

**PART 75—[AMENDED]**

6. The authority for part 75 continues to read as follows:

**Authority:** 30 U.S.C. 811.

7. Amend § 75.1501 by revising paragraph (a) to read as follows:

**§ 75.1501 Emergency evacuations.**

(a) For each shift that miners work underground, there shall be in attendance a responsible person designated by the mine operator to take charge during mine emergencies involving a fire, explosion or gas or water inundations.

(1) The responsible person shall have current knowledge of the assigned location and expected movements of miners underground, the operation of the mine ventilation system, the location of the mine escapeways, the mine communications system, any mine monitoring system if used, locations of firefighting equipment, the mine's Emergency Response Plan, the Mine Rescue Notification Plan, and the Mine Emergency Evacuation and Firefighting Program of Instruction.

(2) The responsible person shall be trained annually in mine emergency response. Training shall include knowledge in the following:

- (i) Organizing a command center;
- (ii) Directing firefighting personnel;
- (iii) Deploying firefighting equipment;
- (iv) Directing mine rescue personnel;
- (v) Establishing fresh air base;
- (vi) Deploying mine rescue teams;
- (vii) Providing for mine gas sampling and analysis;
- (viii) Establishing security;
- (ix) Initiating an emergency mine evacuation;
- (x) Contacting emergency personnel; and
- (xi) Communicating appropriate information related to the emergency.

(3) The operator shall certify by signature and date after each responsible person has completed the training and keep the certification at the mine for 1 year.

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**DEPARTMENT OF LABOR**

**Mine Safety and Health Administration**

**30 CFR Part 49**

**RIN 1219-AB56**

**Mine Rescue Team Equipment**

**AGENCY:** Mine Safety and Health Administration (MSHA), Labor.

**ACTION:** Proposed rule; notice of public hearings; close of comment period.

**SUMMARY:** This proposed rule would amend MSHA's existing standard addressing mine rescue team equipment at mine rescue stations serving underground coal and metal and nonmetal mines. MSHA proposes to amend the existing standard to reflect advances in mine rescue team equipment technology. The proposed amendments would increase safety and improve effectiveness of mine rescue teams.

**DATES:** All comments must be sent on or before November 9, 2007. MSHA will hold four public hearings on October 23, October 25, October 30, and November 1, 2007. Details about the public hearings are in the **SUPPLEMENTARY INFORMATION** section of this document.

**ADDRESSES:** Comments must be clearly identified with "RIN 1219-AB56" and may be sent to MSHA by any of the following methods:

(1) *Federal e-Rulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

(2) *Electronic mail:* [zzMSHA-comments@dol.gov](mailto:zzMSHA-comments@dol.gov). Include "RIN 1219-AB56" in the subject line of the message.

(3) *Facsimile:* 202-693-9441. Include "RIN 1219-AB56" in the subject line of the message.

(4) *Regular Mail:* MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209-3939.

(5) *Hand Delivery or Courier:* MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia. Stop at the 21st floor to sign in at the

receptionist's desk and wait for an escort.

*Information Collection Requirements:* This proposed rule would not require any additional paperwork or information collection.

*Docket:* Comments can be accessed electronically at <http://www.msha.gov> under the *Rules and Regs* link. MSHA will post all comments on the Internet without change, including any personal information provided. Comments may also be reviewed at the Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia. Stop at the 21st floor to sign in at the receptionist's desk and wait for an escort.

*Mailing List:* MSHA maintains a list that enables subscribers to receive e-mail notification when rulemaking documents are published in the **Federal Register**. To subscribe, go to <http://www.msha.gov> under the *Mailing List* link.

**FOR FURTHER INFORMATION CONTACT:** Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA, at [silvey.patricia@dol.gov](mailto:silvey.patricia@dol.gov) (internet e-mail), 202-693-9440 (voice), or 202-693-9441 (facsimile).

**SUPPLEMENTARY INFORMATION:**

**I. Introduction**

The existing standards for mine rescue teams contained in 30 CFR part 49 apply to all underground mines. Part 49 contains requirements addressing three essential elements of effective mine rescue teams: (1) Ready availability; (2) proper equipment at mine rescue stations; and (3) basic levels of skills and training. This proposed rule would revise and update MSHA's existing standard in 30 CFR part 49 for mine rescue team equipment. It is critical that mine rescue team members be provided with the latest in protective equipment so they can safely and effectively carry out their mission.

*Public Hearings*

MSHA will hold four public hearings concerning the proposed rule. The hearings will begin at 2 p.m. and will be held as follows:

Date	Location	Contact
October 23, 2007, 2 p.m. to 6 p.m. ....	Little America Hotel, 500 South Main Street, Salt Lake City, UT 84101 .....	801-596-5700
October 25, 2007, 2 p.m. to 6 p.m. ....	Four Points by Sheraton Lexington, 1938 Stanton Way, Lexington, KY 40511 .....	859-259-1311
October 30, 2007, 2 p.m. to 6 p.m. ....	Charleston Civic Center, West Virginia Room 105, 200 Civic Center Drive, Charleston, WV 25301.	304-345-1500
November 1, 2007, 2 p.m. to 6 p.m. ....	Sheraton Birmingham Hotel, 2101 Richard Arrington Boulevard, North, Birmingham, AL 35203.	205-324-5000

MSHA has scheduled these hearings so that interested parties can also attend the public hearings on the Agency's mine rescue team proposed rule for underground coal mines, which will be held in the morning on the same dates and in the same locations.

The hearings will begin with an opening statement from MSHA, followed by an opportunity for members of the public to make oral presentations to the hearing panel. Requests to speak at a hearing should be made at least 5 days prior to the hearing date. Requests to speak may be made by telephone (202-693-9440), facsimile (202-693-9441), or mail (MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209-3939). Any unallocated time at the end of each hearing will be made available to persons making same-day requests to speak.

The presiding official may limit presentations and exclude irrelevant or unduly repetitious material and questions to ensure the orderly progress of the hearings. The hearing panelists may ask questions of speakers. Speakers and other attendees may present written information to the MSHA panel for inclusion in the rulemaking record. MSHA will accept post-hearing written comments and data for the record from any interested party, including those not presenting oral statements, until the close of the comment period on November 9, 2007.

The hearings will be conducted in an informal manner. Formal rules of evidence and cross examination will not apply. MSHA will make transcripts of the hearings, post them on MSHA's Web site at <http://www.msha.gov>, and include them in the rulemaking record.

## II. Statutory and Rulemaking Background

Historically, most coal and metal and nonmetal (M/NM) mine disasters have occurred as the result of underground fires or explosions. Mine rescue teams often place themselves in danger to save miners injured or trapped underground as the result of these events. As teams explore the affected mine, they may encounter fires, ground falls, explosions, and inadequate or no ventilation. During rescue and recovery activities, team members may have to re-establish ventilation controls, install or repair ground support, or extinguish fires to rescue trapped or injured miners. Mine rescue team members must be well trained and provided with technologically up-to-date equipment so they can safely and effectively perform mine rescue and recovery activities.

In accordance with section 115(e) of the Federal Mine Safety and Health Act of 1977 (Mine Act), MSHA issued standards in 30 CFR part 49 for mine rescue teams at underground coal and M/NM mines (45 FR 47002; July 11, 1980). This proposed rule would update the mine rescue team equipment standard for M/NM and coal mine rescue teams. These proposed changes would increase safety and improve the effectiveness of mine rescue teams in responding to mine emergencies.

## III. Background

Past disasters in underground M/NM and coal mines have occurred primarily due to fires or explosions, which caused mine rescue teams or trapped miners to encounter high concentrations of toxic gases or oxygen-deficient atmospheres, among other hazards. Typically, these emergencies cause methane and carbon monoxide concentrations to become elevated and oxygen levels to be depleted.

### A. Hazardous Gaseous Conditions in Underground Mines

#### 1. Methane

Methane is a colorless and odorless gas. Methane mixtures measuring between 5 percent and 15 percent in air are explosive. A flammable mixture of methane and air can be ignited by electric arcs and sparks, open flames, or friction between the cutting bits of mining equipment and rock. Methane gas can produce suffocation by reducing the concentration of oxygen in the atmosphere. Methane gas can be found in certain M/NM mines that extract and process trona, salt, or petroleum, and in underground coal mines.

Underground M/NM mines classified in accordance with § 57.22003 as I-A, II-A, III, and V-A are capable of producing methane gas in explosive concentrations and are commonly referred to as "gassy" mines. Underground M/NM mines classified under § 57.22003 as I-B, I-C, II-B, IV, V-B, and VI are commonly referred to as "non-gassy" mines.

Currently, eight underground M/NM mines, classified under § 57.22003 as II-A, III, and V-A, are "gassy" mines. There are no active underground M/NM mines currently classified as I-A. Existing regulations in 30 CFR part 57 subpart T for these four categories of M/NM "gassy" mines require underground equipment to be approved, examinations for methane to be conducted at specified intervals, and the use of MSHA-approved monitoring or remote sensing devices.

Generally, underground coal mines produce high concentrations of methane. Existing regulations in 30 CFR part 75 for underground coal mines require underground equipment to be approved, examinations for methane to be conducted at specified intervals, and the use of MSHA-approved monitoring or remote sensing devices.

#### 2. Carbon Monoxide

Carbon monoxide is a toxic, colorless, and odorless gas. Fires and explosions typically produce high concentrations of carbon monoxide. Exposure to moderate concentrations of carbon monoxide can result in angina, impaired vision, reduced brain function, disorientation, severe headaches, dizziness, or faintness. Exposure to high concentrations of carbon monoxide can be fatal. Effects of carbon monoxide exposure vary greatly from person to person depending on age and overall health, as well as the gas concentration and length of exposure. Existing M/NM and coal standards require that personal exposures to carbon monoxide not exceed a time-weighted average of 50 parts per million (ppm) over an 8-hour workday.

#### 3. Oxygen Deficiency

Oxygen deficient atmospheres can be fatal, depending on the concentration. Oxygen depletion requires two factors to produce a hazardous condition—oxidation to consume oxygen from the surrounding air, such as occurs during a fire or explosion, and an inadequate supply of incoming fresh air to replace oxygen that has been consumed. Oxygen deficiency can also occur when it is displaced by another gas, such as methane. Noticeable symptoms, such as faster and deeper breathing, dizziness, rapid heart beat, and headache occur when air contains about 15 percent oxygen or less. Unconsciousness and death may occur when less than 11 percent oxygen is present. Existing MSHA standards require that at least 19.5 percent oxygen by volume be maintained in all underground work and travel areas.

### B. Single and Multi-Gas Detectors

Some single and multi-gas detectors currently in mine rescue stations serving underground coal and M/NM mines cannot measure methane concentrations above 5 percent of volume, its lower explosive limit (LEL), or fail when exposed to methane concentrations exceeding the LEL. Other detectors cannot measure high concentrations of carbon monoxide. A gas detector that does not or cannot function in the high toxic gas

concentrations that are typically found in underground M/NM or coal mines after an explosion or fire would leave a mine rescue team without a means to measure gas concentrations and make informed decisions while working in a hazardous environment.

Recent accidents in underground coal mines highlight the need for mine rescue teams to be equipped with gas detectors capable of measuring elevated concentrations of hazardous gases, particularly methane and carbon monoxide, during rescue and recovery activities. For example, elevated concentrations of methane, which exceeded the LEL of methane, were found after explosions at the Willow Creek mine in June 2000 and the Jim Walters No. 5 mine in September 2001. Fifteen miners died as the result of those accidents. In addition, high concentrations of carbon monoxide exceeding the measurement capability of "low range" detectors were found during initial exploration activities by mine rescue teams at the Aracoma Alma No. 1 fire in January 2006, which resulted in the death of two miners. These high concentrations of carbon monoxide are also likely during and following uncontrolled fires at M/NM mines.

Multi-gas detectors are instruments that contain from two to four sensor heads. Depending on the type and model selected, different sensors can be chosen to measure specific gases and concentration ranges, based on specific mining conditions. Single-gas and multi-gas detectors are readily available to measure methane concentrations to 100 percent of volume, oxygen to at least 20 percent of volume, and carbon monoxide to at least 10,000 ppm.

MSHA approves gas detectors as intrinsically safe for use in underground coal and "gassy" M/NM mines. MSHA-approved, handheld, single and multi-gas detectors are currently available from a variety of manufacturers.

#### IV. Section-by-Section Analysis

MSHA's existing standards require mine rescue stations for underground mines to stock enough equipment for two mine rescue teams and supplies to maintain this equipment. This mine rescue team equipment proposed rule would—

- Upgrade requirements for self-contained breathing apparatus (SCBA) at coal and M/NM mine rescue stations;
- Increase the required number of oxygen bottles;
- Increase the amount of liquid air, liquid oxygen, pressurized oxygen, or oxygen generating chemicals, and carbon dioxide absorbent chemicals to

maintain SCBAs for a longer period of time;

- Require mine rescue stations to be equipped with four gas detectors appropriate for each gas which may be encountered at the mines served and measure specified gases at specified concentrations;

- Delete requirements for certain equipment due to advances in gas detector technology;

- Make non-substantive amendments to clarify existing standards; and

- Make organizational changes to provide separate standards for M/NM mines and coal mines.

MSHA requests comment on whether an oxygen resuscitator should be provided at the mine rescue station for use by the mine rescue team. In the past, mine rescue teams have relied on SCSRs or SCBAs to revive or help survivors breathe during rescue operations following mine fires or explosions. Use of SCSRs as resuscitators requires the patient to breathe into the SCSR. This process has been shown to be inefficient and may require multiple SCSRs. The other alternative currently available to mine rescue teams is to use a spare mine rescue SCBA, which weighs over 30 pounds. Lightweight oxygen resuscitators, weighing about 6 pounds with the oxygen bottle, are now available through at least one manufacturer.

MSHA requests comment on all of the equipment changes in this proposed rule.

#### A. Section 49.6 Equipment and Maintenance Requirements for Metal and Nonmetal Mine Rescue Stations

##### 1. Section 49.6(a)(1)

MSHA is proposing to amend existing § 49.6(a)(1) to require mine rescue stations to be equipped with 4-hour self-contained breathing apparatus (SCBA), rather than 2-hour SCBAs. MSHA would also change the phrase "self-contained oxygen breathing apparatus" to "self-contained breathing apparatus," so the revised language would be consistent with terminology currently used in the mining industry.

Existing § 49.6(a)(1) requires that mine rescue stations be provided with 12 self-contained oxygen breathing apparatus (SCBA), each with a minimum 2-hour capacity, and associated testing equipment. The existing standard also requires that the apparatus be approved by MSHA and the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR part 84 subpart H. Approved 1- and 2-hour SCBAs were used for mine rescue activities in 1980 when MSHA

promulgated the mine rescue standards in 30 CFR part 49.

MSHA recently conducted a survey of SCBAs located at M/NM mine rescue stations. The Agency determined that all stations are already equipped with MSHA and NIOSH approved 4-hour SCBAs. There are currently no 2-hour SCBAs manufactured for mine rescue applications, which use oxygen, and which are approved by MSHA and NIOSH under 42 CFR part 84 subpart H. MSHA concludes, therefore, that there would be no cost associated with this provision.

This revision updates the rule to reflect current industry practice. Mine rescue teams equipped with 4-hour SCBAs can spend double the amount of time underground engaged in rescue and recovery activities. The higher capacity SCBAs raise team effectiveness and assist in locating injured or trapped miners more quickly, detecting and extinguishing mine or equipment fires, finding and repairing ventilation impairments or stoppages, and determining the location and extent of hazardous mine damage, such as roof falls. The 4-hour SCBAs allow fewer team rotations so team members get more rest before they have to reenter a mine to continue rescue or recovery activities.

##### 2. Section 49.6(a)(2)

MSHA is proposing to amend existing § 49.6(a)(2) to require that supplies of liquid air, liquid oxygen, pressurized oxygen, or oxygen generating chemicals, and carbon dioxide absorbent chemicals be maintained at M/NM mine rescue stations sufficient to sustain each team for 8 hours during rescue operations. Existing § 49.6(a)(2) requires mine rescue stations to be provided with sufficient supplies to sustain each team for 6 hours during rescue operations.

MSHA believes that these supplies should be increased from 6 hours to 8 hours. The 2-hour increase in supplies would assure that mine rescue stations would be equipped with sufficient reserves of critical SCBA components for two complete replenishments of discharged SCBAs. An additional 2-hour supply would increase the safety and effectiveness of the mine rescue team and would be consistent with the requirement for 4-hour SCBAs.

Because the industry practice is to stock these supplies in bulk, MSHA estimates that there are no costs associated with this requirement. MSHA requests comment on this estimate.

##### 3. Section 49.6(a)(3)

MSHA is proposing to amend existing § 49.6(a)(3) to require M/NM mine

rescue stations to be equipped with two extra, fully-charged oxygen bottles for every six SCBA at the station. The existing standard requires one extra, fully-charged oxygen bottle for every six SCBAs.

MSHA believes that two extra oxygen bottles for every six SCBAs would assure an adequate reserve of a critical component for mine rescue teams during time-sensitive rescue or recovery operations. An additional reserve supply of oxygen would also enhance the team's safety during an emergency.

#### 4. Section 49.6(a)(4) and (a)(5)

The proposed rule would make no changes to existing § 49.6(a)(4) and (a)(5) for M/NM mines.

#### 5. Section 49.6(a)(6)

MSHA is proposing to amend existing § 49.6(a)(6) to require mine rescue stations serving underground M/NM mines to have four gas detectors appropriate for each gas which may be encountered at the mines served. For methane, carbon monoxide, and oxygen deficiency, the proposal would require that the gas detectors must be able to measure methane concentrations from 0 percent to 100 percent of volume, oxygen from 0 percent to at least 20 percent of volume, and carbon monoxide from 0 ppm to at least 10,000 ppm.

Existing § 49.6(a)(6) requires mine rescue stations to be provided with two gas detectors appropriate for each gas which may be encountered at the mines served. The existing rule does not specify the type of detector or gases to be detected, leaving this decision to the discretion of mine operators, based on specific conditions that might be encountered in an emergency. The existing rule also does not require selected detectors to measure a specific concentration of any gas. On more than one occasion, not having the equipment to measure high concentrations of one or more critical gases has hindered the collection of vital information. Mine rescue team members have had to delay entering the mine until equipment was located to measure the gases' concentrations and the team was able to evaluate the danger.

It has been MSHA's experience that the number of gas detectors used in an underground emergency can vary depending on the needs of the individual mine rescue teams and conditions present at the mine. Mine rescue stations are typically equipped with two gas detectors for each gas that may be encountered at the mines served. Team safety and effectiveness would be better assured, however, if

mine rescue stations were equipped with four gas detectors, two per mine rescue team, for each gas that may be encountered at the mines served so each team would be equipped with a backup device. Re-charging gas detectors and checking their calibration between rotations can delay rescue or recovery activities.

Mine rescue teams serving M/NM mines generally would need gas detectors capable of measuring oxygen and carbon monoxide. A handheld, multi-gas detector would enable mine rescue teams to accurately and simultaneously measure the concentrations of relevant mine gases, such as carbon monoxide, methane, and oxygen, which would increase trapped miners' chance of survival in time-sensitive emergency situations. Real-time information regarding hazardous gas concentrations allows affected team members to make better informed and more timely decisions regarding when to don protective equipment, and enter or exit a mine.

#### 6. Section 49.6(a)(7)

Existing section 49.6(a)(7) requires M/NM mine rescue stations to be provided with two oxygen indicators or flame safety lamps. In September 1998, MSHA deleted its approval regulations for flame safety lamps. MSHA had not received a new approval application for a flame safety lamp for 40 years prior to that time. Advances in technology have resulted in oxygen and methane detectors that are more accurate and reliable than flame safety lamps or oxygen indicators. As a result, methane and oxygen gas detectors have replaced flame safety lamps and oxygen indicators as the preferred instruments for detecting these gases in mines. Further, gas detectors can measure over a wider concentration range and more accurately than flame safety lamps and oxygen indicators. This proposal would remove and reserve existing § 49.6(a)(7) because the equipment required by this provision has been replaced by technologically advanced devices.

While flame safety lamps or other suitable devices can be used to satisfy the requirements of § 57.8527 in all underground M/NM mines, existing § 57.22227 does not permit flame safety lamps to be used as the primary device to test for methane in gassy M/NM mines.

#### 7. Section 49.6(a)(8)

MSHA is proposing organizational changes to existing § 49.6(a)(8), which requires that mine rescue team equipment include a communication system. The proposed rule would re-

number the existing provisions, but would make no changes to the substantive requirements.

#### 8. Section 49.6(a)(9)

The proposed rule would make no changes to existing § 49.6(a)(9) for M/NM mines.

#### 9. Section 49.6(b)

MSHA is proposing organizational changes to existing § 49.6(b), which requires that mine rescue team equipment be maintained in a manner that will ensure readiness for immediate use. The proposed rule would re-number the existing provisions, but would make no changes to the substantive requirements.

#### *B. Section 49.16 Equipment and Maintenance Requirements for Coal Mine Rescue Stations*

MSHA is proposing to add § 49.16 for underground coal mine rescue team equipment and maintenance requirements. The provisions are based on existing § 49.6.

#### 1. Section 49.16(a)

Proposed § 49.16(a), which is derived from existing § 49.6(a), would require each mine rescue station to be provided with certain equipment. It would also allow mine rescue stations serving certain underground anthracite coal mines to have the type and amount of equipment that would be appropriate for the number of their mine rescue team members. This option allows mine rescue stations associated with mine rescue teams having a reduced number of members to maintain fewer SCBAs, cap lamps, and chargers than required under §§ 49.16(a)(1) and (a)(5) for other coal mine rescue stations.

As a result of petitions for modification granted under section 101(c) of the Mine Act, mine rescue teams for underground anthracite coal mines, having no electrical equipment at the face or working section, are composed of three members with one alternate to serve both teams. Given these smaller teams, anthracite operators submitted petitions for modification requesting that their mine rescue stations be allowed to maintain eight SCBAs, eight cap lamps, and a charging station, rather than 12 of each as required by existing §§ 49.6(a)(1) and (a)(5). Because of the existing petitions for modification, MSHA concludes that there would be no cost savings associated with this provision.

MSHA investigated each petition and made the following finding:

MSHA's investigation found that reducing the quantity of equipment required to be

purchased and maintained at the anthracite mine rescue station to a quantity consistent with the requirements of granted modifications currently in effect, which allow anthracite mines to be covered by two mine rescue teams of three members each and an alternate, will provide the same measure of protection to the miners.

On the basis of those investigations, MSHA granted these petitions for modification of §§ 49.6(a)(1) and (a)(5). Currently, 11 underground anthracite coal mines operate under this approved alternative method. The reduced number of SCBAs and cap lamps would provide sufficient equipment for teams serving these anthracite coal mines.

#### 2. Section 49.16(a)(1)

Proposed § 49.16(a)(1), which is derived from existing § 49.6(a)(1), would require that mine rescue stations serving underground coal mines be equipped with 12 SCBAs, each with a minimum 4-hour capacity, and associated testing equipment. The proposed standard would require that the apparatus be approved by MSHA and NIOSH under 42 CFR part 84 subpart H. MSHA would also change the phrase “self-contained oxygen breathing apparatus” to “self-contained breathing apparatus,” so the revised language would be consistent with terminology currently used in the mining industry.

MSHA recently conducted a survey of SCBAs at coal mine rescue stations. The Agency determined that all rescue stations are already equipped with MSHA and NIOSH approved 4-hour SCBAs. There are currently no 2-hour SCBAs manufactured for mine rescue applications, which use oxygen, and which are approved by MSHA and NIOSH under 42 CFR part 84 subpart H. MSHA concludes, therefore, that there would be no cost associated with this provision.

This revision updates the rule to reflect current industry practice. Mine rescue teams equipped with 4-hour SCBAs can spend double the amount of time underground engaged in rescue and recovery activities. The higher capacity SCBAs raise team effectiveness and assist in locating injured or trapped miners more quickly, detecting and extinguishing mine or equipment fires, finding and repairing ventilation impairments or stoppages, and determining the location and extent of hazardous mine damage, such as roof falls or collapsed seals. The 4-hour SCBAs allow fewer team rotations so team members get more rest before they have to reenter a mine to continue rescue or recovery activities.

#### 3. Section 49.16(a)(2)

Proposed § 49.16(a)(2), which is derived from existing § 49.6(a)(2), would require coal mine rescue stations to maintain supplies of liquid air, liquid oxygen, pressurized oxygen, or oxygen generating chemicals, and carbon dioxide absorbent chemicals at coal mine rescue stations sufficient to sustain each team for 8-hours during rescue operations. Existing § 49.6(a)(2) requires mine rescue stations to be provided with sufficient supplies to sustain each team for 6 hours during rescue operations.

MSHA believes that these supplies should be increased from 6 hours to 8 hours because rescue and recovery operations are time sensitive. The 2-hour increase in supplies would assure that mine rescue stations would be equipped with sufficient reserves of critical SCBA components for two complete replenishments of discharged SCBAs. An additional 2-hour supply would increase the safety and effectiveness of the mine rescue team and would be consistent with the requirement for 4-hour SCBAs.

Because the industry practice is to stock these supplies in bulk, MSHA estimates that there are no costs associated with this requirement. MSHA requests comment on this estimate.

#### 4. Section 49.16(a)(3)

Proposed § 49.16(a)(3), which is derived from existing § 49.6(a)(3), would require coal mine rescue stations to be equipped with two extra, fully-charged, oxygen bottles for every six SCBA at the station. The existing standard requires one extra, fully-charged, oxygen bottle for every six SCBAs.

MSHA believes that two extra oxygen bottles for every six SCBAs would assure an adequate reserve of a critical component for mine rescue teams during time-sensitive rescue or recovery operations. An additional reserve supply of oxygen would also enhance team safety in these critical emergency situations. The costs associated with this provision are discussed later in the Preliminary Regulatory Economic Analysis section of this preamble.

#### 5. Section 49.16(a)(4)

Proposed § 49.16(a)(4), which is derived from existing § 49.6(a)(4), would make no change from the existing standard.

#### 6. Section 49.16(a)(5)

Proposed § 49.16(a)(5), which is derived from existing § 49.6(a)(5), would make no change from the existing standard.

#### 7. Section 49.16(a)(6)

Proposed § 49.16(a)(6), which is derived from existing § 49.6(a)(6), would require mine rescue stations serving underground coal mines to be equipped with four gas detectors appropriate for each gas which may be encountered at the mines served. For methane, carbon monoxide, and oxygen deficiency, the proposal would specify that the gas detectors must be able to measure methane concentrations from 0 percent to 100 percent of volume, oxygen from 0 percent to at least 20 percent of volume, and carbon monoxide from 0 ppm to at least 10,000 ppm.

Existing § 49.6(a)(6) requires mine rescue stations to be provided with two gas detectors appropriate for each gas which may be encountered at the mines served. The existing rule does not specify the type of detector or gases to be detected, leaving this decision to the discretion of mine operators. The existing rule also does not require selected detectors to measure a specific concentration of any gas. On more than one occasion, not having the equipment to measure high concentrations of one or more critical gases has hindered the collection of vital information. Mine rescue team members have had to delay entering the mine until equipment was located to measure the gases' concentrations and the team was able to evaluate the danger.

It has been MSHA's experience that the number of gas detectors used in an underground emergency can vary depending on the needs of the individual mine rescue teams and conditions present at the mine. Mine rescue stations are typically equipped with two gas detectors. Based on MSHA's experience, elevated concentrations of hazardous gases such as high concentrations of methane and carbon monoxide are generally found in underground coal mines, especially following a fire or explosion. Team safety and efficiency would be better assured, however, if mine rescue stations were equipped with four gas detectors, two per mine rescue team, for each gas that may be encountered at the mines served so each team would be equipped with a backup device. Recharging gas detectors and checking their calibration between rotations can delay rescue or recovery activities.

Mine rescue teams serving coal mines generally would need gas detectors capable of measuring oxygen, methane, and carbon monoxide. Multi-gas detectors, which are capable of measuring higher concentrations of methane and carbon monoxide, and lower concentrations of oxygen, would

provide greater protection to rescue team members.

An approved, handheld, multi-gas detector would enable mine rescue teams to accurately and simultaneously measure the relevant concentrations of critical mine gases, such as carbon monoxide, methane, and oxygen, which would increase their chance of survival in time-sensitive emergency situations. Up-to-date information regarding hazardous gas concentrations allows affected team members to make better informed and more timely decisions regarding when to don protective equipment, and enter or exit a mine. Costs associated with this requirement are discussed later in the Preliminary Economic Analysis section of this preamble.

#### 8. Section 49.16(a)(7)

The proposed rule would reserve § 49.16(a)(7) because the proposed rule would remove the existing provision.

#### 9. Section 49.16(a)(8)

Proposed § 49.16(a)(8), which is derived from existing § 49.6(a)(8), would require that mine rescue team equipment include a communication system. The proposed rule would re-number the existing provisions, but would make no substantive changes to the existing requirements.

#### 10. Section 49.16(a)(9)

Proposed § 49.16(a)(9), which is derived from existing § 49.6(a)(9), would make no change to the existing standard.

#### 11. Section 49.16(b)

Proposed § 49.16(b), which is derived from existing § 49.6(b), would require that mine rescue team equipment be maintained in a manner that will ensure readiness for immediate use. The proposed rule would re-number the existing provisions, but would make no changes to the substantive requirements.

### V. Preliminary Regulatory Economic Analysis

#### A. 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. E.O. 12866 classifies a rule as a significant regulatory action requiring review by the Office of Management and Budget if it has an annual effect on the economy of \$100 million or more; creates a serious inconsistency or interferes with an

action of another agency; materially alters the budgetary impact of entitlements or the rights of entitlement recipients; or raises novel legal or policy issues. MSHA has determined that the proposed rule would not have an annual effect of \$100 million or more on the economy and that, therefore, it is not an economically "significant regulatory action" pursuant to section 3(f) of E.O. 12866. MSHA, however, has concluded that the proposed rule is "otherwise significant" under E.O. 12866 because it raises novel legal or policy issues.

#### B. Population-at-Risk

The proposed rule would apply to 653 underground coal mines and 240 underground M/NM mines, using 2006 data. It would cover 42,597 coal miners, 14,323 M/NM miners, and 13,940 coal and M/NM (non-office) contractors working in these mines.

#### C. Compliance Costs

MSHA estimates that the total yearly cost of the proposed rule would be \$426,464. Of that total, an estimated \$57,630 would be attributable to State and local governments that maintain mine rescue stations. The remaining \$368,834 would be attributable to mine operators as follows: \$237,437 for coal operator-owned mine rescue stations and \$131,397 for M/NM operator-owned mine rescue stations. The derivation of these cost estimates is described below.

Proposed § 49.16(a) would allow mine rescue stations serving certain underground anthracite coal mines to have the type and amount of equipment that would be appropriate for the number of their mine rescue team members. This option allows mine rescue stations associated with mine rescue teams having a reduced number of members to maintain fewer SCBAs, cap lamps, and chargers than required under §§ 49.16(a)(1) and (a)(5) for other coal mine rescue stations. Because existing petitions for modification include this reduced equipment, MSHA estimates that there would be no cost savings associated with this provision.

Proposed §§ 49.6(a)(1) and 49.16(a)(1) would require that mine rescue stations serving underground M/NM and coal mines, respectively, be equipped with 12 SCBAs, each with a minimum 4-hour capacity, and associated testing equipment. Because MSHA has determined that all mine rescue stations serving M/NM and coal mines are already equipped with MSHA and NIOSH approved 4-hour SCBAs, the Agency estimates that there would be no cost associated with this requirement.

Proposed §§ 49.6(a)(2) and 49.16(a)(2) would require mine rescue stations

serving either underground coal or underground M/NM mines to increase their supply of liquid air, liquid oxygen, pressurized oxygen, or oxygen generating chemicals, and carbon dioxide absorbent chemicals from 6 hours to 8 hours. Because the industry practice is to stock these supplies in bulk, MSHA estimates that there are no costs associated with these requirements. MSHA requests comments on this estimate.

Proposed §§ 49.6(a)(3) and 49.16(a)(3) would require that two additional fully-charged oxygen cylinders be provided for every six self-contained breathing apparatus. To meet these requirements, each mine rescue station would have to purchase two oxygen cylinders. MSHA estimates that the cost for two oxygen cylinders is \$3,225 and that their service-life is 15 years.

Proposed §§ 49.6(a)(6) and 49.16(a)(6) would require all mine rescue stations serving underground coal mines or underground M/NM mines to be equipped with four gas detectors appropriate for each type of gas that may be encountered at the mines served. Gas detectors must measure concentrations of methane from 0.0 percent to 100 percent of volume, oxygen from 0.0 percent to at least 20 percent of volume, and carbon monoxide from 0.0 parts per million to at least 10,000 parts per million.

MSHA estimates that mine rescue stations would be equipped with multi-gas detectors, rather than multiple single-gas detectors; that the cost for four multi-gas detectors is approximately \$8,000; and that their service life is 5 years. MSHA requests comment on the Agency's cost estimates. MSHA is particularly interested in comment on its assumption that all mine rescue stations, including those serving non-gassy M/NM mines, would need to be equipped with multi-gas detectors rather than single gas detectors.

MSHA is proposing to delete paragraphs §§ 49.6(a)(7) and 49.16(a)(7), requiring mine rescue stations to be equipped with either two oxygen indicators or two flame safety lamps. MSHA believes that most mine rescue stations have already replaced flame safety lamps and oxygen indicators with new, more accurate, technologically advanced devices. For this reason, MSHA has associated no economic impact with the removal of these paragraphs.

Table I summarizes the total yearly cost of this proposed rule.

**Table I: Total Yearly Cost of the Proposed Rule**

Mine Size	# of Mine Rescue Stations Serving Underground Coal Mines <sup>a</sup>	Total # of Mine Rescue Stations Serving Underground M/NM Mines	Annualized Cost per Mine Rescue Station for Two Oxygen Cylinders <sup>b</sup>	Annualized Cost per Mine Rescue Station for Four Multi-Gas Detectors <sup>c</sup>	Total Annualized Cost <sup>d</sup>
1-19	19	2	\$354	\$1,951	\$48,409
20-500	71	50	\$354	\$1,951	\$278,931
501+	13	5	\$354	\$1,951	\$41,494
Government <sup>e</sup>	17	8	\$354	\$1,951	\$57,630
<b>Total</b>	<b>120</b>	<b>65</b>			<b>\$426,464</b>

<sup>a</sup> Estimates based on 92 existing mine rescue stations plus an additional 28 mine rescue stations in response to the proposed rule on mine rescue teams.

<sup>b</sup> Annualized cost per mine rescue station for two oxygen cylinders ( $\$49.6(a)(3)$  and  $\$49.16(a)(3) = (F \times a)$ , where F is the cost for two oxygen cylinders ( $F = \$3,225$ ); and a is the associated annualization factor for the two oxygen cylinders with a 15-year-service life ( $a = 11\%$ ).

<sup>c</sup> Annualized cost for four multi-gas detectors =  $(C \times a)$ , where C is the total cost for four multi-gas detectors ( $C = \$8,000$ ); a is the associated annualization factor for the four multi-gas detectors with a five-year-service life ( $a = 24.4\%$ ).

<sup>d</sup> Total yearly cost =  $[(\text{total \# of mine rescue stations serving underground coal mines} + \text{total \# of mine rescue stations serving underground M/NM mines}) \times (\text{annualized cost per mine rescue station for two oxygen cylinders} + \text{annualized cost per mine rescue station for four multi-gas detectors})]$ .

<sup>e</sup> Government-owned mine rescue stations serving underground coal mines include 14 State, 1 county, and 2 public colleges. Government-owned mine rescue stations serving underground M/NM mines include 2 Federal and 6 county. Some of the mine rescue stations listed as serving underground coal mines also serve some underground M/NM mines.

#### D. Benefits

The purpose of this proposed rule is to improve and enhance the equipment for mine rescue teams who must respond to an emergency at an underground mine. Mine operators often rely on mine rescue teams to save miners during an underground emergency such as an explosion, fire, roof fall, or water inundation. Mine rescue team members often put themselves in danger to save miners injured or trapped underground as the result of these events. To help them to conduct mine rescue and recovery activities safely and effectively, they must be provided with up-to-date mine rescue equipment. In an emergency, a properly equipped mine rescue team

could mean the difference between life and death.

#### VI. Feasibility

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

##### A. Technological Feasibility

The proposed rule is technologically feasible because all mine rescue team equipment required in this proposal is commercially available and in use in many mines. In addition, the proposed rule is not technology-forcing and does not involve activities on the frontiers of scientific knowledge.

##### B. Economic Feasibility

The total cost of the proposed rule is approximately \$237 thousand annually for underground coal mine operators and \$131 thousand annually for underground M/NM operators. These compliance costs are well under one percent of the annual revenues of \$13.1 billion for underground coal mine operators and \$5.8 billion for underground M/NM operators. MSHA concludes that the amount of these costs relative to annual operator revenues supports its finding that the proposed rule is economically feasible.



## VII. Regulatory Flexibility Act and Small Business Regulatory Enforcement Fairness Act

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 proposed rule on small businesses. Further, MSHA has made a determination with respect to whether or not the Agency can certify that the proposed rule would not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. Under the SBREFA amendments to the RFA, MSHA must include in the rule a factual basis for this certification. If a rule has a significant economic impact on a substantial number of small entities, MSHA must develop a regulatory flexibility analysis.

### 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, thus, 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 employing fewer than 20 miners 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. The Agency concludes that it can certify that the proposed rule would 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 or savings 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 or savings exceed one percent of revenues, it tends to indicate that further analysis may be warranted. MSHA has determined that the estimated costs are less than one percent of the estimated revenues for small entities covered by this proposed rule. Therefore, MSHA certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities.

Coal mining revenues are derived from data on the price of coal and total coal production. Total underground coal production in 2006 was 359-million tons. The price of underground coal in 2005 was \$36.42 per ton.<sup>1</sup> Thus, based on the total amount of coal production and the cost of coal per ton, the total estimated revenue in 2006 for underground coal production was \$13.1 billion. Using the same approach, the estimated 2006 underground coal revenue by employment size category was approximately \$0.3 billion for the 220 mines with 1–19 total employees and \$10.1 billion for the 640 mines with 1–500 total employees.

For M/NM underground mines covered by the rule, the 2006 estimated revenue of \$5.8 billion was divided by the total number of employee hours to arrive at the average revenue per hour of employee production of \$176.63. This average hourly revenue was multiplied by employee hours in specific mine size categories to arrive at estimated revenues for these categories. This approach was used because MSHA does not collect mine-specific data on M/NM production or revenues. Using this approach, the 2006 revenues were estimated to be \$0.3 billion for the 105 underground M/NM mines with 1–19 employees and \$4.4 billion for the 235

underground M/NM mines with 1–500 employees.

When dividing the yearly compliance costs by the annual revenues in each mine size category, the yearly cost of the rule for underground coal mines and underground M/NM mines, both with 1–19 total employees and with 1–500 total employees, is well less than 0.01 percent of annual revenues. MSHA therefore concludes and certifies that the proposed rule would not have a significant economic impact on a substantial number of small entities that are covered by the proposed rule.

## VIII. Paperwork Reduction Act of 1995

The mine rescue team equipment proposed rule would require certification of inspection, testing, and any corrective action taken for breathing apparatus, as does the existing rule. MSHA estimates that any paperwork burden due to the proposed requirements would be de minimis and, therefore, has not included additional paperwork burden.

## IX. Other Regulatory Considerations

### A. The Unfunded Mandates Reform Act of 1995

MSHA has reviewed the proposed rule under the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 *et seq.*). The proposed rule would not increase private sector expenditures by more than \$100 million annually; nor would it significantly or uniquely affect small governments. The proposed rule may result in increased expenditures by State, local, or tribal governments, however, because it places new requirements on equipment for mine rescue stations. These proposed changes would not directly affect States or their relationships with the national government; however, some mine rescue stations are State owned and equipped. In the spirit of the Unfunded Mandates Reform Act, MSHA specifically solicits comments on this proposed rule from State officials.

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

This proposed rule would 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. note) requires no further Agency action, analysis, or assessment.

<sup>1</sup> U.S. Dept. of Energy, Energy Information Administration, “Annual Coal Report 2005,” Table 28, October 2006.



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

This proposed rule would 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 proposed 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 proposed rule would meet 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 proposed rule would 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*

Executive Order (E.O.) 13132 requires MSHA to develop an accountable process to ensure a meaningful and timely input by State and local officials in the development of regulatory policies that have "federalism implications." Policies that have federalism implications are defined as having "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." The proposed rule would place new requirements on equipment for mine rescue stations. These proposed changes would not directly affect States or their relationships with the federal government. Although the proposed rule does not directly affect States, some mine rescue stations are State owned and equipped. Consistent with the spirit of E.O. 13132, MSHA specifically solicits comments on this proposed rule from State officials.

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

This proposed rule would not have "tribal implications" because it would 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 proposed 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 proposed rule would result in yearly costs of approximately \$0.24 million to the underground coal mining industry, relative to annual revenues of \$13.1 billion in 2006, 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.

**List of Subjects in 30 CFR Part 49**

Coal mines, Emergency equipment and maintenance, Emergency response services, Metal mines, Mine safety and health, Nonmetal mines, Underground mining.

Dated: August 29, 2007.

**Richard E. Stickler,**

*Assistant Secretary for Mine Safety and Health.*

For the reasons set out in the preamble, and under the authority of the Federal Mine Safety and Health Act of 1977, as amended by the Mine Improvement and New Emergency Response Act of 2006, MSHA is proposing to amend chapter I of title 30 of the Code of Federal Regulations as follows:

**PART 49—MINE RESCUE TEAMS**

1. The authority for part 49 continues to read as follows:

**Authority:** 30 U.S.C. 811, 825(e), 957.

2. Amend § 49.6 as follows:

A. Revise the section heading.

B. In paragraph (a)(1), remove the phrase "2 hours capacity" and add in its place "4 hour capacity".

C. In paragraph (a)(1), remove the phrase "self contained oxygen breathing apparatus" and add in its place "self-contained breathing apparatus".

D. In paragraph (a)(2), remove the phrase "oxygen generating or carbon dioxide absorbent chemicals, as applicable to the supplied breathing apparatus and sufficient to sustain each team for six hours" and add in its place the phrase "or oxygen generating chemicals, and carbon dioxide absorbent chemicals, as applicable to the supplied breathing apparatus and sufficient to sustain each team for 8 hours".

E. Revise paragraph (a)(3).

F. Revise paragraph (a)(6).

G. Remove and reserve paragraph (a)(7).

H. Revise paragraph (a)(8).

I. Revise paragraph (b).

The revisions read as follows:

**§ 49.6 Equipment and maintenance requirements for metal and nonmetal mine rescue stations.**

(a) \* \* \*

(3) Two extra, fully-charged oxygen bottles for every six self-contained breathing apparatus;

\* \* \* \* \*

(6) Four gas detectors appropriate for each type of gas that may be encountered at the mines served. Gas detectors must measure concentrations of methane from 0.0 percent to 100 percent of volume, oxygen from 0.0 percent to at least 20 percent of volume, and carbon monoxide from 0.0 parts per million to at least 10,000 parts per million.

\* \* \* \* \*

(8) One portable mine rescue communication system (approved under part 23 of this title) or a sound-powered communication system.

\* \* \* \* \*

(b) Mine rescue apparatus and equipment shall be maintained in a manner that will ensure readiness for immediate use.

(1) A person trained in the use and care of breathing apparatus shall inspect and test the apparatus at intervals not exceeding 30 days and shall certify by signature and date that the inspections and tests were done.

(2) When the inspection indicates that a corrective action is necessary, the corrective action shall be made and the person shall record the corrective action taken.

(3) The certification and the record of corrective action shall be maintained at the mine rescue station for a period of one year and made available on request to an authorized representative of the Secretary.

(i) The wires or cable to the communication system shall be of sufficient tensile strength to be used as a manual communication system.

(ii) These communication systems shall be at least 1,000 feet in length.

3. Add § 49.16 to read as follows:

**§ 49.16 Equipment and maintenance requirements for coal mine rescue stations.**

(a) Each mine rescue station shall be provided with at least the following equipment. Mine rescue stations serving underground anthracite coal mines, which have no electrical equipment at the face or working section, shall have at least the amount of equipment appropriate for the number of mine rescue team members.

(1) Twelve self-contained breathing apparatus, each with a minimum of 4 hours capacity (approved by MSHA and NIOSH under 42 CFR part 84, subpart H), and any necessary equipment for testing such breathing apparatus.

(2) A portable supply of liquid air, liquid oxygen, pressurized oxygen, or

oxygen generating chemicals, and carbon dioxide absorbent chemicals, as applicable to the supplied breathing apparatus and sufficient to sustain each team for 8 hours while using the breathing apparatus during rescue operations.

(3) Two extra, fully-charged oxygen bottles for every six self-contained breathing apparatus.

(4) One oxygen pump or a cascading system, compatible with the supplied breathing apparatus.

(5) Twelve permissible cap lamps and a charging rack.

(6) Four gas detectors appropriate for each type of gas that may be encountered at the mines served. Gas detectors must measure concentrations of methane from 0.0 percent to 100 percent of volume, oxygen from 0.0 percent to at least 20 percent of volume, and carbon monoxide from 0.0 parts per million to at least 10,000 parts per million.

(7) [Reserved].

(8) One portable mine rescue communication system (approved under part 23 of this title) or a sound-powered communication system.

(i) The wires or cable to the communication system shall be of

sufficient tensile strength to be used as a manual communication system.

(ii) These communication systems shall be at least 1,000 feet in length.

(9) Necessary spare parts and tools for repairing the breathing apparatus and communication system.

(b) Mine rescue apparatus and equipment shall be maintained in a manner that will ensure readiness for immediate use.

(1) A person trained in the use and care of breathing apparatus shall inspect and test the apparatus at intervals not exceeding 30 days and shall certify by signature and date that the inspections and tests were done.

(2) When the inspection indicates that a corrective action is necessary, the corrective action shall be made and the person shall record the corrective action taken.

(3) The certification and the record of corrective action shall be maintained at the mine rescue station for a period of 1 year and made available on request to an authorized representative of the Secretary.

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