

**Questions and Answers
on MSHA'S Program Policy Letter (PPL) (P11-V-13) on
Post-Accident Two-Way Communications and Electronic
Tracking Requirements of the Mine Improvement and New
Emergency Response Act (MINER Act)**

May 24, 2011

These Questions and Answers (Q&A) consolidate, clarify, update and replace all
prior Q&As regarding this subject

GENERAL

- 1. When must a post accident two-way communication system and an electronic tracking system be installed?**

Mine operators must install post-communication and electronic tracking systems promptly upon receipt from the manufacture/supplier and in accordance with the provisions of their ERPs.

In general, District Managers will not approve ERPs that provide for the installation of such systems after June 15, 2011. The MINER Act requires that ERPs must make use of commercially "available" technology. Generally, any communication or tracking system that is not reasonably expected to be installed and operational in the mine by June 15, 2011, will be considered "unavailable."

- 2. Are 75.1200 and/or 75.1505 maps required to be submitted as part of the ERP approval?**

No, a system layout drawing as described in response to Question No. 11 generally will be sufficient.

- 3. When should the 75.1200 map located at the mine be updated to reflect the installation of additional infrastructure or the removal of unused infrastructure.**

Notations on the mine site 75.1200 map should reflect actual component placement once retreat or advance is completed on a particular shift. The updated notations on the 75.1200 map should be completed by the end of the next shift. Maps do not have to be submitted to MSHA each time notations are added to the map.

4. Must an ERP specify a minimum separation distance between communication and tracking components and blasting circuits?

Yes, an emergency response plan must specify a minimum separation distance that must be maintained between communication and tracking components and blasting circuit components. If the specified minimum separation distance is less than 50 feet, it must be supported by manufacturer supplied data or an engineering analysis. In no instance can the distance be less than the minimum safe distance listed on the applicable MSHA approval(s). The approval plate of a communication and tracking component only indicates the minimum safe distance for a single component. The combined power output of multiple communication and tracking components must be taken into account in the ERP. The ERP also must provide a procedure that miners will follow whenever they must come within this minimum separation distance so communication and tracking devices are not taken within the safe distance (e.g., leaving the tracking/communication component at the minimum distance when they are working with explosives/detonators).

5. Are operators required to protect two-way communication and electronic tracking system infrastructure and components that are located near 120-psi seals?

No. The 120-psi seals installed in compliance with 30 CFR 75.335 are designed to contain explosive forces that may occur in the sealed area. However, hardening system infrastructure and components in areas of potential vulnerability is a prudent practice, and operators should consider whether hardening is appropriate in conjunction with system redundancy inby and outby 120-psi seals to reliably permit communications and tracking following an accident.

6. Is the communication and tracking system required to be extended to the bottom of an escape shaft?

Yes. The bottom of the escape shaft is part of an escapeway. It also is a location where miners likely would congregate in an emergency, and as such, it is considered a "strategic area." The post-accident communication system should provide continuous communication along the escapeway and the tracking system should be installed to provide tracking capability within a 200-foot radius from the point near the bottom of the escape shaft where miners would be expected to congregate.

Emergency Response Plan (ERP) Development

7. Can a mine operator change the communication and/or tracking system specified in its ERP after the ERP has been approved?

Yes, provided that a revised ERP, which identifies the new system and contains supporting rationale, is submitted to and approved by the District Manager. In submitting such a revised ERP, the operator should provide information that will permit the District Manager to determine whether benefits associated with the new system justify any installation delay associated with the change.

8. Should mine operators specify the systems that they will install to provide communication and tracking or can they merely state that they will provide communication and tracking capability consistent with the MINER Act?

Each ERP should specify the systems that will be installed.

9. What components/systems must be listed in the ERP submittal -- each component/system or just the type of system?

Each component/system should be identified in the ERP submittal. Part 23 approved components/systems should specify the MSHA approval number. Components/systems pending MSHA approval should specify that approval is pending.

10. Do explicit Miner Act and/or 30 C.F.R. Part 75 requirements pertaining to emergency response need to be restated in an ERP?

Provisions that are explicitly required in the MINER Act or 30 C.F.R. Part 75 do not need to be included in an ERP, as the operator's obligation is clear and is derived from the statute or standard.

11. Will a system layout drawing be required for surface and underground communication and tracking component locations? If so, what features should be detailed on the drawing?

A system layout drawing should be provided to show infrastructure in the coverage areas. Coverage areas are addressed in Program Policy Letter (PPL) No. P11-V-13, Guidance for Compliance with Post-Accident Two-Way Communications and Tracking Requirements of the Mine Improvement and New Emergency Response Act (MINER Act) (April 28, 2011). If the system is not installed yet, the layout drawing should show eventual coverage in the working section, strategic areas, and escapeways. Layout drawings detailing other system-specific features, such as gateways nodes, hubs, root nodes, and network controllers, also should be included to ensure adequate coverage and redundancy.

12. Will MSHA issue citations for noncompliance with the Program Policy Letter P11-V-13?

No. All post-accident communication or tracking citations will cite MSHA standards, the MINER Act, and/or provisions of an approved ERP.

13. What criteria does the District Manager use for approving the post-accident communication and tracking provisions in ERPs?

Section 316(b)(2) of the MINER Act establishes the operators' obligation to provide communication and tracking systems in their ERPs. The District Manager also considers mine specific conditions and other relevant information related to the performance of the specified communication and tracking system.

14. Do the communication and tracking systems have to be approved by MSHA?

Yes. Under MSHA's existing standards, all such systems are required to be approved by MSHA for compliance with Part 23.

15. Can a mine operator submit a revised ERP which includes a communication and tracking system that is not currently MSHA approved?

Yes, provided that the system is available, as required by the MINER Act. MSHA generally considers systems that cannot be installed by June 15, 2011 to be unavailable.

16. Are active mines required to have two-way communication and electronic tracking systems installed when they have no production activities (BA status), where no miners are working underground, where the fan is not running, and there are no examinations being conducted?

Communication and tracking systems are intended to provide means for miners to escape following an event and to ensure safety of trapped miners until the rescue operation is completed. If there are no miners underground, there would be no need to install these systems.

17. Are active mines required to have two-way communication and electronic tracking systems installed when they have no production activities (BA status), where the fan and pumps are running and examinations are being conducted?

Two-way communication and electronic tracking systems should be installed to protect any miners normally required to work underground. For the protection of miners not normally required to work in certain locations, District Managers may, in appropriate circumstances, accept two-way communication and electronic tracking systems or allow alternatives to two-way communication and electronic tracking, such as manual tracking and hard-wired communication systems, depending upon conditions specific to the mine and the nature of the work performed at the mine.

18. Are active non-producing mines that are in the process of being abandoned, where miners on the surface are removing equipment and structures and in the process of sealing required to have two-way communication and electronic tracking systems installed?

If the mine is in the process of being abandoned after mining has been completed and it already has a two-way communication and electronic tracking system installed, the operator should continue to use the installed system. Otherwise, in appropriate circumstances, the District Manager may approve the use of a manual tracking system and a hard-wired communication system.

19. Is a new mine required to have two-way communication and electronic tracking systems installed if the mine is non-producing, where miners are starting mining activities, such as setting up belts and installing canopies at portals?

Before starting any mining activities, the operator must have submitted an ERP that provides for two-way communication and electronic tracking as required by the MINER Act. However, the District Manager has discretion to permit interim alternatives prior to production that address the circumstances at the mine and the events that must occur before it is appropriate to install two-way communication and electronic tracking systems. The interim alternative methods also should be included in the ERP so it is clear that the specified alternative methods will be used until a point in time where systems that comply with the MINER Act will be installed.

Two-Way Communication Systems

20. If a fully wireless two-way communication system becomes available, will mine operators be required to install this type of system?

As technical advances are made, MSHA will review advances in systems that enhance miners' ability to evacuate or otherwise survive in an emergency and make a determination at that time.

21. What will be acceptable for communication system coverage throughout each working section?

Communication throughout the working section means that miners in the working section (inby the loading point) are able to communicate with the surface. Mine specific conditions such as low seams and undulations could result in loss of communication in limited, discrete portions of the working section. MSHA also recognizes that there may be a temporary loss of communication system coverage resulting from dead spots around moving equipment. This will be considered by the District Manager on a case-by-case basis.

22. What communication and tracking capability is appropriate at locations other than working sections, escapeways or strategic areas established in the ERP, such as boom holes, rock fall clean-up sites, or locations where mines are setting timbers?

If miners do not normally work at these locations, alternatives to two-way communication and electronic tracking may be considered unless the District Manager determines that such capability is necessary following an accident. However the check in / check out system must be utilized while miners are working at these locations if other communication and tracking systems are not provided.

23. Is the two-way communication system under 30 C.F.R. § 75.1600-3(a)(1) (MSHA's standard for a two-way communication facility for refuge alternatives) required to be wireless?

No.

24. Can a communication system that is included in the ERP be used to meet the requirements of 30 C.F.R. § 75.1600-3(a) (MSHA's standard for two-way communication facility for refuge alternatives)?

Yes, for one of the two communication systems required for refuge alternatives.

25. What does redundancy mean?

Redundancy involves the duplication of system functions to ensure that those functions will survive some level of damage to the system; in the context of communications systems, it is used to describe a system that can maintain communications with the surface when a single communication path is disrupted. Redundancy can be achieved by two or more communication systems installed in two or more entries, or one communication system with two or more pathways to the surface; provided that a failure in one system or pathway does not affect the other system or pathway.

26. What is an overland link and what kind would be acceptable?

An overland link can serve as part of a redundant pathway for communication and tracking data. It facilitates communication between the surface and underground when one pathway fails. It can be wired or wireless.

27. Can text messaging be used for two-way communication?

Yes. Text messaging is acceptable for two-way communication including pre-programmed messages that provide enough information to convey status of miners, mine conditions, and appropriate emergency response information.

28. If the untethered communication device only has texting capability, how will miners who cannot read or write be able to communicate?

Some texting systems permit communication via established messages. However, if the system only has texting capabilities, mine operators must ensure that all persons who work or travel underground are capable of understanding and responding to emergency messages.

29. Are all miners on a working section considered to be one group for purposes of an untethered device?

Miners working on a section may be considered one group if they are working or traveling within sight and sound of each other and the untethered device is accessible to all members of the group. On the other hand, on a longwall section, miners working at the headgate and tailgate generally would be considered two groups and each group should have an untethered device. On a room and pillar section, miners working at the face in one entry, at the face in another entry, and at the loading point generally would be considered three groups and each group should have an untethered device.

30. Can an untethered communications device work while it is inside a prefabricated steel refuge alternative (RA)?

Yes, there are several methods available for getting communication signals inside a steel RA. For example, external antennas and a suitable coaxial cable can be connected to the handheld device, or external antennas with a suitable transceiver can be built into the RA. Any method that requires placing holes through the structure would require sealing the holes so that the interior of the RA remains airtight and should not violate the RA approval(s) and be done according to the RA manufacturer's recommendations.

Electronic Tracking System

31. Would it be acceptable to install a reader at the loading point, inby the loading point in any entry, or at the load center for each entry, to track the location of miners?

Yes, if the electronic tracking system determines a miner's location with reasonable accuracy (generally within 200 feet) on the working section. Merely determining that a miner is inby the loading point or load center is not acceptable for most working sections.

32. Would it be acceptable to install a reader on mobile equipment at the face, such as a continuous miner or scoop, to allow tracking miners within 200 feet of the equipment?

No. The location of a miner should be relative to a fixed point.

33. Does the guidance concerning 200-foot tracking capability apply to a longwall face?

Yes. However, depending on mine specific conditions, a District Manager may determine that greater or lesser capability is appropriate on the longwall face.

34. In low coal mines, electronic tracking systems only may be able to track a miner to a distance of about 50 feet from a strategic area without the use of additional components. Should additional tracking components (e.g., reader, node, or antenna) be installed at these locations to achieve 200-foot inby and outby tracking capability?

Program Policy Letter P11-V-13 states that tracking systems generally should be capable of determining the location of miners within 200 feet, not 50 feet, of strategic areas. If an approved ERP specifies tracking capability within 200 feet of strategic areas, the tracking devices would need to be configured and installed to identify miners located within 200 feet of strategic areas.

35. What “power centers” should have tracking system coverage, only the section center or all outby power centers? Should communication system coverage also be provided at these locations?

Program Policy Letter P11-V-13 states that communication and tracking capability generally should be provided at all locations where miners are required to work and are likely to congregate in an emergency. Not all power centers will be considered “strategic areas.” The District Manager generally will require communication and tracking coverage only at power centers where miners are normally required to work or would likely congregate in an emergency.

36. If an outby belt power center (PC) needs to have tracking coverage, and the PC is located within 200 feet of a belt drive that needs to have a tracking coverage, can one tracking device serve for both locations?

One tracking device is sufficient if it provides coverage within 200 feet of both the PC and the belt drive.

37. Should electronic tracking coverage be provided at the entrances and exits of bleeders and worked out areas?

Mine operators either can provide electronic tracking coverage at the bleeder entrance or exit or use a check-in/check-out system as the District Manager finds appropriate. An appropriate estimated time for bleeder examination should be established and monitored by the responsible person for both the check-in/check-out system or electronic tracking system to ensure miners’ safety.

38. Should location data be stored for 2 weeks?

Yes, because an emergency may occur at any time, and the stored data will be useful for evacuation and rescue of persons underground, as well as for accident investigations.

39. How frequently should tracking data that is provided to the communication facility on the surface be updated?

Tracking data provided to the communication facility generally should be updated at least every 60 seconds.

40. Does a tracking system have to determine a miner’s location or just what entry the miner is in?

Merely identifying the entry where the miner is located is not acceptable. A tracking system should determine the location of a miner: in the primary and secondary escapeways at intervals generally not exceeding 2000 feet; generally within 200 feet of strategic areas; generally within 200 feet on the working section; and generally within 4000-foot intervals in belt entries or at each manned belt drive if the distance between the drives is less than 4,000 feet.

41. Are two-way communication and electronic tracking required in entries other than escapeways – e.g., belt entries and return entries?

Program Policy Letter P11-V-13 provides that, in escapeways, an effective communication and tracking system generally should provide continuous communication coverage and track miners at intervals not exceeding 2,000 feet. Because miners normally work in belt entries, communication coverage generally should be within 200 feet of strategic areas in the belt

entry and tracking coverage generally should be provided at 4,000-foot intervals or at each manned belt drive if the distance between the drives is less than 4,000 feet.

Because miners may use non-escapeways, such as return entries, to escape from the mine during an accident, an effective post-accident communication and tracking system generally should allow surface personnel to determine whether miners are in these entries and to communicate with miners at each end of these entries. This can be accomplished by providing communication and tracking coverage across from the loading point and at the mouth of the section in the return entries or in other designated entries.

42. Is it safe for communication and tracking systems to remain energized during rescue and recovery?

Yes. These systems are required to be approved as “permissible” by MSHA and are safe for use in a post-accident setting.

43. Should communication and tracking systems be provided in both escapeways?

Yes.

44. Does an electronic tracking system have to identify the entry where the miner is located?

No, unless the miner is located in an escapeway where miners should be tracked at intervals not exceeding 2,000 feet.

45. Is it acceptable to only track miners within 200 feet of the nearest tracking system component (i.e., node or reader) on the working section and not know the exact location of the miners?

Yes. Program Policy Letter P11-V-13 states that tracking systems generally should be capable of determining the location of miners on a working section to within 200 feet. The tracking system component is to be identified on the map located on the surface. While this does not permit tracking of “the exact location” of miners, it does provide the miners’ locations with sufficient accuracy to facilitate rescue efforts during a mine emergency.

46. Program Policy Letter P11-V-13 states that miners should be tracked within 200 feet of strategic areas. What does that mean?

At a minimum, the tracking system should be capable of tracking miners in the entries and crosscuts that extend from the strategic area to a distance of 200 feet.

47. Is the mine operator expected to track all persons that are underground?

Yes. Section 2 of the MINER Act requires electronic tracking of all persons that are underground. However, MSHA inspectors may refuse to be electronically tracked if a determination is made that electronic tracking could provide advance notice of an inspection and undermine important inspection objectives. See Procedure Instruction Letter No. I10-V-18, Inspector Compliance with the Tracking Requirements of an Emergency Response Plan (October 20, 2010) for additional information.

Maintenance

- 48. When a mine experiences an equipment failure in the communication and tracking systems that affects the operation of either of the systems, what is the time limit for repairs to be completed? What action must the mine operator take in the affected area/mine if repairs cannot be completed immediately?**

When a mine experiences a failure on the working section, escapeways, strategic areas, or other areas designated in the ERP, corrective actions must begin immediately, and the backup procedures specified in the ERP must be initiated immediately and utilized until the system is restored. When specified in the ERP, if repairs cannot be completed in 12 hours, the mine operator must immediately notify MSHA of the failure by calling; 1-800-746-1553. Failure to notify MSHA may be a violation of the ERP.

- 49. Do you have to stop production if one system fails?**

No, but repairs to the system must begin as soon as the failure is detected. Additionally, the mine operator must immediately initiate the backup procedures specified in the ERP when either system becomes inoperative. For example, backup procedures could include the use of a page phone system until the primary communication system is repaired. Use of the page phone system should consist of communication at specified intervals. With respect to a tracking failure, miner locations may be verified at prescribed intervals with a dispatcher until the electronic tracking system is repaired. The alternative means of communication and/or tracking must be utilized until repairs to the primary system(s) are completed.

- 50. What are the permissibility examination and maintenance requirements of communication and tracking equipment?**

Communication and tracking equipment must be examined and maintained for permissibility in accordance with 30 C.F.R. part 75 requirements as addressed in Program Policy Letter P11-V-03, Electric Equipment; Examination, Testing and Maintenance (March 7, 2011). Thus a certified electrician would not be required to conduct the examination; however, the examination must be conducted by a trained person. A record of such examination is not required.

Additional Questions

- 51. Mine operators don't know technologies that are in-house at the Approval & Certification Center or on the horizon. Is there some means for operators to get this information?**

MSHA is not permitted to share information regarding approval requests that are under evaluation. The status of these applications is considered confidential information. However, MSHA is permitted to share such information if the Agency has received written permission from the applicant.

- 52. Is there some way evaluations of the performance of Communication and Tracking systems can be posted or shared?**

There are currently no accepted, established criteria for evaluating performance, so any evaluation summary could be construed as subjective.

- 53. Are there reporting time frames associated with the use of administrative tracking in areas of the mine that are not required to have electronic tracking or when the backup procedures followed during system or component failures are in effect?**

The interval at which miners' locations will be reported will be determined in individual ERPs based on interaction between the operator and the District Manager and mine specific conditions.

54. How do you exceed the generally-accepted, minimal level of tracking coverage at strategic areas? Is 300 feet better? Is 150 feet better?

The goal of providing coverage at strategic areas is to know who is in the relative vicinity of certain designated locations. Tracking to a range of 150 feet provides a greater degree of accuracy, while tracking to a range of 300 feet provides a larger coverage area. While there are benefits to both, the recommended guidance in Program Policy Letter P11-V-13 defines strategic area coverage generally to be the entries and crosscuts associated with the strategic area up to 200 feet. However, mine operators may define alternate coverage around a strategic area based upon mine specific conditions.

55. For purposes of communication and tracking coverage, what is the point at which a strategic area begins?

A mine operator should designate the extent of strategic areas in the ERP; mine specific features may be used to do this. In many cases, a mine operator may use any discrete point associated with the strategic area and provide a coverage zone in the entries and crosscuts that extend from the strategic area to a distance of 200 feet. Extensive underground areas can be designated as strategic, such as a specific section of track or haulage entry, and the associated coverage with such a strategic area should be defined based upon mine specific conditions and work practices.

56. Have any communication or tracking systems been tested in an explosive environment or explosion tested?

All approved communication and tracking systems are permissible, so they can be used in explosive environments. However, MSHA has not tested them to see how they might perform following an explosion.

57. Program Policy Letter P11-V-13 provides that communication and tracking system components that must be installed in areas vulnerable to damage, such as in front of seals, should be provided with protection against forces that could cause damage. What is considered to be the area in "front of seals?"

The area in front of seals is considered to be any area of the mine in direct line with a seal that could be vulnerable to explosive forces that would emanate from the sealed area should the seal fail.

58. Is there a difference in redundancy and hardening in front of seals?

Yes. "Hardening" refers to actions to fortify devices and components against forces that could cause damage; "redundancy" refers to multiple pathways through which a signal can travel.

59. Is redundancy for communications and tracking or just communications?

The redundancy provisions in Program Policy Letter P11-V-13, as in Section 2 of the MINER Act, apply explicitly to communication systems and not to tracking systems. However,

pursuant to Section 2 of the MINER Act, tracking systems must be “calculated to remain serviceable in a post-accident setting.” Therefore, consideration (including factors such as redundancy) should be given to ensure their survival following an accident.

60. Is there guidance as to what is acceptable when a tag is picked up by multiple readers?

The system should be designed so that surface personnel are able to determine which reader is closest to the tag. However, there may be a circumstance when a miner is located approximately equal distances between readers. In this circumstance, the display may show the miner’s tag as alternating between the readers which would be acceptable on this limited basis. Otherwise, the system should be configured to associate a tag with the closest reader to achieve the required accuracy for that area.

61. What happens if there is a component failure in a communication system, but it’s not a complete failure because of the redundancy built into the system?

When a mine experiences a failure in a redundant communication system component, corrective actions must begin immediately to repair the failed component. However, unless the failure results in a failure or disruption of the system in a working section, escapeway, strategic area or other area designated in the ERP, the backup procedures need not be initiated. When specified in the ERP, if repairs cannot be completed in 12 hours, the mine operator must immediately notify MSHA of the failure by calling; 1-800-746-1553.

62. How does MSHA explain the inconsistency between battery backup capability for stationary communication and tracking systems (generally at least 24 hours of backup power capability) and the breathable air requirements for refuge alternatives (at least 96 hours of breathable air)?

The difference is based on technological considerations. MSHA recognizes that miners sheltered in refuge units for up to 96 hours may benefit from more than 24 hours of backup power for communication and tracking systems. However, at the time Program Policy Letter P11-V-13 was posted, there were very few commercially-available stationary communication and tracking systems that could provide more than 24-hours of backup power capacity. MSHA also recognizes there is a difference between the recommended standby power for infrastructure and operational power for handheld devices, which was also dictated by the state of technology. While the Agency expects that backup power capabilities will evolve, the Program Policy Letter was posted so that operators and miners could derive benefit from a full range of available technologies.

63. Do you have to go inside a refuge alternative (RA) to inspect the communications system?

Alternative provisions can be made for verifying operability of a communications system. Mine operators should consult with the RA manufacturer to make a determination of how this should be accomplished without compromising the integrity of the RA.

64. Do communication and tracking systems used in conjunction with a RA require approval under 30 C.F.R. Part 23 or Part 7?

All post-accident communication and tracking systems, regardless of their use, will be approved for use under 30 C.F.R. Part 23.

65. What is the requirement for surface areas of mines with regard to Federal Communications Commission (FCC) regulations?

Mine operators have a responsibility to ensure they are in compliance with applicable FCC requirements as well as MSHA requirements.

66. How do you keep outsiders from interfering with or accessing mine communications during an emergency?

Most manufacturers have security provisions necessary to prevent interference and inappropriate access designed into their systems.

67. When will MSHA start enforcing the communications and tracking provisions in the MINER Act?

MSHA will inspect communication and tracking systems for compliance with the MINER Act during every mine inspection conducted after the systems have been installed. And discrepancies between the installed system and ERP specifications will be cited.

68. Is MSHA looking at all radio frequency sources (e.g., phones, radios, etc.) and all remote control devices with regard to radio frequency interference between the radio and a remote control continuous mining machine?

MSHA has received several complaints regarding communication or tracking systems interfering with other mine systems. We are currently investigating the overall interference issue. In the meantime, we encourage manufacturers to design their products to be immune from outside influences. The Program Policy Letter P11-V-13 states that mine operators should update their ERPs to prevent interference with blasting circuits and other electrical systems.

69. Is an ERP that provides electronic tracking only at the headgate and tailgate on the longwall face likely to be approved?

Depending on the width of the longwall face and other mine-specific conditions, the District Manager may determine that miners do not receive the requisite protection unless they are tracked with greater precision on the longwall face.