

DEPARTMENT OF LABOR**Mine Safety and Health Administration****30 CFR Parts 3, 48, 50, 75**

RIN 1219-AB46

Emergency Mine Evacuation**AGENCY:** Mine Safety and Health Administration, Labor.**ACTION:** Final rule.

SUMMARY: The Mine Safety and Health Administration (MSHA) is issuing this final rule to revise the Agency's Emergency Temporary Standard (ETS), which addresses standards in the Code of Federal Regulations (CFR), title 30, parts 48, 50, and 75. The final rule includes requirements for increased availability and storage of self-contained self-rescue devices (SCSRs); improved emergency evacuation drills and self-contained self-rescue device training; and the installation and maintenance of lifelines in underground coal mines. In addition, the final rule requires immediate accident notification applicable to all mines. The requirements provide an improved, integrated approach to emergency evacuation training and emergency preparedness. This final rule does not reduce protections afforded miners under existing standards.

DATES: *Effective Date:* This rule is effective December 8, 2006.

Compliance Dates:

§§ 48.3 and 75.1502—The operator shall submit a revised training plan and a revised program of instruction to the appropriate District Manager for approval no later than February 6, 2007, and conduct training within 30 days of plan approval.

§ 75.1504—The operator shall complete the initial quarterly emergency mine evacuation training and drill no later than March 31, 2007.

§ 75.1504(c)(3)—The operator shall place purchase orders for realistic SCSR training units or devices within 30 days of notification by MSHA that the units are available, and conduct this component of expectations training within 60 days of receipt of the units. MSHA will notify mine operators of the availability of realistic SCSR training units by publishing a notice in the **Federal Register**.

§§ 75.1714-6 and 75.1714-7—The operator shall provide emergency tethers and handheld, multi-gas detectors no later than February 6, 2007.

§ 75.1714-8—The operator shall complete the self-contained self-rescue (SCSR) device inventory no later than March 31, 2007.

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A. Background of the Final Rule

In developing the final rule, MSHA considered accident and injury data, research studies and data, implementation and enforcement

experience, and the written comments and hearing testimony on the Emergency Temporary Standard (ETS), as well as provisions of the Mine Improvement and New Emergency Response Act of 2006 (Pub. L. 109-236) (MINER Act).

1. Emergency Temporary Standard

MSHA issued an ETS on March 9, 2006 (71 FR 12252) in accordance with Section 101(b) of the Federal Mine Safety and Health Act of 1977 (Mine Act). Mine emergencies in underground coal mines, particularly the accidents at the Sago and Aracoma Alma mines in January 2006, led MSHA to conclude that a more integrated approach to mine emergency response and evacuation was necessary. In issuing the ETS, MSHA acted to protect miners from a grave danger associated with mine emergencies and evacuations. In accordance with the Mine Act, the ETS served as the proposed rule, and was effective immediately upon publication. This final rule addresses standards and issues in the ETS.

The ETS included requirements for underground coal mine operators to: provide additional self-contained self-rescue devices (SCSRs) for persons working underground; conduct improved SCSR training and more realistic evacuation drills; and install and maintain lifelines in both escapeways. The ETS also required all mine operators to immediately notify MSHA of accidents within 15 minutes.

MSHA solicited public comments on the ETS and held four public hearings. These hearings took place on: April 24, 2006, in Lakewood, Colorado; April 26, 2006, in Lexington, Kentucky; April 28, 2006, in Arlington, Virginia; and May 9, 2006, in Charleston, West Virginia (71 FR 15028). The public comment period, scheduled to close on May 30, 2006, was extended to June 29, 2006 (71 FR 29785), in response to a request from the public and to allow the public additional time to respond to the 17 questions and other issues raised in the ETS and in MSHA's opening statement at the public hearings. Comments and public hearing transcripts are available on MSHA's website at www.msha.gov. MSHA considered all relevant comments when developing this final rule.

2. The Mine Improvement and New Emergency Response Act of 2006

Responding to the Sago and Aracoma Alma mine tragedies, Congress enacted the MINER Act, which was signed by the President on June 15, 2006. The MINER Act amended the Mine Act and, among other things, included provisions

that addressed some of the same requirements as the ETS. The MINER Act included requirements for SCSR storage, training, lifelines, and accident notification.

MSHA issued Program Policy Letter (PPL) No. P06-V-8 on July 21, 2006, PPL No. P06-V-9 on August 4, 2006, and PPL No. P06-V-10 on October 24, 2006, providing guidance to the mining industry for implementing Emergency Response Plans in accordance with Section 2 of the MINER Act. In the final rule, MSHA reconciles the ETS with applicable provisions of the MINER Act.

3. Timeline for Implementation of the Final Rule

MSHA provides mine operators additional time to comply with various provisions of this final rule. The mine operator may have to revise training, emergency evacuation, or firefighting plans; train miners in new and revised provisions; determine the locations for SCSR storage; purchase and install equipment, as applicable; or compile SCSR inventories. Because of ETS and MINER Act requirements, operators will already be in compliance with many of the provisions in this final.

Underground coal mine operators must submit a revised training plan for part 48 and a revised program of instruction for § 75.1502 to the relevant MSHA District Manager for approval no later than February 6, 2007. The operator must train in accordance with the revised program under 30 CFR 75.1502 within 30 days of plan approval. Any new or revised training plan and program must incorporate new and revised requirements, even if the equipment necessary to conduct the training is not yet available. The final rule allows operators until February 6, 2007, to obtain tethers and hand-held, multi-gas detectors.

The final rule also allows operators until March 31, 2007 (the first quarter of 2007) to complete the mine emergency evacuation training and drill required by § 75.1504 and the SCSR inventory required by § 75.1714-8. The final rule does not include a specific compliance date for one component of "expectations" training required by § 75.1504(c) because realistic SCSR training units, or devices that provide the sensation of SCSR airflow resistance and heat, are not yet available for purchase. The final rule requires the mine operator to have a purchase order for these realistic SCSR training units within 30 days of notification by MSHA that the units are available. The mine operator must complete training on breathing through a realistic SCSR training unit or equivalent device

within 60 days of receipt of the training units.

MSHA will accept, as good faith evidence of compliance with the final rule, purchase orders for: SCSR training units and mouthpieces (§ 75.1504); additional SCSRs (§ 75.1714-4); tethers (§ 75.1714-6); and handheld multi-gas detectors (§ 75.1714-7). The Agency will also accept contracts with a training facility to provide SCSR "expectations" training (§ 75.1504(c)) as good faith evidence of compliance with the final rule.

B. General Discussion of the Final Rule

The final rule helps assure that miners, mine operators, and MSHA will be able to respond quickly and effectively in the event of an emergency. It includes requirements for mine operators to provide increased capability for mine emergency response and evacuation and covers SCSR availability and storage; training and drills; lifelines, tethers, and multi-gas detectors; and accident notification.

1. Self-Contained Self-Rescue Devices (SCSRs)

Explosions and mine fires are an ever-present threat in an underground coal mine and can present a grave potential hazard to underground coal miners due to toxic atmospheres and limited visibility. Contaminated air can contain volatile hydrocarbons, chlorine, hydrogen cyanide, isocyanates, oxides of nitrogen, and oxides of sulfur. These contaminants are more complex and potentially more harmful than carbon monoxide and carbon dioxide, the ordinary combustion products of coal fires.

SCSRs are closed-circuit breathing devices containing or producing an independent supply of oxygen, enabling miners to breathe in the presence of hazardous or life-threatening contaminants in the mine atmosphere. SCSRs allow miners to escape from mine fires, explosions, and other incidents where an irrespirable mine atmosphere is present. Since 1980, MSHA has required that each person working in an underground coal mine have immediate access to an SCSR.

The final rule adds requirements to assure that SCSRs are maintained in good condition and are accessible to all underground miners. The final rule also includes requirements to assure that miners know when and how to use SCSRs effectively.

2. Effective Mine Emergency Training and Response

The best technology, equipment, and emergency supplies are of little use if

they are not used effectively or at all. Emergencies can cause disorientation and panic. The appropriate response in a mine emergency can be vital to survival. Training is critical to instilling discipline, confidence, and skill necessary to successfully escape and survive an emergency. The final rule requires more comprehensive training and realistic mine emergency evacuation training and drills to help assure that underground coal miners can respond quickly and appropriately to life threatening mine emergencies.

3. Continuous Directional Lifelines and Tethers

MSHA intends that miners, not required to respond to a mine emergency, evacuate the mine as quickly as possible. In this final rule, MSHA reiterates that, in the event of a mine emergency, the first line of defense is to evacuate the mine. To assist miners in evacuating the mine under conditions of panic and poor visibility, the final rule requires mine operators to provide both continuous directional lifelines and tethers. Continuous, directional lifelines are required to be installed and maintained in both the primary and alternate escapeways to guide miners to a mine exit. Tethers are required to be stored at inby storage locations and on mantrips so that members of a mine crew can link together while evacuating the mine.

4. Notifying MSHA of Accidents

In emergencies, where delay in responding can mean the difference between life and death, immediate notification leads to the mobilization of an effective mine emergency response. Immediate notification activates MSHA emergency response efforts, which can be critical in saving lives, stabilizing the situation, and preserving the accident scene. Immediate notification also promotes Agency assistance of the mine's first responder efforts. In other situations, it allows for a range of appropriate Agency responses depending on the circumstances. It alerts MSHA to trends or warning signals that can trigger a special inspection, an investigation, or targeted enforcement. This communication also encourages operators and miners to work with MSHA to develop procedures that prevent incidents from resulting in more hazardous situations, ultimately leading to disasters.

II. Section-By-Section Analysis

This final rule adds new requirements in 30 CFR parts 48, 50, and 75. In addition, this final rule makes non-substantive conforming amendments to

30 CFR part 3 to reflect changed numbering of standards and to display additional OMB control numbers under the Paperwork Reduction Act of 1995.

A. Part 48—Training and Retraining of Miners

The final rule makes several changes to the training standards in 30 CFR part 48. It modifies SCSR donning procedures by removing the option allowing underground coal miners to simulate the insertion of the mouthpiece while explaining this task.

Commenters were concerned that ETS training requirements applied only to underground coal mines. They stated that underground metal and nonmetal mines face the same evacuation needs as coal mines when a fire, explosion, or gas or water inundation occurs underground. Commenters expressed concern that MSHA was making a substantive change to the training courses in §§ 48.5(b)(5) and 48.6(b)(5) by referencing 30 CFR 57.11053 (escape and evacuation plans applicable to metal and nonmetal mines). Another commenter expressed concern that the ETS was ambiguous with respect to some provisions in 30 CFR part 48. This commenter asked MSHA to clarify that the changes to part 48 apply only to underground coal mines.

The training provisions in the ETS applied only to underground coal mines, and not to metal and nonmetal mines. Similarly, the training provisions in this final rule apply only to underground coal mines, and not to metal and nonmetal mines. Although the final rule retains the reference to 30 CFR 57.11053, it makes no change to the training requirement for metal and nonmetal evacuation procedures. Changes to metal and nonmetal emergency evacuation procedures in 30 CFR part 57 are beyond the scope of this final rule.

Some commenters were concerned that, by adding new or expanded requirements, new miner and annual refresher training would become more overloaded. These commenters recommended that MSHA remove mine emergency training requirements from part 48 and consolidate them in part 75. These commenters stated that consolidating mine emergency evacuation training requirements in part 75 would emphasize the importance of this training.

In response to commenters' concerns, the final rule transfers to part 75, part 48 annual refresher training requirements on self-rescue devices and on mine maps, escapeways, emergency evacuation, and firefighting, and integrates them with mine emergency

evacuation training and drill requirements. By providing underground coal miners with an integrated, more realistic training experience quarterly, this final rule will increase training effectiveness. Because this training now will be conducted under part 75, the time that was previously allotted for it, in the 8 hours of annual refresher training required under part 48, can be used for other health and safety subjects.

Under the final rule, independent contractors who do not receive this training under part 75 will continue to receive it under part 48. For these workers, this training will continue to count toward part 48 training requirements.

1. Section 48.3 Training Plans

This final rule modifies § 48.3(p) to require each operator of an underground coal mine, who is required to submit a revised program of instruction for 30 CFR 75.1502, to also submit a revised training plan under part 48. Consistent with MSHA's past practice, to minimize administrative burdens, the Agency will provide coal mine operators with a training plan addendum to address the change made in SCSR donning procedures requiring insertion of the mouthpiece. Underground coal mine operators can attach the addendum to their approved training plan in lieu of resubmitting the entire part 48 training plan for approval.

2. Sections 48.5(b)(2), 48.6(b)(12), 48.8(b)(8), and 48.11(a)(4) Self-Rescue and Respiratory Devices

The final rule retains the ETS requirements for self-rescue and respiratory device training, including instruction and demonstration in the use, care, and maintenance of self-rescue and respiratory devices used at the mine. The ETS standards required hands-on training in SCSR donning procedures, including a requirement that the miner insert the mouthpiece or simulate this task while explaining proper insertion, and a requirement for hands-on training in transferring from a "self-rescue device to an SCSR." The final rule revises the existing standard and removes the option allowing miners to simulate inserting the mouthpiece while explaining proper insertion. The final rule also clarifies MSHA's intent that transferring from a "self-rescue device to an SCSR" applies to all applicable self-rescue devices at the mine.

Under the final rule, after receiving new or experienced miner training, underground coal miners will receive SCSR donning and transferring training

under part 75, as part of the emergency mine evacuation training and drills, rather than under part 48 annual refresher training. Independent contractors who do not participate in mine emergency evacuation drills conducted under part 75 must continue to receive SCSR donning and transferring training under § 48.8, annual refresher training, and § 48.11, hazard training.

The existing standards emphasize that proficiency in donning the SCSR is essential for a miner to successfully escape the mine during a mine emergency. The MINER Act further underscores this by requiring SCSR "training for each miner in proper procedures for donning self-rescuers, switching from one unit to another, and ensuring a proper fit." MSHA experience and data show that a simulation of inserting the SCSR mouthpiece does not adequately provide the miner with the necessary skills to obtain a proper fit of the mouthpiece. Benefits supporting actual insertion of the mouthpiece include the miner's experience of a proper fit of the mouthpiece and the sensation of resistance breathing. This aspect of SCSR training is more effective when taught and learned in a safe environment, rather than in an emergency evacuation situation.

Some commenters pointed out that insertion of the mouthpiece is a motor skill that requires practice to develop proficiency, and that simulation does not really provide this type of training. Several commenters supported training that included actual insertion of the mouthpiece using a training mouthpiece. One suggested that an economical disposable mouthpiece be developed for use in "expectations" training. Referencing his company's participation in Bureau of Mines' research studies in the early 1980's, one commenter stated that miners at his mine were each provided with their own mouthpiece and corrugated hose, which would simulate breathing resistance and function as a personal training unit. One SCSR manufacturer makes a mouthpiece that not only simulates the breathing resistance of their SCSR, but is easily removable from the SCSR training unit. As pointed out by one commenter, these portable mouthpieces could be purchased for each employee, which would alleviate any hygienic concerns.

The mining public has expressed concern over sharing a training mouthpiece even after it is cleaned and disinfected. Some miners have resisted using these devices, stating that the sanitizing methods may not be effective.

In "Cleaning, Disinfecting, and Sterilizing Self-Contained Self-Rescuer Mouthpiece Assemblies Used in Hands-On Training,"¹ the Bureau of Mines describes some procedures for disinfecting mouthpieces. MSHA understands that insertion of the mouthpiece may cause some anxiety in miners; however, with proper cleaning and disinfecting, or personal mouthpieces, miners' anxiety should be minimized. Cleaning and disinfecting shared mouthpieces and providing disposable or personal mouthpieces are acceptable for training.

One commenter pointed out that—

Information on the correct procedures [for transferring SCSR units] is not provided by the manufacturer, especially from one manufacturer's unit to another. Also, no instructions are available to transfer from a chemical generating oxygen unit to a compressed oxygen type unit or vice-versa. MSHA has developed training materials to assist mine operators and certified instructors in providing training on transferring between all applicable SCSRs. MSHA will make training materials available to mine operators and post them on the Agency's Web site.

3. Section 48.8(b)(4) Roof or Ground Control, Ventilation, Emergency Evacuation and Firefighting Plans

The final rule makes a conforming amendment to § 48.8(b)(4) to clarify that underground coal miners who receive quarterly training on emergency evacuation and firefighting plans in effect at the mine, as part of the emergency mine evacuation training and drills under § 75.1504, are not required to receive this training as part of their annual refresher training.

4. Sections 48.5(e) and 48.6(f) Participation in Evacuation Drills

This final rule removes §§ 48.5(e) and 48.6(f). These paragraphs in the ETS had been added to require new or newly employed experienced coal miners to participate in the next escapeway or evacuation drill. The final rule consolidates and expands the escapeway and evacuation drill requirements for underground coal mines under § 75.1504 and transfers the requirement for newly hired miners to participate in the next evacuation drill to § 75.1504(a)(1). The initial drill requirements in §§ 48.5(e) and 48.6(f) are no longer needed.

5. Section 48.11(a)(4) Hazard Training

This final rule retains the existing requirement for hands-on training in donning a SCSR and transferring from one self-rescue device to an SCSR. The

final rule revises the ETS requirement to clarify MSHA's intent that hands-on training in transferring is between all applicable self-rescue devices at the mine. This final rule also revises the SCSR donning protocol to require insertion of the mouthpiece. Section II.A.2. of this preamble discusses this change.

Some commenters stated that the requirements for hands-on training in donning and transferring all types of SCSRs used at the mine is unnecessary for non-mining personnel. They suggest that non-mining personnel, such as visitors and vendors, can receive adequate training via demonstration or video review of the use of an SCSR. Some suggested limited training on a designated unit. Others stated that—

* * * with regard to hazard training, we recommend clearly providing the operators the flexibility to accept form 5023 [sic] documentation of applicable, up-to-date SCSR training in lieu of hands-on training for non-mine employees * * *.

Commenters stated that training non-mining personnel on donning multiple types of SCSRs would be counterproductive and that training on transferring between all self-rescue devices at the mine would be overwhelming and provide little benefit, especially for visitors. Commenters pointed out that these persons are accompanied at all times by an experienced miner who could assist them in the unlikely event of a mine emergency requiring the use of an SCSR.

MSHA's experience and data suggest that all persons underground must be provided practical, hands-on experience in donning and transferring an SCSR. The final rule requires hands-on SCSR donning and transferring training for visitors, short-term workers, or independent contractors not regularly exposed to mine hazards under § 48.11, hazard training, rather than under § 75.1504. If the mine uses only one type of SCSR, these persons must be trained to don and transfer only that one type. If visitors, short-term workers, or independent contractors are going into the mine past an SCSR storage location that contains a different type SCSR than the one carried, these persons must be trained to don and transfer between both types of SCSRs before going underground. Training in transferring from one SCSR to another SCSR will provide them with skill needed to transfer to and don another SCSR. Even though accompanied by an experienced miner, at a minimum, visitors must be prepared to independently, quickly, and correctly don and transfer an SCSR. MSHA agrees that SCSR training for visitors, short-term workers, or

independent contractors unfamiliar with mining could be confusing and that they may not always retain all the steps required to don and transfer. If these persons are involved in a mine emergency, direct assistance or instruction may be impossible. The better prepared these persons, however, the better their chance for donning the SCSR correctly during the first few critical minutes of a mine emergency.

B. Part 50—Notification, Investigation, Reports and Records of Accidents, Injuries, Illnesses, Employment, and Coal Production in Mines

Notifying MSHA of accidents must be a priority of the mine operator. Any unnecessary delay can result in loss of life or other harmful consequences. The final rule retains the requirement in the ETS that mine operators notify MSHA of all accidents immediately and within 15 minutes. The final rule also revises the definition for two types of reportable accidents, "fire" and "entrapment."

On January 2, 2006, the operator of the Sago Mine delayed notifying MSHA of the explosion for more than 2 hours. MSHA issued the ETS with the 15-minute immediate notification requirement, effective March 9, 2006. Subsequently, when the explosion at the Darby Mine occurred on May 20, 2006, the operator alerted MSHA within 5 minutes of being aware of the explosion. This allowed MSHA to immediately initiate a rescue response.

1. Section 50.2(h) Definition of Accident

The final rule amends the definition for two types of reportable accidents.

a. *Section 50.2(h)(3): Accident Definition for Entrapment.* Under the ETS and the previous standard, "accident" included "[a]n entrapment of an individual for more than thirty minutes." Section 5(a) of the MINER Act amends Section 103(j) of the Mine Act pertaining to the reporting of accidents to include an "entrapment of an individual at the mine which has a reasonable potential to cause death." Thus, to conform with the MINER Act, the final rule amends the definition of "accident" under § 50.2(h)(3) to include such entrapments.

In using the "reasonable potential to cause death" basis for injuries and entrapments, the MINER Act and the final rule retain an element of judgment. This "reasonable potential" language also appeared under the ETS and the prior standard in relation to injuries. According to the Federal Mine Safety and Health Review Commission (Commission), the operator's decision as

¹ NIOSH, Information Circular IC 9236, 1989.

to what constitutes a “reasonable potential to cause death” “cannot be made upon the basis of clinical or hypertechnical opinions as to a miner’s chance of survival.” The judgment is based on what a reasonable person would discern under the circumstances, particularly when “[t]he decision to call MSHA must be made in a matter of minutes after a serious accident.” [See *Cougar Coal*, 25 FMSHRC 513 at 521 (September 5, 2003)]. Based on MSHA experience and common medical knowledge, some types of “injuries which have a reasonable potential to cause death” include concussions, cases requiring cardio-pulmonary resuscitation (CPR), limb amputations, major upper body blunt force trauma, and cases of intermittent or extended unconsciousness. These injuries can result from various indicative events, including an irrespirable atmosphere or ignitable gas, compromised ventilation controls, and roof instability.

b. Section 50.2(h)(6): Accident Definition for Mine Fires. Mine fires have been an ongoing Agency concern. Underground fires can lead to catastrophic consequences under certain conditions. The prior standard required operators to report fires not extinguished within 30 minutes of discovery. Almost all fires occurring in underground mines are extinguished within 30 minutes of discovery. Many of those fires, however, have the potential to cause injury or death, particularly if the underlying causes are not addressed. Knowing the locations of these fires can help miners, mine operators, and MSHA identify problem areas requiring corrective action.

In the ETS, MSHA solicited comment on § 50.2(h)(6). MSHA was concerned that some fires extinguished within 30 minutes, such as fires occurring in the same place, can signal a serious or potentially serious hazard. MSHA specifically asked whether the definition should be revised to cover all unplanned underground mine fires, or fires of particular types, duration, or locations.

Some commenters supported retaining the existing definition. They said that the 30-minute cut-off is adequate and clear, and there is no compelling reason to change it. They said that fires extinguished in a shorter period of time include many fires that do not present any significant hazard. They said that reporting all fires would be burdensome and involve an unnecessary use of resources. A log was suggested to alleviate the reporting burden.

Other commenters, however, said that the definition should be broadened to

include all unplanned underground mine fires. These commenters pointed out that fires can be devastating to a mine and the miners. They said that it should not be left up to mine operators to decide how long it takes to extinguish a fire. They said that fires are seriously under-reported. They also said that if fires remain unreported, then the mine operator is less likely to eliminate the source of the problem. Another commenter urged MSHA to consider the issue of belt flammability stating that belt fires “require escape in many instances.”

The final rule retains the existing requirement for reporting fires for surface mines and surface areas of underground mines. Surface fires do not involve the hazard potential that underground fires present in a confined environment. For unplanned underground fires, the final rule expands the definition of accident to include all fires not extinguished within 10 minutes of discovery.

We agree with a commenter who, basing the comment on experience in the Pittsburgh seam, said that 30 minutes is “entirely too long,” because a fire that’s been burning for 30 minutes can be “totally out of control.” Similarly, belt fires that include open flame, smoldering coal, smoking belts, or hot glowing rollers, can be hard to control. MSHA experience and data include a number of belt fires, among them the Alma Aracoma fire on January 19, 2006, that could not be contained by the miners at the scene. MSHA expects that the increased reporting of unplanned underground fires, including belt fires, will help focus attention on problems that need to be identified and corrected before developing into an uncontrollable fire.

The requirement to report all underground fires not extinguished within 10 minutes of discovery will address those fires requiring activation of the fire-fighting plan and evacuation of miners. Based on Agency experience and data, MSHA determined that 10 minutes is a reasonable time for attempting to extinguish a fire and to notify the surface. In an underground environment, if miners attempt to fight the fire for 30 minutes and are unsuccessful, the fire will probably become uncontrollable. The revised reporting requirement will result in earlier plan activation as miners will more quickly notify supervisors who can call in firefighting crews while the other miners get out of harm’s way. The final rule’s requirement to report fires not extinguished within 10 minutes targets fires that can jeopardize safety while excluding minor, nuisance events.

2. Section 50.10 Immediate Notification

The final rule retains the requirement in the ETS that mine operators notify MSHA immediately of all reportable accidents. Immediate notification is defined as “at once without delay and within 15 minutes.” It is significant to note, however, that the higher penalties, for failing to “provide timely notification” to MSHA, apply only to those accidents that are specified in Section 5(a) of the MINER Act. These are accidents that involve “the death of an individual at the mine, or an injury or entrapment of an individual at the mine which has a reasonable potential to cause death.” The final rule, like the MINER Act, does not include any exceptions to the 15-minute notification provision.

a. Notifying MSHA within 15 Minutes. Before the ETS, the standard required operators to contact MSHA “immediately” if an accident occurred. The ETS required that all accidents be reported at once without delay and within 15 minutes, with an exception for lost communications. While many commenters said they supported the goal of notification, they opposed the 15-minute requirement. Commenters said that 15 minutes passes too fast, is too short, and does not allow for the gathering of sufficient information. Instead of 15 minutes, commenters suggested 30 minutes and an hour or more as alternatives.

Other commenters suggested that MSHA eliminate any specified time requirement and revert back to the general pre-ETS “immediately contact” standard. They said it was flexible, acknowledged those situations where operators “did the best they could,” and allowed for “wiggle room.” Commenters noted that about 90 percent of the accidents reported to MSHA in 2005 were “unplanned roof falls at or above the anchorage point, and damage to hoisting equipment,” and did not involve an injury to a miner. These commenters stated that the 15-minute requirement should not apply in those non-emergency cases, and that MSHA could be overwhelmed with reporting and false alarms. Other commenters stated that the 15-minute requirement should not apply in situations in which the operator had to perform rescue or life-saving actions.

Other commenters supported the 15-minute requirement for all accidents. They said that MSHA can best decide what to do with the information it gets. They said the problem is one of under-reporting accidents, not over-reporting. These commenters said that delays in

reporting accidents, like the delay in reporting the Sago accident, are unacceptable. The commenters also said that requiring notification within 15 minutes actually aids operators by removing uncertainty concerning when to notify MSHA.

As mentioned above, the MINER Act was signed into law on June 15, 2006. Several comments suggested retaining the 15-minute requirement for only the accidents specified in the MINER Act. In addition, commenters suggested limiting that requirement to underground coal mines or including a life saving exception. Other comments, however, supported the 15-minute reporting requirement in the ETS. One commenter said that the sooner individuals with expertise arrive at the scene "the better the chances for a successful outcome."

MSHA's experience with implementation of the ETS indicates that the 15-minute requirement for reporting all accidents is working. The operator's reporting of the Darby explosion serves as an example of how timely reporting can result in effective mobilization of emergency response resources. Operators of varying mine sizes and types have been able to meet the 15-minute requirement under the ETS. Some operators may have had to alter their response procedures to ensure quicker notification.

Timely reporting can be crucial in emergency, life-threatening situations to activate effective emergency response and rescue. Not only can this be vital to the saving of lives, but it can be instrumental to having expert Agency personnel at the scene with authority to assure that the accident site remains undisturbed and preserved for investigation into causes. For remote operations, it enables MSHA to quickly communicate with local rescue and emergency services. While many reported accidents do not involve an injury or are non-emergencies, they may be near misses or signify a trend or problem that left uncorrected can be extremely hazardous. Fires, explosions, and gas and water inundations are of special concern.

In making the decision to retain the notification requirement in the ETS, MSHA considered the dynamic nature of the mining industry. The mining environment is ever-changing; there is always the threat of new hazards or dangers. The reporting of roof falls, unplanned explosions, haulage accidents, or unstable conditions at impoundments, for example, may necessitate critical, pro-active corrective actions and the need for emergency response assistance. The demand for

many mining commodities is accelerating. Production growth can push mining into depths with more structural instability. As the chance for encountering older underground works and strata increases, so does the potential for gas and water inundation.

Based on MSHA's experience under the ETS, "within 15 minutes" provides adequate time for operators to notify MSHA with sufficient information. For example, the mine operator often knows the general character of an event, such as an explosion or inundation, and can report it under the 15-minute requirement before knowing whether a person has been injured or killed or whether the event is life threatening. MSHA's experience and data reveal that reportable accidents are not common. The 15-minute requirement poses no significant increased burden on the mining industry while providing improved protection for miners.

A number of commenters stated that having to notify MSHA within 15 minutes could interfere with the operator's rescue efforts and calling 911. They said that operators should not be expected to divert from life saving and emergency activities to phone MSHA. This can arise particularly with small operators who may need to engage any and all available personnel to respond to an emergency. They said there should be an exception for those life saving and emergency activities in addition to the exception for loss of communications.

Other commenters, however, disputed the need for any exception. One commenter pointed out that loss of communications in a mine is an indicator of a problem, and the mine operator "must be required to contact MSHA with the information available to him within the mandatory time frame." Some commenters objected to saying that the 15-minute notification requirement could interfere with rescue or life saving. They said operators can anticipate problems in their emergency plans. Moreover, the commenters said that operators can use cell phones, blackberries, or other communication devices, which they readily use to make other calls in emergency situations. One commenter stated that "[A]ny operator who cannot initiate onsite emergency efforts and call the regulatory agency should not be in the mining business."

The final rule, like the MINER Act, does not include any exceptions to the 15-minute notification provision, including one for loss of communications. As noted above, some commenters sought an exception for life saving, or for directing rescue efforts. If a situation were to arise involving extenuating circumstances, such as an

operator having to choose between saving someone's life and notifying MSHA, enforcement discretion would take those circumstances into account. MSHA does not expect that an operator who has to make a decision between rendering life-saving assistance and calling MSHA would be penalized for providing that assistance.

Pointing out that the ETS addressed events in underground coal mines, a few commenters said that the 15-minute notification provision should apply only to underground coal or other underground mines. Other commenters said that MSHA activation of a response team does not usually occur for accidents at surface operations. Consistent with the MINER Act, the final rule does not limit the notification provision to underground mines. Accidents and deaths occur at all types of mines. Surface mines, for example, over the years have suffered numerous fires; serious haulage, equipment, and explosives accidents; electrocutions; highwall failures; explosions; and impoundment failures. Prompt notification focuses MSHA, operators, and miners on problem areas. Even where MSHA does not activate an emergency response, the Agency conducts an investigation. Prompt notification enables MSHA to secure an accident site, preserving vital evidence that can otherwise be easily lost. In addition, prompt notification provides MSHA with data to accurately determine trends and means of prevention.

There also was comment on what triggers the 15-minute period. Some commenters said that the MINER Act should be followed literally with one commenter stating that the 15-minute period should commence once the operator "realizes" an accident has occurred. While the MINER Act uses "realizes," that commenter conceded that there is "some ambiguity" in the term.

Consistent with current case law and interpretation of the notification provision, the final rule alternatively uses the clarifying terms "once the mine operator knows or should know," based on the judgment of a reasonable person. MSHA acknowledges that the operator needs time to determine whether an accident has occurred in the first place. As stated in the preamble to the ETS, the Federal Mine Safety and Health Review Commission (FMSHRC) interpreted the notification standard to allow reasonable time for the operator to make that determination. MSHA recognizes that an operator may not know instantly when an accident occurs, but emphasizes that the operator

must make that determination promptly, consistent with the underlying purpose of the standard. Thus, an operator, like any reasonable person under the circumstances, is held to know or realize that an accident has occurred.

The final rule retains the ETS terms “at once and without delay,” which highlight that reporting must be done promptly. Though a commenter said that these terms are synonyms and should be deleted, the terms are dictionary references used by the Commission in defining and emphasizing what is intended by “immediately.” [See *Consolidation Coal*, 11 FMSHRC 1935 at 1938 (October 31, 1989).] “Immediately” is to be understood “in light of the [notification] regulation’s command of prompt, vigorous action.”

b. Method of Notification. Many commenters stated that the method of contacting MSHA needed to be improved and streamlined. In the ETS and prior standard, operators were directed to first contact the appropriate MSHA District Office and, failing that, to use a 1–800 number to an MSHA headquarters answering service. Commenters said that this system was often inefficient and time consuming, taking a number of phone calls to accomplish notification. Many commenters advocated a nationwide call center, staffed by knowledgeable persons, where the mine operator could place one call to take care of notification. Other suggestions included a District system of emergency phone numbers with staff coverage 24 hours a day, 7 days per week, or a one-call system to voice mail.

MSHA agrees that the system for contacting the Agency needed to be improved. MSHA has acquired a nationwide call system; thus, the final rule eliminates the requirement that mine operators first notify the appropriate District Office. MSHA has set up an improved system that provides a person to answer calls 24 hours per day, 7 days per week. The final rule lists the toll-free number, which is the same number mine operators currently use for notification purposes. Once the mine operator calls the toll-free service, notification is achieved.

C. Part 75—Mandatory Safety Standards—Underground Coal Mines

This final rule does not address §§ 75.350(b)(7), 75.380(n), and 75.383(c), which were deleted in the ETS. The final rule also makes organizational changes and adds paragraph headings and numbers to make specific requirements easier to find and understand, to clarify existing

provisions, and to accommodate new and transferred provisions. These non-substantive revisions do not reduce protection for miners.

1. Sections 75.380 and 75.381 Lifelines in Escapeways

The final rule retains ETS requirements §§ 75.380(d)(7) and 75.381(c)(5) that provide for the use of directional lifelines in both the primary and alternate escapeways for underground bituminous, lignite, and anthracite coal mines. The final rule requires that a continuous, directional lifeline be installed and maintained in each escapeway. The lifeline must: be marked with a reflective material every 25 feet; be located in a manner that allows miners to use it effectively to escape; have tactile directional indicators signifying the direction of escape placed at intervals not exceeding 100 feet; and be attached to and mark the location of stored SCSRs. The final rule also adds a requirement that lifelines be made of flame-resistant material upon replacement, and that all lifelines be flame-resistant no later than June 15, 2009, to conform with Section 2 of the MINER Act.

A directional lifeline is generally a rope made of durable material, although the final rule, like the ETS allows an equivalent device, such as a pipe or handrail. Some commenters stated that a track or belt structure could be considered an equivalent device. MSHA has clarified in this final rule that a lifeline must provide tactile feedback to indicate the direction of escape. In an emergency, visibility may be limited and render devices, such as a track or belt structure, ineffective as a means of indicating direction. MSHA is concerned that the mine operator will be unable to attach tactile directional indicators, which are resistant to physical damage, to a track or belt structure. Because tactile directional indicators on a track or belt structure are likely to be damaged during normal mining activities, MSHA does not believe that a track or belt structure would provide safety equivalent to a lifeline and considers them to be unreliable and impractical. In addition, MSHA is concerned that a conveyor belt structure used as a lifeline presents a significant potential hazard to escaping miners, unless the belts are both de-energized and locked-out. Further, a track used as a lifeline would require escaping miners to crawl to use the tactile indicators on the track.

a. Continuous Lifeline. The final rule, §§ 75.380(d)(7)(i) and 75.381(c)(5)(i), requires that durable, continuous lifelines be installed and maintained in

both escapeways leading from the working sections or areas where mechanized mining equipment is being installed or removed. The lifelines must be continuous throughout the entire length of each escapeway to the surface escape drift opening, to the escape shaft or slope facilities to the surface, or to the surface, as applicable.

Most commenters supported the installation of lifelines in escapeways. Other commenters expressed concerns that the installation of a lifeline in escapeways where mechanized mining equipment regularly travels could result not only in damage to the lifeline, but a damaged lifeline could become a potential hazard to personnel. MSHA agrees that care needs to be taken when lifelines are installed in escapeways that are also used as travelways for mechanized mining equipment. Installation techniques are available that will permit lifelines to be protected from damage from mobile equipment while still being readily available to miners during emergencies. These provisions remain unchanged from the ETS.

b. Flame-Resistant and Reflective. The final rule, §§ 75.380(d)(7)(ii) and 75.381(c)(5)(ii), adds new requirements that lifelines be flame-resistant upon replacement of existing lifelines; but in no case later than June 15, 2009. This requirement was added to respond to comments and to conform the final rule with Section 2 of the MINER Act.

Many commenters stated that lifelines should be made of flame-resistant material and some suggested that MSHA require lifelines to be flame-resistant. MSHA agrees that flame-resistant lifelines provide an added degree of protection for miners and the final rule requires that lifelines be “Flame-resistant in accordance with the requirements of part 18 of this chapter upon replacement of existing lifelines; but in no case later than June 15, 2009.” The flame-resistant requirements contained in part 18 are currently applied to other materials used in mining, such as conveyor belt, hose conduit, and packing gland materials. MSHA has determined that the Agency’s requirements for flame-resistant materials are also appropriate for lifelines used in underground coal mines. MSHA anticipates that lifeline manufacturers will be able to meet the flame-resistant requirement under part 18 and will submit products for approval prior to the time specified in the final rule.

The final rule, §§ 75.380(d)(7)(iii) and 75.381(c)(5)(iii), requires that lifelines be marked with a reflective material every 25 feet, so that miners can locate

the lifeline using their cap lamps in low-visibility conditions, such as when smoke is present. No comments were received on these provisions and they remain unchanged from the ETS.

c. Lifeline Accessibility. The final rule, §§ 75.380(d)(7)(iv) and 75.381(c)(5)(iv), requires that lifelines be positioned so that miners can use them effectively to escape. Proper positioning of the lifeline regarding height, accessibility, and location as determined by mining conditions improves the ability of miners to effectively use lifelines to escape during emergency situations. No comments were received on this provision and it remains unchanged from the ETS.

d. Tactile Indicators. The final rule, §§ 75.380(d)(7)(v) and 75.381(c)(5)(v), requires that lifelines contain tactile indicators signifying the direction and route of escape, placed at intervals not to exceed 100 feet. In the public hearings, MSHA asked whether “direction indicators on lifelines [should] be standardized.” MSHA also asked whether “the point end of the cone [should] be toward the face?” Most commenters supported standardization of directional indicators. This provision in the final rule is changed from the ETS to include a new requirement that “[w]hen cones are used as directional indicators, they shall be installed so that the tapered section points inby.” This new requirement is consistent with NIOSH’s recommendation² and supported by commenters.

The final rule, §§ 75.380(d)(7)(vi) and 75.381(c)(5)(vi), requires that lifelines be “securely attached to and marked to provide tactile feedback indicating the location of any SCSR storage locations in the escapeways.” When visibility is restricted during an emergency, tactile feedback is necessary to guide miners to exit the mine and would also be necessary to locate additional SCSR storage along the escapeway. For this reason, the final rule clarifies that the indicator on the lifeline for locating additional SCSRs be tactile.

2. Section 75.383 Escapeway Maps and Drills

This final rule transfers existing requirements from § 75.383(a) to a new § 75.1505 and combines § 75.383(b) and ETS § 75.1502(c) into a new, improved and expanded § 75.1504. Therefore, § 75.383 is no longer necessary and the final rule removes it.

Section 75.383(b)(1) required all miners to participate in a practice drill every 90 days; but, the miners only had to travel a portion of the escapeways.

On the other hand, the drills in § 75.383(b)(2) and (3) required a supervisor and two miners to travel the entire escapeway every 6 weeks. In addition, § 75.383(b)(2) and (3) required the operator to rotate miners for these 6-week drills, so that all miners participated, and to alternate escapeways, so that the escapeways from all sections were traveled to the surface or to the exits at the bottom of the shaft or slope. MSHA has determined that requiring all miners to travel an entire escapeway each quarter provides increased safety for miners and eliminates the need for the 6-week drill requirement.

In the opening statement at the public hearings, MSHA stated the Agency’s intent to incorporate the drill requirements in § 75.383 with the emergency evacuation drill requirements in ETS § 75.1502(c) and solicited comments on this approach to emergency evacuation drills. Commenters generally supported the elimination of the § 75.383 escapeway drills. In response, the final rule incorporates requirements from § 75.383(b) into § 75.1504 and expands these requirements. These expanded requirements make escapeway drills more realistic and, therefore, more effective.

3. Section 75.1502 Mine Emergency Evacuation and Firefighting Program of Instruction

Final rule § 75.1502 contains the requirements for a written plan for conducting the training and drills required under §§ 75.1503, 75.1504, and 75.1505. In general, the training plan provisions in ETS § 75.1502(a) become § 75.1502; the firefighting provisions in § 75.1502(b) become § 75.1503; the evacuation training and drill requirements in ETS § 75.1502(c) become § 75.1504; and the mine and escapeway map requirements in § 75.383(a) become § 75.1505. Almost all of the requirements in § 75.1502 are derived from existing requirements. The final rule conforms the program of instruction in § 75.1502 with the requirements added to the quarterly training and drills and annual expectations training in § 75.1504.

Commenters were concerned that the ETS had not included miners or miners’ representatives in the process for developing emergency mine evacuation training and drills. MSHA anticipates that mine operators will work with miners in developing the program of instruction and implementing the mine emergency evacuation training and drills.

a. Introduction to § 75.1502. The final rule retains introductory language from ETS § 75.1502(a); adjusts the frequency of training and drills from every 90 days to quarterly; defines the quarter based on a calendar year; and includes new implementing language. This new implementing language requires that operators submit a revised program of instruction to MSHA for approval by February 6, 2007, and initiate the revised training within 30 days of plan approval.

In the final rule, MSHA adjusts the frequency of training and drills from every 90 days to quarterly in response to comments and to provide flexibility. MSHA recognizes that some training is more appropriately given in a classroom or a simulated mining environment. Added flexibility in scheduling will allow operators time to give all miners this critical training and drills quarterly. An operator may find it more convenient to schedule training and drills over several days or weeks depending on the availability of instructors, training equipment, or facilities.

Under the final rule, operators will have the flexibility to conduct quarterly mine emergency evacuation training and drills, either the first, second, or third month of the quarter. The month in which a miner completes mine emergency evacuation training and drills, in effect, becomes that miner’s “anniversary” month for this quarterly training. For example, a miner receiving quarterly mine emergency training and drills in January, the first month of the first quarter, is required to complete the second quarterly training no later than the end of April, the first month of the second quarter. If a miner completes the training before that miner’s anniversary month, then the month the training and drills were completed establishes a new anniversary month for subsequent training and drills. This is consistent with MSHA policy for part 48 annual refresher training.

Commenters suggested that the requirement for emergency evacuation drills be changed from every 90 days to quarterly. One commenter suggested that training during a specific month each quarter would allow for more effective scheduling of people and resources. Another commenter stated that switching to quarterly training would make it easier to schedule training in a timely manner if the miner misses a drill. This commenter stated that, if a miner is off, more flexibility allows the operator time to schedule makeup training and still be in compliance.

² NIOSH, IC 9481, p. 9, 2005.

The final rule's change in mine emergency evacuation training and drills from every 90 days to quarterly increases flexibility, makes recordkeeping easier, and better ensures that all miners participate quarterly.

b. Section 75.1502(a) and (b): Program Approval and New or Revised Provisions. The final rule §§ 75.1502(a) and (b) retain the requirements in ETS § 75.1502(a)(3). Like the ETS, the final rule requires the operator to submit a program of instruction, and any revisions, for approval to the District Manager of the Coal Mine Safety and Health district in which the mine is located. Before implementing any new or revised approved plan provision, the operator must instruct miners in the changes.

c. Section 75.1502(c): Instruction Plan Contents. The final rule has consolidated the requirements for mine emergency evacuation training and drills from 30 CFR 48.8 and part 75 in the instruction plan under final § 75.1502. Contents of the instruction plan include: Mine and escapeway maps; evacuation and firefighting plans; locations of abandoned areas, escapeways, exits, and routes of travel to the surface; and the location and use of firefighting and fire suppression equipment and materials. Although MSHA considers consolidation of these requirements to be an administrative change, it improves an operator's ability to provide more comprehensive and effective evacuation training and drills.

The final rule retains the existing requirements from ETS § 75.1502(a)(1); includes evacuation-related training requirements from § 48.8; enhances the scenario training; and requires annual expectations training. Like the ETS, the final rule requires operators to develop scenarios for mine emergencies, including fires, explosions, and gas or water inundations, and to develop best options for evacuation under each type of emergency. Under the final rule, scenarios must include conditions in the mine or circumstances that require immediate donning of self-rescue devices. In response to questions, the final rule clarifies that scenarios must also include a discussion of options and a decision as to the best option in each situation.

To ensure that the scenarios address the various conditions that miners may encounter in the event of an emergency, the final rule, § 75.1502(c)(2)(ii), includes more examples. It clarifies that the scenarios must include, as applicable, instruction in locating and using continuous directional lifelines, tethers, and doors; traversing undercasts or overcasts; and switching escapeways.

MSHA includes this requirement to emphasize the importance of using scenarios to conduct mine emergency evacuation drills so that miners will be familiarized with emergency equipment, including conditions that may be encountered in escaping the mine.

The final rule retains and combines the requirements of ETS § 75.1502(a)(1)(v) and (vi) in § 75.1502(c)(3). This provision requires training on the operation of fire suppression equipment and the location and use of firefighting equipment and materials. These requirements are unchanged from the ETS.

ETS § 75.1502(a)(1)(vii) required training on the location of escapeways, exits, and routes of travel to the surface, including the location [and use] of continuous directional lifelines or equivalent devices. The final rule retains this requirement in § 75.1502(c)(4) and transfers training on the use of lifelines to evacuation scenarios in § 75.1502(c)(2)(ii).

ETS § 75.1502(a)(1)(viii) required that the instruction plan include training on the locations, quantity, types, and use of stored SCSRs, if applicable. The final rule retains this requirement in § 75.1502(c)(5). This provision will help assure that miners receive appropriate donning and transfer training on all applicable SCSRs.

Annual refresher training in § 48.8(b)(4) requires a review of the mine map; the escapeway system; the escape, firefighting, and emergency evacuation plans in effect at the mine; and the location of abandoned areas. The final rule transfers this training requirement to § 75.1502(c)(6) for underground coal miners. Miners who receive this training as part of their quarterly drills under 30 CFR 75.1504(b)(4) are not required to take it under part 48. The Agency transferred this provision so that emergency evacuation training and drills would be consolidated in part 75.

Final rule § 75.1502(c)(7) includes a new provision requiring operators to describe how miners will receive annual expectations training, which is an integral component of mine emergency evacuation training. This new provision complements the integrated approach to training as reflected in the mine emergency evacuation drill requirement in final § 75.1504.

MSHA addresses commenters' concerns about § 75.1502 Mine Emergency Evacuation and Firefighting Program of Instruction in § 75.1504 Mine Emergency Evacuation Training and Drills, which addresses the implementation of this program of instruction.

d. Section 75.1502(d): Instructors. Final rule § 75.1502(d) retains unchanged ETS § 75.1502(a)(2) that requires operators to designate persons with the appropriate abilities, training, knowledge, or experience to provide training and conduct mine emergency evacuation drills in his or her area of expertise. The final rule also retains the ETS requirement that persons conducting SCSR donning and transferring training must be able to effectively train and evaluate whether miners can successfully don the SCSR and transfer between all applicable SCSR devices.

MSHA experience and NIOSH research³ indicate that, in an emergency, effectively trained miners are more likely to recall needed knowledge and skills. NIOSH recognizes that a key component of effective training is the instructor's ability to communicate their knowledge and skills to others and to evaluate performance. Further, NIOSH states that good trainers must have extensive knowledge or competence in the task or job they are teaching. There were no comments on this provision.

4. Section 75.1503 Use of Fire Suppression Equipment

The final rule transfers the requirements for use of fire suppression equipment from § 75.1502(b) to new § 75.1503. It is administrative and makes no substantive change to the existing requirements.

5. Section 75.1504 Mine Emergency Evacuation Training and Drills

The mine operator's approved program of instruction, in § 75.1502, contains requirements that the miner must experience in the § 75.1504 training and drills. This final rule renumbers and revises ETS § 75.1502(c) as final § 75.1504. It also removes ETS § 75.1502(c)(4) that had allowed evacuation drills to satisfy escapeway drill requirements in § 75.383. Because there are no longer any escapeways drills under § 75.383, § 75.1502(c)(4) is no longer necessary.

The ETS enhanced the requirements for evacuation training and drills by requiring that these drills be more than a simulation. The final rule retains and further enhances evacuation drill requirements by integrating mine emergency training from § 48.8 and § 75.383 into § 75.1504.

a. Introduction to § 75.1504. In the introductory text to § 75.1504, the final

³ NIOSH, "Strategies for Improving Miners' Training," *Information Circular IC 9463*, DHHS (NIOSH) Publication No. 2002-156, September 2002.

rule incorporates the existing introductory language from ETS § 75.1502(c). The final rule requires all miners to participate in the training and drills. This includes independent contractors who must participate in the quarterly drill when it is being conducted in the section or working place where they are located.

b. Section 75.1504(a) Schedule of Training and Drills. As discussed previously, the final rule provides mine operators flexibility in completing drills on a quarterly basis. This change provides a reasonable, defined period of time to complete drills and allows for adjustments to accommodate work schedules or conflicts.

As stated in the ETS, MSHA recognizes that regular and frequent participation in emergency evacuation training and drills reinforces the miner's knowledge and skill necessary to respond effectively in a mine emergency. Frequent drills lessen disorientation, stress, and panic that may cause miners to hesitate in making critical decisions or to make poor decisions. For this reason, the final rule retains the requirement that all miners participate in evacuation training and drills, and includes a new requirement for annual expectations training under paragraph (c).

In § 75.1504(a)(1), the final rule requires that a newly hired miner, who has not participated in an evacuation training and drill at that mine within the previous 3 months, must participate in the next applicable drill. This provision provides flexibility to the mine operator by allowing up to 3 months for newly hired miners to complete the quarterly mine emergency training and drill. This requirement is transferred from §§ 48.5(e) and 48.6(f).

In new § 75.1504(a)(2), the final rule requires that a section or outby foreman travel both escapeways in their entirety prior to assuming duties on the section or outby work location.

In the opening statement at the public hearings, MSHA asked if section bosses should travel both escapeways in their entirety prior to assuming duties on that section. Several commenters said that a foreman should not be required to travel both escapeways in their entirety. Commenters generally agreed that a foreman should travel those portions of both escapeways that the foreman has not traveled within the previous 3 months. In fact, one commenter stated that this requirement makes good practical sense and that all supervisors should be familiar with the escapeways prior to assuming their responsibilities.

MSHA agrees that a foreman needs to have traveled both escapeways prior to

assuming duties on the section. A foreman is responsible for training miners in escapeway drills and must have the training, knowledge, or experience to conduct these drills. Also, the foreman is in a leadership position and, in the event of an emergency, is entrusted with the responsibility for leading miners out of the mine safely. To do this, the foreman must have the necessary skills, including complete familiarity with both the primary and alternate escapeways. MSHA experience is that a well-trained foreman can instill confidence in miners and gain their trust. The final rule, accordingly, requires a foreman to travel both escapeways prior to assuming duties on the section. This includes walking portions as necessary and to focus on unique and lifesaving features.

c. Section 75.1504(b) Content of Drills. Final rule § 75.1504(b) retains and clarifies ETS § 75.1502(c)(2) requirements for a comprehensive, realistic mine emergency evacuation drill, and incorporates escapeway drill requirements from § 75.383(b)(1).

(i) Section 75.1504(b)(1) Hands-On SCSR Training. Before going underground, all persons must be able to demonstrate proficiency in donning and transferring of SCSRs used in that mine. After initial training under 30 CFR part 48, the miner continues to receive "hands-on" training for donning and transferring of self-rescue devices as part of the quarterly mine emergency evacuation training and drills.

If an emergency arises, many miners may have to escape through long and difficult underground escapeways containing irrespirable air. MSHA has identified problems related to skill degradation in the use of SCSRs in mine emergencies. In a series of studies from 1990 through 1993, the U.S. Bureau of Mines, University of Kentucky, and MSHA researchers measured skills degradation. In one study, the proficiency rate for donning an SCSR dropped about 80 percent in follow-up evaluations conducted about 90 days after training. MSHA recognizes that with any nonroutine task, such as donning and transferring of SCSRs, knowledge and skill diminish rapidly. SCSR donning is a motor skill and research indicates that reinforcing motor skills, through more frequent training, will substantially reduce motor-skill degradation. In another study⁴ researchers concluded that "companies should adopt a hands-on training protocol that allows them to integrate

SCSR donning practice into other workplace routines such as fire [drills]."

The ETS reflected MSHA's conviction that more frequent and effective SCSR training is necessary. Based on skills degradation research⁵ supporting additional SCSR training, and past experience where improved training might have made a difference in an escape, final rule § 75.1504(b)(1) retains the ETS requirement for "hands-on" training in the complete donning and transferring of each type of SCSR used at the mine.

To assure that miners can obtain a proper fit of the SCSR mouthpiece, the final rule changes the requirement in § 75.1504(b)(1)(ii) from "inserting the mouthpiece or simulating this task while explaining proper insertion of the mouthpiece" to "inserting the mouthpiece." MSHA is concerned that without actually physically inserting the mouthpiece, a miner may not gain the skills to effectively and properly perform this action. This change is consistent with language in the MINER Act that requires all operators to develop "an emergency response plan" for "ensuring a proper fit" of an SCSR.

(ii) Section 75.1504(b)(2) Comprehensive SCSR Training. MSHA is concerned that some miners may not have been receiving adequate emphasis on three important instructions for using an SCSR. Even though much of this information is included in existing training courses and manufacturers' instructions, the final rule includes these instructions to emphasize their importance. This requirement poses no additional burden on mine operators.

In § 75.1504(b)(2)(i), the final rule emphasizes the importance of recognizing when the SCSR is not functioning properly and demonstrating how to initiate and reinitiate the starting sequence. MSHA is concerned that miners may not be able to recognize when an SCSR is functioning properly. This may have caused miners to remove their SCSRs prematurely, thinking that the device was not working when breathing became difficult. Also, miners need the skills and knowledge to initiate (cold start) an SCSR if it fails to start automatically after the starting sequence is initiated.

In § 75.1504(b)(2)(ii), the final rule requires that the SCSR training emphasize the importance of not removing the mouthpiece until the miner is out of the mine. MSHA is concerned that miners may remove their mouthpiece before reaching fresh air or to communicate. Even though a miner may believe that the air is breathable

⁴ The U.S. Bureau of Mines (Vaught *et al.*, 1993).

⁵ *Ibid.*

because it appears clear and there is no smoke, the mine air may contain high levels of toxic gases or have insufficient oxygen to sustain life.

In § 75.1504(b)(2)(iii), the final rule requires operators to instruct miners about the effects of over-breathing the capability of the SCSR. SCSRs produce oxygen at a specific flow rate. Rapid and deep breathing (over-breathing) caused by panic or physical exertion can potentially create more demand for oxygen than an SCSR can supply. Like all other respiratory devices, SCSRs are more effective when the miner is better trained to understand their capabilities and to use them properly.

(iii) *Section 75.1504(b)(3) Realistic Training and Drills.* In § 75.1504(b)(3), the final rule retains and clarifies ETS § 75.1502(c)(2) requiring a comprehensive, realistic mine emergency evacuation drill and integrates the escapeway drill requirements from § 75.383(b).

NIOSH studies⁶ relating to stress and its effect on behavior during an emergency noted that miners who had more experience or training also tended to report less stress during the exercise. MSHA agrees with the NIOSH assessment that miners will be better prepared to react more effectively if they are more familiar with and have a better appreciation of the requirements for evacuating the mine. By traveling both escapeways in their entirety and practicing using the other required evacuation tools, miners will gain confidence and a better understanding of the time and effort required to evacuate the mine successfully in an actual emergency.

Scenarios. In § 75.1504(b)(3), the final rule enhances the requirement for a realistic mine emergency evacuation drill by specifying that the drill must be initiated based on one of the approved mine emergency scenarios from the Mine Emergency Evacuation and Firefighting Program of Instruction. To ensure that the four major scenarios (fire, explosion, gas or water inundation) are covered each year, § 75.1504(b)(3)(i) requires that a different scenario be used each quarter. Although ETS § 75.1502(a)(1) included a requirement for scenarios, it did not state specifically that these scenarios were to be used for conducting the evacuation drills.

In the opening statement at the public hearings, MSHA stated that it intended that scenarios required by the Approved Program of Instruction would be used to

start and to conduct the mine emergency evacuation drills. Commenters generally supported the concept of using mine-specific scenarios to conduct mine emergency evacuation drills. One commenter recognized the importance of providing “* * * training scenarios that simulate the actual experience.” Another commenter said that operators should routinely update and change the scenarios to ensure that they are an adequate learning tool.

MSHA agrees with commenters that a variety of scenarios provide miners with a better, more realistic and effective drill. Depending on the conditions at the mine, the mine operator may need to develop more than one scenario for each type of mine emergency. The final rule does not limit the mine operators’ choices of scenarios, but rather includes a requirement that scenarios require a discussion of options and a decision as to the best option for evacuation in each scenario.

Traveling Escapeways. The final rule, like the ETS, requires miners to travel the primary or alternate escapeway to the surface or exits at the bottom of a shaft or slope, physically locating continuous, directional lifelines or equivalent devices, tethers, and stored SCSRs, as part of their quarterly evacuation drill. To ensure that miners are familiar with both escapeways, the final rule retains the requirement that the drill be conducted in a different escapeway than the previous quarterly drill. Traveling both escapeways provides miners with a more realistic experience of unique escapeway conditions they may encounter in evacuating the mine, including uneven terrain, ladders, doors, airlocks, and overcasts. Hands-on experience with these conditions helps assure that the miner can successfully escape the mine in an actual emergency. Under the final rule, travel can be by any means of conveyance, including mantrips, mobile equipment, or walking.

The ETS required the mine operator to have miners travel the escapeways and physically locate the lifelines and stored SCSRs. MSHA stated that miners should be able to safely evacuate a mine without the use of mechanized transportation. In both the preamble and MSHA’s opening statement at the public hearings, MSHA requested comments about whether miners should be required to walk the escapeway rather than use mechanized transportation during the drills.

Most commenters expressed concern about the safety and usefulness of requiring miners to walk the escapeways. Commenters acknowledged the value of physically using lifelines,

finding SCSR storage locations, and traversing unique or difficult portions of the escapeways; but, considered walking an entire escapeway to be unnecessary. These commenters were concerned that requiring miners to walk the escapeway each quarter would be counterproductive, and urged the Agency to allow miners to walk the escapeways in segments. Many commenters expressed concern that walking an escapeway would expose miners unnecessarily to increased risk of injury, especially the aging workforce. These commenters pointed out that a few injuries during an actual emergency are acceptable; but, they are not acceptable during a drill.

MSHA received several comments that addressed underground mine firefighting drills (§ 75.383). Commenters acknowledged that miners walked the escapeways under existing § 75.383(b) drills and were concerned that, in combining the escapeway and evacuation drills, miners would be required to walk an escapeway every 90 days.

MSHA considered commenters’ concerns and agrees that walking each escapeway in its entirety is not necessary to provide the miner a realistic experience of evacuating the mine. Furthermore, MSHA agrees that requiring all miners to walk entire escapeways may expose miners unnecessarily to physical strain. An evacuation may involve a combination of travel modes, including both mechanized transportation and walking. MSHA encourages rapid evacuation of all miners in an emergency. In most cases, this will involve the use of mechanized transportation. The unique characteristics of the escapeways, conditions caused by the emergency, or required training such as physically locating lifelines and SCSRs, however, may prevent the use of mechanized transportation. Walking may be necessary in those circumstances. In response to commenters’ concerns, the final rule includes a performance-based requirement that miners travel the escapeway, including traversing or negotiating specific portions and switching escapeways, as applicable. This means that miners will walk certain portions to complete the required training, such as in physically locating and practicing the use of lifelines.

(iv) *Section 75.1504(b)(4) Review of Emergency Escapeway Maps and Plans.* Final rule § 75.1504(b)(4) combines requirements for a review of the mine and escapeway maps, the firefighting plan, and the mine emergency evacuation plan in effect at the mine

⁶NIOSH. “Judgment and Decision-Making under Stress: An Overview for Emergency Managers.” (Kowalski and Vought, YEAR).

[from existing §§ 48.8(b)(4), 75.383(b)(4), and 75.1502(a)]. In § 75.1504(b)(4)(i), the final rule requires the operator to inform miners of the locations of fire doors, check curtains, changes in the routes of travel, and plans for diverting smoke from escapeways. In § 75.1504(b)(4)(ii), the final rule requires that, in reviewing maps and plans, the operator train miners in locating abandoned areas, escapeways, exits, and routes of travel to the surface, including the location of continuous directional lifelines or equivalent devices. This training complements § 75.1504(b)(3) by having miners learn to locate on the mine map the key items that they must physically use or locate during the realistic escapeway drill.

(v) *Section 75.1504(b)(5) Firefighting Training.* Final rule § 75.1504(b)(5) combines requirements for training miners on the operation of the fire suppression equipment available in the mine and the location and use of firefighting equipment and materials [from ETS § 75.1502(a)(1)(v) and (vi)]. This paragraph contains no new requirements.

(d) *Section 75.1504(c) Annual Expectations Training.* Section 75.1504(c) is a new requirement that provides miners with a realistic experience of using an SCSR in an emergency situation. MSHA is concerned that miners do not always understand what to expect when using an SCSR. The SCSR expectations training requires the miner to don and transfer an SCSR in smoke, simulated smoke, or an equivalent environment. It also requires the miner to breathe through a realistic SCSR training unit or an equivalent device that provides the actual sensation of SCSR airflow resistance and heat.

In 2005, NIOSH provided a guidance document to the mining industry that identifies training techniques for increasing skill levels of miners. NIOSH concluded that training is more effective when it is both realistic and experiential.⁷ Training that provides the miner with a more realistic experience of both the physical and emotional challenges that the miner may encounter in an actual life-threatening emergency is commonly referred to as “expectations” training. NIOSH⁸ has been conducting trials with non-toxic smoke in underground mines. NIOSH notes that—

Quality training enhances the awareness of mine fire hazards and promotes self-confidence. One of the strong points of the underground smoke training exercise was that miners felt they were better prepared for a real life situation.

While the NIOSH research was conducted in underground mines, MSHA recognizes that conducting SCSR smoke training in an active mine may be difficult, and agrees with commenters that, in most cases, this training can be provided on the surface. MSHA expects that some state agencies and private vendors will develop portable expectations training facilities that can be brought to a mine for this training.

In response to recent mine accidents requiring emergency evacuation of the mine in a toxic environment, MSHA has determined that miners need SCSR expectations training. The final rule requires this training annually. Expectations training can be used to comply with the requirements for donning and transferring the SCSR under paragraph (b)(1) as part of a mine emergency evacuation drill.

In the preamble and in the opening statement at the public hearings, MSHA asked whether it would be more instructive to conduct a more realistic drill. As an example, MSHA suggested using smoke, or a realistic mouthpiece that provides the user with the sensation of actually breathing through an SCSR. In general, the responses to this question were supportive. Commenters recognized that training is more effective when it is more realistic. One commenter said that realistic training would be more meaningful. One commenter stated that, for the best results, the drill should require the same action as if it were a real emergency. Another commenter, who had received SCSR training in smoke, said “I want to be as sincere as possible when I tell you that this was the single most enlightening experience of my 35 years underground.” Several commenters were concerned that conducting training in smoke would be hazardous to the miners and another was concerned that providing this training in an underground mine would be difficult. As indicated by several commenters, in most cases, this training is better when conducted on the surface in an environment that can be controlled. Commenters recommended a truck or trailer designed for this training and the possibility of developing additional simulation laboratories in the coal fields where miners could go to receive SCSR expectations training.

While some mine operators or training facilities may use actual smoke, it was never MSHA’s intention to

require this training to be done in actual smoke. Operators can use a non-toxic smoke, such as theatrical smoke, which is harmless. MSHA intends that this training help miners realize the burden of donning, transferring, and using an SCSR in conditions of low visibility and stress.

In § 75.1504(c)(2), the final rule requires a miner to participate in annual expectations training within one quarter of being employed at the mine. Likewise, for a miner returning to work after an absence during which the miner missed this training, the miner must receive the training within one quarter.

One issue with providing realistic SCSR training is the availability of “live” training units. Currently, there is only one manufacturer who has developed a prototype training unit; this unit is not yet in production. MSHA expects that, based on the requirements of this rule, other SCSR manufacturers will develop, produce, and market realistic SCSR training units. For this reason, in § 75.1504(c)(3), the final rule requires the mine operator to have a purchase order for realistic SCSR training units or devices within 30 days of notification by MSHA that the units are available. MSHA will notify mine operators of the availability of realistic SCSR training units and where to purchase them by publishing a notice in the **Federal Register**. The final rule also requires the operator to provide expectations training within 60 days of receipt of the units. MSHA will accept, as good faith evidence of compliance, purchase orders or contracts to buy realistic SCSR training units.

e. *Section 75.1504(d) Certification of Drills.* The final rule retains the requirement that the mine operator certify, by signature and date, that the mine emergency evacuation training and drills were held in accordance with the requirements of this section. The final rule also retains the ETS requirements that mine operators keep the certifications for one year and make them available to authorized representatives of the Secretary and to miners’ representatives.

The final rule expands the certification to include foremen traveling both escapeways prior to assuming their duties and annual expectations training for all miners. The final rule also expands the certification to require that it be made at the completion of each quarterly drill, annual expectations training, or other training. The certification must identify miners, by name, who participated in each emergency evacuation training and drill or other training. For each miner, the certification must list the content of

⁷ NIOSH, “Fire Response Preparedness for Underground Mines,” *Informational Circular IC 9481*, 2005.

⁸ NIOSH, “Emerging Technologies: Aiding Responders in Mine Emergencies and During the Escape from Smoke-Filled Passageways,” 2002.

the drill completed, including the escapeway traveled and scenario used.

The final rule also adds a requirement that the operator provide each miner a copy of the certificate for his or her own training when the miner requests a copy. This requirement reflects industry practice to provide the miner access to and a copy of his or her own training record at no cost to the miner.

In the opening statement at the public hearings, MSHA specifically asked whether the training record for the mine emergency evacuation training and drill should include additional information, such as a checklist. MSHA stated that the checklist could be used to itemize the successful completion of each step of the training, as outlined in the approved program of instruction. Considering the number of aspects to be addressed in each drill and the flexibility built into the various requirements, MSHA expects that mine operators would need to keep track of this training to facilitate compliance.

Commenters generally supported a checklist as an effective tool for managing and evaluating this training; however, they felt that a checklist should be optional. Commenters recognized the usefulness of a checklist to itemize the successful completion of each step of the training and for keeping track of those components of the drills that change, such as scenarios. They stated that a checklist helps assure that the training and drills include all the topics that are required by the standard. Another commenter stated that—

When you use that checklist, if there is something people struggle with, it gives you that information. You know where to focus your efforts, particularly in between drills.

One commenter further stated that developing performance-based checklists that identify self-escape competencies would be a valuable tool to evaluate the proficiency of miners. Others stated that checklists can vary in size and complexity; that a checklist is not the only way to manage; a list of names, simply put on paper, does nothing for anyone. Another commenter stated that the energy required for maintaining these checklists could be better spent on training miners rather than dealing with another recordkeeping issue.

Although acknowledging that a checklist of activities is beneficial, one commenter was convinced that “requiring this limited documentation is ineffective for assuring that the training was successfully performed, in whole or in part.” This commenter said that MSHA has a responsibility beyond paperwork compliance to ensure that

the training was conducted. This commenter also cited several examples of cases where the recordkeeping was kept, but the training was not completed. This commenter recommended that, to ensure that evacuation training and drills are completed, MSHA must be present to witness this activity.

In response to comments, the final rule does not include a requirement for a checklist. MSHA does recommend, however, that mine operators develop a system to help manage these drills. MSHA expects that mine operators will use some type of system, such as a checklist or other effective alternative, to track the completion of the various components of these drills for each miner, so as to assure that all miners receive the required training. The final rule lists the information to be included on the training certificate, but does not specify how the operator is to keep track of this information. To facilitate operator compliance with the drill requirements, MSHA will develop a sample checklist and make it available in the Compliance Guide for this final rule, which will be posted on MSHA’s Web site at <http://www.msha.gov>.

6. Section 75.1505 Escapeway Maps [Existing § 75.383(a)]

The final rule transfers the escapeway map requirements in § 75.383(a) to § 75.1505. This change is administrative only. MSHA received no specific comments on transferring this paragraph.

7. Section 75.1714 Availability of Approved Self-Rescue Devices; Instruction in Use and Location

The final rule revises § 75.1714(b) to clarify that all persons must have SCSR donning and transferring training before going underground. This administrative change eliminates duplication of requirements and potential confusion or conflicts.

8. Sections 75.1714–2(f), 75.1714–2(g)(2), and 75.1714–4(e) Identification and Directional Signs for SCSR Storage Locations

Like the ETS, final §§ 75.1714–2(f), 75.1714–2(g)(2), and 75.1714–4(e) require signs made of reflective material to identify SCSR storage locations and to direct miners to those locations. The requirements for these signs were similar for all three provisions in the ETS; MSHA evaluated the comments accordingly.

One commenter thought the requirement for direction signs was vague “as to where these signs should be posted.” A more specific requirement

for posting direction signs leading to an SCSR storage location would be counterproductive because the location for storing SCSRs will vary from mine to mine. Each mine operator must determine the best place for hanging these signs, considering the condition of the area surrounding the storage locations.

MSHA specifically requested comments in the ETS preamble and at the public hearings, on the appropriateness of requiring reflective signs to help locate SCSR storage locations and whether alternative methods are available for making storage locations easier to locate when conditions in the mine might obscure visibility. Many commenters agreed that reflective signs could be useful. One commenter thought that SCSR storage locations should have reflective doors, or the doors should be outlined in reflective material, so that miners could find SCSRs even if they were crawling. Some commenters pointed out that reflective signs would not be useful when thick smoke was present and that other steps would be needed, or that other options, such as strobe lights, sirens, or attaching lifelines to the SCSR storage containers, should be allowed. Other commenters thought that strobe lights were not necessary and could present an explosion hazard in the presence of methane.

While MSHA realizes that reflective signs may not be helpful in all situations, the requirement that a sign be made of a reflective material enhances miner safety by increasing the visibility of SCSR storage locations and by making them easier to locate. The reflective quality provides an advantage, such as when power is out in the mine: reflective signs allow the miner to locate an SCSR and evacuate the mine more quickly. A cap-light or outside light can reflect off the sign making it much more visible than one not made of a reflective material. For this reason, the final rule retains the requirement that signs identifying SCSR storage locations and directing miners to these storage locations be made of reflective material.

Although the ETS did not revise the words required to be displayed, MSHA received many comments requesting that MSHA allow signs to use the term “SCSRs” instead of “SELF-RESCUER” or “SELF-RESCUERS.” One commenter stated that MSHA was being too prescriptive in requiring such specific wording. These commenters stated that the term “SCSRs” is used industry-wide.

The terms required to be displayed on the signs predated the ETS: § 75.1714–2(f) required the signs to say “SELF-

RESCUER” or “SELF-RESCUERS” and § 75.1714–2(g)(2) required the signs to say “SELF-RESCUERS.” The purpose for requiring signs to display specific terms is to maintain consistency throughout the underground coal mining industry. Requiring consistent wording enhances safety by helping to ensure that, in an emergency situation, a miner will be able to readily identify where SCSRs are stored, even when the miner works at a different mine. MSHA agrees with commenters that “SCSR” is a commonly used term; therefore, the final rule permits the use of either term, “SCSRs” or “SELF-RESCUERS,” to indicate the location of stored SCSRs.

Final § 75.1714–2(f) inserts a provision inadvertently omitted from former § 75.1714–2(f) when the ETS was published. That requirement read, “If a SCSR is not carried out of the mine at the end of a miner’s shift, the place of storage must be approved by the District Manager.” Since the requirement was inadvertently omitted, the ETS did not discuss it. MSHA received no comments on the omission. Therefore, this final rule adds the omitted portion of former § 75.1714–2(f).

9. Section 75.1714–4 Additional Self-Contained Self-Rescuers

Final § 75.1714–4 addresses the need to provide and store additional SCSRs that will offer protection for the maximum number of people in the mine if an emergency occurs. The final rule revises the ETS requirements for additional SCSRs and the location of stored SCSRs. Changes to this section include: revised methods for determining SCSR storage locations in each escapeway and for miners who do not have a fixed work location; and, removing the requirement to provide an outby storage plan. The final rule also makes non-substantive editorial changes.

a. Additional SCSRs in Work Places. Final § 75.1714–4(a) retains the ETS requirement that mine operators provide all persons with an additional SCSR at their underground work locations. Section 2 of the MINER Act reiterated the ETS requirement. MSHA revised the ETS to clarify requirements for providing additional SCSRs to persons who do not work at a fixed location by adding § 75.1714–4(a)(2).

Specifically, MSHA was concerned that persons who work alone in various parts of the mine, i.e., pumpers and examiners, could not carry an extra SCSR with them and generally did not have access to an additional SCSR. For this reason, in the preamble and its opening statement at the public hearings, MSHA requested comment on

how SCSR storage locations could be made readily accessible to persons with no fixed work location, such as pumpers, outby crews, and examiners working underground.

Some commenters stated that the SCSR storage locations should be figured on a mine-by-mine basis due to the different mine conditions and situations. Other commenters suggested that these locations should be addressed in the outby SCSR storage plan. Another commenter suggested using the time-distance tables in MSHA’s Program Policy Manual (PPM), Volume 5, § 75.1714–2, “Self-Rescue Devices; Use and Location Requirements,” for pumpers and examiners; outby crews, such as belt maintenance and supply personnel; and others who are similarly situated.

MSHA considered these comments and adds a requirement in final § 75.1714–4(a)(2) that the mine operator store additional SCSRs along the normal travel routes for pumpers, examiners, and other persons who do not have a fixed work location. These SCSRs must be stored at a distance no greater than the average miner could walk in 30 minutes. The final rule uses the 30 minute SCSR storage location spacing to be consistent with the MINER Act requirement for escapeways. The distance between SCSR storage locations must be determined by using one of the methods found under paragraph (c)(2) of this section.

b. Additional SCSRs on Mantrips. Final § 75.1714–4(b) retains the requirement from the ETS that all persons using a mantrip or mobile equipment to enter or exit the mine have an additional SCSR, which provides protection for one-hour or longer, available from portal to portal. At many mines, persons use mantrips or mobile equipment, such as scoops, ramcars, or pick-up trucks, to enter or exit the mine and travel to and from their working station. A mine accident or emergency that requires evacuation could occur while crews are traveling. If miners traveling on mantrips or mobile equipment are using filter self-rescuers they must be provided with two SCSRs, each of which provides protection for a period of one hour or longer. If SCSRs with a capacity of less than one hour are worn by miners, the additional SCSR required by § 75.1714–4(b) may be stored along the escapeway at intervals that are readily accessible to the miners.

Mine operators may use additional SCSRs stored on the mantrip or mobile equipment to comply with § 75.1714–4(a) for persons either at a fixed work location or a non-fixed location, if the mantrip stays on the section or near the

work location. If the mantrip leaves the section or the work location, the operator can comply with § 75.1714–4(a) by removing the SCSRs from the mantrip and keeping them on the section or near the work location.

One commenter strongly agreed with the requirement to have additional SCSRs available on the mantrip or mobile equipment, and stated that the explanation made “great sense.” Another commenter stated that some MSHA districts were misinterpreting the requirement in that they were requiring the mine operator to supply two SCSRs per employee on the personnel carrier if a one-hour belt-wearable unit was not employed. Another commenter believed that this requirement limits the option of wearing a unit smaller than a one-hour unit for ergonomic reasons. The commenter stated that the provision should permit each personnel carrier to store one hour of oxygen for each person traveling on that vehicle provided that the travel distance to exit the mine on the vehicle’s normal route is no further than an average miner can walk in 30 minutes.

MSHA has considered these comments and the final rule retains the ETS requirement that an additional SCSR be available to all miners traveling on mantrips or mobile equipment. All miners are required to have two SCSRs available to them while using mechanized transportation to or from their work locations.

c. Additional SCSRs in Escapeways. Final § 75.1714–4(c) retains the ETS requirement that the mine operator store additional SCSRs in the required escapeways when each person underground cannot safely evacuate the mine within 30 minutes. MSHA has changed this provision to be consistent with the MINER Act by specifying that the spacing between SCSR storage locations in each required escapeway be no greater than the distance an average miner can walk in 30 minutes. As discussed later in the preamble, the final rule provides two methods for determining spacing.

(i) Additional SCSRs. Final § 75.1714–4(c)(1) retains the ETS requirement that each SCSR storage location in the required escapeways contain at least one SCSR, which provides protection for a period of one hour or longer, for every person who will be in by that location.

(ii) Spacing of Stored SCSRs. ETS § 75.1714–4(c) required the mine operator to submit an outby SCSR storage plan to the appropriate District Manager for approval. The final rule eliminates the requirement for an outby

SCSR storage plan because it will be addressed in the Emergency Response Plan required by Section 2(b) of the MINER Act.

Final § 75.1714-4(c)(2) provides two methods for determining the 30-minute spacing of SCSRs storage locations in escapeways. The first method, found in final § 75.1714-4(c)(2)(i), requires the mine operator to calculate the spacing based on a sample of typical miners walking a selected length of each escapeway. A sample of typical miners is a cross-section of the population of all miners who would have to evacuate the mine and use the SCSRS stored in the escapeways. In general, operators using this option must use a sample that includes miners of various ages, weights, levels of physical fitness, and smoking habits; and a selected portion of the escapeway that reflects entry height, slope, and underfoot conditions representative of the entire escapeway.

The second method, found in final § 75.1714-4(c)(2)(ii), requires a mine operator to use a table that specifies maximum SCSR storage location spacing based on average entry height, except escapeways with grades over 5 percent. This table is based on statistical data collected from the MSHA-NIOSH study from 1997.⁹

(iii) Comments on Performance-Based Approach to Spacing of SCSR Storage Locations. The ETS included a “heart-rate method” as an option for determining SCSR storage location spacing. Many commenters stated that they were “very concerned about this suggested method,” and did “not believe it is practical, effective or reliable to expect those working underground to determine a ‘worst case scenario.’” These commenters stated that the heart rate method required a judgment about which miner appears to be the slowest to evacuate. These commenters also stated that the slowest miner could change from day to day, depending on the employees available, whether someone was injured, or even whether one miner did not feel well on a particular day. Some commenters were concerned that requiring the miner to participate in the “heart-rate” test would be hazardous to the miner’s health.

Although some commenters favored the “heart-rate method,” commenters generally opposed solely using this method, but supported a performance-based approach. One commenter supported the heart rate method, but also suggested a combination of methods. This commenter stated that

the age and size of a miner (factors of the heart rate method) could be combined with the 2,500 to 5,000 foot requirements (escapeway intervals posed in the ETS based on the average entry height), with storage being located at the shorter distance. Other commenters stated that escapeway conditions vary; yet timed walks can provide necessary information to determine the distance between SCSR storage locations. One of these commenters stated that it was hard to imagine one standard that would work for every mine. One commenter stated that, for mine operators who do not want to conduct performance testing, prescriptive standards could be allowed as an alternative. One commenter suggested the actual capacity of the SCSR be used to determine the distances between SCSR storage locations, rather than the unit’s certified capacity.

In response to comments, final rule § 75.1714-4(c)(2)(i) includes an option that allows the mine operator to calculate the distance between SCSR storage locations by using the average distance walked in 30 minutes over a typical length of each escapeway by a sample of typical miners. Because the MINER Act requires SCSR storage locations in escapeways to be no further than the average miner could walk in 30 minutes, MSHA has eliminated the “worst case” scenario as a requirement.

(iv) Comments on Prescriptive Spacing of SCSR Storage Locations. Many commenters were in favor of a prescriptive approach to determining spacing for SCSR storage locations. Commenters encouraged MSHA to set an objective standard to achieve uniformity throughout the industry. One commenter stated that MSHA should use a design type standard as the maximum required distance, and allow mine operators to use performance testing to decrease the distance of the storage locations. Another commenter stated that MSHA, NIOSH, and miners’ representatives should determine, through studies, the specific distances between SCSR storage locations. This commenter opposed permitting different distances under storage plans because plans become “unwieldy” and the operator “can’t keep monitoring them constantly.” This commenter stated further that mine operators do not need flexibility.

Some commenters suggested that MSHA incorporate the height/distance chart in MSHA’s Program Policy Manual (PPM), Volume 5, § 75.1714-2, “Self-Rescue Devices; Use and Location Requirements,” into this final rule. Commenters stated that the chart has

been used to convert travel time to distance and could be used for that purpose in the final rule. Other commenters stated that the West Virginia chart, which was originally developed by MSHA, should be the standard used. Some commenters stated that this issue was made moot by the new MINER Act, which states that the self rescuer distances are based on the distance that an average miner can travel in 30 minutes.

Some commenters, however, stated that a prescriptive standard would not be appropriate because it is uniform across all mines and mining conditions, regardless of differences. One commenter stated that prescriptive standards of this sort are inherently inaccurate and fail to take account of numerous relevant variables, such as seam height, or other unique mine characteristics, as well as the physical condition of the miners involved in evacuations. The commenter quoted MSHA’s compliance guide (Volume 2, at Q. 26), in which MSHA stated that such uniform specifications “do not take into account the slope of the escapeway, travel conditions, or the age of the escaping miner.”

In response to comments and to retain flexibility, MSHA developed a table that provides maximum distances for spacing SCSR storage locations in § 75.1714-4(c)(2).

(d) Additional SCSRs in Hardened Rooms. The final rule adds an alternative in § 75.1714-4(d) to allow mine operators to store SCSRs between adjacent escapeways in a hardened room.

MSHA asked, in its opening statement at the public hearings, if there were circumstances under which it would be appropriate to share SCSRs between adjacent escapeways in a hardened room or “safe haven” that is constructed using permanent seal techniques. Several comments were received that were both for and against this alternative. Some commenters preferred to store one SCSR per miner in a structure between adjacent escapeways that was accessible through doors from either escapeway.

MSHA has considered these comments and determined that allowing one SCSR per miner to be stored between adjacent escapeways, which would serve both escapeways, can provide improved protection for miners if certain conditions are met. The SCSR storage location must be secured against damage from explosions in either escapeway. Requiring that the hardened room be designed and constructed to the same explosion force criteria as seals can provide greater protection than

⁹MSHA-NIOSH study, “The Oxygen Cost of a Mine Escape” (Kovac, Kravitz, and Rehak, 1997).

SCSR storage arrangements in escapeways.

The final rule also requires that the hardened room contain an independent source of air. At this time, MSHA has reviewed several alternatives for providing independent, positive pressure ventilation from the surface to a hardened room. Some of these alternatives include: (1) A vertical bore hole from the surface; (2) directionally drilled holes and suitable piping within the mine; or (3) a robust insulated compressed air distribution system.

These hardened rooms would provide a smoke-free environment for transferring SCSRs and communicating with the surface and with other miners. This would facilitate SCSR transfer and miners' successful evacuation. The agency expects that, on balance, hardened rooms would not usually be a less costly alternative. MSHA does believe that this alternative would provide for improved safety. If an operator intends to use a hardened room for SCSR storage between escapeways, the location and construction parameters must first be included in the mine's ventilation plan approved by the District Manager.

e. Storage Location Accessibility. Final § 75.1714-4(e) retains the ETS requirement that all SCSRs be stored according to manufacturers' instructions in locations that are conspicuous and readily accessible by each person in the mine. Manufacturers' instructions are included in the documentation for all SCSRs submitted to MSHA and NIOSH for approval under 42 CFR part 84. Additionally, the instructions are included with all SCSRs from each manufacturer.

The first ETS Compliance Guide, *Training Questions for Emergency Mine Evacuation*, contains guidance on how to make the storage location conspicuous. This requirement minimizes the time it takes a miner to locate an SCSR when it is needed following an accident or emergency. An SCSR conspicuously stored or readily accessible could make the difference between the success or failure of an emergency mine evacuation.

The manufacturer's instructions for a specific type of SCSR include a shake test, to check the integrity of the internal SCSR chemical beds, for SCSRs not transported or carried by the miner. Several commenters requested that MSHA eliminate the shake test. Because the shake test is included in the instructions for maintaining the reliability of the SCSR and is included as a condition of its approval, failure to conduct the shake test would invalidate the SCSR approval under 42 CFR part

84. As such, MSHA has no authority to eliminate this requirement. The final rule requires inspections and tests of SCSRs to be implemented according to the manufacturer's instructions. For certain SCSRs, this includes a shake test every 90 days.

10. Section 75.1714-5 Map Locations of Self-Contained Self-Rescuers

Final § 75.1714-5 retains the requirement for the mine operator to mark the SCSR storage locations on the § 75.1505 (formerly § 75.383) posted mine escapeway map and on the § 75.1200 mine map. Mine maps help assure that all persons are aware of the storage locations of all SCSRs in the mine and the § 75.1200 mine map is used for mine rescue response.

11. Section 75.1714-6 Emergency Tethers

Final § 75.1714-6 is a new requirement and addresses MSHA's concern that miners not become separated when escaping from a smoke-filled environment. Tethers are durable ropes or equivalent material designed to permit members of a mine crew to link together while evacuating the mine during an emergency. The final rule requires that at least one tether, of sufficient length to link together members of a mine crew, be placed with the additional SCSRs stored at fixed underground work locations and on mobile equipment used to enter or exit the mine. If the mining conditions require miners to walk out of the mine, tethers will help keep individual miners from becoming separated from the crew. Tethers, however, do not have to be stored with the additional SCSRs for pumpers, examiners, and other persons who generally work alone.

In the ETS preamble and in the opening statement at the hearings, MSHA requested comments on whether miners should have the ability to tether themselves together during escape through smoke-filled environments. MSHA also asked for input regarding storage, method of attachment, and placement of tethers. Commenters generally supported a requirement that tethers be made available for miners to use, but did not want MSHA to require their use. Commenters expressed a variety of opinions as to where tethers should be stored. Some stated that tethers should be stored at the beginning of the lifelines. Commenters did not support prescriptive requirements for tether construction. They believed that this should be left to the discretion of the mine operator.

MSHA agrees that specific requirements for the length, method of

attachment, and other details of construction should be left for the mine operator to address based on the specific needs and conditions of the mine. In response to commenters' concerns, the final rule provides miners with the capability of tethering together, but does not require miners to use them.

12. Section 75.1714-7 Multi-Gas Detectors

Final § 75.1714-7 is a new requirement and addresses MSHA's concern that miners make a more informed decision about when to don an SCSR. This section requires that the operator provide an MSHA-approved, handheld, multi-gas detector, which can measure methane, oxygen, and carbon monoxide, to each group of miners and to each miner working alone; that at least one miner in each group be a *qualified person* under § 75.150; and that each miner working alone be trained to use the detectors to take gas readings and to interpret the readings. In addition, the detector must be maintained and calibrated as specified in existing § 75.320.

During the ETS hearings, MSHA asked for comment on whether mine operators should be required to provide miners with handheld, multi-gas detectors in connection with MSHA's request for comment about when miners should don their SCSRs. MSHA was concerned that during a mine emergency, a miner might have difficulty determining when to don an SCSR. A toxic gas or reduced oxygen levels can be colorless and odorless; often, these potentially fatal hazards are undetectable without the use of a gas or air-quality detector. MSHA is requiring approved, handheld, multi-gas detectors to enable miners to measure critical mine gases during an emergency.

MSHA received a variety of comments on this issue. One commenter stated that MSHA should immediately mandate this requirement. Multiple commenters stated that this requirement would be burdensome to comply with for each person, but thought that it would be a good idea for section crews and other groups. One commenter thought that the requirement was a good one, but was concerned about monthly calibration for that amount of equipment. This commenter also expressed concern about miners needing training to use the multi-gas detectors. Commenters suggested that a patch that changed color or some other indicator of harmful levels of carbon monoxide would be helpful.

While personal monitors or badges may assist in the decision to don an SCSR, no product of this type is

currently approved by MSHA for use in underground coal mines. A multi-gas detector is a viable alternative. MSHA-approved, multi-gas detectors can simplify measuring gasses because separate detectors for each gas would have different operating instructions and calibration procedures requiring additional burden. Generally, this requirement can be satisfied by units that are already in use in the coal mines. Existing standards require that tests be made for excess methane, oxygen deficiency, and carbon monoxide, and that a qualified person take these measurements.

MSHA received many comments on the issue of when miners should don SCSRs. Commenters stated that individuals working alone could be instructed to don an SCSR when smoke was encountered. Several commenters thought that MSHA should allow more than one way to comply with the requirement of when miners should don an SCSR. These commenters suggested that donning occur as follows: When smoke is visible; if elevated carbon monoxide is detected; if low oxygen is detected; if directed by the supervisor; or if the mine-wide Atmospheric Monitoring System, coupled with an effective communication system, advised the miner of the need to don. Commenters acknowledged the benefit of donning an SCSR at the first sign of fire, but also acknowledged the benefit of "knowing" the atmosphere to make an informed decision.

MSHA has considered these comments, and includes final § 75.1714-7 in response to them. MSHA agrees that miners should don SCSRs when any of the conditions suggested by the commenters exist or if miners experience any other emergency situation where they feel that they may need respiratory protection. A handheld, multi-gas detector that can measure methane, oxygen, and carbon monoxide will enable miners to measure critical mine gases during an emergency and increase their chances of survival. Miners in a group can warn each other and help each other if one loses consciousness. A miner working alone also needs a multi-gas detector to help determine when to don an SCSR. Without the multi-gas detector, by the time a miner working alone realizes that carbon monoxide levels are high or oxygen levels are low, the miner may be unable to don an SCSR. In fact, it is possible for the miner to lose consciousness without ever realizing that the air is irrespirable.

13. Section 75.1714-8 Reporting SCSR Inventory and Malfunctions; Retention of SCSRs

Final § 75.1714-8 addresses new reporting requirements in response to MSHA's concern that the Agency did not always learn of problems associated with SCSRs, or did not learn of them in a timely manner. In addition, often, when MSHA was able to identify a problem, MSHA had difficulty in locating affected SCSRs for recalls. This final rule includes requirements for maintaining and reporting an inventory of all SCSRs at the mine, reporting problems with SCSRs, and retaining defective SCSRs for possible investigation.

a. Inventory Requirements. In new § 75.1714-8(a), the final rule requires a mine operator to provide MSHA with a complete inventory of all SCSRs at each mine. Operators must submit the inventory within the first quarter of 2007 for existing mines and within 3 months of beginning operation for new mines. Final § 75.1714-8(a)(1) requires that the inventory include the mine name, MSHA mine identification number, mine location, and, for each SCSR, the manufacturer, the model type, the date of manufacture, and the serial number. Final § 75.1714-8(a)(2) requires the mine operator to update the inventory. The operator must report a change to MSHA within the quarter that the change occurred. This requirement keeps the database current and assists the mine operator in complying with 30 CFR § 75.1714-3. Also, consistent with other sections of this final rule, this provision specifies calendar quarters for reporting, *i.e.*, Jan-Mar, Apr-Jun, Jul-Sep, and Oct-Dec.

In the past, MSHA has discovered problems with all brands of SCSRs. Sometimes, these problems were related to specific production runs that generated unique serial numbers for the SCSRs. Sometimes, the problems affected SCSRs from one manufacturer. During past recalls, MSHA had problems locating outdated or nonworking SCSRs. MSHA inspectors had to travel to each mine to examine each SCSR to make sure all affected devices were actually removed from service. With the ETS and the MINER Act requiring a significant number of additional SCSRs, a centralized database can facilitate the identification of problem SCSRs. MSHA can then expeditiously inform the affected mine operator and ensure that these SCSRs are removed from service before miners attempt to use them in a mine emergency.

b. Reporting Problems and Malfunctions. New § 75.1714-8(b) requires mine operators to report SCSR defects, performance problems, and malfunctions to MSHA. The report must include a detailed description of the problem and the inventory data required under § 75.1714-8(a)(1). The purpose of this reporting requirement is to help assure that MSHA is notified of problems associated with SCSRs in a timely manner, thus facilitating MSHA's investigation of the problems. MSHA's past experience in dealing with malfunctioning SCSRs, or SCSR-related problems, demonstrates the Agency's need to be notified.

For example, a national recall of all SCSRs containing breathing tubes was conducted following an MSHA investigation of a problem. At that time, a miner used an SCSR that had a deteriorated breathing tube that failed to protect the miner. The miner suffered smoke inhalation and required emergency medical treatment. In an effort to determine whether it was an isolated problem, MSHA opened additional SCSRs at the mine and identified three more unusable units. This discovery resulted in the manufacturer recalling these breathing tubes and replacing them.

c. Retention of Reported SCSRs. New § 75.1714-8(c) requires the mine operator to retain the affected SCSR for 60 days after reporting a problem to MSHA. The purpose of this retention requirement is so that the affected SCSRs are available for examination and testing, as applicable. Preserving the SCSR is accomplished by placing it in an air-tight, sealed, plastic bag. After MSHA evaluates the problem SCSR, the Agency will make the results of the evaluation available.

d. Comments on New Reporting Requirements. In the ETS and hearings, MSHA requested comments on several reporting requirements:

- The appropriateness of requiring mine operators to report the total number of SCSRs (inventory) in use at each underground coal mine, semi-annually, to the MSHA District Manager;
- Requiring the inventory to include additional information for each SCSR, *i.e.*, the manufacturer, the model, the date of manufacture, and the serial number;
- Requiring the mine operator to promptly report to the MSHA District Manager, in writing, all incidents where any SCSR, required by this section or existing § 75.1714, was used for an accident or emergency; and
- The reporting of all instances where an SCSR device did not function

properly and retaining the device for 90 days.

MSHA received a number of responses on the Agency's solicitation of comment on SCSR inventory. Many commenters thought that a need existed to track SCSRs because of the way companies sold and swapped SCSR units. Many commenters supported tracking the information, but stated that, while the requirement could provide useful data, they were against sending a report to MSHA. Some commenters mentioned that they would find the inventory requirement burdensome. Some commenters pointed out that neither a citation nor fine for failure to report would necessarily improve safety or the ability [of a miner] to survive an emergency. Some commenters also added that the information should be available on an information-sharing basis only. Another commenter stated that MSHA would have to allocate more resources to investigate reports and would have to provide a more efficient reporting system, such as electronic filing on the MSHA Web site.

MSHA agrees with commenters who stated that, with the increased numbers of SCSRs in the mine, an inventory system would be useful to mine operators for tracking SCSR use and location. An inventory system would facilitate mine operator's compliance with § 75.1714-3, which requires operators to track the use, maintenance, and service life of SCSRs. Also, this inventory system would assure that problem SCSRs are removed from mines expeditiously because MSHA would inform the affected mine operators.

MSHA has determined that it is necessary to create an SCSR database that is easily searchable and up-to-date to improve miner health and safety. In implementing this provision, MSHA intends to have an interactive Web site that will permit mine operators to upload inventory information electronically. For those who may not have electronic access, MSHA will accept paper copies of the inventory. MSHA will provide compliance information to mine operators to assist in meeting this requirement.

Several commenters thought that having a bar code on SCSRs would be useful. MSHA agrees that bar codes would be helpful; however, manufacturers do not currently identify SCSRs by bar code. MSHA, therefore, does not require it at this time.

MSHA received a number of comments in response to its question about the reporting of all problems of SCSR use. Commenters pointed out that this requirement would be useful to properly evaluate each model and

manufacturer; that it might give an early warning of a defect; and that it would lead to developing essential information regarding the reliability of SCSRs and the effectiveness of miner training in using SCSRs. Some commenters thought that the best way for MSHA to obtain reliable statistics concerning the performance of SCSRs and to respond accordingly, would be to obtain the information on an ongoing and timely basis.

MSHA agrees with these commenters. The final rule requires mine operators to report SCSR defects, performance problems, and malfunctions to the Agency.

III. Derivation and Distribution Tables

This final rule combines, moves, and eliminates a number of requirements. The *Derivation Table* shows the source of the provisions in this final rule for requirements that are new or re-numbered. The *Distribution Table* shows the new location of existing requirements that were re-numbered or deleted.

TABLE 1.—DERIVATION OF REQUIREMENTS IN THIS FINAL RULE

Final rule section	ETS or existing sections
75.1502	75.1502(a) and (d).
75.1503	75.1502(b).
75.1504	75.383(b) and 75.1502(c).
75.1504(c)	NEW.
75.1505	75.383(a).
75.1714-4(d)	NEW.
75.1714-6	NEW.
75.1714-7	NEW.
75.1714-8	NEW.

TABLE 2.—DISTRIBUTION OF MOVED OR REMOVED SECTIONS OF ETS AND EXISTING STANDARDS

ETS or existing section	Final rule section
75.383(a)	75.1505.
75.383(b)	75.1504.
75.383(c)	DELETED.
75.1502(a)	75.1502.
75.1502(b)	75.1503.
75.1502(c)	75.1504.
75.1502(c)(4)	DELETED.
75.1502(d)	75.1502.

IV. Executive Order 12866

Executive Order (E.O.) 12866 (58 FR 51735) as amended by E.O. 13258 [Amending Executive Order 12866 on Regulatory Planning and Review (67 FR 9385)] requires that regulatory agencies assess both the costs and benefits of regulations. To comply with E.O. 12866,

MSHA has prepared a Regulatory Economic Analysis (REA) for the final rule. The REA contains supporting data and explanation for the summary materials presented in sections IV-VII of this preamble, including costs and benefits, feasibility, small business impacts, and paperwork. The REA is located on MSHA's Web site at <http://www.msha.gov/REGSINFO.HTM>. A printed copy of the REA can be obtained from MSHA's Office of Standards, Regulations, and Variances.

Based on the REA, MSHA has determined that the final rule will have an annual effect of \$100 million or more on the economy in the first year it is in effect. Therefore, it is an economically "significant regulatory action" pursuant to § 3, paragraph (f) of E.O. 12866.

A. Population-at-Risk

Using 2004 data, the final rule applies to the 634 underground coal mine operators employing 33,490 miners and 3,697 contractor workers who work underground in coal mines. Also, using 2004 data, the immediate notification provisions of the final rule apply to the entire mining industry, encompassing all 214,450 miners and 72,739 contractor workers who are employed in the 14,480 U.S. mines.

B. Compliance Costs

MSHA estimates that the final rule will result in total yearly costs (including those yearly costs that are associated with the March 9, 2006 ETS) for the underground mining industry of approximately \$44.1 million at a 7% discount rate and \$41.1 million at a 3% discount rate, which include the amortized value of first-year costs of about \$146.9 million.¹⁰ Of the \$44.1 million yearly costs, \$2.8 million will be incurred by mine operators with fewer than 20 employees; \$37.0 million by mine operators with 20-500 employees; and \$4.3 million by mine operators with more than 500 employees. The breakdown of the \$44.1 million yearly costs by type of provision is approximately as follows: \$13.7 million for training requirements; \$0.5 million for lifeline requirements; \$29.8 million for SCSR requirements, which includes \$0.45 million for new multi-gas detector requirements; and \$5,000 for accident notification requirements.

Compliance with certain cost provisions in the final rule will be achieved as a result of prior compliance with the March 9, 2006 ETS. When yearly costs that are associated with the

¹⁰ For the rest of this section, we report cost using only the 7% discount rate results. Please see the full REA for the disaggregated results using the 3% discount rate.

March 9, 2006 ETS are subtracted from the total yearly costs noted above, the net yearly costs of the final rule are approximately \$39.7 million, which include the amortized value of first-year costs of about \$83.0 million. Of the \$39.7 million yearly costs, \$2.6 million will be incurred by mine operators with fewer than 20 employees; \$33.3 million by mine operators with 20–500 employees; and \$3.8 million by mine operators with more than 500 employees. The breakdown of the \$39.7 million yearly costs by type of provision is approximately as follows: \$13.6 million for training requirements; \$0.4 million for lifeline requirements; \$25.8 million for SCSR requirements; and \$5,000 for accident notification requirements.

For both the total yearly cost figures and the net yearly cost figures, nearly all of the yearly costs will be borne by underground coal mine operators. A negligible amount of yearly costs (less than \$3,000), having to do with accident notification requirements in Part 50, will be borne by underground metal and nonmetal mine operators. MSHA expects that the final rule will impose no additional costs on surface coal or surface metal and nonmetal mine operators.

C. Benefits

To estimate benefits, MSHA focused only on the four accidents where it is reasonable to expect that miners' lives might have been saved by the final rule. These four accidents occurred at the Wilberg Mine in 1984; at Pyro No. 9 Slope, William Station Mine in 1989; at the Sago Mine in 2006; and at the Aracoma Alma No. 1 Mine, also in 2006. In these four accidents, there were, in total, 51 fatalities and one serious injury. One of the miners at Sago Mine died in an initial explosion and would have perished even if the final rule had been in force. Also, MSHA's investigation of the 1989 accident at Pyro No. 9 Slope, William Station Mine only provided enough evidence and testimony to establish that five of the ten fatalities could have been saved if the final rule had been in force. Whether the other five miners could have been saved by the final rule is speculative.

This leaves 45 fatalities that might have been prevented if the final rule had been in force. If this final rule had been in place at the time of these accidents, the lives of most or all of these victims could have been saved. In quantitative terms, perhaps 80 percent of miners in future accidents of like character could be saved by the final rule. Multiplying 45 by 80 percent provides an estimate

of 36 lives that could have been saved by the final rule.

January 1, 1983, is the starting point for the accident records in MSHA's electronic Teradata database. Starting at January 1, 1983, and ending on March 9, 2006, the date when the ETS was published, is a time span of 23.2 years. Since these four accidents occurred during this 23.2-year period, dividing 36 lives saved by 23.2 years yields an estimate of 1.55 lives saved per year. A similar calculation provides an estimate of 0.034 serious injuries prevented per year. The actual number of miners' lives saved by the final rule could be much larger.

V. Feasibility

MSHA has concluded that the requirements of the final rule are technologically and economically feasible.

The final rule contains accident notification provisions, which apply to all mines. These provisions clarify existing requirements. Although they expand existing notification requirements to cover more underground mine fires, they present no compliance difficulties. As such, they are technologically feasible.

The final rule also involves the purchase, installation, and maintenance of lifelines; SCSRs; and evacuation and SCSR training. These requirements, which only apply to underground coal mines, are generally not technology forcing and would not involve activities on the frontiers of scientific knowledge. Most SCSRs and lifelines are proven technologies long available in the marketplace and already installed and used in the underground coal mining industry. Several provisions involve newly developed technology in the areas of realistic training units and flame-resistant lifelines; however, MSHA has provided delayed effective dates to facilitate operator compliance with these provisions.

The yearly compliance costs of the final rule (\$44.1 million) are equal to 0.4 percent of all revenues (\$11.1 billion in 2004) for all underground coal mines. In addition, about \$3,000 of yearly compliance costs are attributable to underground metal and nonmetal mines. These yearly compliance costs are equal to well less than 0.01 percent of all revenues (approximately \$4.6 billion in 2004) for all underground metal and nonmetal mines. Insofar as the total compliance costs are below one percent of the estimated revenues for both underground coal and underground metal and nonmetal mines, MSHA concludes that the final

rule is economically feasible for these mines.

VI. Regulatory Flexibility Act (RFA) and Small Business Regulatory Enforcement Fairness Act (SBREFA)

Pursuant to the Regulatory Flexibility Act (RFA) of 1980 as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), MSHA has analyzed the impact of the final rule on small businesses. Based on that analysis, MSHA has made a determination with respect to whether or not the Agency can certify that the final rule will not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. Unless able to certify that the final rule will not have a significant economic impact on a substantial number of small entities, MSHA must develop a final regulatory flexibility analysis.

MSHA certifies that the final rule will not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. The factual basis for this certification is presented in full in Chapter V of the REA and in summary form below.

A. Definition of a Small Mine

Under the RFA, in analyzing the impact of a rule on small entities, MSHA must use the Small Business Administration (SBA) definition for a small entity or, after consultation with the SBA Office of Advocacy, establish an alternative definition for the mining industry by publishing that definition in the **Federal Register** for notice and comment. MSHA has not taken such an action and hence is required to use the SBA definition. The SBA defines a small entity in the mining industry as an establishment with 500 or fewer employees.

MSHA has also looked at the impacts of Agency rules on a subset of mines with 500 or fewer employees—those with fewer than 20 employees, which MSHA and the mining community have traditionally referred to as “small mines.” These small mines differ from larger mines not only in the number of employees, but also in economies of scale in material produced, in the type and amount of production equipment, and in supply inventory. Therefore, their costs of complying with MSHA's rules and the impact of the Agency's rules on them will also tend to be different. It is for this reason that “small mines,” as traditionally defined by MSHA as those employing fewer than 20 workers, are of special concern to MSHA.

This analysis complies with the legal requirements of the RFA for an analysis of the impacts on "small entities" while continuing MSHA's traditional definition of "small mines." MSHA concludes that it can certify that the final rule will not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. MSHA has determined that this is the case both for mines affected by this rulemaking with fewer than 20 employees and for mines affected by this rulemaking with 500 or fewer employees.

B. Factual Basis for Certification

MSHA's analysis of impacts on "small entities" begins with a "screening" analysis. The screening compares the estimated compliance costs of a rule for small entities in the sector affected by the rule to the estimated revenues for the affected sector. When estimated compliance costs are less than one percent of the estimated revenues, the Agency believes it is generally appropriate to conclude that there is no significant economic impact on a substantial number of small entities. When estimated compliance costs exceed one percent of revenues, it tends to indicate that further analysis may be warranted.

Surface coal and surface metal and nonmetal mines are covered in the final rule only by the immediate notification provisions. These provisions do not impose any costs on surface coal and surface metal and nonmetal mine operators and contractors. MSHA, therefore, concludes that the final rule will not have a significant economic impact on a substantial number of small entities in these mine sectors.

For underground coal mines, estimated 2004 production was 10,375,660 tons for mines that had fewer than 20 employees and 312,531,849 tons for mines that had 500 or fewer employees. Using the 2004 price of underground coal of \$30.36 per ton, the 2004 underground coal revenues are estimated to be approximately \$315 million for mines employing fewer than 20 employees and \$9.5 billion for mines employing 500 or fewer employees. Thus, for underground coal mines with fewer than 20 employees, the estimated yearly cost of the rule as a percentage of their yearly revenues is 0.87 percent (\$2.75 million/\$315 million). For underground coal mines with 500 or fewer employees the estimated yearly cost of the rule as a percentage of their yearly revenues is 0.42 percent (\$0.04 billion/\$9.5 billion). Using either MSHA's traditional definition of a small mine (one having

fewer than 20 employees) or SBA's definition of a small mine (one having 500 or fewer employees), the yearly costs of the final rule for underground coal mines will be less than 1 percent of their estimated yearly revenues.

With respect to underground metal and nonmetal mines, MSHA anticipates no yearly costs for mines that have fewer than 20 employees and less than \$2,000 in yearly costs, relative to revenues of \$3.7 billion in 2004, for underground metal and nonmetal mines that have 500 or fewer employees. These yearly costs of the final rule for notifying MSHA of accidents at small underground metal and nonmetal mines, therefore, will be well less than 1 percent their yearly revenues.

Whether applying MSHA's or SBA's definition of a small mine, the estimated yearly costs of the final rule will be less than 1 percent of yearly revenues and, therefore, below the level suggesting that the rule might have a significant economic impact on a substantial number of small entities. Accordingly, MSHA has certified that the final rule will not have a significant economic impact on a substantial number of small entities that are covered by the rule.

VII. Paperwork Reduction Act of 1995

A. Summary

This final rule contains information collection requirements that MSHA estimates will result in 23,920 new burden hours and approximately \$1.5 million of related burden costs to mine operators and contractors in the first year that the rule is in effect. In the second year that the rule is in effect, and for every year thereafter, MSHA estimates that mine operators and contractors will incur 20,092 burden hours and approximately \$1.1 million of related burden costs. The burden hours are different in the first year because some information collection requirements occur only in the first year that the rule is in effect, while other burden hours occur either every year beginning in the first year, or every year beginning in the second year that the rule is in effect.

The final rule contains information collection requirements in the following sections:

- § 48.3 Training plans; time of submission; where filed; information required; time for approval; method for disapproval; commencement of training; approval of instructors.
- § 50.10 Immediate notification.
- § 50.11 Investigation.
- § 75.1502 Mine emergency evacuation and firefighting program of instruction.

- § 75.1504 Mine emergency evacuation drills.
- § 75.1714-3 Self-rescue devices; inspection, testing, maintenance, repair and recordkeeping.
- § 75.1714-4 Additional self-contained self-rescuers.
- § 75.1714-5 Map locations of self-contained self-rescuers.
- § 75.1714-8 Reporting SCSR inventory and malfunctions; retention of SCSRs.

These requirements will be codified in title 30 of the Code of Federal Regulations. The final rule adds to the information collected under existing OMB information collections OMB 1219-0007, OMB 1219-0009, OMB 1219-0044, OMB 1219-0054, and OMB 1219-0073.

Although § 75.1714-3 is an existing provision and is not changed by the final rule, MSHA is including it in the burden estimates above because the use of additional SCSRs mandated by the final rule will increase the burden associated with inspection and recordkeeping requirements contained in this existing standard. Similarly, although § 50.11 is an existing provision that has not been changed by this final rule, the final rule has changed underground mine operators' reporting requirements concerning underground mine fires and entrapments, and this change results in an increase in the burden for § 50.11.

For a detailed explanation of how the burden hours and related costs were determined, see Chapter VII of the Regulatory Economic Analysis (REA) associated with this final rule. The REA is located on MSHA's Web site at <http://www.msha.gov/REGSINFO.HTM>. A print copy of the REA can be obtained from the Office of Standards, Regulations, and Variances at MSHA.

B. Procedural Details

The information collection package has been submitted to the Office of Management and Budget (OMB) for review under 44 U.S.C. § 3504, paragraph (h) of the Paperwork Reduction Act of 1995, as amended. A copy of the information collection package can be obtained from the Department of Labor by electronic mail request to king.darrin@dol.gov or by phone request to 202-693-4129.

Comments on the provisions in the information collection requirements should be sent to both the Office of Information and Regulatory Affairs of OMB and to MSHA. Comments sent to OMB should be sent to "Attention: Desk Officer for MSHA." Comments sent to MSHA should be sent to the Office of Standards, Regulations, and Variances.

Addresses for both offices can be found in the Addresses section of this preamble. The regulated community is not required to respond to any collection of information unless it displays a current valid OMB control number. MSHA will publish a notice in the **Federal Register** announcing when OMB has approved the new information collection requirements.

VIII. Other Regulatory Considerations

Under the Congressional Review Act, major rules generally cannot take effect until 60 days after the rule is published in the **Federal Register**. However, section 808(2) of the Congressional Review Act states that agencies may waive this 60-day requirement for “good cause” and establish an earlier effective date. The Department believes that the “good cause” exception to the 60-day effective date requirement for major rules in the Congressional Review Act applies to this rule, because observing this requirement would be both impractical and contrary to the public interest. The Emergency Temporary Standard (ETS), which served as the basis for this final rule, was issued to address “grave danger” to miners. The ETS lapses on December 8, 2006. If this final rule is not effective immediately, a critical void in miner safety will be created. Therefore, DOL believes that “good cause” exists for waiver of the usual 60-day effective date requirement for all “major” rules.

A. The Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531 *et seq.*) directs agencies to assess the effects of federal regulatory actions on state, local, and tribal governments, and the private sector, “other than to the extent that such regulations incorporate requirements specifically set forth in law.” For purposes of the Unfunded Mandates Reform Act, this final rule includes a Federal mandate that will increase private sector expenditures by more than \$100 million in any one year. It will not result in increased expenditures by State, local, or tribal governments; nor will it significantly or uniquely affect small governments. The Regulatory Economic Analysis provided pursuant to E.O. 12866 addresses the analytic requirements of the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 *et seq.*).

B. The Treasury and General Government Appropriations Act of 1999: Assessment of Federal Regulations and Policies on Families

This final rule will have no affect on family well-being or stability, marital commitment, parental rights or authority, or income or poverty of families and children. Accordingly, Section 654 of the Treasury and General Government Appropriations Act of 1999 (5 U.S.C. 601 note) requires no further Agency action, analysis, or assessment.

C. Executive Order 12630: Government Actions and Interference With Constitutionally Protected Property Rights

This final rule does not implement a policy with takings implications. Accordingly, E.O. 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights, requires no further Agency action or analysis.

D. Executive Order 12988: Civil Justice Reform

This final rule was written to provide a clear legal standard for affected conduct and was carefully reviewed to eliminate drafting errors and ambiguities, so as to minimize litigation and undue burden on the Federal court system. Accordingly, this final rule meets the applicable standards provided in Section 3 of E.O. 12988, Civil Justice Reform.

E. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This final rule will have no adverse impact on children. Accordingly, E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks, as amended by E.O. 13229 and 13296, requires no further Agency action or analysis.

F. Executive Order 13132: Federalism

This final rule does not have “federalism implications” because it will not “have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Accordingly, E.O. 13132, Federalism, requires no further Agency action or analysis.

G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This final rule does not have “tribal implications” because it will not “have substantial direct effects on one or more

Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.” Accordingly, E.O. 13175, Consultation and Coordination with Indian Tribal Governments, requires no further Agency action or analysis.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This final rule has been reviewed for its impact on the supply, distribution, and use of energy because it applies to the underground coal mining sector. Insofar as this final rule will result in yearly costs of approximately \$44.1 million to the underground coal mining industry, relative to annual revenues of \$11.1 billion in 2004, it is not a “significant energy action” because it is not “likely to have a significant adverse effect on the supply, distribution, or use of energy * * * (including a shortfall in supply, price increases, and increased use of foreign supplies).” Accordingly, E.O. 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, requires no further Agency action or analysis.

I. Executive Order 13272: Proper Consideration of Small Entities in Agency Rulemaking

This final rule has been thoroughly reviewed to assess and take appropriate account of its potential impact on small businesses, small governmental jurisdictions, and small organizations. MSHA has determined and certified that this final rule will not have a significant economic impact on a substantial number of small entities. Accordingly, E.O. 13272, Proper Consideration of Small Entities in Agency Rulemaking, requires no further Agency action or analysis.

List of Subjects

30 CFR Part 3

Reporting and recordkeeping requirements.

30 CFR Part 48

Education, Mine safety and health, Reporting and recordkeeping requirements.

30 CFR Part 50

Investigations, Mine safety and health, Reporting and recordkeeping requirements.

30 CFR Part 75

Communications equipment, Electric power, Emergency medical services, Explosives, Fire prevention, Mine safety and health, Reporting and recordkeeping requirements.

Dated: December 5, 2006.

Richard E. Stickler,

Assistant Secretary for Mine Safety and Health.

IX. Final Rule Text

■ For the reasons set out in the preamble and under the authority of the Mine Safety and Health Act of 1977, as amended, Chapter I of Title 30, Code of Federal Regulations, parts 3, 48, 50, and 75 are amended as follows:

PART 3—OMB CONTROL NUMBERS UNDER THE PAPERWORK REDUCTION ACT—[AMENDED]

■ 1. The authority for part 3 continues to read as follows:

Authority: 30 U.S.C. 957; 44 U.S.C. 3501–3520.

■ 2. Amend § 3.1 by adding entries for 30 CFR 75.1504, 75.1505, 75.1714–5, and 75.1714–8 into Table 1 to read as follows.

§ 3.1 OMB control numbers.

* * * * *

TABLE 1.—OMB CONTROL NUMBERS

30 CFR citation	OMB control No.
* * * * *	* * * * *
75.1504	1219–0054
75.1505	1219–0073
* * * * *	* * * * *
75.1714–5	1219–0073
75.1714–8	1219–0044
* * * * *	* * * * *

PART 48—TRAINING AND RETRAINING OF MINERS

■ 3. The authority for part 48 continues to read as follows:

Authority: 30 U.S.C. 811, 825.

■ 4. Amend § 48.3 by revising paragraph (p) to read as follows:

§ 48.3 Training plans; time of submission; where filed; information required; time for approval; method for disapproval; commencement of training; approval of instructors.

* * * * *

(p) Each underground coal operator, who is required to submit a revised program of instruction for 30 CFR

75.1502, shall also submit a revised training plan under this part 48.

■ 5. Amend § 48.5 by revising paragraphs (b)(2) and (b)(5) to read as follows and by removing paragraph (e):

§ 48.5 Training of new miners; minimum courses of instruction; hours of instruction.

* * * * *

(b) * * *

(2) *Self-rescue and respiratory devices.* The course shall be given before a new miner goes underground and shall include—

(i) Instruction and demonstration in the use, care, and maintenance of self-rescue and respiratory devices used at the mine;

(ii) Hands-on training in the complete donning of all types of self-contained self-rescue devices used at the mine, which includes assuming a donning position, opening the device, activating the device, inserting the mouthpiece, and putting on the nose clip; and

(iii) Hands-on training in transferring between all applicable self-rescue devices.

* * * * *

(5) *Mine map; escapeways; emergency evacuation; barricading.* The program of instruction for mine emergency evacuation and firefighting approved by the District Manager under 30 CFR 75.1502 or the escape and evacuation plan under 30 CFR 57.11053, as applicable, shall be used for this course. The course shall include—

(i) A review of the mine map; the escapeway system; the escape, firefighting, and emergency evacuation plans in effect at the mine; and the location of abandoned areas; and

(ii) An introduction to the methods of barricading and the locations of the barricading materials, where applicable.

* * * * *

■ 6. Amend § 48.6 by revising paragraphs (b)(5) and (b)(12) to read as follows and by removing paragraph (f):

§ 48.6 Experienced miner training.

* * * * *

(b) * * *

(5) *Mine map; escapeways; emergency evacuation; barricading.* The program of instruction for mine emergency evacuation and firefighting approved by the District Manager under 30 CFR 75.1502 or the escape and evacuation plan under 30 CFR 57.11053, as applicable, shall be used for this course. The course shall include—

(i) A review of the mine map; the escapeway system; the escape, firefighting, and emergency evacuation plans in effect at the mine; and the location of abandoned areas; and

(ii) Methods of barricading and the locations of barricading materials, where applicable.

* * * * *

(12) *Self-rescue and respiratory devices.* The course shall be given before the miner goes underground and shall include—

(i) Instruction and demonstration in the use, care, and maintenance of self-rescue and respiratory devices used at the mine;

(ii) Hands-on training in the complete donning of all types of self-contained self-rescue devices used at the mine, which includes assuming a donning position, opening the device, activating the device, inserting the mouthpiece, and putting on the nose clip; and

(iii) Hands-on training in transferring between all applicable self-rescue devices.

* * * * *

■ 7. Amend § 48.8 by revising paragraphs (b)(4) and (b)(8) to read as follows:

§ 48.8 Annual refresher training of miners; minimum courses of instruction; hours of instruction.

* * * * *

(b) * * *

(4) *Roof or ground control, ventilation, emergency evacuation and firefighting plans.* The course shall include a review of roof or ground control plans in effect at the mine and the procedures for maintaining and controlling ventilation. In addition, for underground coal mines, except for miners who receive this training under 30 CFR 75.1504, the course shall include a review of the emergency evacuation and firefighting program of instruction in effect at the mine.

* * * * *

(8) *Self-rescue and respiratory devices.* The course shall include instruction and demonstration in the use, care, and maintenance of self-rescue and respiratory devices used at the mine. In addition, except for miners who receive this training under 30 CFR 75.1504, the training for self-contained self-rescue (SCSR) devices shall include:

(i) Hands-on training in the complete donning of all types of self-contained self-rescue devices used at the mine, which includes assuming a donning position, opening the device, activating the device, inserting the mouthpiece, and putting on the nose clip; and

(ii) Hands-on training in transferring between all applicable self-rescue devices.

* * * * *

■ 8. Amend § 48.11 by revising paragraphs (a)(4)(i) and (ii) to read as follows:

§ 48.11 Hazard training.

- (a) * * *
(4) Use of self-rescue and respiratory devices, including:
(i) Hands-on training in the complete donning of all types of self-contained self-rescue devices used at the mine, which includes assuming a donning position, opening the device, activating the device, inserting the mouthpiece, and putting on the nose clip; and
(ii) Hands-on training in transferring between all applicable self-rescue devices; and
* * * * *

PART 50—NOTIFICATION, INVESTIGATION, REPORTS AND RECORDS OF ACCIDENTS, INJURIES, ILLNESSES, EMPLOYMENT, AND COAL PRODUCTION IN MINES—[AMENDED]

■ 9. The authority citation for part 50 is revised to read as follows:

Authority: 29 U.S.C. 557(a); 30 U.S.C. 811, 813(j), 951, 957, 961.

■ 10. Amend § 50.2 by revising paragraphs (h)(3) and (h)(6) to read as follows:

§ 50.2 Definitions.

- (h) * * *
(3) An entrapment of an individual for more than 30 minutes or which has a reasonable potential to cause death;
* * * * *
(6) In underground mines, an unplanned fire not extinguished within 10 minutes of discovery; in surface mines and surface areas of underground mines, an unplanned fire not extinguished within 30 minutes of discovery;
* * * * *

■ 11. Revise § 50.10 to read as follows:

§ 50.10 Immediate notification.

The operator shall immediately contact MSHA at once without delay and within 15 minutes at the toll-free number, 1-800-746-1553, once the operator knows or should know that an accident has occurred.

PART 75—MANDATORY SAFETY STANDARDS—UNDERGROUND COAL MINES—[AMENDED]

■ 12. The authority citation for part 75 continues to read as follows:

Authority: 30 U.S.C. 811.

■ 13. Amend § 75.380 by revising paragraph (d)(7) to read as follows:

§ 75.380 Escapeways; bituminous and lignite mines.

- (d) * * *
(7) Provided with a continuous, durable directional lifeline or equivalent device that shall be—
(i) Installed and maintained throughout the entire length of each escapeway as defined in paragraph (b)(1) of this section;
(ii) Flame-resistant in accordance with the requirements of part 18 of this chapter upon replacement of existing lifelines; but in no case later than June 15, 2009;
(iii) Marked with a reflective material every 25 feet;
(iv) Located in such a manner for miners to use effectively to escape;
(v) Equipped with directional indicators, signifying the route of escape, placed at intervals not exceeding 100 feet. When cones are used as directional indicators, they shall be installed so that the tapered section points inby; and
(vi) Securely attached to and marked to provide tactile feedback indicating the location of any SCSR storage locations in the escapeways.
* * * * *

■ 14. Amend § 75.381 by revising paragraph (c)(5) to read as follows:

§ 75.381 Escapeways; anthracite mines.

- (c) * * *
(5) Provided with a continuous, durable directional lifeline or equivalent device that shall be—
(i) Installed and maintained throughout the entire length of each escapeway as defined in paragraph (b) of this section;
(ii) Flame-resistant in accordance with the requirements of part 18 of this chapter upon replacement of existing lifelines; but in no case later than June 15, 2009;
(iii) Marked with a reflective material every 25 feet;
(iv) Located in such a manner for miners to use effectively to escape;
(v) Equipped with directional indicators, signifying the route of escape, placed at intervals not exceeding 100 feet. When cones are used as directional indicators, they shall be installed so that the tapered section points inby; and
(vi) Securely attached to and marked to provide tactile feedback indicating the location of any SCSR storage locations in the escapeways.
* * * * *

§ 75.383 [Removed]

■ 15. Remove § 75.383.

■ 16. Revise § 75.1502 and add §§ 75.1503, 75.1504, and 75.1505 to read as follows:

§ 75.1502 Mine emergency evacuation and firefighting program of instruction.

Each operator of an underground coal mine shall adopt and follow a mine emergency evacuation and firefighting program that instructs all miners in the proper procedures they must follow if a mine emergency occurs.

(a) Program approval. The operator shall submit this program of instruction, and any revisions, for approval to the District Manager of the Coal Mine Safety and Health district in which the mine is located. Within 30 days of approval, the operator shall conduct training in accordance with the revised program.

(b) New or revised provisions. Before implementing any new or revised approved provision in the program of instruction, the operator shall instruct miners in the change.

(c) Instruction plan. The approved program shall include a specific plan designed to instruct miners on all shifts on the following:

- (1) Procedures for—
(i) Evacuating the mine for mine emergencies that present an imminent danger to miners due to fire, explosion, or gas or water inundation;
(ii) Evacuating all miners not required for a mine emergency response; and
(iii) The rapid assembly and transportation of necessary miners, fire suppression equipment, and rescue apparatus to the scene of the mine emergency.
(2) The use, care, and maintenance of self-rescue devices, including hands-on training in the complete donning and transferring of all types of self-rescue devices used at the mine.
(3) Scenarios requiring a discussion of options and a decision as to the best option for evacuation under each of the various mine emergencies (fires, explosions, or gas or water inundations). These options shall include:
(i) Encountering conditions in the mine or circumstances that require immediate donning of self-rescue devices.
(ii) Using continuous directional lifelines or equivalent devices, tethers, and doors;
(iii) Traversing undercasts or overcasts;
(iv) Switching escapeways, as applicable; and
(v) Negotiating any other unique escapeway conditions.

(4) Location and use of the fire suppression and firefighting equipment and materials available in the mine.

(5) Location of the escapeways, exits, routes of travel to the surface, including the location of continuous directional lifelines or equivalent devices.

(6) Location, quantity, types, and use of stored SCSRs, as applicable.

(7) A review of the mine map; the escapeway system; the escape, firefighting, and emergency evacuation plans in effect at the mine; and the location of abandoned areas.

(8) A description of how miners will receive annual expectations training that includes practical experience in donning and transferring SCSRs in smoke, simulated smoke, or an equivalent environment and breathing through a realistic SCSR training unit or device that provides the sensation of SCSR airflow resistance and heat.

(d) *Instructors.* (1) The mine operator shall designate a person who has the ability, training, knowledge, or experience to conduct the mine emergency evacuation instruction and drills in his or her area of expertise.

(2) Persons conducting SCSR donning and transferring training shall be able to effectively train and evaluate whether miners can successfully don the SCSR and transfer to additional SCSR devices.

§ 75.1503 Use of fire suppression equipment.

In addition to the approved program of instruction required by 30 CFR 75.1502, each operator of an underground coal mine shall ensure the following.

(a) *Working section.* At least two miners in each working section on each production shift shall be proficient in the use of all fire suppression equipment available on such working section, and know the location of such fire suppression equipment.

(b) *Attended equipment.* Each operator of attended equipment specified in 30 CFR 75.1107-1(c)(1), and each miner assigned to perform job duties at the job site in the direct line of sight of attended equipment as described in 30 CFR 75.1107-1(c)(2), shall be proficient in the use of fire suppression devices installed on such attended equipment.

(c) *Maintenance shift.* The shift foreman and at least one miner for every five miners working underground on a maintenance shift shall be proficient in the use of fire suppression equipment available in the mine, and know the location of such fire suppression equipment.

§ 75.1504 Mine emergency evacuation training and drills.

Each operator of an underground coal mine shall conduct mine emergency evacuation training and drills and require all miners to participate.

(a) *Schedule of training and drills.* Each miner shall participate in a mine emergency evacuation training and drill once each quarter. Quarters shall be based on a calendar year (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). In addition—

(1) A newly hired miner, who has not participated in a mine emergency evacuation training and drill at the mine within the previous 3 months, shall participate in the next applicable mine emergency evacuation training and drill.

(2) Prior to assuming duties on a section or outby work location, a foreman shall travel both escapeways in their entirety.

(b) *Content of quarterly training and drill.* Each quarterly evacuation training and drill shall include the following:

(1) Hands-on training on all types of self-rescue devices used at the mine, which includes—

(i) Instruction and demonstration in the use, care, and maintenance of self-rescue devices;

(ii) The complete donning of the SCSR by assuming a donning position, opening the device, activating the device, inserting the mouthpiece, and putting on the nose clip; and

(iii) Transferring between all applicable self-rescue devices.

(2) Training that emphasizes the importance of—

(i) Recognizing when the SCSR is not functioning properly and demonstrating how to initiate and reinitiate the starting sequence;

(ii) Not removing the mouthpiece, even to communicate, until the miner reaches fresh air; and

(iii) Proper use of the SCSR by controlling breathing and physical exertion.

(3) A realistic escapeway drill that is initiated and conducted with a different approved scenario each quarter and during which each miner—

(i) Travels the primary or alternate escapeway in its entirety, alternating escapeways each quarter;

(ii) Physically locates and practices using the continuous directional lifelines or equivalent devices and tethers, and physically locates the stored SCSRs;

(iii) Traverses undercasts or overcasts and doors;

(iv) Switches escapeways, as applicable; and

(v) Negotiates any other unique escapeway conditions.

(4) A review of the mine and escapeway maps, the firefighting plan,

and the mine emergency evacuation plan in effect at the mine, which shall include:

(i) Informing miners of the locations of fire doors, check curtains, changes in the routes of travel, and plans for diverting smoke from escapeways.

(ii) Locating escapeways, exits, routes of travel to the surface, and abandoned areas.

(5) Operation of the fire suppression equipment available in the mine and the location and use of firefighting equipment and materials.

(c) *Annual expectations training.* (1) Over the course of each year, each miner shall participate in expectations training that includes donning and transferring SCSRs in smoke, simulated smoke, or an equivalent environment, and breathing through a realistic SCSR training unit that provides the sensation of SCSR airflow resistance and heat.

(2) A miner shall participate in expectations training within one quarter of being employed at the mine.

(3) The mine operator shall have a purchase order for realistic SCSR training units within 30 days of notification by MSHA that the units are available. The mine operator shall provide expectations training on breathing through a realistic SCSR training unit within 60 days of receipt of the units.

(d) *Certification of training and drills.* At the completion of each training or drill required in this section, the operator shall certify by signature and date that the training or drill was held in accordance with the requirements of this section.

(1) This certification shall include the names of the miners participating in the training or drill. For each miner, this certification shall list the content of the training or drill component completed, including the escapeway traveled and scenario used, as required in paragraphs (b) and (c) of this section.

(2) Certifications shall be kept at the mine for one year.

(3) Upon request, the certifications shall be made available to an authorized representative of the Secretary and the representative of the miners.

(4) Upon request, a copy of the certification that shows his or her own training shall be provided to the participating miner.

§ 75.1505 Escapeway maps.

(a) *Content and accessibility.* An escapeway map shall show the designated escapeways from the working sections or the miners' work stations to the surface or the exits at the bottom of the shaft or slope and shall be

posted or readily accessible for all miners—

- (1) In each working section;
- (2) In each area where mechanized mining equipment is being installed or removed; and
- (3) At a surface location of the mine where miners congregate, such as at the mine bulletin board, bathhouse, or waiting room.

(b) *Keeping maps current.* All maps shall be kept up-to-date and any change in route of travel, location of doors, or direction of airflow shall be shown on the maps by the end of the shift on which the change is made.

(c) *Informing affected miners.* Miners underground on a shift when any such change is made shall be notified immediately of the change and other affected miners shall be informed of the change before entering the underground areas of the mine.

■ 17. Amend § 75.1714 by revising paragraph (b) to read as follows:

§ 75.1714 Availability of approved self-rescue devices; instruction in use and location.

* * * * *

(b) Before any person authorized by the operator goes underground, the operator shall instruct and train such person in accordance with provisions set forth in 30 CFR part 48.

■ 18. Amend § 75.1714–2 by revising paragraphs (f) and (g)(2) to read as follows:

§ 75.1714–2 Self-rescuer devices; use and location requirements.

* * * * *

(f) If an SCSR is not carried out of the mine at the end of a miner's shift, the place of storage shall be approved by the District Manager. A sign made of reflective material with the word "SCSRs" or "SELF-RESCUERS" shall be conspicuously posted at each SCSR storage location. Direction signs made of a reflective material shall be posted leading to each storage location.

(g) * * *

(2) The one-hour canister shall be available at all times to all persons when underground in accordance with a plan submitted by the mine operator and approved by the District Manager. When the one-hour canister is placed in a storage location, a sign made of a reflective material with the word "SCSRs" or "SELF-RESCUERS" shall be conspicuously posted at each storage location. Direction signs made of a reflective material shall be posted leading to each storage location.

■ 19. Revise § 75.1714–4 to read as follows:

§ 75.1714–4 Additional self-contained self-rescuers (SCSRs).

(a) *Additional SCSRs in work places.* In addition to the requirements in §§ 75.1714, 75.1714–1, 75.1714–2, and 75.1714–3 of this part, the mine operator shall provide the following:

(1) At least one additional SCSR, which provides protection for a period of one hour or longer, for each person at a fixed underground work location.

(2) Additional SCSRs along the normal travel routes for pumpers, examiners, and other persons who do not have a fixed work location to be stored at a distance an average miner could walk in 30 minutes. The SCSR storage locations shall be determined by using one of the methods found under paragraph (c)(2) of this section.

(b) *Additional SCSRs on mantrips.* If a mantrip or mobile equipment is used to enter or exit the mine, at least one additional SCSR, which provides protection for a period of one hour or longer, shall be available for each person who uses such transportation from portal to portal.

(c) *Additional SCSRs in escapeways.* When each person underground cannot safely evacuate the mine within 30 minutes, the mine operator shall provide additional SCSRs stored in each required escapeway.

(1) Each storage location shall contain at least one SCSR, which provides protection for a period of one hour or longer, for every person who will be in by that location.

(2) Storage locations shall be spaced along each escapeway at 30-minute travel distances no greater than the distances determined by—

(i) Calculating the distance an average miner walks in 30 minutes by using the time necessary for each miner in a sample of typical miners to walk a typical length of each escapeway; or

(ii) Using the SCSR storage location spacing specified in the following table, except for escapeways with grades over 5 percent.

Average entry height	Maximum distance between SCSR storage locations (in ft.)
<40 in. (Crawl)	2,200
>40–<50 in. (Duck Walk)	3,300
>50–<65 in. (Walk Head Bent)	4,400
>65 in. (Walk Erect)	5,700

(d) *Additional SCSRs in hardened rooms.* As an alternative to providing SCSR storage locations in each escapeway, the mine operator may store SCSRs in a hardened room located between adjacent escapeways.

(1) The hardened room shall be designed and constructed to the same explosion force criteria as seals.

(2) The hardened room shall include a means to provide independent, positive pressure ventilation from the surface during an emergency.

(3) The District Manager shall approve the design and construction of hardened rooms in the ventilation plan.

(4) These SCSR storage locations shall be spaced in accordance with paragraph (c) of this section.

(e) *Storage location accessibility.* All SCSRs required under this section shall be stored according to the manufacturers' instructions, in conspicuous locations readily accessible by each person in the mine.

(f) *Storage location signs.* A sign made of reflective material with the words "SCSRs" or "SELF-RESCUERS" shall be conspicuously posted at each storage location. Direction signs made of a reflective material shall be posted leading to each storage location.

■ 20. Revise § 75.1714–5 to read as follows:

§ 75.1714–5 Map locations of self-contained self-rescuers (SCSR).

The mine operator shall indicate the locations of all stored SCSRs on the mine maps required by §§ 75.1200 and 75.1505 of this part.

■ 21. Add §§ 75.1714–6, 75.1714–7, and 75.1714–8 to read as follows:

§ 75.1714–6 Emergency tethers.

At least one tether, which is a durable rope or equivalent material designed to permit members of a mine crew to link together while evacuating the mine during an emergency, shall be provided and stored with the additional SCSRs on the fixed work location and on the mobile equipment required in §§ 75.1714–4(a)(1) and (b) of this part.

§ 75.1714–7 Multi-gas detectors.

(a) *Availability.* A mine operator shall provide an MSHA-approved, handheld, multi-gas detector that can measure methane, oxygen, and carbon monoxide to each group of underground miners and to each person who works alone, such as pumpers, examiners, and outby miners.

(b) *Qualified person.* At least one person in each group of underground miners shall be a qualified person under § 75.150 of this part and each person who works alone shall be trained to use the multi-gas detector.

(c) *Maintenance and calibration.* Multi-gas detectors shall be maintained and calibrated as specified in § 75.320 of this part.

§ 75.1714-8 Reporting SCSR inventory and malfunctions; retention of SCSRs.

(a) *SCSR inventory.* A mine operator shall submit to MSHA a complete inventory of all SCSRs at each mine. New mines shall submit the inventory within 3 months of beginning operation.

(1) The inventory shall include—

(i) Mine name, MSHA mine ID number, and mine location; and

(ii) For each SCSR unit, the manufacturer, the model type, the date of manufacture, and the serial number.

(2) In the event that a change in the inventory occurs, a mine operator shall report the change to MSHA within the quarter that the change occurs (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec).

(b) *Reporting SCSR problems.* A mine operator shall report to MSHA any defect, performance problem, or malfunction with the use of an SCSR.

The report shall include a detailed description of the problem and, for each SCSR involved, the information required by paragraph (a)(1) of this section.

(c) *Retention of problem SCSRs.* The mine operator shall preserve and retain each SCSR reported under paragraph (b) of this section for 60 days after reporting the problem to MSHA.

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