refreshing) location data at least every 60 seconds."	The ability to periodically update / refresh location data is important to ensuring an enhanced accuracy probability rate in locating mine personnel underground, and takes into account the speed / pace of movement underground. The use of the term "generally" implies a sense that this requirement is instead optional.

Page #	Existing Language	L-3 Proposed Change	Comment
8	"Check the standby power and functionality of the system and the untethered devices on a weekly basis as required by 30 C.F.R. § 75.512-2."	"Check the standby power and functionality of the system and the untethered devices on a ~~weekly~~ remote, real-time basis ~~as required by 30 C.F.R. § 75.512-2~~. Any potential system or component problem (e.g., loss of network communications or a component failure indicator) shall be accompanied by a remote alarm notification system (audio and visual signals) for personnel stationed at the surface."	With the weekly diagnostic requirement as outlined by 30 C.F.R. § 75.512-2, the system and untethered devices could potentially become inoperable for 6+ days, between inspections, without the knowledge of the mine operator. Remote, real-time monitoring and alarm notification would allow for potential problems to be immediately identified and resolved, thus ensuring fully-functional system operation at all times and availability in emergency situations.