

REGULATORY ECONOMIC ANALYSIS
AND
REGULATORY FLEXIBILITY ANALYSIS

FINAL RULE ON 30 CFR PARTS 48 AND 75

EMERGENCY EVACUATIONS

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I. EXECUTIVE SUMMARY

INTRODUCTION

The Mine Safety and Health Administration (MSHA) is issuing a final rule in response to recent fatalities during mine emergencies which required an evacuation of the mine. The final rule requires operators of underground coal mines to designate a responsible person in attendance at the mine to take charge during mine emergencies involving a fire, explosion, or gas or water inundation. The final rule requires the responsible person to initiate and conduct a mine-wide evacuation when the mine emergency presents an imminent danger to miners. Only properly trained and equipped persons essential to respond to the mine emergency may remain underground. Operators must instruct all miners about the identity of the responsible person. The final rule also broadens the program of instruction for firefighting and evacuation to address other mine-wide emergencies. Finally, revisions have been made to part 48 training requirements to insure that annual refresher training addresses mine emergency evacuations.

Executive Order 12866 requires that regulatory agencies assess both the costs and benefits of intended standards and regulations. We have fulfilled this requirement for this final rule and determined that it would not have an annual effect of \$100 million or more on the economy. Therefore, we do not consider this final rule to be economically significant under §3(f)(1) of Executive Order 12866.

BENEFITS SUMMARY

The final rule ensures that operators and miners have a clear understanding of actions and procedures to be followed in the event of mine emergencies involving a fire, explosion, or gas or water inundation. MSHA estimates that this final rule will prevent an average of 1.1 fatalities every year, as well as prevent additional injuries. The actual number of fatalities prevented could be much larger.

COMPLIANCE COST SUMMARY

The final rule will cost underground coal mine operators approximately \$232,000 annually. The largest cost component of the final rule is to inform miners about changes in the identity of the responsible person on each shift. The second largest cost component is the interruption of production due to additional "false" evacuations.

REGULATORY FLEXIBILITY CERTIFICATION AND ANALYSIS

In accordance with section 605 of the Regulatory Flexibility Act, we certify that the final 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 Regulatory Flexibility Act, we must include in the final rule a factual basis for this certification. The Agency must also publish the regulatory flexibility certification statement in the *Federal Register*, along with the factual basis, followed by an opportunity for the public to comment on the requirements of the final rule. The analysis that provides the factual basis for this certification is discussed in

Chapter V of this Regulatory Economic Analysis (REA) and is included in the preamble to the final rule that is published in the *Federal Register*. We have consulted with the Small Business Administration's (SBA's) Office of Advocacy and believe 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 coal mining industry. We will focus on the underground coal mining sector wherever such data are available since the final rule would affect only underground coal mines.

The industry profile captures data on the number of mines, mine size, and mine employment. A detailed economic picture of the coal mining industry is difficult to develop because most mines are either privately held corporations, sole proprietorships, or subsidiaries of publicly owned companies. Privately held corporations and sole proprietorships are not required to make their financial data available to the public. Further, parent companies are not required to separate financial data for subsidiaries in their reports to the Securities and Exchange Commission. As a result, financial data are available for only a few coal and metal/nonmetal (M/NM) companies. Such data are not representative of the entire mining community.

THE STRUCTURE OF THE COAL MINING INDUSTRY

MSHA divides the mining industry into two major sectors, which are coal mines and M/NM mines. The value of the U.S. mining industry for both coal and M/NM production in 2001 was estimated at about \$55.5 billion, or 0.6 percent of 2001 Gross Domestic Product (GDP).¹ Coal mining contributed about \$17.1 billion to the GDP.² The M/NM mining sector contributed about \$38.3 billion.³ These two sectors are further divided by operation type (i.e., underground mines or surface mines). The Agency maintains its own database on the number of mines, mine type, size, and employment. Also, MSHA collects data on the number of independent contractors and contractor employees by major industry sector.

MSHA categorizes mines by size based on employment. For the past 20 years, for rulemaking purposes, the Agency has consistently defined a small mine to be one employing fewer than 20 employees and a large mine to be one employing 20 or more employees. However, to comply with the requirements of the Small Business Regulatory Enforcement Fairness Act (SBREFA) amendments to the Regulatory Flexibility Act (RFA), MSHA must use the Small Business Administration's (SBA's) criteria for a small

¹ GDP estimates obtained from U.S. Department of the Interior, U.S. Geological Survey, *Mineral Commodity Summaries 2003*, January 2003, p. 7.

² Coal production obtained from U.S. Department of Labor, Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data. Average U.S. coal price estimates obtained from the Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52.

³ U.S. Department of the Interior, U.S. Geological Survey, *Mineral Commodity Summaries 2003*, January 2003, p. 7.

entity when determining a rule's economic impact. For the mining industry, SBA defines a small entity as one employing 500 or fewer employees.

Table II-1 presents the number of small and large underground and surface coal mines and their employment, excluding contractor firms and contractor workers. These mines reported production during some portion of the calendar year 2001. Table II-1 uses three mine size categories based on employment: (1) fewer than 20 employees (MSHA's traditional small mine definition); (2) 20 to 500 employees; and (3) more than 500 employees. Table II-1 shows that, of all coal mines, about 35 percent are underground mines that employ about 52 percent of miners, while 65 percent are surface mines that employ about 48 percent of miners.

**Table II-1: Distribution of Coal Operations and Employment
(Excluding Contractor Firms and Contractor Workers) by Mine Type and Size, 2001**

Mine Type	Size of Coal Mines *									All Coal Mines		
	< 20 Employees			20 to 500 Employees			> 500 Employees					
	Mines	Miners	Office Emp.	Mines	Miners	Office Emp.	Mines	Miners	Office Emp.	Mines	Miners	Office Emp.
Underg.	277	2,814	85	380	30,621	849	7	3,744	114	664	37,179	1,048
Surface	801	5,019	405	443	27,737	1,895	3	1,830	60	1,247	34,586	2,360
Total	1,078	7,833	490	823	58,358	2,744	10	5,574	174	1,911	71,765	3,408

*Based on MSHA's traditional definition, small mines are those in the <20 employees category. Based on SBA's definition, small mines are those in the <20 employees and 20 to 500 employees categories.

Source: U.S. Department of Labor Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, calendar year 2001 data.

Agency data in Table II-1 indicate that there were 664 underground coal mines that reported production during some portion of calendar year 2001. When applying MSHA's small mine definition (fewer than 20 workers), 277 (about 42 percent) were small mines and 387 (about 58 percent) were large mines. Using SBA's small mine definition, 7 mines (1.1 percent) were large mines and the rest were small mines.

Underground coal mine employment in 2001 was 38,227, of which 37,179 were miners and 1,048 were office workers. Based on MSHA's small mine definition, 2,814 coal miners (8 percent of underground coal miners) worked at small mines and 34,365 miners (92 percent of underground coal miners) worked at large mines. Using SBA's small mine definition, 33,435 coal miners (90 percent of underground coal miners) worked at small mines and 3,744 coal miners (10 percent of underground coal miners) worked at large mines. Based on the Agency's small mine definition, on average, each small underground coal mine employed 10 miners and each large coal mine employed 89 miners. Using SBA's small mine definition, on average, each small coal mine employed 51 miners and each large coal mine employed 557 miners.

Table II-2 presents corresponding data on the number of independent coal contractors and their employment for calendar year 2001. Table II-2 shows that there were 863 underground coal contractors. Using MSHA's definition of a small mine, 752 (87 percent) were small and 111 (13 percent) were large. When applying SBA's definition, all but one of the underground coal contractors were small (99.9 percent).

Table II-2: Distribution of Coal Contractor Firms and Contractor Employment by Size of Operation, 2001

Contr. Type	Size of Coal Contractor *									All Coal Contractors		
	< 20 Employees			20 to 500 Employees			> 500 Employees			Firms	Emp.	Office Emp.
	Firms	Emp.	Office Emp.	Firms	Emp.	Office Emp.	Firms	Emp.	Office Emp.			
Underg.	752	3,257	249	110	5,951	354	1	234	119	863	9,442	722
Surface	1,783	7,871	602	262	14,378	856	1	565	287	2,046	22,814	1,745
Total	2,535	11,128	851	372	20,329	1,210	2	799	406	2,909	32,256	2,467

* Based on MSHA's traditional definition, small contractors are those in the <20 employees category. Based on SBA's definition, small contractors are those in the <20 employees and 20 to 500 employees categories.

Source: U.S. Department of Labor Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data, and U.S. Department of Labor, Mine Safety and Health Administration, 2001 Final Data, CT441 Report, cycle 2001/207.

Table II-2 shows that there were 863 underground coal contractor firms employing a total of 10,164 contractor workers, of which 9,442 worked in underground coal mining operations and another 722 worked in offices. Using MSHA's small mine definition, 3,257 (34 percent) of contractor workers, excluding office workers, worked for small contractors while 6,185 (66 percent), excluding office workers, worked for large contractors. When applying SBA's definition of a small entity, 9,208 contractor workers (98 percent) worked for small contractors.

ECONOMIC CHARACTERISTICS OF THE COAL MINING INDUSTRY

Coal mining in the U.S. can be classified into two major commodity groups: bituminous and non-bituminous. About 92 percent of total coal production is bituminous. The remaining 8 percent of production is mostly lignite.⁴

Mines east of the Mississippi River accounted for about 47 percent of coal production in 2001. For the period 1949 through 2001, coal production east of the Mississippi River ranged, from a low of 395 million tons in 1954 to a high of 630 million tons in 1990; 2001 production was estimated at 526 million tons. During this same period, however, coal production west of the Mississippi increased each year from a low of 20 million tons in 1959 to an estimated record high of 596 million tons in 2001.⁵ Growth in western coal mines is due, in part, to environmental concerns that increase

⁴ U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2001*, November 2002, Table 7.2, p. 203.

⁵ *Ibid.*

demand for low-sulfur coal, which is in abundance in the West. In addition, surface mining, with its higher average productivity, is much more prevalent in the West.

The U.S. coal sector produced approximately 964 million short tons of coal in 2001. The total value of U.S. coal production in 2001 was estimated at \$17.1 billion. Underground coal mines accounted for \$9.2 billion, while surface coal mines accounted for \$7.9 billion.⁶ Based on MSHA's definition, small mines produced about 32.6 million tons, valued at \$573 million, or about 3 percent of domestic coal production and coal revenues. Based on SBA's definition, small mines produced 918 million tons, valued at \$16.0 billion, or about 95 percent of coal production and about 94 percent of coal revenues.⁷

Average domestic coal prices (nominal and real prices) for the period 1950-2001 are presented in Table II-3. The nominal price is the price not adjusted for inflation. The real price is the price of coal after it has been adjusted for inflation by using constant dollars from a particular year (in Table II-3, the real price is in terms of 1996 dollars). During this period the inflation-adjusted, or real, price of coal has generally declined. The one exception was a spike in coal prices during the OPEC petroleum price increases in the 1970s. The real price of coal in 2001 was approximately 47 percent lower than in 1950.⁸ The real price of coal per Btu was approximately 39 percent lower in 2001 than in 1950, which has caused coal to become the least expensive of the major fossil fuels in terms of dollars per Btu.⁹

⁶ Coal production obtained from U.S. Department of Labor, Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data. Average U.S. coal price estimates obtained from the Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52. Underground and surface coal revenues are separately computed, then summed to obtain total coal revenue.

⁷ *Ibid.*

⁸ US Department of Energy, Energy Information Administration, *Annual Energy Review 2001*, November 2002, Table 7.8, p. 215.

⁹ US Department of Energy, Energy Information Administration, *Annual Energy Review 2001*, November 2002, Table 3.1, p. 71. Coal energy (per Btu) was more expensive than natural gas energy in 1950, but was less expensive in 2001. Both coal and gas energy were less expensive than crude oil energy in 1950 and 2001.

**Table II-3: Coal Prices 1950-1998
(Dollars per Short Ton)**

Year	Nominal Price (\$ per Short Ton)	Real Price (1996 \$ per Short Ton)	Nominal Price (\$ per Million BTU)	Real Price (1996 \$ per Million Btu)
1950	5.19	29.74	0.21	1.19
1955	4.69	23.71	0.19	0.94
1960	4.83	21.77	0.19	0.87
1965	4.55	19.13	0.18	0.77
1970	6.34	21.82	0.27	0.92
1975	19.35	48.34	0.85	2.11
1980	24.65	43.22	1.10	1.93
1985	25.20	34.20	1.15	1.56
1990	21.76	25.15	1.00	1.15
1991	21.49	23.97	0.99	1.11
1992	21.03	22.90	0.97	1.06
1993	19.85	21.11	0.93	0.99
1994	19.41	20.22	0.91	0.95
1995	18.83	19.19	0.88	0.90
1996	18.50	18.50	0.87	0.87
1997	18.14	17.79	0.85	0.84
1998	17.67	17.12	0.83	0.80
1999	16.63	15.89	0.79	0.75
2000	16.78	15.68	0.80	0.74
2001*	17.38	15.72	0.80	0.73

Source: US Department of Energy, Energy Information Administration, *Annual Energy Review 2001*, November 2002, Table 7.8, p. 215; Table 3.1, p.67.

* Prices per short ton come from US Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52.

MINING INDUSTRY OUTLOOK

The U.S. coal industry enjoys a fairly constant domestic demand. About 91 percent of U.S. coal demand was accounted for by electric power producers in 2001.¹⁰ Domestic coal demand is projected to increase because of growth in coal use for electricity generation. Coal consumption for electricity generation is projected to increase as the utilization of existing coal-fired generation capacity increases and as new capacity is added. The average utilization rate is projected to increase from 69 percent in 2001 to 83 percent in 2025. The amount of U.S coal exported in 2001 was 49 million tons (about 5 percent of production). These exports are projected to decline in the future, reaching 26 million tons by 2025.¹¹

¹⁰ U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2001*, November 2002, Table 7.3, p. 205.

¹¹ U.S. Department of Energy, Energy Information Administration, *Annual Energy Outlook 2003*, January 2003, pp. 89, 90.

III. BENEFITS

BACKGROUND

During the past three years, at least 14 miners have died in two accidents as a result of faulty mine evacuations.

Willow Creek Mine

In the first of the two accidents, a series of four explosions occurred at the Willow Creek mine, beginning on July 31, 2000. The initial explosion and subsequent fire occurred approximately seven minutes before the later explosions, which killed two miners. Although firefighting activities began almost immediately after the first explosion, evacuation procedures did not begin immediately and conditions worsened before the miners were evacuated.

After careful review of the accident, MSHA has determined that had the decision to evacuate been made sooner, the fatalities might not have occurred. Some miners at the mine were equipped with personal emergency devices (PEDs), which are capable of carrying text messages to underground personnel. These devices alerted other miners to evacuate the mine, but the decision to evacuate was not made until after the third of four explosions occurred.

Jim Walter No. 5 Mine

In the second of the two accidents, explosions at the Jim Walter Resources, Inc. No. 5 Mine killed 13 miners on September 23, 2001. An initial roof fall and explosion occurred at 5:20 p.m., injuring four miners. One of the four miners was too severely injured to be moved. Miners from other parts of the mine attempted to rescue the injured miner, but the rescue efforts were uncoordinated.

In addition, the CO Room operator (monitoring the carbon monoxide monitoring system at the mine) after being notified about the explosion, attempted to locate the afternoon shift haulage foreman, whom he believed was working at the mine. This foreman was not working that shift. There was also some confusion about where the first explosion occurred. While it is uncertain whether the miner immobilized by the first explosion died as a result of the first or second explosion, 12 miners died as a result of proceeding toward the injured miner when the second explosion occurred.¹²

MSHA concluded that the operator had failed to conduct regular fire and emergency drills at the mine, as required under the Mine Act. Furthermore, MSHA's accident investigation report determined that, in addition to not following proper evacuation procedures after the initial explosion, there was never a mine-wide evacuation initiated at the mine, even after an explosion had damaged critical ventilation controls. MSHA's accident investigation team determined that gas detection equipment was not

¹² By the time of the second explosion, at 6:15 p.m., nine additional miners heading inby had reached the end of the track in 4 Section, and three others had reached the mouth of 4 Section. Mine management had also directed seven additional miners to join the 13 already in 4 Section. The 6:15 p.m. explosion occurred before they arrived in the area affected by the second explosion.

found on any of the miners or in the affected section. Gas detection equipment is essential to determine the composition of the mine atmosphere and secure the safety of those entering unknown atmospheres, especially when ventilation controls are damaged. MSHA concluded that the lack of training and the failure to conduct fire and emergency drills relative to proper evacuation procedures "affected the miners' response" to the emergency situation.

After careful review of this accident, MSHA determined that had a responsible person, knowledgeable about the mine safety systems, taken charge of the evacuation and rescue effort, fewer miners might have been permitted to remain underground or to re-enter the affected mine area during the mine emergency.

BENEFITS OF THE PROPOSED RULE

This final rule, which assures that operators and miners have a clear understanding of actions and procedures to be followed in the event of a mine emergency, has been developed to prevent the loss of life such as occurred at the Willow Creek Mine and the Jim Walter No. 5 Mine.

Section 75.1501 establishes that a responsible person is to be designated by the mine operator to take charge in the event of a mine emergency involving a fire, explosion, or gas or water inundation, and assures that the miners know the identity of the responsible person. Section 75.1502 broadens the application of previous § 75.1101-23 to include the specified mine emergencies, requires that firefighting and evacuation plans address these emergencies, and requires that mine operators train miners in the revisions to the plan.

Had this final rule been enforced at the time of Willow Creek Mine accident, the decision to evacuate would have been made sooner, and the lives of two miners might have been saved.

Had this final rule been enforced at the time of Jim Walter No. 5 Mine accident, a responsible person knowledgeable about the mine safety systems would have taken charge to direct any rescue effort and sharply limited the number of miners involved. It is likely that a responsible person would have determined that it was appropriate to limit the rescue group to a small number of miners, or in the alternative, to wait for a mine rescue team to conduct the rescue attempt. In addition, the responsible person would have assured that the responding miners were equipped with the proper gas detection equipment. Miners themselves would have understood that, under the conditions present (i.e., conditions following an explosion), a mine-wide evacuation was required. In addition, miners would clearly have understood that they were not to enter emergency areas without the appropriate safety equipment, such as gas detection equipment.

MSHA has concluded that both of the fatalities at the Willow Creek Mine and 9 of the 13 fatalities at the Jim Walter No. 5 Mine could have been prevented had this final

rule been in place.¹³ The Agency has reviewed its coal accident investigation database and has not identified any other fatalities during the past 10 years that might have been prevented by this final rule. In summary, based on its experience over the past 10 years, MSHA believes it is reasonable to estimate that this final rule could prevent 11 miners' lives from being lost every 10 years, or an average benefit of the final rule of 1.1 lives saved every year. The potential exists for further loss of life every day that this final rule is not in effect.

COMMENTS ON BENEFITS ANALYSIS

One commenter on the proposed rule suggests that MSHA's analysis understates the true benefit of this final rule. In particular, the commenter suggests that MSHA should consider the possible loss of life that could have resulted from "near misses." Near misses are tragedies that could have occurred, but for the timely evacuation of mines. It would be a difficult and speculative undertaking for MSHA both to identify the near misses and to estimate the number of lives that could have been lost in such near misses. Fortunately, such lives were not actually lost.

For purposes of estimating benefits of the final rule, a tally of lives not lost in near misses is not directly relevant. Even if we suppose that there were several near misses, and that the final rule will reduce the future number of near misses, the resulting increase in lives saved is zero. By definition, a near miss results in no loss of life. A reduction in near misses has no further effect in saving life.

The same commenter indicates that the rule is likely to prevent injuries, as well as save lives. MSHA concurs. MSHA declines to estimate the size of this additional benefit, because the two cases relied on by MSHA provide scant evidence on what number of serious injuries might also be prevented by the rule. The saving of life is the primary benefit of the rule. Nevertheless, MSHA notes that prevention of unnecessary injury is an additional benefit of the rule.

The commenter also suggests that the monetary value of the benefits may result in a net cost savings to the mine operators. This is entirely possible. The benefit of the rule consists of lives saved and injuries prevented. Associated with this benefit is a monetary saving to the mine operator, who is no longer obligated to pay the legal claims associated with deaths or injuries that no longer occur. However, MSHA believes that most of these legal claims would typically be covered under Workers' Compensation programs, so that the direct cost savings to the mine operator would be minimal.

¹³ For purposes of quantifying benefits for the Jim Walter No. 5 Mine, MSHA estimates that the responsible person likely would have limited the rescue party to about three miners. If the responsible person had limited the rescue group to three miners, the other nine of the twelve miners attempting rescue would have been evacuated, or otherwise directed away from the explosion area. Accordingly, nine fatalities might have been prevented.

SUMMARY

In conclusion, MSHA estimates that this final rule will result in an average of 1.1 miners' lives being saved every year, as well as the prevention of additional injuries. The actual number of miners' lives saved could be much larger.

IV. COST OF COMPLIANCE

INTRODUCTION

In this chapter, we estimate the total costs that underground coal mine operators would incur to comply with the final rule on emergency evacuations. We conclude that the final rule, covered by 30 CFR parts 48 and 75, would impose costs of approximately \$232,000 yearly. This estimate reflects annual compliance costs of about \$232,000 during the first year and each succeeding year. The initial compliance costs of the emergency temporary standard (ETS) are not counted as compliance costs for the final rule.

For the purposes of the cost analysis, we used our traditional definition of a small mine as one employing fewer than 20 workers, and a large mine as one employing 20 or more workers. Based on 2001 data, the final rule would cover about 664 underground coal mines. Of this total, about 277 (or 42%) employ fewer than 20 workers. For small coal mine operators, the estimated yearly cost of complying with the final rule would be approximately \$9,500. For large mines, yearly costs would be about \$223,000. Table IV-1 summarizes the estimated yearly compliance cost of the proposed rule by mine size and by provision.

**Table IV-1: Summary of Yearly Compliance Costs
of Final Rule on Emergency Evacuations***

Provision	Mine Size			TOTAL
	<20	20-500	>500	
Mine Operators to Designate Responsible Person(s) (Table IV-2)	\$1,521	\$8,348	\$231	\$10,100
Cost of Interrupted Production Due to False Evacuations (Table IV-3)	\$4,196	\$75,670	\$6,937	\$86,803
Inform Miners about Change in Identity of Responsible Person on Shift (Table IV-4)	\$3,746	\$118,474	\$12,945	\$135,166
TOTAL	\$9,464	\$202,491	\$20,113	\$232,068

*Source: Tables IV-2 through IV-4.

All cost estimates in this chapter are presented in 2001 dollars. To the best of our knowledge, the total costs reported in Table IV-1, and in all other tables in this chapter, result from accurate calculations. In some cases, however, the totals may appear to deviate from the sum or product of their component factors, but that is only because the component factors have been rounded in the tables for purposes of readability.

METHODOLOGY

For each rule, we estimate the following, as appropriate: (1) one-time costs; (2) annualized costs (one-time costs amortized over a specified number of years); and (3) annual costs. One-time costs are those that are incurred once and do not recur. For example, the cost to develop a written procedural program occurs only once.

For this final rule, it is not necessary to estimate one-time costs. This is because the nine-month ETS had already imposed the initial costs that would otherwise be imposed by a final rule. Accordingly, these initial costs are not counted as first-year costs of the final rule, nor are they annualized.

Annual costs are costs that normally recur annually. Examples of annual costs are (annual) maintenance costs and operating expenses.

We used an hourly compensation rate of \$54.92 for a coal supervisor; \$28.07 for a coal miner; and \$19.58 for a clerical worker.¹⁴ These figures include such payroll costs as social security, unemployment insurance, and workers' compensation, but they do not reflect shift differentials or overtime pay. For convenience, we will refer to miner "compensation" in this REA as "wages," where that term is understood to include such payroll costs. We assume that contractor workers receive the same wage as their fellow coal miners.

With respect to all tables in this REA, MSHA uses 2001 figures for wages, coal prices, and coal production. This is an update from the 2000 figures used in the PREA for the proposed emergency evacuation rule (the emergency temporary standard).

SCOPE

This final rule applies to all underground coal mines and covers all miners and contractor workers employed at these mines. Table II-1, previously introduced, contains the number of underground coal mines and miners, excluding independent contractors, by mine size. Table II-2, previously introduced, contains the number of independent contractors and contractor workers by contractor size.

SECTION-BY-SECTION DISCUSSION

Below we estimate the costs of the final rule by section. The cost of human and material resources needed for the average underground coal mine in each size category to comply with the provisions of this final rule were estimated by technical staff from MSHA's Offices of Standards, Regulations, and Variances and Coal Mine Safety and Health. These staffs have considerable rulemaking and field experience and knowledge in estimating the resources required to comply with provisions similar to those in this final rule.

¹⁴ Leinart, Jennifer B., compiler, *U.S. Coal Mine Salaries, Wages & Benefits, 2001 Survey Results*, Spokane, Washington: Western Mine Engineering, 2001.

§75.1501 Emergency evacuations

Analysis of Paragraph (a)

Paragraph (a) of this section provides that the mine operator designate a responsible person in attendance at the mine to take charge during mine emergencies involving fire, explosion, or gas or water inundation for each shift that miners work underground.

We estimate that a mine operator would need about 0.1 hours (6 minutes) to designate a responsible person. We further estimate that the mine operator would designate new or additional responsible persons once a year at a mine with fewer than 20 employees, four times a year at a mine with 20 to 500 employees, and six times a year at a mine with more than 500 employees.

Table IV-2 provides our estimate of the total yearly cost for all underground coal mine operators to designate responsible persons.

Table IV-2: Annual Cost for Mine Operators to Designate Responsible Person(s)

Mine Size by No. of Employees	Total No. of Mines ^a	Annual Cost per Mine to Designate ^b	Annual Cost
<20	277	\$5.49	\$1,521
20-500	380	\$21.97	\$8,348
>500	7	\$32.95	\$231
Total	664		\$10,100

^a Source: Table II-1.

^b Annual cost to designate responsible person(s) = 0.1 x W x F, where 0.1 is the number of hours needed to select responsible person(s); W is the hourly wage rate for a coal mine supervisor, and W = \$54.92; and F is the frequency with which operator would designate new or additional responsible persons, and F = 1 for a mine with <20 miners; F=4 for a mine with 20-500 miners, and F= 6 for a mine with >500 miners.

Comments on Paragraph (b)

Paragraph (b) of §75.1501 requires the responsible person to initiate and conduct an immediate mine evacuation when there is a mine emergency which presents an imminent danger to miners due to a fire, an explosion or a gas or water inundation.

MSHA received a number of public comments on §75.1501(b). In response to these comments, MSHA has altered the assumptions somewhat. Also, in order to make the assumptions and calculations more transparent, MSHA has increased the number of columns, column headers, and footnotes in Table IV-3.

One commenter indicated that MSHA used an incorrect price for coal in its analysis. In the PREA, MSHA used the average price for all coal (both surface and underground). The commenter argued this price is inappropriate, because the final rule applies only to *underground* coal mines. The 2001 price for underground coal (\$25.37 per short ton) is 46% higher than the average price for all coal (\$17.38 per short ton). MSHA has shifted to using the average price for underground coal in this final REA.

Two commenters suggest that MSHA has grossly underestimated the number of additional evacuations that would be required under this rule. In large part, these commenters express a fear that the final rule somehow implies a radical change in the standards of prudence and good judgment that determine whether a responsible person should choose to evacuate the mine in response to an imminent danger due to a fire, explosion, or gas or water inundation. MSHA does not concur with this interpretation of the rule. The final rule neither states nor implies that a responsible person should always attempt to evacuate the mine rather than fight fires or rescue co-workers, if it is safe to do so. Likewise, MSHA does not require a mine-wide evacuation in response to a purely local event or danger.

Instead, the final rule requires that every mine operator will appoint a responsible person to take charge of initiating and conducting an evacuation, when an evacuation is needed. The final rule also requires that every miner knows who the responsible person is, so that communications and decision making will not be needlessly delayed in a mine emergency. In a mine emergency, mere minutes can mean the difference between life and death. The final rule assures that the process of decision making will be as prompt and as effective as humanly possible.

Approximately 20 true mine-wide emergencies occur each year in underground coal mines. The final rule does not change the standards of prudence, good judgment, or imminent danger that determine whether a mine should be evacuated. Accordingly, MSHA has not altered its estimate that only 10 additional mines per year would be evacuated as a result of the rule. By assuring that a responsible person, known to the miners, will always be in charge of evacuations, precious time is saved in an emergency. This quicker response time will prompt additional evacuations, both for true emergencies and for false alarms.

In the PREA, MSHA allocated an industry total of 10 "false" evacuations per year according to mine size. Five false evacuations were allocated to mines with 1-19 employees, five to mines with 20-500 employees, and zero to mines with over 500 employees. After reconsideration, MSHA believes that these 10 additional false evacuations should be allocated in proportion to the number of mines in each size category. The new allocation is 4.2 false evacuations for mines with 1-19 employees, 5.7 false evacuations for mines with 20-500 employees, and 0.1 false evacuations for mines with over 500 employees. This re-allocation puts more weight on the larger mines, and increases the estimated cost of this provision by 22 percent.

Two commenters assert that a mine evacuation causes the loss of one full shift of production. After reconsideration of the amount of time likely to be lost due to a false evacuation, MSHA has modified its previous estimates of time lost. The new estimates

are two hours lost in a mine with 1-19 employees, and four hours lost in a mine with 20 or more employees. MSHA sees no reason why a false evacuation would normally cause lost production for a full shift. A false evacuation may begin in the middle or towards the end of a shift, as well as near the beginning of a shift. If evacuation occurs near the beginning of a shift, workers can re-enter the mine as soon as it is known to be safe. Also, the responsible person may stop an evacuation before it is completed, if the responsible person determines that it was a false alarm.

Two commenters state that MSHA's estimated costs for a mine evacuation are too low. The estimated cost in the PREA (\$7,068) for a mine with 20-500 employees is an average cost for all mines in that category. This broad category includes smaller mines with fewer than 100 employees, as well as larger mines with 100 or more employees. Over 80 percent of the mines in this category have fewer than 100 employees. The average mine in this category has 81 employees. Hence, the average cost of evacuation for this category is significantly lower than what the cost might be for a larger mine.

One of the commenters indicates being "totally perplexed" at how this figure was computed. The notes to Table IV-3 provide the formulas and data sources used. In the interests of providing as much information, explanation, and intuition as possible, MSHA has relabeled two of the columns and added four columns to Table IV-3. The fifth column refers to delayed revenue per evacuation hour; this corresponds most closely to the industry concept of "lost revenue." Since the coal remains in the ground, such "lost" revenue is not really lost; it is merely delayed in its receipt. The sixth column calculates the cost of this delayed revenue.

The fifth column of Table IV-3 provides an estimate of \$27,123 per hour in "delayed revenue per evacuation hour" for a mine with over 500 employees. Multiplied by eight hours, this suggests that loss of a full shift of production would result in delayed revenue of \$216,984. This figure is comparable in magnitude to figures provided by commenters of "\$80,000 to \$115,000 per shift" and "\$250,000" for a longwall shift.

The seventh and eighth columns of Table IV-3 estimate the additional labor and non-labor variable costs associated with mining the delayed revenue. The PREA assumed that this delayed revenue was associated with variable costs equal to one half of the revenue. This REA adjusts this estimate by assuming that all labor costs are variable costs, and by assuming that non-labor variable costs are equal to half the difference between revenues and labor costs. This adjustment in the method of calculation yields a modest increase (of 10%) in the estimated costs of false evacuation.

The seventh column of Table IV-3 provides an estimate of \$2,585 for the "extra cost of labor per evacuation hour" for a mine with over 500 employees. This extra labor cost is incurred 15 years in the future, so it is discounted at an annual rate of 7% for the 15-year period. The undiscounted value of the future labor cost is \$7,133 per evacuation hour. Multiplied by eight hours, this suggests that the current wages per shift in the largest mines is \$57,064. This figure is comparable in magnitude to figures provided by commenters of "\$30,000 and higher" and "\$30,000 to \$50,000 for a large mine."

Table IV-3: Annual Cost to Mine Operators of False Evacuations Arising from Section 75.1501(b)

Mine Size by No. of Employees	Incremental Number of Falsely Evacuated Mines Annually ^a	Revenues per Employee-Hour ^b	Number of Miners per Shift per Mine ^c	Delayed Revenue per Evacuation Hour ^d	Cost of Delayed Revenue per Evacuation Hour ^e	Extra Cost of Labor per Evacuation Hour ^f	Extra Cost of Non-Labor per Evacuation Hour ^g	Total Cost per Evacuation Hour ^h	Cost per Evacuation ⁱ	Annual Cost for False Evacuations ^j
(<20)	4.2	\$70	12.7	\$891	\$256	\$290	\$173	\$503	\$1,006	\$4,196
(20 to 500)	5.7	\$114	50.5	\$5,782	\$2,843	\$819	\$1,060	\$3,306	\$13,222	\$75,670
(>500)	0.1	\$121	223.6	\$27,123	\$17,292	\$2,585	\$3,622	\$16,450	\$65,800	\$6,937
Total	10.0									\$86,803

^a Incremental number of falsely evacuated mines = $(10 / M) \times m$, where 10 is the additional number of "false" evacuations in the underground coal industry resulting from implementation of this rule; M is the total number of underground coal mines, and m is the number of underground coal mines in that size class.

^b Revenues per employee-hour = $(T / H) \times P$, where T is the total tons produced in underground coal mines in that size class (from 2001 PEIR data); H is the total of employee hours in that size class (from 2001 PEIR data); and P is the price per ton of underground coal ($P = \$25.37$).

^c Number of miners per shift per mine = (N / S) , where N is the average number of miners per underground coal mine in that size class; and S is the number of work shifts in a day ($S = 1$ for a mine with <20 miners, $S = 2$ for a mine with 20-500 miners, and $S = 3$ for a mine with >500 miners).

^d Delayed revenue per evacuation hour = (revenues per employee-hour) x (number of miners per shift per mine).

^e Cost of delayed revenue per evacuation hour = $R \times (1 - D)$, where R is the delayed revenue per evacuation hour; D is the discounting factor ($D = (1/1.07)^n$, where n is the number of expected remaining years of a mine ($n = 5$ for a mine with <20 miners, $n = 10$ for a mine with 20-500 miners, and $n = 15$ for a mine with >500 miners)).

^f Extra cost of labor per evacuation hour = (number of miners per shift per mine) x $W \times D$, where W is the average wage of underground workers ($W = (1/7 \times \$54.92) + (6/7 \times \$28.07)$, where 1/7 is the proportion of miners that are supervisors; \$54.92 is the hourly wage for a coal mine supervisor; 6/7 is the proportion of miners that are not supervisors; and \$28.07 is the hourly wage for a coal miner); and D is the discounting factor ($D = (1/1.07)^n$, where n is the number of expected remaining years of a mine ($n = 5$ for a mine with <20 miners, $n = 10$ for a mine with 20-500 miners, and $n = 15$ for a mine with >500 miners)).

^g Extra cost of non-labor per evacuation hour = $[(R \times D) - (\text{extra cost of labor per evacuation hour})] \times (0.5)$, where R is the delayed revenue per evacuation hour; D is the discounting factor ($D = (1/1.07)^n$, where n is the number of expected remaining years of a mine ($n = 5$ for a mine with <20 miners, $n = 10$ for a mine with 20-500 miners, and $n = 15$ for a mine with >500 miners)); and 0.5 is non-labor variable costs as a proportion of the difference between mine revenues and labor costs.

^h Total cost per evacuation hour = $[(\text{cost of delayed revenue per evacuation hour}) + (\text{extra cost of labor per evacuation hour}) + (\text{extra cost of non-labor per evacuation hour})] \times (1.0 - (0.5 \times 0.6))$, where 0.5 is the average proportion of 90 days that a planned drill may be delayed because of a false evacuation, and 0.6 is the cost of a planned drill as a proportion of the cost of an unplanned evacuation.

ⁱ Cost per evacuation = (total cost per evacuation hour) x h, where h is the number of hours needed to evacuate a mine ($h = 2$ for a mine with <20 miners, $h = 4$ for a mine with 20-500 miners, and $h = 4$ for a mine with >500 miners).

^j Annual Cost for false evacuations = (cost per evacuation) x f, where f is the incremental number of false evacuations per year (from column 2).

Finally, one commenter suggests that an unplanned evacuation should be considered a reasonable substitute for evacuation drills. Accordingly, if an unplanned evacuation occurs, the 90-day period within which the next drill is required would be reset as of the day of the unplanned evacuation. MSHA believes that the ability to reset the starting date for the next 90-day period is already implicit in §75.1502(c)(2) of the existing rule.

Hence, the costs of an unplanned evacuation are partially offset by a postponement of the 90-day period within which the next planned drill must be conducted. Since an unplanned evacuation may occur at any time during the 90-day period between planned drills, the average delay of the next planned drill would be about 45 days. By this reasoning, the cost of the unplanned evacuation is defrayed, on average, by half the cost of a planned drill. MSHA assumes that a planned drill would normally be conducted to minimize the disruption to production. Accordingly, we estimate that the cost of the planned drill is only 60% of the cost of an unplanned evacuation.

The ninth column of Table IV-3 implements this adjustment to the estimate. The cost per evacuation hour is calculated by summing the cost of delayed revenue, the cost of extra labor, and the cost of extra non-labor. These costs are defrayed by the cost saving from a delay in the next planned drill. This cost saving results in a 30% reduction in the estimated cost per evacuation hour.

Analysis of Paragraph (b)

MSHA anticipates that, in most cases, this requirement would not cause additional mine evacuations, but rather would lead to more organized and effective evacuations. In a handful of cases, however, this requirement could result in a “false” evacuation, which would not have occurred in the absence of the final rule. MSHA estimates that there would be a total of 10 additional false evacuations a year in underground coal mines due to this requirement, and that mines in each size class are equally likely to experience a false evacuation. This assumption implies an average of 4.2 evacuations in mines with fewer than 20 workers, 5.7 evacuations in mines with 20-500 workers, and 0.1 evacuations in mines with over 500 workers. MSHA assumes that a false evacuation would last, on average, two hours in mines with fewer than 20 workers and four hours in mines with 20 or more workers.

The revenue per hour of mine production is simply the revenue per employee-hour multiplied by the number of miners per shift in the mine. The number of miners per shift is 13 for mines with fewer than 20 workers, 51 for mines with 20-500 workers, and 224 for mines with over 500 workers. The revenue per employee-hour is \$70 for mines with fewer than 20 workers, \$114 for mines with 20-500 workers, and \$121 for mines with over 500 workers (based on data from MSHA’s Directorate of Program Evaluation and Information Resources (PEIR) and the Department of Energy). Based on this information, the revenue per hour of production at a mine would be \$891 for mines with fewer than 20 workers, \$5,782 for mines with 20-500 workers, and \$27,123 for mines with over 500 workers.

When a mine stops production due to a mine evacuation, the production is not lost; it is just delayed. The delayed coal production would be made up at the end of the

mine's life.¹⁵ Therefore, the cost of the false evacuations in terms of delayed production revenues would be equal to the production revenues initially lost minus the present value of the delayed production revenues.¹⁶ In addition, delayed production would impose additional variable costs (labor, rent equipment, energy costs, etc.) on the mine operator. MSHA estimates that an underground coal mine's variable costs would be equal to its labor costs, plus 50 percent of the difference between revenues and labor costs. Since these additional variable costs would not be incurred until the delayed production takes place, they must be discounted.¹⁷

Table IV-3 provides our estimate of the annual cost to underground coal mine operators of false evacuations arising from the requirements of paragraph (b) of §75.1501.

Analysis of Paragraph (c)

Paragraph (c) of §75.1501 requires the operator to instruct all miners about the identity of the responsible person designated by the operator for their workshift, and of any change in the identity of the responsible person. Paragraph (c) no longer requires the operator to instruct all miners about the requirements of this section, because it contained a time limit only applicable to the ETS. Accordingly, costs associated with such instruction are not reported in this REA.

This paragraph is flexible in allowing operators to choose whatever method they prefer to inform miners of the responsible person. For example, the information could be conveyed orally or in writing. For purposes of this REA, we assume that a supervisor on each shift would write down the information on a board (or chalkboard) accessible for miners and contractor workers to read before the shift. We estimate that the supervisor would require about 15 seconds to write down a change in the identify of the responsible person for that shift and that each miner would require about 3 seconds to read the information. We further estimate that the frequency of changes in the identity of the responsible person on a workshift would be 25 times annually for mines with fewer than 20 workers and 100 times annually, per shift, for mines with 20 or more workers (where mines with 20-500 workers are assumed to operate two shifts a day and mines with more than 500 workers are assumed to operate three shifts a day).

Table IV-4 provides our estimate of the yearly cost for underground coal mine operators to inform all miners about any change in the identity of the responsible person for their workshift.

¹⁵ An alternative strategy would be for the mine operator to speed up production, perhaps by implementing longer shifts, more shifts, or more miners. If this were done voluntarily, the mine operator would experience lower costs than what are estimated here.

¹⁶ The cost of delayed production revenues = $V \times (1 - (1/1.07)^n)$, where V is the revenues initially lost, 1.07 is the annual discount rate, and n is the expected remaining life of the mine. MSHA estimates that n = 5 for mines with fewer than 20 workers, n = 10 for mines with 20-500 workers, and n = 15 for mines with over 500 workers.

¹⁷ The cost of delayed production = $(0.5 \times V) \times (1/1.07)^n$, where $(0.5 \times V)$ is variable costs, 1.07 is the annual discount rate, and n is the expected remaining life of the mine.

**Table IV-4: Cost for Mine Operators to Inform Miners about a Change
In the Identity of the Responsible Person on a Shift**

Mine Size by No. of Employees	Total No. of Mines ^a	Annual Cost per Mine to Provide Information ^b	Total Number of Workers Instructed ^c	Annual Cost per Worker to Receive Information ^d	Total Annual Cost ^e
<20	277	\$5.72	3,252	\$0.66	\$3,746
20-500	380	\$45.77	38,017	\$2.66	\$118,474
>500	7	\$68.65	4,688	\$2.66	\$12,945
Total	664		45,957		\$135,166

^a Source: Table II-1.

^b Annual cost per mine to provide information = $(15/3600) \times W \times F \times S$, where 15/3600 is the number of hours (equal to 15 seconds) for a supervisor to provide information about a change in the identity of the responsible person on a shift; W is the hourly wage rate for a mine supervisor, and W = \$54.92; F is the annual frequency of changes per shift in the identity of the responsible party on the shift, and F = 25 for a mine with <20 miners, F = 100 for a mine with 20 or more miners, and S is the number of shifts; and S = 1 for a mine with <20 miners; S = 2 for a mine with 20-500 miners, and S = 3 for a mine with >500 miners.

^c Total no. of workers instructed = total number of workers (from Table II-1 and Table II-2) - $(1 \times m)$, where 1 refers to one supervisor per mine and m is the number of mines in the size class (from Column 2).

^d Annual cost per worker to receive information = $(3/3600) \times ((1/7 \times \$54.92) + (6/7 \times \$28.07)) \times F$, where 3/3600 is the number of hours (equal to 3 seconds) for a miner to acquire information about a change in the identity of the responsible party on a shift; 1/7 is the proportion of miners that are supervisors; \$54.92 is the hourly wage rate for a coal mine supervisor; 6/7 is the proportion of miners that are not supervisors; \$28.07 is the hourly wage rate for a coal miner; and F is the annual frequency of changes per shift in the identity of the responsible party on the shift, and F = 25 for a mine with <20 miners and F = 100 for a mine with 20 or more miners.

^e Total annual cost = (Column 2 x Column 3) + (Column 4 x Column 5).

§75.1502 Mine emergency evacuation and firefighting program of instruction

Section 75.1502 replaces old § 75.1101-23. This new section revises the scope of the firefighting program of instruction to include mine emergencies that present an imminent danger to miners due to fire, explosion, or gas or water inundation. The emergency temporary standard (ETS) obligated mine operators to revise their existing programs of instruction. These initial costs were already incurred during the nine-month period of the ETS, so they are not counted as costs of the final rule.

On an ongoing basis, the change in scope for the approved program of instruction is not expected to change either the costs of instruction in § 75.1502(a) or the costs of mine emergency evacuation drills in § 75.1502(c). The costs of instruction in § 75.1502(a) are already covered under Part 48--Training and Retraining of Miners. Under old § 75.1101-23(c), emergency evacuation drills were already being conducted in underground coal mines, on the same regular basis.

FEASIBILITY

As discussed in the preamble of this final rule, we have concluded that the requirements of the final rule are both technologically and economically feasible.

Technological Feasibility

This final rule addresses revisions of mine emergency evacuation plans and associated training. This final rule neither requires underground coal mines to procure any additional equipment nor use any new technology. This is not a technology-forcing standard and does not involve activities on the frontiers of science. We conclude, therefore, that this final rule is technological feasible.

Economic Feasibility

As previously estimated in this chapter, underground coal mines would incur costs of approximately \$232,000 yearly to comply with this final rule. That these compliance costs represent well under 1 percent (about 0.003 percent) of annual revenues is sufficient evidence, we believe, to conclude that this final rule is economically feasible for underground coal mines.

V. REGULATORY FLEXIBILITY CERTIFICATION AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

INTRODUCTION

In accordance with §605 of the Regulatory Flexibility Act (RFA), the Mine Safety and Health Administration certifies that this final rule would 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 Regulatory Flexibility Act (RFA), MSHA must include in the final rule a factual basis for this certification. If the final rule does have a significant economic impact on a substantial number of small entities, then the Agency must develop a regulatory flexibility analysis.

DEFINITION OF SMALL MINE

Under the RFA, in analyzing the impact of a final rule on small entities, MSHA must use the SBA definition for a small entity, or after consultation with the SBA Office of Advocacy, establish an alternative definition for the mining industry by publishing that definition in the *Federal Register* for notice and comment. MSHA has not taken such an action, and hence is required to use the SBA definition.

The SBA defines a small entity in the mining industry as an establishment with 500 or fewer employees (13 CFR 121.201). Most of the underground coal mines affected by this rulemaking fall into this category and hence can be viewed as sharing the special regulatory concerns which the RFA was designed to address.

MSHA is concerned, however, that looking only at the impacts of the final rule on all these mines does not provide the Agency with a complete picture on which to make decisions. Traditionally, the Agency has also looked at the impacts of its rules on a subset of mines with 500 or fewer employees—those with fewer than 20 employees, which the mining community refers to as "small mines." These small mines differ from larger mines not only in the number of employees, but also, among other things, 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 rules and the impact of MSHA rules on them will also tend to be different. It is for this reason that "small mines," as traditionally defined by the mining community, 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 our traditional look at "small mines." MSHA concludes that it can certify that the final rule would not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. The Agency has determined that this is the case both for mines with fewer than 20 employees and for those with 500 or fewer employees.

FACTUAL BASIS FOR CERTIFICATION

General Approach

The Agency’s analysis of impacts on “small entities” and “small mines” begins with a “screening” analysis. The screening analysis compares the estimated compliance costs of the final rule for small entities in the affected sector to the estimated revenues for that sector. When estimated compliance costs for small entities in the affected sector are less than 1 percent of estimated revenues, or are negative, the Agency believes it is generally appropriate to conclude that there is not a significant impact on a substantial number of small entities. When estimated compliance costs approach or exceed 1 percent of revenue, it tends to indicate that further analysis may be warranted.¹⁸

Derivation of Costs and Revenues

Because only underground coal mines are covered by this final rule, the Agency focuses its attention on the relationship between costs and revenues only for these mines.

In determining revenues for underground coal mines, we multiplied mine production data (in tons) by the estimated price per ton of underground coal (\$25.37 per ton in 2001).¹⁹

Results of the Screening Analysis

Table V-1 shows compliance cost as a percentage of revenue for underground coal mines using our traditional definition of a small mine. The yearly cost of the final rule would be less than 0.01 percent of annual revenues for small mine operators as defined by MSHA.

¹⁸ MSHA has traditionally used a revenue-screening test—whether the yearly costs of a regulation equal or exceed 1 percent of revenues—to determine whether the regulation might possibly have a significant economic impact on a substantial number of small entities. The Agency recognizes the theoretical usefulness of evaluating the effects of a regulation on profits (rather than on revenues). MSHA is currently investigating the future use of profitability analysis to evaluate whether its rules will have a significant impact on a substantial number of small entities. However, given that the yearly costs of the final emergency evacuations rule are less than 0.01 percent of yearly industry revenues for any subset of small mines, MSHA is confident that, given the selection and use of any reasonable profitability test, the final rule will be found not to have a significant economic effect on a substantial number of small entities.

¹⁹ Coal production obtained from U.S. Department of Labor, Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data. Average U.S. coal price estimates obtained from the Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52.

TABLE V-1: The Impact of the Emergency Evacuations Final Rule on the Underground Coal Mining Sector, by MSHA Size Categories*

Mine Type	Estimated Cost	Estimated Revenue	Estimated Cost per Mine	Costs as % of Revenue
Small (< 20)	\$ 9,464	\$ 296,784,729	\$ 34	0.003%
Large (≥ 20)	\$ 222,604	\$ 8,898,310,282	\$ 575	0.003%

*Source: U.S. Department of Labor Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data. Average U.S. underground coal price from Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52.

The Agency used a similar approach to analyze the impact of the final rule on small mines as defined by SBA. Table V-2 shows yearly compliance cost to be less than 0.01 percent of estimated annual revenues for small mine operators as defined by SBA.

TABLE V-2: The Impact of the Emergency Evacuations Final Rule on the Underground Coal Mining Sector, by SBA Size Categories*

Mine Type	Estimated Cost	Estimated Revenue	Estimated Cost per Mine	Costs as % of Revenue
Small (≤ 500)	\$ 211,955	\$ 8,144,654,322	\$ 323	0.003%
Large (> 500)	\$ 20,113	\$ 1,050,440,689	\$ 2,873	0.002%

*Source: U.S. Department of Labor Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data. Average U.S. underground coal price from Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52.

Based on the information in Chapter IV of the REA, the total cost of the final rule for all coal underground mines with fewer than 20 employees would be about \$9,500 yearly. The average cost of the final rule for a small underground coal mine with fewer than 20 employees would be about \$34 per year. The total cost of the final rule for all underground coal mines with 500 or fewer employees would be about \$223,000 yearly; the average cost of the final rule for a small coal mine with 500 or fewer employees would be about \$323 per year.

Using both our definition and SBA's definition of a small mine, the yearly cost of complying with the final rule is less than 0.01 percent of annual revenues. This is well below the level suggesting that the final rule might have a significant economic impact on a substantial number of small entities. Accordingly, we conclude and certify that compliance with this final rule would not have a significant economic impact on a substantial number of small entities.

As required under the law, we are complying with our obligation to consult with the Chief Counsel for Advocacy on this final rule, and on the Agency's certification of no significant economic impact on a substantial number of the mines covered by this rule. Consistent with Agency practice, notes of any meetings with the Chief Counsel's office on this final rule, or any written communications, will be placed in the rulemaking record.

Other Relevant Matters

In accordance with the Small Business Regulatory Enforcement Fairness Act (SBREFA), we took actions to minimize the compliance burden on small mines. We wrote the final rule in plain language, so that it can be easily understood by small mine operators.

VI. THE UNFUNDED MANDATES REFORM ACT OF 1995 AND OTHER REGULATORY CONSIDERATIONS

THE UNFUNDED MANDATES REFORM ACT

MSHA has determined that, for purposes of §202 of the Unfunded Mandates Reform Act of 1995, this final rule does not include any Federal mandate that may result in increased expenditures by State, local, or tribal governments in the aggregate of more than \$100 million, or increased expenditures by the private sector of more than \$100 million. Moreover, the Agency has determined that for purposes of §203 of that Act, this final rule would not significantly or uniquely affect small governments.

Background

The Unfunded Mandates Reform Act was enacted in 1995. While much of the Act is designed to assist the Congress in determining whether its actions will impose costly new mandates on State, local, and tribal governments, the Act also includes requirements to assist Federal Agencies to make this same determination with respect to regulatory actions.

Analysis

Based on the analysis in this Regulatory Economic Analysis (REA), compliance with this final rule by coal mine operators and contractors covered by this rulemaking would result in a compliance cost of approximately \$232,000 per year. Accordingly, there is no need for further analysis under §202 of the Unfunded Mandates Reform Act.

We have concluded that small governmental entities would not be significantly or uniquely impacted by the final rule. The final rule would cover 664 underground coal mining operations.

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

This final rule is not subject to Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights, because it does not involve implementation of a policy with takings implications.

EXECUTIVE ORDER 12988: CIVIL JUSTICE REFORM

We have reviewed Executive Order 12988 and determined that this final rule would not unduly burden the Federal court system. We drafted the final rule to provide a clear legal standard for affected conduct.

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

In accordance with Executive Order 13045, we have evaluated the environmental health and safety effects of the final rule on children. The Agency has determined that the final rule would have no adverse effect on children.

EXECUTIVE ORDER 13132: FEDERALISM.

We have reviewed this final rule in accordance with Executive Order 13132 regarding federalism and have determined that it does not have “federalism implications.” This final rule does not “have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

EXECUTIVE ORDER 13175: CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS.

We certify that the final rule would not impose substantial direct compliance costs on Indian tribal governments.

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

In accordance with Executive Order 13211, we have reviewed the final rule for its energy impacts. The final rule would have no effect on the distribution or use of energy. The only impacts of the final rule on the supply of energy would be through its effect on the price of coal or the production of coal.

The final rule would have no direct effects on the production of coal. The final rule would not prevent the mining of particular coal deposits; nor would the final rule require coal deposits to be mined at a slower pace. The only impacts of the final rule on coal mine production would be indirect, via the cost or price of coal.

The estimated yearly cost of the final rule for the coal mining industry would be about \$232,000.²⁰ The annual revenues of the coal mining industry in 2001 were approximately \$17.1 billion.²¹ The cost of the final rule for the coal mining industry would be 0.001% of revenues. Even if we were to suppose that the increased cost caused by the final rule would be fully reflected in coal prices, the impact would be negligible.

Accordingly, we have determined that the final rule would have no significant adverse effect on the supply, distribution, or use of energy.

²⁰ Estimate obtained from Table IV-1 of this REA.

²¹ Coal production obtained from U.S. Department of Labor, Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data. Average U.S. coal price estimates obtained from the Department of Energy, Energy Information Administration, *Annual Coal Report 2001*, March 2003, Table 29, page 52.

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

In accordance with Executive Order 13272, 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. As discussed in Chapter V of the REA, MSHA has determined that the final rule would not have a significant economic impact on a substantial number of small entities.

VII. THE PAPERWORK REDUCTION ACT OF 1995

INTRODUCTION

The purpose of this chapter is to show the burden hours and related costs which would be borne by underground coal operators as a result of the final rule. The costs in this chapter have already been derived in Chapter IV of this REA. However, in this chapter, costs are estimated only in relation to the burden hours that the proposed rule imposes on operators. Therefore, not all costs derived in Chapter IV appear below. Those costs derived in Chapter IV which do not have burden hours associated with them are not included in this chapter.

The hourly wage rate used in this analysis is \$54.92 for a mine supervisor.

SUMMARY OF PAPERWORK BURDEN HOURS AND RELATED COSTS

In the First Year of the Rule and for Every Year Thereafter

This rule has only annual burden hours and paperwork costs. There are no burden hours or paperwork costs that are applicable to the first year only.

In the first year the rule is in effect, and for every year thereafter, there would be an increase of 354 burden hours and related burden costs of \$19,456. Table VII-1 summarizes.

**Table VII-1:
Summary of Annual Burden Hours and Costs**

Mine Size by No. of Employees	Total No. of Mines ^a	Annual Burden Hours ^b	Superv. Wage Rate (per hr.)	Annual Burden Costs ^b
<20	277	29	\$54.92	\$1,585
20-500	380	317	\$54.92	\$17,391
>500	7	9	\$54.92	\$481
Total	664	354		\$19,456

^a Source: Table II-1.

^b Source: Table VII-2.

§75.1501(c) Burden Hours and Costs for Operators to Notify Miners of Change in Identity of the Responsible Person

At times throughout the year the person at the mine who is identified to be the responsible person will change. For purposes of this REA, we assume that the mine supervisor would notify miners of the change by writing the name of the new responsible person on a chalkboard. On average, MSHA estimates that it would take 0.004 hours (15 seconds) to write the change on the mine chalkboard. On average, MSHA estimates that annually changes per shift would occur: 25 times in mines employing fewer than 20 workers, and 100 times in mines employing 20 or more workers. On average, the number of shifts per mine is estimated to be: 1 shift at mines employing fewer than 20 workers, 2 shifts at mines employing 20 to 500 workers, and 3 shifts at mines employing more than 500 workers.

Table VII-2 shows underground coal operators’ annual burden hours and related costs to notify miners of changes in the person identified to be the responsible person at the mine.

Table VII-2: § 75.1501(c), Annual Burden Hours and Costs to Notify Miners of Change in Responsible Person

Mine Size by No. of Employees	Total No. of Mines ^a	Annual No. of Changes per Shift	No. of Shifts	Time to Make Change (in hrs.) ^b	Annual Burden Hours ^c	Superv. Wage Rate (per hr.)	Annual Burden Costs ^d
<20	277	25	1	0.004	29	\$54.92	\$1,585
20-500	380	100	2	0.004	317	\$54.92	\$17,391
>500	7	100	3	0.004	9	\$54.92	\$481
Total	664				354		\$19,456

^a Source: Table II-1.

^b 0.004 hrs. = (15 seconds/3,600 seconds per hour).

^c (Column 2) x (Column 3) x (Column 4) x (Column 5).

^d (Column 6) x (Column 7).

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