

REGULATORY ECONOMIC ANALYSIS

FOR

MINE RESCUE TEAMS

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Table of Contents

I. EXECUTIVE SUMMARY	1
INTRODUCTION	1
MINE SECTOR AFFECTED	1
POPULATION AT RISK.....	1
BENEFITS SUMMARY	1
COMPLIANCE COST SUMMARY	1
REGULATORY FLEXIBILITY CERTIFICATION AND ANALYSIS.....	1
II. INDUSTRY PROFILE.....	3
INTRODUCTION	3
STRUCTURE OF THE MINING INDUSTRY	3
STRUCTURE OF THE COAL MINING INDUSTRY	3
ECONOMIC CHARACTERISTICS OF THE COAL MINING INDUSTRY	4
III. BENEFITS	5
IV. COST OF COMPLIANCE.....	7
SUMMARY	7
METHODOLOGY	9
SCOPE	9
SECTION-BY-SECTION ANALYSIS.....	10
FEASIBILITY	29
<i>Technological Feasibility</i>	29
<i>Economic Feasibility</i>	29
V. REGULATORY FLEXIBILITY CERTIFICATION.....	30
INTRODUCTION	30
DEFINITION OF A SMALL MINE.....	30
FACTUAL BASIS FOR CERTIFICATION.....	30
<i>General Approach</i>	30
<i>Derivation of Costs and Revenues</i>	31
<i>Results of Screening Analysis</i>	31
VI. OTHER REGULATORY CONSIDERATIONS	32
THE UNFUNDED MANDATES REFORM ACT of 1995.....	32
THE TREASURY AND GENERAL GOVERNMENT APPROPRIATIONS ACT OF 1999:	
ASSESSMENT OF FEDERAL REGULATIONS AND POLICIES ON FAMILIES.....	32
EXECUTIVE ORDER 12630: GOVERNMENT ACTIONS AND INTERFERENCE WITH	
CONSTITUTIONALLY PROTECTED PROPERTY RIGHTS.....	32
EXECUTIVE ORDER 12988: CIVIL JUSTICE REFORM.....	32
EXECUTIVE ORDER 13045: PROTECTION OF CHILDREN FROM ENVIRONMENTAL	
HEALTH RISKS AND SAFETY RISKS	32
EXECUTIVE ORDER 13132: FEDERALISM	32
EXECUTIVE ORDER 13175: CONSULTATION AND COORDINATION WITH INDIAN	
TRIBAL GOVERNMENTS.....	32
EXECUTIVE ORDER 13211: ACTIONS CONCERNING REGULATIONS THAT	
SIGNIFICANTLY AFFECT ENERGY SUPPLY, DISTRIBUTION, OR USE	33
EXECUTIVE ORDER 13272: PROPER CONSIDERATION OF SMALL ENTITIES IN AGENCY	
RULEMAKING	33

VII. PAPERWORK REDUCTION ACT OF 1995	34
INTRODUCTION	34
SUMMARY OF PAPERWORK BURDEN HOURS AND RELATED COSTS	34
VIII. REFERENCES	40

I. EXECUTIVE SUMMARY

INTRODUCTION

This Regulatory Economic Analysis (REA) examines the costs and benefits of MSHA's rule to revise the Agency's existing standards for mine rescue teams for underground coal mines. The rule will strengthen training requirements and address composition, availability, and certification requirements for coal mine rescue teams.

MINE SECTOR AFFECTED

The rule applies to all underground coal mines. The rule covers all mine rescue teams—including State-sponsored teams (hereafter referred to as State teams).

POPULATION AT RISK

The rule applies to 653 underground coal mines and covers the 42,597 miners and 8,250 (non-office) contractors working at these mines.

BENEFITS SUMMARY

The rule implements Section 4 of the Mine Improvement and New Emergency Response (MINER) Act of 2006, signed by the President on June 15, 2006. In the Benefits Section, MSHA has qualitatively determined that the rule will enable coal mine rescue teams to respond more quickly in emergencies when a quick response by rescue teams is vital to the safety and health of miners. The purpose of this rule is to enhance the availability and effectiveness of mine rescue teams in the event of an emergency at an underground coal 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. In such situations, the timely response of a properly-trained mine rescue team could mean the difference between life and death.

COMPLIANCE COST SUMMARY

MSHA estimates that the rule results in total yearly costs for the underground coal mining industry of approximately \$4.8 million. Disaggregated by mine size, yearly costs will be \$1.1 million (or approximately \$5,200 per mine) for mine operators with fewer than 20 employees; \$3.4 million (or about \$8,200 per mine) for mine operators with 20-500 employees; and \$0.2 million (or about \$13,400 per mine) for mine operators with more than 500 employees. In addition, the rule will indirectly impose total costs of approximately \$0.1 million on States that provide mine rescue services.

REGULATORY FLEXIBILITY CERTIFICATION AND ANALYSIS

In accordance with § 605 of the Regulatory Flexibility Act (RFA), MSHA certifies that the rule will not have a significant economic impact on a substantial number of small entities. Under the Small Business Regulatory Enforcement Fairness Act (SBREFA) amendments to the RFA, MSHA must include in the rule a factual basis for this certification. The analysis for this certification is discussed in the Regulatory

Flexibility Certification in Chapter V in this document and in the preamble to the rule. MSHA has consulted with the Small Business Administration's (SBA's) Office of Advocacy and believes that the analysis provides a reasonable basis for this certification.

II. INDUSTRY PROFILE

INTRODUCTION

This chapter provides information concerning the structure and economic characteristics of the underground coal mining industry, including the number of mines and employees by type and size of mine. These data are from the U.S. Department of Labor, Mine Safety and Health Administration, Office of Program Evaluation and Information Resources (PEIR), 2006 data.¹

The value of the coal output of the U.S. underground coal mining sector was approximately \$13.7 billion in 2006. The average open market U.S. sales price of underground coal for 2006 is from the Department of Energy (DOE), Energy Information Administration (EIA), *Annual Coal Report 2006*, October 2007, Table 28.

STRUCTURE OF THE MINING INDUSTRY

MSHA divides the mining industry into two major sectors based on commodity: (1) coal mines and (2) metal and nonmetal mines. Each sector is further divided by type of operation (e.g., underground mines or surface mines). The Agency maintains data on the number of mines and on mining employment by mine type and size. MSHA also collects data on the number of independent contractor firms and their employees. Each independent contractor is issued one MSHA contractor identification number, but may work at any mine.

STRUCTURE OF THE COAL MINING INDUSTRY

The rule is applicable to underground coal mines only. Table II-1 presents the distribution of the number of underground coal mines, by employment size, excluding contractors, in 2006.

Agency data in Table II-1 indicate that there were 653 underground coal mines that reported employment during some portion of calendar year 2006. Underground coal mines employed 42,597 miners and 1,188 office employees in 2006. In addition, 8,250 (non-office) contractor employees worked at underground coal mines in 2006 (of which 4,096 worked underground).

¹ Based on Teradata run on July 11, 2007.

Table II-1: Distribution of the Number of Underground Coal Mines (Excluding Contractors), by Employment Size, 2006

Size of Underground Coal Mines									All Underground Coal Mines		
1-19			20-500			501+			Mines	Miners	Office Empl.
Mines	Miners	Office Empl.	Mines	Miners	Office Empl.	Mines	Miners	Office Empl.			
220	2,255	73	420	32,852	969	13	7,490	146	653	42,597	1,188

Table II-2 shows the distribution of the number of independent contractors that worked in underground coal mines in 2006.

Table II-2: Distribution of the Number of Underground Coal Contractors, by Employment Size, 2006

Size of Contractor at Underground Coal Mines									All Contractors at Underground Coal Mines		
1-19			20-500			501+			Independent Contractors	Non-Office Empl.	Office Empl.
Independent Contractors	Non-Office Empl.	Office Empl.	Independent Contractors	Non-Office Empl.	Office Empl.	Independent Contractors	Non-Office Empl.	Office Empl.			
197	1,386	56	84	6,864	206	0	0	0	281	8,250	262

ECONOMIC CHARACTERISTICS OF THE COAL MINING INDUSTRY

MSHA classifies the U.S. coal mining sector into three major commodity groups: bituminous, lignite, and anthracite.² Bituminous operations represent approximately 91% of coal mining operations, employ 94% of all coal miners, and account for 93% of total coal production. Lignite operations represent approximately 1% of coal mining operations, employ 4% of all coal miners, and account for 7% of total coal production. Anthracite operations represent approximately 7% of coal mining operations, employ 1% of all coal miners, and account for 0.1% of total coal production.

The U.S. underground coal sector produced an estimated 359 million short tons of coal in 2006. The average price of coal in underground mines in 2006 was \$38.28 per ton.

² This categorization is based on MSHA-collected data grouped by Standard Industrial Classification (SIC) code description. Some publications of the U.S. Department of Energy further divide the bituminous group into bituminous coal and sub-bituminous coal.

III. BENEFITS

The rule implements Section 4 of the MINER Act. The purpose of the rule is to enhance the availability and effectiveness of mine rescue teams in the event of an emergency at an underground coal 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. In such a situation, the timely arrival of a properly-trained mine rescue team could mean the difference between life and death. In most instances, other types of rescue units, e.g., a rescue squad from the local fire department, are unlikely to have the specialized training and equipment to respond effectively to an emergency due to the hazardous nature of the underground coal mine environment.

A good mine rescue team will—

- Have familiarity with the operations and knowledge of the operations and ventilation of the covered mine, including the location of working sections, mining equipment, fire-fighting equipment, first aid supplies, transportation, escapeways, and emergency shelters;
- Know the mine's roof conditions;
- Have an established working relationship with mine management, and
- Have a trusting working relationship among the team.

These factors provide for more efficient decision-making during an emergency and increased confidence in the personnel who implement these decisions.

MSHA has qualitatively determined that the rule will make coal mine rescue teams better able to respond to emergencies when a quick response by rescue teams is vital to the safety and health of miners. The rule will improve overall mine rescue service in three areas:

- (1) It will improve mine emergency response time by requiring that mine rescue team members be available at the covered mine within one hour ground travel time from the mine rescue station.
- (2) It will increase the quality and effectiveness of training by requiring team members to be familiar with the covered mines' operations, participate in training at the covered mines, and participate in two local mine rescue contests. A portion of the training must be conducted underground. This training will enhance the team's knowledge of the underground environment and provide first hand experience of the underground mining conditions.
- (3) It will strengthen the requirements for knowledge and experience of mine rescue team members by requiring them to have knowledge of the covered mine's operations and ventilation and by requiring contract team members to have at least 3 years underground coal mine experience within the 10-year period preceding their employment on the contract team.

The final rule also increases mine operator emergency response capability by requiring the operator to provide two certified mine rescue teams and to have a person knowledgeable in mine emergency response on each shift. The final rule includes criteria

for certifying mine rescue teams and clarifies training requirements for the knowledgeable person.

Team members employed at a mine must be knowledgeable in mine gases, ventilation, first aid, and other health and safety subjects as they apply generally and at the covered mine. Their level of mine rescue training, combined with their everyday presence during the normal work cycle, provides an added measure of safety for each worker at the mine.

The final rule increases the 40-hour annual refresher training requirement to 96 hours, from 64 hours in the proposed rule. MSHA took this action in response to comments. It is consistent with the recommendations of the Mine Safety Technology and Training Commission. This additional annual refresher training is necessary to fully address all of the training requirements in the MINER Act. It will allow teams to adequately prepare for mine rescue team service. The additional training could include: first responder training, communications, mine gases, gas detectors, new technology, heat stress, and hazard training unique to the covered mines. Additional skills training may include building temporary stoppings and seals, using a foam generator underground, and using an air lock to rescue survivors. Based on the Commission's findings and MSHA's experience, this additional training will enhance teams' skills and abilities. In addition, the additional hours of training will provide an incremental increase in safety for underground coal miners.

The final rule also requires mine rescue team members to participate in two local mine rescue contests each year. Mine rescue contests serve a vital role in achieving the purpose of the MINER Act to improve the safety of mines and mining. Historically, they have served to assure that mine rescue teams are well-trained and capable of responding to mine emergencies. They provide a practical forum to objectively evaluate a team's skills and abilities. The final rule will allow up to 16 hours of credit for participation in the two required mine rescue contests.

IV. COST OF COMPLIANCE

SUMMARY

In this chapter, MSHA estimates the compliance costs associated with the mine rescue team rule. Table IV-1 presents the total yearly compliance costs for the underground coal mine industry by requirement and by mine size. All cost estimates are presented in 2006 dollars.

The cost of the rule for all underground coal mine operators will be approximately \$4.8 million per year. Of this total, mines with 1-19 employees will incur costs of approximately \$1.1 million per year; mines with 20-500 employees will incur costs of approximately \$3.4 million per year; and mines with 501+ employees will incur costs of approximately \$0.2 million per year.

For this rule, MSHA has broken down total compliance costs for mines with 1-36 employees and mines with 37 or more employees, consistent with the MINER Act. Of the \$4.8 million total yearly cost, underground coal mines with 1-36 employees will incur costs of approximately \$2.0 million per year, and underground coal mines with 37 or more employees will incur costs of approximately \$2.8 million per year.

In addition, as shown in Table IV-1a, the rule will indirectly impose costs on State teams of approximately \$0.1 million yearly.

Table IV-1: Summary of Total Yearly Cost of the Rule for Underground Coal Mine Operators

Section	Mine Size			Total Yearly Cost
	1-19	20-500	501+	
One Hour from Mine Rescue Station to Mine ^a	\$559,407	\$292,982	\$7,000	\$859,390
Mine Rescue Team Training ^b	\$379,967	\$2,225,222	\$119,768	\$2,724,956
Mine Rescue Contests ^c	\$91,915	\$552,810	\$30,037	\$674,762
Certification of Mine Rescue Teams ^d	\$8,161	\$15,580	\$482	\$24,223
Responsible Person Training & Certification ^e	\$95,047	\$362,906	\$16,849	\$474,803
Total	\$1,134,497	\$3,449,500	\$174,137	\$4,758,134

^a Source: Table IV-4 and Table IV-5.

^b Source: Table IV-6, Table IV-7, Table IV-8, and Table IV-9. (Excludes State teams)

^c Source: Table IV-11. (Excludes State teams)

^d Source: Table IV-12.

^e Source: Table IV-13.

Table IV-1a: Summary of Total Yearly Cost of the Rule for State Mine Rescue Teams

Section	Mine Size			Total Yearly Cost
	1-19	20-500	501+	
Mine Rescue Team Training ^a	\$24,905	\$31,869	\$708	\$57,482
Mine Rescue Contests ^b	\$6,466	\$8,486	\$159	\$15,111
Total	\$31,371	\$40,355	\$867	\$72,593

^a Source: Table IV-8 and Table IV-9.

^b Source: Table IV-11.

The total costs reported in Table IV-1 and Table IV-1a, and in all other tables in this chapter, are MSHA's best estimates of the projected costs based on the Agency's knowledge, experience, and available information. In some cases, estimates may deviate slightly from the total due to rounding.

METHODOLOGY

For the rule, MSHA estimates the following costs: (1) one-time or intermittent costs; (2) annual costs; and (3) annualized costs. One-time costs are those that are incurred once, usually in the first year of compliance, and do not recur. Intermittent costs are those that may recur from time to time, but not annually. Capital expenditures, such as the cost of purchasing equipment, are an example of one-time or intermittent costs. Annual costs are costs that normally occur every year. Two examples of annual costs are maintenance costs and recordkeeping costs. Annualized costs are one-time and intermittent costs that are apportioned over the economic life of the investment using a specified interest (or discount) rate. For this REA, MSHA used a (real) discount rate of 7 percent, as recommended by the Office of Management and Budget (OMB), using the formula:

$$a = (i * (1 + i)^n) / ((1 + i)^n - 1),$$

where (a) equals the annualization factor, (i) equals the annual discount rate, and (n) equals the economic life of the non-annual recurring investment. For one-time costs with an infinite, or indefinite, economic life, the annualization factor is equal to the discount rate, here 0.07.

MSHA used an hourly compensation rate of \$31.66 for an underground coal miner, \$71.34 for an underground coal mine supervisor, and \$25.47 for a clerical employee, as derived from InfoMine USA, Inc., *U.S. Coal Mine Salaries, Wages, & Benefits – 2006 Survey Results*. The wage rates include benefits such as social security, unemployment insurance, and workers' compensation, but they do not reflect shift differentials or overtime pay. For convenience, miner "compensation" in this REA is referred to as "wages," where that term is understood to include benefits. MSHA assumes that contractors and mine rescue team members, including State team members, receive a wage rate equal to what underground coal miners earn. Trainers are assumed to receive the same wage rate as an underground coal mine supervisor.

SCOPE

The rule applies to underground coal mine operators. Table IV-2 is a profile of the number of underground coal mines and miners employed at these mines. Mines are classified both by MSHA's traditional size categories (1-19 employees, 20-500 employees, 501+ employees) and by the mine-size categories specified in the MINER Act (1-36 and 37+ employees). An additional 8,250 (non-office) contractors work at underground coal mines.

Table IV-2: Profile of Underground Coal Mines and Employees

Mine Size	(1-19) Employees		(20-500) Employees				(501+) Employees		Total	
	Small: (1-36) Employees		Small: (1-36) Employees		Large: (37+) Employees		Large: (37+) Employees			
Employment	# of Mines	# of Miners	# of Mines	# of Miners	# of Mines	# of Miners	# of Mines	# of Miners	# of Mines	# of Miners
		220	2,255	148	4,017	272	28,835	13	7,490	653

SECTION-BY-SECTION ANALYSIS

Below, MSHA provides a section-by-section analysis of the estimated costs of the rule. Where possible, specific data sources that MSHA relied on for its estimates have been identified. Where no data source is specified, MSHA relied on the experience and expertise of its staff in the Agency’s Offices of Coal Mine Safety and Health, Educational Policy and Development, and Technical Support.

§ 49.12(f) Availability of Mine Rescue Team.

Paragraph 49.12(f) requires team members be within one hour ground travel time from the station to the mine. The existing standard requires that teams be within two hours ground travel time from the station to the mine. Under the final rule, MSHA estimates that additional mine rescue stations are needed and some have to be moved.

Each mine rescue station must stock enough equipment for two mine rescue teams, totaling 12 persons. Table IV-3 summarizes the cost for equipment for a mine rescue station. The table includes appropriate annualization factors to account for the service life of each type of equipment. MSHA assumes the requirements for mine rescue stations serving anthracite coal mines have no economic impact on existing mine rescue stations because the appropriate changes in mine rescue team equipment have already been accomplished through petitions for modification.

In response to public comments, MSHA has made the following cost adjustments: increased the cost of multi-gas detectors from \$1,500 to \$2,300; increased the cost of portable mine rescue communication systems from \$2,000 to \$3,268; increased yearly maintenance and replacement supply costs from \$1,357 to \$7,074 (approximately 5 percent of the total cost of mine rescue equipment); and added a cost of \$4,500 for a tester for apparatus.

Table IV-3: Costs for Equipment for a Mine Rescue Station

Equipment For Each Team	Cost	Annual Cost	Annualized Cost	Total Yearly Cost
12 Self-Contained Oxygen Breathing Apparatus ^a	\$96,821		\$6,777	\$6,777
Tester for Apparatus ^b	\$4,500		\$315	\$315
12 Refillable Canisters ^a	\$6,900		\$483	\$483
2 Spare Fiber Cylinders ^c	\$3,225		\$354	\$354
Oxygen Pump or Cascading System ^a	\$14,085		\$986	\$986
12 Cap Lamps with a Charging Rack ^d	\$5,360		\$2,042	\$2,042
2 Gas Detectors ^e	\$4,600		\$1,122	\$1,122
1 Portable Mine Rescue Communication System ^a	\$3,268		\$229	\$229
Tools ^b	\$2,728		\$191	\$191
Yearly Maintenance & Replacement Supply	\$7,074	\$7,074		\$7,074
Total	\$148,561	\$7,074	\$12,499	\$19,574

^a This equipment has an indefinite service life if given proper care and maintenance. The associated annualization factor is 7%.

^b Testers and tools to maintain the other mine rescue equipment have an indefinite service life. The associated annualization factor is 7%.

^c This equipment has a 15-year service life. The associated annualization factor is 11.0%.

^d This equipment has a 3- year service life. The associated annualization factor is 38.1%.

^e This equipment has a 5-year service life. The associated annualization factor is 24.4%.

Section 49.16(b) requires that rescue apparatus and equipment be maintained and that a person trained in the use and care of breathing apparatus inspect and test the apparatus at least every 30 days and certify the inspection and test with a signature and date. When the inspection indicates that a corrective action is necessary, the standard requires that corrective action be taken and recorded. The certification and the record must be maintained at the mine rescue station for one year and made available to an authorized representative of the Secretary. In response to public comments, MSHA has increased the time to inspect, test, certify, and file the certification for each apparatus from 20 minutes (0.33 hours) to 60 minutes (1 hour). MSHA estimates that, on average, each apparatus requires corrective action six times a year and that it will take approximately 15 minutes (0.25 hours) to record and file each corrective action. MSHA estimates that the time required for a team member to take each corrective action is approximately 30 minutes (0.5 hours). MSHA assumes that all of these requirements are

performed by a mine rescue team member, earning a miner's hourly wage rate of \$31.66, because no clerical employees work at mine rescue stations.

The annual cost per mine rescue station for apparatus inspection, testing, and corrective actions will be \$6,269 = [12 apparatus per mine x (12 inspections per year x 1 hour for a miner to inspect, test, and certify each apparatus x \$31.66) + (6 corrective actions per year x 0.75 hours for a miner to take, record, and file a corrective action x \$31.66)].

Based on MSHA's knowledge and experience, most mine operators and States already have the facilities to accommodate additional mine rescue stations. However, MSHA anticipates that mine operators will have to lease facilities for 25 percent of the additional mine rescue stations. In the proposed rule, MSHA estimated the cost to lease a mine rescue facility would be approximately \$4,000 annually and estimated no cost for an on-site mine rescue facility. In response to comments, MSHA increased the cost to lease a mine rescue facility to \$8,400 annually (to include climate control) and added a cost of approximately \$2,000 annually for a non-leased, on-site mine rescue facility which includes expenses for climate control.

Based on 2007 MSHA data, there are 92 coal mine rescue stations in the United States. Most of the mine rescue stations are already located no more than one hour ground travel time from the mine. Some States are already in compliance with this section. For example, all but one of the mines in Alabama served by a rescue team are located within one hour ground travel time from the mine rescue station.

MSHA estimates that approximately 28 additional mine rescue stations are needed as a result of the rule. Of these, MSHA estimates that mines with 1-19 total employment need 19 more stations; mines with 20-36 employment need five more stations; and mines with 37-500 total employment need four more stations. Mines with 501+ total employment do not need any additional mine rescue stations. MSHA assumes that none of the additional stations are State-owned or will serve anthracite mines. In response to comments, MSHA estimates that approximately 5 mine rescue stations will have to be relocated in order to meet the one hour ground travel time requirement in the final rule. MSHA estimates that the cost to relocate a mine rescue station is \$100,000.

MSHA's estimate of the yearly cost of additional mine rescue stations is presented in Table IV-4, and the annualized cost associated with relocating 5 mine rescue stations is presented in Table IV-5.

Table IV-4: Yearly Cost of Additional Mine Rescue Stations

Line	Mine Size	(1-19)	(20-500) Employees		(501+)	Total
		Employees	Small: (1-36)	Large: (37+)	Employees	
		Small: (1-36)	Small: (1-36)	Large: (37+)	Large: (37+)	
		Employees	Employees	Employees	Employees	
1	# of Additional Mine Rescue Stations	19	5	4	0	28
2	Yearly Cost per Station for Equipment ^a	\$19,574	\$19,574	\$19,574	\$19,574	
3	# of Additional Leased Facilities for Mine Rescue Stations ^b	4.75	1.25	1.00	0	7
4	# of Additional Non-Leased Facilities for Mine Rescue Stations ^c	14.25	3.75	3.00	0	21
5	Annual Cost per Leased Facility ^d	\$8,400	\$8,400	\$8,400	\$8,400	
6	Annual Cost per Non-Leased Facility ^d	\$2,000	\$2,000	\$2,000	\$2,000	
7	Annual Cost per Mine Rescue Station for Apparatus Inspection, Testing, Corrective Actions	\$6,269	\$6,269	\$6,269	\$6,269	
	Total Yearly Cost^e	\$559,407	\$147,212	\$117,770	\$0	\$824,390

^a Source: Table IV-3.

^b # of additional leased facilities for mine rescue stations = (25% x # of additional new mine rescue stations).

^c # of additional non-leased facilities for mine rescue stations = (75% x # of additional new mine rescue stations).

^d The cost for these facilities includes expenses for climate control of \$1,200 annually.

^e Total yearly cost = [line 1 x (line 2 + line 7)] + (line 3 x line 5) + (line 4 x line 6).

Table IV-5: Annualized Cost to Relocate Existing Mine Rescue Stations

Mine Size	(1-19) Employees	(20-50) Employees		(501+) Employees	Total
	Small: (1-36) Employees	Small: (1-36) Employees	Large: (37+) Employees	Large: (37+) Employees	
# of Mine Rescue Stations	0	1	3	1	5
Cost to Relocate a Mine Rescue Station	\$100,000	\$100,000	\$100,000	\$100,000	
Annualized Cost to Relocate a Mine Rescue Station ^a	\$7,000	\$7,000	\$7,000	\$7,000	
Total Annualized Cost	\$0	\$7,000	\$21,000	\$7,000	\$35,000

^a Annualized cost to relocate a mine rescue station = cost to relocate a mine rescue station x a, where a is the annualization factor (a =0.07).

Improved Mine Rescue Availability and Training

Due to the requirements in the rule related to improved availability and training for mine rescue teams, MSHA expects that a total of 68 additional mine rescue teams will be needed. MSHA increased the number of additional teams from 56 to 68 in response to comments. MSHA estimates that 64 of these will be composite teams and 4 will be contract teams. MSHA assumed that no existing mine rescue team will change its type. The change in mine rescue team composition will take place in new teams.

Each team has six members, i.e., five members and one alternate. However, mine operators will only need an additional five members, on average, to form a new composite team, because the majority of these types of existing teams have extra members available. New contract teams will need an additional six members because they do not typically have extra members. Based on MSHA’s experience, mine rescue team members will serve on a team for an average of approximately 10 years.

Physical Requirements and Initial Training

Under § 49.18(a), before a miner can become a mine rescue team member, the miner must complete 20 hours of initial training in the use, care, and maintenance of the type of breathing apparatus used by the team. In addition, under § 49.17(a), each team member has to have a physical examination annually, which MSHA estimates will cost \$150. This cost includes the physician’s certification that the mine rescue team member is physically fit to perform mine rescue and recovery work for prolonged periods under strenuous conditions. It will take approximately one hour for each team member to have a physical.³ Some State agencies provide the 20 hours of initial training free of charge.⁴

³ MSHA estimates that the cost to the mine operator of mailing the MSHA Form 5000-3 to the physician and keeping the signed copy on file will be negligible and subsumed in the cost of the physical.

MSHA estimates that approximately 20 of the new mine rescue teams will be trained by State agencies. Typically, one trainer trains two teams concurrently. The trainer needs approximately two hours to prepare materials for each 20-hour training session. The hourly wage rate for an underground coal miner is \$31.66, and the hourly wage rate for a trainer, equivalent to a mine supervisor's, is approximately \$71.34. MSHA estimates that the oxygen supply and other miscellaneous materials for training cost approximately \$500 per team.

The cost per mine rescue team for a trainer will be $\$128 = [(0.7, \text{the probability that the training is not provided by a State agency}) \times (0.1423, \text{the annualization factor for 10 years}) \times ((1 \text{ trainer per 2 teams} \times 22 \text{ hours of trainer time} \times \$71.34) + \$500 \text{ for oxygen equipment and other miscellaneous materials})]$.

The cost per composite mine rescue team to receive the training will be $\$451 = [5 \text{ team members} \times 20 \text{ hours} \times \$31.66 \times 0.1423, \text{the annualization factor for 10 years}]$. The cost per contract mine rescue team to receive the training is $\$541 = [6 \text{ team members} \times 20 \text{ hours} \times \$31.66 \times 0.1423, \text{the annualization factor for 10 years}]$.

The cost per composite mine rescue team for annual physicals will be $\$908 = [5 \text{ team members} \times (\$150 \text{ for the physical exam} + (1 \text{ hour of the miner's time} \times \$31.66))]$. The cost per contract mine rescue team for annual physicals will be $\$1,090 = [6 \text{ team members} \times (\$150 \text{ for the physical exam} + (1 \text{ hour of the miner's time} \times \$31.66))]$.

Table IV-6 presents the yearly cost for additional teams to meet initial training and physical requirements for new mine rescue teams. Table IV-6 is divided into two sections that present the projected number of additional mine rescue teams from Table IV-8 and the estimated cost for underground coal mines to have these additional mine rescue teams. The cost estimate for underground coal mines to have additional composite mine rescue teams is equal to the number of teams multiplied by \$1,467 (the sum of \$128 for the trainer, \$451 for team members to receive the training, and \$908 for the physical exam). The cost estimate for underground coal mines to have additional contract mine rescue teams is equal to the number of teams multiplied by \$1,759 (the sum of \$128 for the trainer, \$541 for team members to receive the training, and \$1,090 for the annual physical exam).

⁴ Some State agencies provide the training free of charge, funded entirely or in part by Federal grants. Because of this Federal funding, we have not included State-provided training and recordkeeping in this burden estimate.

Table IV-6: Yearly Cost for Additional Mine Rescue Teams to Meet Initial Training and Physical Requirements

Projected # of Additional Mine Rescue Teams															
Mine Size	(1-19) Employees			(20-500) Employees						(500+) Employees			Total		
	Small: (1-36) Employees			Small: (1-36) Employees			Large: (37+) Employees			Large: (37+) Employees					
Team Type	Mine Site	Compo-site	Contract	Mine Site	Compo-site	Contract	Mine Site	Compo-site	Contract	Mine Site	Compo-site	Contract	Mine Site	Composite	Contract
		0	4	2	0	4	0	0	56	2	0	0	0	0	64
Cost Estimate for Underground Coal Mines to Have Additional Mine Resue Teams															
Mine Size	(1-19) Employees			(20-500) Employees						(500+) Employees			Total		
	Small: (1-36) Employees			Small: (1-36) Employees			Large: (37+) Employees			Large: (37+) Employees					
Costs	Mine Site	Compo-site	Contract	Mine Site	Compo-site	Contract	Mine Site	Compo-site	Contract	Mine Site	Compo-site	Contract or State	Mine Site	Composite	Contract
	\$ -	\$ 5,942	\$ 2,811	\$ -	\$ 5,942	\$ -	\$ -	\$ 83,192	\$ 3,866	\$ -	\$ -	\$ 351	\$ -	\$ 95,077	\$ 7,029

Table IV-7 shows the annual cost to make, file, and maintain the training record for each team member.

The trainer must make, file, and maintain a record of training for each new mine rescue team member in accordance with existing requirements. MSHA estimates that the trainer will take approximately 12 minutes (0.2 hours) per team member to make a record of the training and file it at the mine rescue station. The record of training for each team member must be kept on file at the mine rescue station for a period of 1 year. The annual cost to record the training for each new team member is \$14.27 = (0.2 trainer hours x \$71.34).

Table IV-7: Annual Cost to Make, File, and Maintain the Record of Training for Each New Team Member

Type of Team	# of New Team Members			Annual Cost to Make, File, and Record the Training for Each New Team Member			Total Annual Cost
	(1-19) Employees	(20-500) Employees	(501+) Employees	(1-19) Employees	(20-500) Employees	(501+) Employees	
Mine Site	-	-	-	\$0	\$0	\$0	\$0
Composite	20	300	0	\$285	\$4,280	\$0	\$4,566
Contract	10	13	1	\$137	\$188	\$17	\$342
Total	30	313	1	\$422	\$4,469	\$17	\$4,908

§ 49.18(b) Annual Refresher Training for Existing Mine Rescue Teams.

The MINER Act has requirements for mine rescue team training at each underground coal mine serviced by the team. Final 49.18(b) requires mine rescue team members, including existing mine rescue teams, earning \$31.66 per hour, to have at least 96 hours of refresher training annually (to include travel time from the mine rescue stations to the mine for training). This is an increase of 32 hours relative to the proposed rule and an increase of 56 hours relative to the existing rule. MSHA estimates that the additional cost attributable to annual refresher training, relative to the proposed rule, is approximately \$1.2 million. The MINER Act also requires team members to be knowledgeable about the operations and ventilation at each covered mine.

Final § 49.18(b)(6) requires teams to train at least once a year in smoke, simulated smoke, or an equivalent environment while wearing mine rescue apparatus. MSHA estimates the cost of the smoke for this training to be \$50.

Typically, one trainer, earning \$71.34 per hour, trains two teams concurrently and completes the required record of training. In addition, the trainer needs approximately 4 hours to prepare training materials for the training sessions in addition to the time spent conducting the training.

MSHA anticipates that none of the existing mine rescue teams will discontinue service as a result of the rule. However, the number of mines served by existing mine rescue teams may change. In particular, MSHA estimates that the average number of mines served by contract and State mine rescue teams will decline from approximately 22 mines to approximately 16 mines as a result of the final rule.

Table IV-8 is divided into three sections: (1) the number of existing mine rescue teams, based on 2006 data; (2) the number of mines to which existing mine rescue teams will continue to provide service; and (3) the additional cost for all existing mine rescue teams to provide service under the final rule. The second section estimates the allocation of existing teams to mines by size classification for costing purposes. The allocation under the rule is different from the existing allocation because contract teams and State teams will cover fewer mines on average, because larger mines will rely more on mine-site teams and composite teams, and because composite teams can now serve up to six small mines. Each mine-site team serves one mine and each composite team is assumed to serve three large mines or six small mines. Contract teams and State teams will each serve, on average, 16 mines. Each mine must be covered by two teams.

The third section of Table IV-8 includes the yearly cost for existing mine-site, composite, and contract mine rescue teams to receive the additional 56 hours of annual refresher training, relative to the existing rule, required under § 49.18(b). Table IV-8 also takes into account the 8 hours of credit to compete in mine rescue contests that all mine rescue teams can receive as a result of the final rule. (Existing mine-site, composite, and contract mine rescue teams that currently compete in mine rescue contests already can receive 8 hours of credit under existing policy and, therefore, can only receive an additional 8 hours of credit as a result of the final rule.)

The cost associated with annual refresher training in Table IV-8 for existing mine-site, composite, and contract mine rescue teams is \$1,422,980. MSHA calculated costs by multiplying the additional 56 hours of training time for existing teams. In making the calculation, MSHA used 145 existing teams, team members' hourly wage of approximately \$32, and a trainer's wage of approximately \$71. MSHA multiplied the 145 teams by \$50 for smoke for training.

The third section of Table IV-8 also includes the cost of \$57,482 for existing State mine rescue teams to receive the additional training under § 49.18(b). Section 49.11 allows team members of State-sponsored teams who are full-time State employees whose primary job duties include (1) inspecting underground mines for compliance with State safety laws or (2) training mine rescue teams or (3) other similar duties that would enhance their mine rescue knowledge to substitute their regular job experience for 50 percent of the training requirements for non-State employee mine rescue team members. In response to comments, MSHA estimates that 11 of the State mine rescue teams will qualify for a 50 percent reduction in the 96 hours of annual refresher training requirements in § 49.18(b). These 11 State teams are required to participate in only one rescue mine rescue contest annually and therefore, do not receive an additional 8 hours of credit under the final rule. The net effect is, on average, a 59-hour annual refresher

training requirement for all State mine rescue teams, which is 19 hours more than the 40 hours of annual refresher training under the existing rule.

Table IV-8: Yearly Cost for Annual Refresher Training for Existing Mine Rescue Teams*

Type of Team	Number of Existing Mine Rescue Teams								Total			
	(1-19) Employees		(20-500) Employees				(500+) Employees					
	Small: (1-36) Employees		Small: (1-36) Employees		Large: (37+) Employees		Large: (37+) Employees					
Mine Site	3		5		40		8		56			
Composite	5		7		22		2		36			
Contract	17		11		11		0		38			
State	6		4		5		0		15			
Total	31		26		77		11		145			
Type of Team	# of Mines to Which the Existing Mine Rescue Teams Continue to Provide Mine Rescue Service											
	(1-19) Employees		(20-500) Employees				(500+) Employees				Total	
	Small: (1-36) Employees		Small: (1-36) Employees		Large: (37+) Employees		Large: (37+) Employees					
	# of Mines	# of Teams	# of Mines	# of Teams	# of Mines	# of Teams	# of Mines	# of Teams	# of Mines	# of Teams		
Mine Site	2	3	3	5	20	40	4	8	28	56		
Composite	15	5	21	7	33	22	3	2	72	36		
Contract	129	16	82	11	82	11	4	0	297	38		
State	51	6	32	4	32	4	1	0	117	15		
Total	196	31	138	27	168	77	12	11	514	145		
Type of Team	Additional Cost for Existing Mine Rescue Teams to Continue to Provide Mine Rescue Service								Total			
	(1-19) Employees		(20-500) Employees				(500+) Employees					
	Small: (1-36) Employees		Small: (1-36) Employees		Large: (37+) Employees		Large: (37+) Employees					
Mine Site	\$33,069		\$55,115		\$440,917		\$88,183		\$617,284			
Composite	\$55,115		\$77,160		\$242,504		\$22,046		\$396,825			
Contract	\$181,482		\$116,114		\$116,114		\$5,161		\$418,871			
State ^a	\$24,905		\$15,934		\$15,934		\$708		\$57,482			
Total	\$294,570		\$264,324		\$815,470		\$116,098		\$1,490,462			

* Deviation in totals due to rounding.

^a This cost is an indirect cost to State governments, not a cost to the coal industry.

§ 49.18(b) Annual Refresher Training for New Mine Rescue Teams.

Section 49.18(b) requires mine rescue team members to have at least 96 hours of refresher training annually. This is an increase of 32 hours from the proposed rule and 56 hours from the existing rule to accommodate the additional requirements in the MINER Act. Additional training includes familiarizing team members with the operation of covered mines. It also includes training that enhances knowledge of the operation and ventilation of covered mines. New mine rescue team members need to fulfill these requirements. A team is made up of five members and one alternate, totaling six persons. However, MSHA estimates that, on average, only an additional five persons are needed to make up a new mine-site or composite team because the majority of these types of existing teams have extra persons that can be assigned to new teams. New contract and State teams will need six members because these existing teams do not typically have extra persons available.

Final 49.18(b)(6) requires teams to train at least once a year in smoke, simulated smoke, or an equivalent environment while wearing mine rescue apparatus. MSHA estimates the cost of the smoke for this training to be \$50.

Generally, one trainer trains two teams concurrently and completes the required record of training. The trainer needs approximately 4 hours to prepare training materials for the training sessions in addition to the time spent conducting the training.

Table IV-9 represents the yearly cost for annual refresher training for new mine rescue teams. The table is divided into two sections: (1) the number of mines to which new mine rescue teams will provide service; and (2) the additional cost for all new mine rescue teams to provide service under the final rule. The number of new teams and their allocation to mines by size classification, for costing purposes, in the first section is an estimate. New mine teams are required because contract teams and State teams serve fewer mines on average and because larger mines will rely more on mine-site teams and composite teams. Each mine-site team serves one mine and each composite team is assumed to serve three large mines or six small mines. Contract teams and State teams will each serve, on average, 16 mines. Each mine must be covered by two teams.

The second section of Table IV-9 contains the yearly cost for new mine rescue team members to receive the 96 hours of annual refresher training required under § 49.18(b). Table IV-9 also takes into account the 8 hours of credit to compete in mine rescue contests that all mine rescue teams can receive as a result of the final rule. (Existing mine rescue teams that currently compete in mine rescue contests already can receive 8 hours of credit under existing policy and, therefore, can only receive an additional 8 hours of credit as a result of the final rule.)

The cost associated with annual refresher training in Table IV-9 for new composite and contract mine rescue teams is \$1,184,963. MSHA calculated costs by multiplying the additional 56 hours of training time for new teams. In making the calculation, MSHA used 68 new teams, team members' hourly wage of approximately \$32, and a trainer's wage of approximately \$71. MSHA multiplied the 68 teams by \$50 for smoke for training.

It is the sum of three parts: (1) the number of new teams multiplied by the number of new team members per team (5 for composite teams; 6 for contract teams) multiplied by the additional 96 hours of annual refresher training less 8 hours of credit for

mine rescue contests multiplied by the member's hourly wage of \$31.66; (2) the number of new teams multiplied by $\frac{1}{2}$ (since the trainer trains two teams at once) multiplied by 100 hours (96 hours of annual refresher training plus 4 hours of preparation) less 8 hours of credit for mine rescue contests multiplied by the trainer's wage of \$71.34; and (3) the number of existing teams multiplied by \$50 for smoke for training.

Table IV-9: Yearly Cost for Annual Refresher Training for New Mine Rescue Teams

Type of Team	# of New Mine Rescue Teams								Total	
	(1-19) Employees		(20-500) Employees				(500+) Employees			
	Small: (1-36) Employees		Small: (1-36) Employees		Large: (37+) Employees		Large: (37+) Employees		# of Mines	# of Teams
	# of Mines	# of Teams	# of Mines	# of Teams	# of Mines	# of Teams	# of Mines	# of Teams		
Mine Site	0	0	0	0	0	0	0	0	0	0
Composite	12	4	12	4	84	56	0	0	108	64
Contract	12	2	0	0	17	2	2	0	31	4
State	0	0	0	0	0	0	0	0	0	0
Total	24	6	12	4	101	58	2	0	139	68

Type of Team	Cost for New Mine Rescue Teams				Total	
	(1-19) Employees		(20-500) Employees			
	Small: (1-36) Employees		Small: (1-36) Employees		Large: (37+) Employees	
Mine Site	\$0	\$0	\$0	\$0	\$0	\$0
Composite	\$69,048	\$69,048	\$966,674	\$0	\$1,104,771	
Contract	\$32,077	\$0	\$44,106	\$4,010	\$80,192	
State	\$0	\$0	\$0	\$0	\$0	
Total	\$101,125	\$69,048	\$1,010,780	\$4,010	\$1,184,963	

§ 49.20(a)(2) Participation in Two Local Mine Rescue Contests

Final § 49.20(a)(2), in accordance with the MINER Act, requires each mine rescue team to participate in at least two local mine rescue contests annually. Mine rescue contests are designed to sharpen skills and test the knowledge of team member who are needed to respond to a mine emergency.

To participate, according to contest rules, mine rescue teams are required to have a seven-person team—five members, one briefing officer, and one patient.⁵ MSHA estimates that the cost of an entry fee to participate in a local contest is \$350. In response to public comments, MSHA has increased the cost of supplies from \$120 to \$200, and the cost of miscellaneous expenses, including travel costs, from \$100 to \$450. Thus, MSHA estimates that the total fees, supplies, and miscellaneous expenses to compete in a local contest is \$1,000 per mine rescue team. In response to comments, MSHA increased its estimate of the time it takes a team to compete in a local contest from six hours to eight hours, and estimates two hours to travel to and from the contest.

There is no existing requirement that teams participate in local mine rescue contests. However, a number of teams currently participate in local contests, as well as in the national contest. Based on the Agency's knowledge and experience, MSHA estimates that 44 of the existing mine rescue teams participate in two contests annually. MSHA assumes that those mine rescue teams that currently participate in two mine rescue contests will not incur additional costs from § 49.20(a)(2), and by existing policy, they receive up to 8 hours credit toward annual refresher training. As a result, for cost purposes, these mine rescue teams will receive only 8 additional hours of credit to compete in mine rescue contests under the final rule (with these 8 additional hours already reflected in Table IV-8).

For new mine rescue teams and existing teams that do not currently participate in mine rescue contests, the 16 hours to compete in local contests each year can be credited toward annual refresher training, whose costs and 8 hours of credit for mine rescue team contests were previously calculated in Table IV-8 and Table IV-9. MSHA assumes that the 10 State teams that do not currently participate in mine rescue team contests are required to participate in only one contest annually under the final rule.

Table IV-10 presents the number of additional existing and new mine rescue teams, by type, that must compete in local mine rescue contests as result of the rule, and Table IV-11 presents the cost for these mine rescue teams to participate in two local contests.

The cost associated with mine rescue contests in Table IV-11 for mine-site, composite, and contract mine rescue teams that do not currently participate in mine rescue contests is \$740,849. It is the sum of two parts: (1) the number of mine rescue teams that do not currently participate in mine rescue contests multiplied by \$1,000 for all fees, supplies, and miscellaneous expenses per local contest multiplied by 2 local contests; and (2) the number of mine rescue teams that do not currently participate in

⁵ *Mine Rescue Rules*.
<http://www.msha.gov/MineRescue/CONTEST/2007Coal/Rules/2007Rules.asp>, March 29, 2007. The patient does not have to be a trained mine rescue team member.

mine rescue contests multiplied 7 team members multiplied by 12 hours (16 hours for 2 contests plus 4 hours travel for 2 contests minus 8 hours of additional credit for mine rescue contests) multiplied by the member's wage of \$31.66.

The cost associated with mine rescue contests in Table IV-11 for State teams that do not currently participate in mine rescue contests is \$15,111. It is the sum of two parts: (1) the number of mine rescue teams that do not currently participate in mine rescue contests multiplied by \$1,000 for all fees, supplies, and miscellaneous expenses per local contest multiplied by 1 local contest; and (2) the number of mine rescue teams that do not currently participate in mine rescue contests multiplied 7 team members multiplied by 2 hours (8 hours for 1 contest plus 2 hours travel for 1 contest minus 8 hours of credit for one mine rescue contest) multiplied by the member's wage of \$31.66.

Table IV-10: The Number of Additional Mine Rescue Teams that Must Participate in Local Contests

Type of Team	# of Existing Teams that Do Not Currently Compete in Contests ^a				# of New Teams ^b			
	(1-19) Employees	(20-500) Employees	(501+) Employees	Total	(1-19) Employees	(20-500) Employees	(501+) Employees	Total
Mine Site	2	32	6	39	0	0	0	0
Composite	4	20	1	25	4	60	0	64
Contract	12	15	0	27	2	2	0	4
State	4	6	0	10	0	0	0	0
Total	22	72	7	101	6	62	0	68

^a # of existing teams that do not compete in contests = 70% of existing teams (from Table IV-8).

^b # of new teams (from Table IV-9).

Table IV-11: Annual Cost for Mine Rescue Teams to Compete in Local Mine Rescue Contests under § 49.20(a)(2)

Type of Team	Total # of Existing & New Teams Competing in Local Mine Contests as Result of the Rule ^a			Annual Cost			Total Annual Cost
	(1-19) Employees	(20-500) Employees	(501+) Employees	(1-19) Employees	(20-500) Employees	(501+) Employees	
Mine Site	2	32	6	\$9,785	\$146,772	\$26,093	\$182,650
Composite	8	80	1	\$34,946	\$374,153	\$6,523	\$415,622
Contract	13	17	0	\$61,272	\$79,071	\$2,234	\$142,577
State ^b	4	6	0	\$6,466	\$8,486	\$159	\$15,111
Total	27	135	8	\$112,468	\$608,482	\$35,010	\$755,960

^a Source: Table IV-10.

^b This cost is an indirect cost to State governments, not a cost to the coal industry. These State teams are required to participate in only one mine rescue contest annually.

§ 49.50 Certification of Mine Rescue Teams

All underground coal mine operators must certify that each of the mine's designated rescue teams meets the certification requirements in the final rule. To meet the requirements, the mine operator must send the District Manager an initial statement certifying that each team meets the requirements in Table 49.50A (Initial Criteria to Certify the Qualifications of Mine Rescue Team) and an annual statement certifying that each team meets the requirements in Table 49:50B (Annual Criteria to Certify the Qualifications of Mine Rescue Team). MSHA estimates that it will take a mine supervisor approximately 30 minutes (0.5 hours) in total to prepare both the initial and annual statements certifying two mine rescue teams, and approximately one minute (0.0167 hours) for a clerical employee to send in the certification. MSHA estimates that it will cost \$1 for postage and handling. The total cost per mine operator to certify two mine rescue teams will be \$37 = [(0.5 supervisor hours x \$71.34) + (0.0167 clerical employee hours x \$25.47) + \$1 for postage and handling].

Table IV-12 shows the costs to certify mine rescue teams in accordance with § 49.50.

Table IV-12: Cost for Mine Operators to Certify Two Mine Rescue Teams in Accordance with § 49.50

Mine Size	# of Underground Mines ^a	Cost for a Mine Operator to Certify Two Teams	Total Cost
(1-19) Employees	220	\$37	\$8,161
(20-500) Employees	420	\$37	\$15,580
(501+) Employees	13	\$37	\$482
Total	653		\$24,223

^a Source: Table IV-2.

§ 49.60 (a)(5) Contest Judges.

MSHA estimates that this provision does not impose any additional cost on underground coal mine operators because based on Agency experience, industry representatives typically have not served as judges at mine rescue contests.

§ 75.1501 Emergency Evacuations.

The MINER Act requires the operator to have a person employed on each shift who is knowledgeable in mine emergency response. Final 75.1501(a) requires that the responsible person have current knowledge about the mine’s Emergency Response Plan (ERP), the Mine Rescue Notification Plan, and the Mine Emergency Evacuation and Firefighting Program of Instruction. It also requires that the responsible person be trained annually in mine emergency response, in a course prescribed by MSHA.

MSHA believes that there will be a backup responsible person for each mine shift because there will be times when the responsible person cannot be at the mine site. MSHA estimates that it will take approximately two hours for a trainer to train the responsible person. Generally, the responsible person and the backup will be mine supervisors. The annual cost to train a responsible person and a backup per mine per shift will be \$428 = (2 hours training time x 3 persons [trainer, responsible person, backup] x \$71.34 wage rate).

The operator must certify by signature and date after each responsible person has completed the training and keep the certification at the mine for one year. It will take a mine supervisor approximately 90 seconds (0.025 hours) to certify the training, and it will take a clerical employee 30 seconds (0.00833 hours) to file each certification. The annual cost to certify a responsible person and a backup per mine per shift will be \$4 = ((0.025 supervisor hours x \$71.34 x 2 persons) + (0.00823 clerical employee hours x \$25.47 x 2 persons)).

On average, mines with 1-19 employees operate one shift; mines with 20-500 employees operate two shifts; and mines with 501+ employees operate three shifts.

Table IV-13 presents the cost associated with the training and certification of a responsible person and a backup on each shift in accordance with this section of the rule.

Table IV-13: Annual Cost for Mine Operators to Train a Responsible Person Under § 75.1501

Mine Size	# of Underground Coal Mines ^a	Average # of Shifts	Cost to Train a Responsible Person and a Backup	Cost to Certify a Responsible Person and a Backup	Total Annual Cost ^b
(1-19) Employees	220	1	\$428	\$4	\$95,047
(20-500) Employees	420	2	\$428	\$4	\$362,906
(501+) Employees	13	3	\$428	\$4	\$16,849
Total	653				\$474,803

^a Source: Table IV-2.

^b Total cost = (cost to train a responsible person and a backup + cost to certify the training of a responsible person and a backup) x # of underground coal mines x # of shifts.

FEASIBILITY

The final rule implements Section 4 of the MINER Act. MSHA has concluded that the requirements of the rule are technologically and economically feasible.

Technological Feasibility

This rule is not a technology-forcing standard and does not involve new scientific knowledge. The requirements of the rule involve training and purchase of equipment and a requirement that mine rescue team members must be within one hour ground travel time from the station to the mine. MSHA has concluded that the rule is technologically feasible.

Economic Feasibility

The total cost of the final rule is approximately \$4.8 million annually for all underground coal mine operators. These compliance costs are well under 1 percent of the yearly revenues of \$13.7 billion for these underground coal mine operators. MSHA concludes that the amount of these costs supports its finding that the final rule is economically feasible.

V. REGULATORY FLEXIBILITY CERTIFICATION

INTRODUCTION

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 rule on small entities. Based on that analysis, MSHA certifies that the rule does 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 below.

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's (SBA's) 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 established an alternative definition, and hence is required to use the SBA's definition. The SBA defines a small entity in the mining industry as an establishment with 500 or fewer employees.

MSHA has also examined the impact of this rule on underground coal mines with fewer than 20 employees, which MSHA has 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, the cost of complying with MSHA's rule and the impact of the rule on small mines will also be different.

In addition, MSHA has examined the cost of compliance for underground coal mines with 36 or fewer employees, consistent with the requirements of the MINER Act, to assure that the rule does not significantly and adversely impact this subset of mines. Thus, the detailed factual basis below also shows the economic impact on underground coal mines with 36 or fewer employees.

FACTUAL BASIS FOR CERTIFICATION

General Approach

MSHA initially evaluates the economic impact on "small entities" by comparing the estimated costs of a rule for small entities to the estimated revenues. When estimated costs are less than 1 percent of estimated revenues for the size categories considered, MSHA believes it is generally appropriate to conclude that there is not a significant economic impact on a substantial number of small entities. If the estimated costs are equal to or exceed 1 percent of revenues, MSHA will investigate whether a further analysis is required. For this final rule, MSHA has determined that the estimated costs are less than one percent of the estimated revenues. Therefore, MSHA certifies that this rule does not have a significant economic impact on small entities.

Derivation of Costs and Revenues

The compliance costs in this chapter were previously presented in Chapter IV of this document along with an explanation of how they were derived.

Coal mining revenues are based on the total amount of coal production in tons and the price of coal per ton. Total underground coal production in 2006 was 359 million tons. In 2006, the price of underground coal was \$38.28 per ton. Thus, the total estimated revenue in 2006 for underground coal production using the 2006 price was \$13.7 billion. Using the same approach, MSHA estimated 2006 underground coal revenue by employment size category to be approximately \$0.3 billion for the 220 mines with 1-19 employees; \$1.4 billion for the 399 mines with 1-36 employees; and \$10.6 billion for the 640 mines with 1-500 employees.

Results of Screening Analysis

Table V-1 below shows that when dividing the yearly compliance costs by the annual revenues in each mine size category, the cost of the rule for underground coal mines is 0.38 percent of revenues for mines with 1-19 employees, 0.14 percent of revenues for mines with 1-36 employees, and 0.04 percent of revenues for mines with 1-500 employees. Table V-1 also shows the cost as a percentage of revenues to be 0.03 percent for all underground coal mines.

Table V-1 further shows that the rule results in an average yearly cost per underground coal mine of: \$5,157 for mines with 1-19 employees; \$4,908 for mines with 1-36 employees; and \$7,162 for mines with 1-500 employees. The average yearly cost per mine is \$7,287 for all underground coal mines.

Table V-1: Cost of the Rule Compared to Mine Revenues, by Mine Size

Underground Coal Mines					
Employment Size	# of Mines	Cost of the Rule	Estimated Revenue (Millions)	Cost Per Mine	Cost of Rule as % of Revenue
(1-19) Employees	220	\$1,134,497	\$299	\$5,157	0.38%
(1-36) Employees	399	\$1,958,462	\$1,417	\$4,908	0.14%
(1-500) Employees	640	\$4,583,997	\$10,622	\$7,162	0.04%
All mines	653	\$4,758,134	\$13,725	\$7,287	0.03%

As shown in Table V-1, when applying MSHA's, SBA's, and the MINER Act's definition of small entities, the cost of the rule to small mines is substantially less than one percent of estimated revenues. Accordingly, MSHA has certified that the rule does not have a significant economic impact on a substantial number of small entities.

VI. OTHER REGULATORY CONSIDERATIONS

THE UNFUNDED MANDATES REFORM ACT OF 1995

MSHA has reviewed the rule under the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 et seq.). The rule does not increase private sector expenditures by more than \$100 million annually; nor does it significantly or uniquely affect small governments. The rule may result in increased expenditures by State, local, or tribal governments, however, because it places new requirements on underground coal mine operators in providing and training mine rescue teams. These changes do not directly affect States or their relationships with the national government; however, some States sponsor mine rescue teams.

THE TREASURY AND GENERAL GOVERNMENT APPROPRIATIONS ACT OF 1999: ASSESSMENT OF FEDERAL REGULATIONS AND POLICIES ON FAMILIES

Section 654 of the Treasury and General Government Appropriations Act of 1999 (5 U.S.C. 601 note) requires agencies to assess the impact of agency actions on family well-being. MSHA has determined that this rule has no effect on family stability or safety, marital commitment, parental rights and authority, or income or poverty of families and children. Accordingly, MSHA certifies that this rule does not impact family well-being.

EXECUTIVE ORDER 12630: GOVERNMENT ACTIONS AND INTERFERENCE WITH CONSTITUTIONALLY PROTECTED PROPERTY RIGHTS

The rule does not implement a policy with takings implications. Accordingly, E.O. 12630 requires no further Agency action or analysis.

EXECUTIVE ORDER 12988: CIVIL JUSTICE REFORM

The 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 rule meets the applicable standards provided in Section 3 of E.O. 12988.

EXECUTIVE ORDER 13045: PROTECTION OF CHILDREN FROM ENVIRONMENTAL HEALTH RISKS AND SAFETY RISKS

This rule has no adverse impact on children. Accordingly, under E.O. 13045, no further Agency action or analysis is required.

EXECUTIVE ORDER 13132: FEDERALISM

Executive Order (E.O.) 13132 requires MSHA to develop an accountability process to ensure 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 rule places new requirements on underground coal mine operators in providing and training mine rescue teams. These changes do not directly affect States or their relationships with the federal government. Although the rule does not directly affect States, some States sponsor mine rescue teams.

EXECUTIVE ORDER 13175: CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS

This rule does not have “tribal implications,” because it does 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 requires no further Agency action or analysis.

EXECUTIVE ORDER 13211: ACTIONS CONCERNING REGULATIONS THAT SIGNIFICANTLY AFFECT ENERGY SUPPLY, DISTRIBUTION, OR USE

Executive Order 13211 requires agencies to publish a statement of energy effect when a rule has a significant energy action that adversely affects energy supply, distribution, or use. MSHA has reviewed the rule because it applies to the underground coal mining industry. Because this rule results in yearly costs of approximately \$4.8 million to the underground coal mining industry, relative to annual revenues of \$13.7 billion in 2006, it is not likely to have a significant adverse effect on the supply, distribution, or use of energy, and thus, is not a significant energy action. Accordingly, E.O. 13211 requires no further Agency action.

EXECUTIVE ORDER 13272: PROPER CONSIDERATION OF SMALL ENTITIES IN AGENCY RULEMAKING

MSHA has thoroughly reviewed the final rule 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 the final rule will not have a significant economic impact on a substantial number of small entities.

VII. PAPERWORK REDUCTION ACT OF 1995

INTRODUCTION

The purpose of this chapter is to show the burden hours and related costs to underground coal mine operators as a result of the rule. The costs in this chapter are derived from Chapter IV of this REA. However, in this chapter, costs are estimated only in relation to the burden hours that the rule imposes. Therefore, not all costs derived in Chapter IV appear below. Those costs derived in Chapter IV that do not have information collection burden hours related to them do not appear in this chapter.

SUMMARY OF PAPERWORK BURDEN HOURS AND RELATED COSTS

The mine rescue team rule continues to make use of the existing paperwork burden requirements and imposes several new paperwork burden requirements. Section 49.16 continues to require certification of inspection and testing of breathing apparatus, as well as a record of any corrective action taken for breathing apparatus. Section 49.18 continues to require a record of each new mine rescue team member's training. The Office of Management and Budget (OMB) has approved these requirements, which are in existing §§ 49.6, and 49.8 under OMB control number 1219-0078. In addition, § 49.50 imposes a new annual paperwork burden for mine operators to certify that each designated mine rescue team meets the requirements of this part and § 75.1501(a) requires mine operators to certify that each responsible person has completed the required mine emergency response training.

Overall, the underground coal industry will incur approximately 1,387 paperwork burden hours annually with associated paperwork burden costs of approximately \$61,587.

§ 49.16 Equipment and Maintenance Requirements.

Section 49.16(b) requires a person trained in the use and care of breathing apparatus inspect and test the apparatus at intervals not exceeding 30 days and certify by signature and date that the inspections and tests were done. 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. The certification and the record of corrective action must be maintained at the mine rescue station for a period of one year and made available upon request to an MSHA inspector.

This requirement imposes a paperwork burden on the 28 new mine rescue stations estimated to be created under the rule. MSHA requires that each mine rescue station have at least 12 breathing apparatus. MSHA estimates that it takes an average of 6 minutes (0.1 hours) to certify and file the certification for each apparatus. MSHA further estimates that, on average, each apparatus requires corrective action six times a year and that it will take approximately 15 minutes (0.25 hours) to record and file each corrective action. MSHA's experience is that team members inspect, maintain, and certify the apparatus and record the corrective actions. Table VII-1 shows the burden hours and costs associated with the requirement in § 49.16(b).

Table VII-1: Paperwork Burden Hours and Costs Associated with Equipment Maintenance Requirements in § 49.16

Mine Size	# of New Mine Rescue Stations ^a	Time to Certify & File the Certification for Each Apparatus (hours) ^b	Time to Record & File Corrective Actions (hours) ^c	Total Paperwork Burden Hours ^d	Total Annual Burden Cost ^e
(1-19) Employees	19	273.6	342	616	\$19,490
(20-500) Employees	9	129.6	162	292	\$9,232
(501+) Employees	0	0	0	0	\$0
Total	28	403.2	504	907	\$28,722

^a Source: Table IV-4.

^b Time to certify & file the certification for each apparatus = (# of new mine rescue stations x A x 12 x T), where A is the # of apparatus per new mine rescue station (A=12); 12 is the # of inspections per year; and T is the time needed to certify and file the certification for each apparatus (T=0.1 hours).

^c Time to record & file corrective actions = (# of new mine rescue stations x A x 6 x T), where A is the # of apparatus per new mine rescue station (A=12); 6 is the # of corrective actions taken a year for each apparatus; and T is the time it would take to record and file it (T=0.25 hours).

^d Total burden hours = (time to certify & file the certification for each apparatus + time to record & file corrective actions).

^e Total annual burden cost = total paperwork burden hours x W_t , where W_t is the hourly wage rate for a team member (W_t =\$31.66).

§ 49.18 Training for Mine Rescue Team Members.

Under § 49.18, a record of training for each team member must be kept on file at the mine rescue station for a period of one year. MSHA estimates that the trainer needs approximately 12 minutes (0.20 hours) to make, file, and maintain a record of training for each new team member. Table VII-2 summarizes the burden hours and costs associated with the recordkeeping requirement of this section.

Table VII-2: Annual Burden Hours and Costs to Record Training for Members of New Mine Rescue Teams in § 49.18

Type of Team	# of Hours to Record Training for New Team Members ^a			Cost to Record Training for New Team Members ^b			Total Annual Cost
	(1-19) Employees	(20-500) Employees	(501+) Employees	(1-19) Employees	(20-500) Employees	(501+) Employees	
Mine Site	0.0	0.0	0.0	\$0	\$0	\$0	\$0
Composite	4.0	60.0	0.0	\$285	\$4,280	\$0	\$4,566
Contract or State	1.9	2.6	0.2	\$137	\$188	\$17	\$342
Total	5.9	62.6	0.2	\$422	\$4,469	\$17	\$4,908

^a # of hours to record training for new team members = # of new team members x T_s , where the # of new team members comes from Table IV-7; T_s is the average # of hours for a trainer to prepare the certification for each new team member and file it at the mine rescue station ($T_s=0.20$ hours).

^b Cost to to record training for new team members = (# of hours to record training for new team members x W_s), where W_s is the hourly wage rate for a trainer ($W_s=\$71.34$).

§ 49.50 Certification of Mine Rescue Teams

Section 49.50 requires that for each mine rescue team designated to provide mine rescue coverage at an underground coal mine, the mine operator must send the District Manager an annual statement certifying that each team meets the certification criteria. Each underground coal mine operator has to certify two mine rescue teams. MSHA estimates that it will take a mine supervisor approximately 30 minutes (0.5 hours) to certify two mine rescue teams, and a clerical employee one minute (0.167 hours) to send MSHA the certification. Table VII-3 shows the paperwork burden hours and costs to certify mine rescue teams.

Table VII-3: Annual Burden Hours and Costs for Mine Operators to Certify Two Mine Rescue Teams in Accordance with § 49.50

Mine Size	# of Underground Coal Mines ^a	Total Annual Burden Hours for Mine Operators ^b	Total Annual Cost ^c
(1-19) Employees	220	113.7	\$7,941
(20-500) Employees	420	217.0	\$15,160
(501+) Employees	13	6.7	\$469
Total	653	337.4	\$23,570

^a Source: Table IV-2.

^b Annual burden hours for mine operators = $[(T_s + T_c) \times \# \text{ of underground coal mines}]$, where T_s is the number of hours it will take for a mine supervisor to certify two teams ($T_s=0.5$ hours); and T_c is the # of hours it will take a clerical employee to mail the certification ($T_c=0.0167$ hours).

^c Total annual cost = $[(T_s \times W_s) + (T_c \times W_c)]$, where T_s is the number of hours it will take for a mine supervisor to certify two teams ($T_s=0.5$ hours); W_s is the hourly wage rate for a mine supervisor ($W_s=\$71.34$); T_c is the # of hours it will take a clerical employee to mail the certification ($T_c=0.0167$ hours); W_c is the hourly wage rate for a clerical employee ($W_c=\$25.47$).

§ 75.1501 Emergency Evacuations.

The MINER Act requires the operator to have a person employed on each shift who is knowledgeable in mine emergency response. Section 75.1501 amends existing § 75.1501 (a) to require that the responsible person also have current knowledge about the mine's ERP. It also requires the responsible person be trained annually in mine emergency response using a course prescribed by MSHA.

MSHA believes that there will be a backup for the responsible person for each shift because there are times when the responsible person cannot be at the mine site. The operator must certify by signature and date after each responsible person has completed the training and keep the certification at the mine for one year. It will take a mine supervisor approximately 90 seconds (0.025 hours) to certify the training and it will take a clerical employee half a minute (0.00833 hours) to file the training certification. On average, mines with 1-19 employees operate one shift, mines with 20-500 employees operate two shifts, and mines with 501+ employees operate three shifts. Table VII-4 presents the annual burden hours and costs associated with certifying the training of a responsible person and a backup person in accordance with this section.

Table VII-4: Annual Burden Hours and Costs to Certify the Training of a Responsible Person in Accordance with § 75.1501

Mine Size	# of Underground Coal Mines ^a	Average # of Shifts	Total # of Annual Burden Hours to Certify a Responsible Person ^b	Total Annual Cost to Certify a Responsible Person ^c
(1-19) Employees	220	1	14.7	\$878
(20-500) Employees	420	2	56.0	\$3,353
(501+) Employees	13	3	2.6	\$156
Total	653		73.3	\$4,387

^a Source: Table IV-2.

^b Total # of annual burden hours to certify the training of a responsible person = $[(T_s + T_c) \times N \times S \times \# \text{ of underground coal mines}]$, T_s is the # of hours it will take for another supervisor to certify the responsible person or the backup receiving training ($T_s=0.025$ hours); T_c is the # of hours that it will take a clerical employee to file the training certification ($T_c=0.00833$ hours); N is the # of people who need to be certified ($N=2$); and S is the # of shifts.

^c Total annual cost to certify the training of a responsible person = $[(T_s \times N \times S \times W_s) + (T_c \times N \times S \times W_c)] \times \# \text{ of underground coal mines}$, where T_s is the # of hours it will take for another supervisor to certify that the responsible person or the backup received the training ($T_s=0.025$ hours); N is the # people who need to be certified ($N=2$); T_c is the # of hours that it will take a clerical employee to file the training certification ($T_c=0.00833$ hours); S is the # of shifts; W_s is the hourly wage rate for a mine supervisor ($W_s=\$71.34$); and W_c is the hourly wage rate for a clerical employee ($W_c=\$25.47$).

VIII. REFERENCES

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