

REGULATORY ECONOMIC ANALYSIS

FINAL RULE ON 30 CFR PART 48

TRAINING STANDARDS FOR SHAFT AND SLOPE CONSTRUCTION WORKERS
AT UNDERGROUND MINES AND SURFACE AREAS OF
UNDERGROUND MINES

RIN 1219-AB35

Office of Standards, Regulations, and Variances
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Tables of Contents

I. EXECUTIVE SUMMARY	1
INTRODUCTION	1
BENEFITS SUMMARY	1
COMPLIANCE COST SUMMARY	1
REGULATORY FLEXIBILITY CERTIFICATION AND ANALYSIS.....	1
II. INDUSTRY PROFILE	2
INTRODUCTION	2
STRUCTURE OF THE MINING INDUSTRY	2
STRUCTURE OF THE COAL MINING INDUSTRY	5
ECONOMIC CHARACTERISTICS OF THE COAL MINING INDUSTRY	5
COAL MINING INDUSTRY OUTLOOK	7
THE STRUCTURE OF THE METAL/NONMETAL MINING INDUSTRY	8
<u>Metal Mining</u>	8
<u>Stone Mining</u>	8
<u>Sand & Gravel Mining</u>	9
<u>Other Nonmetal Mining</u>	9
ECONOMIC CHARACTERISTICS OF THE METAL/NONMETAL MINING INDUSTRY	10
III. BENEFITS	11
INTRODUCTION	11
METHODOLOGY	11
PROJECTED BENEFITS	12
IV. COST OF COMPLIANCE.....	13
INTRODUCTION	13
METHODOLOGY	15
SCOPE	15
SECTION-BY-SECTION DISCUSSION.....	17
FEASIBILITY	37
V. REGULATORY FLEXIBILITY CERTIFICATION.....	38
INTRODUCTION	38
DEFINITION OF A SMALL MINE.....	38
General Approach.....	39
Derivation of Costs and Revenues.....	39
Results of Screening Analysis	40
VI. OTHER REGULATORY CONSIDERATIONS	42
NATIONAL ENVIRONMENTAL POLICY ACT OF 1969.....	42
THE UNFUNDED MANDATES REFORM ACT of 1995.....	42
THE TREASURY AND GENERAL GOVERNMENT APPROPRIATIONS ACT OF 1999:	
ASSESSMENT OF FEDERAL REGULATIONS AND POLICIES ON FAMILIES.....	42
EXECUTIVE ORDER 12630: GOVERNMENT ACTIONS AND INTERFERENCE WITH	
CONSTITUTIONALLY PROTECTED PROPERTY RIGHTS.....	42
EXECUTIVE ORDER 12988: CIVIL JUSTICE REFORM.....	42
EXECUTIVE ORDER 13045: PROTECTION OF CHILDREN FROM ENVIRONMENTAL	
HEALTH RISKS AND SAFETY RISKS	43
EXECUTIVE ORDER 13132: FEDERALISM	43
EXECUTIVE ORDER 13175: CONSULTATION AND COORDINATION WITH INDIAN	
TRIBAL GOVERNMENTS.....	43
EXECUTIVE ORDER 13211: ACTIONS CONCERNING REGULATIONS THAT	
SIGNIFICANTLY AFFECT ENERGY SUPPLY, DISTRIBUTION, OR USE	43

EXECUTIVE ORDER 13272: PROPER CONSIDERATION OF SMALL ENTITIES IN AGENCY RULEMAKING.....	43
VII. THE PAPERWORK REDUCTION ACT OF 1995	45
INTRODUCTION	45
SUMMARY OF PAPERWORK BURDEN HOURS AND RELATED COSTS	45
REFERENCES.....	52

I. EXECUTIVE SUMMARY

INTRODUCTION

We, the Mine Safety and Health Administration (MSHA), are revising some of the provisions in our existing 30 CFR part 48 Training and Retraining of Miners regulation. This final rule removes the part 48 exclusion for shaft and slope construction workers. Shaft and slope construction workers under this final rule will be treated like extraction and production miners and subject to the part 48 training requirements accordingly. Sections 101 and 115 of the Federal Mine Safety and Health Act of 1977 provide the authority for this rulemaking.

Based on our analysis of compliance costs, we have determined that this standard will not have an annual effect of \$100 million or more on the economy and, therefore, it is not an economically significant regulatory action pursuant to § 3(f) (1) of Executive Order 12866.

BENEFITS SUMMARY

As discussed in Chapter III of this Regulatory Economic Analysis (REA), the removal of the part 48 exclusion for shaft and slope construction workers will prevent approximately 0.2 fatalities and 11 NFDL (non-fatal, days-lost) injuries annually.

COMPLIANCE COST SUMMARY

The final rule will result in yearly costs of approximately \$555,000 for all coal contractor firms and \$118,000 for all M/NM contractor firms. In addition, coal contractor workers will incur yearly costs of about \$96,000, and M/NM contractor workers will incur yearly costs of about \$20,000 for training prior to employment.

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. The analysis that provides the factual basis for this certification is discussed in Chapter V of this document and in the preamble to the final rule for publication 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 industry profile provides information concerning the structure and economic characteristics of the mining industry, which includes data about the number of mines and miners by type and size of mine.¹

The value of the U.S. mining industry's 2002 coal and metal and nonmetal (M/NM) production was estimated to be about \$57.6 billion, or 0.5 percent of 2002 Gross Domestic Product (GDP). Coal mining contributed about \$19.6 billion to the GDP,² while the M/NM mining sector contributed about \$38.0 billion.³

STRUCTURE OF THE MINING INDUSTRY

MSHA divides the mining industry into two major sectors based on commodity: (1) coal mines and (2) M/NM mines. These two sectors are further divided by operation type (e.g., underground mines or surface mines). The Agency maintains its own data on the number of mines and on mining employment by mine type and size. Also MSHA collects data on the number of independent contractors and contractor employees by mining sector.

MSHA categorizes mines by size based on employment. For purposes of this final rule, MSHA has categorized mines into three groups. These are mines that employ: fewer than 20 workers; 20 to 500 workers; and more than 500 workers. 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 entity when determining a rule's economic impact. For the mining industry, SBA defines a small mine as one employing 500 or fewer employees and a

¹ A detailed economic picture of the coal and metal and nonmetal (M/NM) 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 M/NM companies. Such data are not representative of the entire mining industry.

² Coal production data are from U.S. Department of Labor Mine Safety and Health Administration, Office of Program Evaluation and Information Resources, 2002 data. The average U.S. underground coal price is from the Department of Energy, Energy Information Administration, *Annual Coal Report 2002*, Table 28, page 52.

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

large mine as one that employees more than 500 workers. Thus, combining the first two MSHA mine categories noted above will meet the SBA's definition of a small mine.

Table II-1 shows the number of small and large coal mines and their employment, excluding contractors, for the coal mining sector by mine type. The table presents the 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. In addition, it shows that, of all coal mines, about 34 percent are underground mines employing about 52 percent of miners, while 66 percent are surface mines employing 48 percent of miners.

Table II-1: Distribution of Coal Operations and Employment (Excluding Contractors) by Mine Type and Size, 2002

Mine Type	Size of Coal Mine *									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.	271	2,728	71	424	31,649	818	7	3,841	117	702	38,218	1,006
Surface	879	5,363	428	472	28,633	1,944	3	1,879	51	1,354	35,875	2,423
Total	1,150	8,091	499	896	60,282	2,762	10	5,720	168	2,056	74,093	3,429

*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, Office of Program Evaluation and Information Resources, 2002 data.

Table II-2 presents corresponding data on the number of independent coal contractors and their employment. Table II-2 shows that, of all coal contractor firms, about 29 percent operate in underground mines and employ about 30 percent of contractor employees (excluding office employment), while 71 percent operate at surface mines and employ 70 percent of contractor employees (excluding office employment).

Table II-2: Distribution of Coal Contractors and Contractor Employment by Size of Operation, 2002

Contr. Type	Size of Coal Contractor *									All Coal Contractors		
	< 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.	712	3,151	236	105	5,958	400	0	0	0	817	9,109	636
Surface	1,743	7,354	550	256	13,901	934	0	0	0	1,999	21,255	1,484
Total	2,455	10,505	786	361	19,859	1,334	0	0	0	2,816	30,364	2,120

* 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, Office of Program Evaluation and Information Resources, 2002 data, and U.S. Department of Labor, Mine Safety and Health Administration, 2002 Final Data, CT441 Report, cycle 2002/381.

Table II-3 presents the total number of small and large mines and their employment, excluding contractors, for the M/NM mining segment. The table presents the 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. The M/NM mining segment consists of metal mines (copper, iron ore, gold, silver, etc.) and nonmetal mines (stone including granite, limestone, dolomite, sandstone, slate, and marble; sand and gravel; and others such as clays, potash, soda ash, salt, talc, and pyrophyllite.) As Table II-3 indicates, about 99 percent of all M/NM mines are surface mines, and these mines employ some 91 percent of all M/NM miners, excluding office workers.

Table II-3: Distribution of M/NM Mine Operations and Employment (Excluding Contractors) by Size of Operation, 2002

Contr. Type	Size of M/NM Mine *									All M/NM Mines		
	< 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.	110	853	146	118	9,288	888	4	3,006	178	232	13,147	1,212
Surface	10,580	51,774	9,758	1,609	74,855	12,983	14	10,473	1,499	12,203	137,102	24,240
Total	10,690	52,627	9,904	1,727	84,143	13,871	18	13,479	1,677	12,435	150,249	25,452

* 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, Office of Program Evaluation and Information Resources, 2002 data.

Table II-4 presents corresponding data on the number of independent M/NM contractors and their employment. Table II-4 shows that, of all M/NM contractor firms, about 10 percent operate in underground mines and employ about 7 percent of contractor employees (excluding office employment), while 90 percent operate at surface mines and employ 93 percent of contractor employees (excluding office employment). The final rule affects those contractor firms that have shaft and slope construction workers in underground mines or at surface areas of underground mines.

Table II-4: Distribution of M/NM Mine Contractor Employment by Size of Operation, 2002

Contr. Type	Size of M/NM Contractor *									All M/NM 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.	359	997	53	4	1,768	69	0	0	0	363	2,765	122
Surface	3,233	15,189	701	398	19,914	910	0	0	0	3,631	35,103	1,611
Total	3,592	16,186	754	402	21,682	979	0	0	0	3,994	37,868	1,733

* 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, Office of Program Evaluation and Information Resources, 2002 data, and U.S. Department of Labor, Mine Safety and Health Administration, 2002 Preliminary Data, CT441 Report, cycle 2002/381.

STRUCTURE OF THE COAL MINING INDUSTRY

Agency data in Table II-1 indicate that there were 2,056 coal mines that reported production during some portion of calendar year 2002. When applying MSHA's small mine definition (fewer than 20 workers), 1,150 (about 56 percent) were small mines and 906 (about 44 percent) were large mines. Using SBA's small mine definition, 10 mines (0.5 percent) were large mines and the rest were small mines.

Coal mine employment in 2002 was 77,522, of which 74,093 were miners and 3,429 were office workers. Based on MSHA's small mine definition, 8,091 coal miners (11 percent) in 2002 worked at small mines and 66,002 miners (89 percent) worked at large mines. Using SBA's small mine definition, 68,373 coal miners (92 percent) worked at small mines and 5,720 coal miners (8 percent) worked at large mines. Based on the Agency's small mine definition, on average, each small coal mine employs 7 miners and each large coal mine employs 73 miners. Using SBA's small mine definition, on average, each small coal mine employs 33 miners and each large coal mine employs 572 miners.

ECONOMIC CHARACTERISTICS OF THE COAL MINING INDUSTRY

MSHA classifies the U.S. coal mining sector into two major commodity groups: bituminous and anthracite. The former is further divided into sub-bituminous and lignite. Bituminous operations represent about 92% of coal mining operations, employ over 98% of all coal miners, and account for over 99% of total coal production. The remaining 8% of coal mining operations are mostly lignite.⁴

The U.S. coal sector produced approximately 1.093 billion short tons of coal (0.739 billion tons at surface mines and 0.354 billion tons at underground mines) in 2002.

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

The average price of coal at surface and underground mines was \$13.65 and \$26.68 per ton, respectively.⁵ Surface coal mines accounted for \$10.1 billion of revenues and underground coal mines accounted for \$9.5 billion, for a total of \$19.6 billion. Based on MSHA's definition, small mines produced 28.2 million tons, valuing at about \$0.5 billion. Based on SBA's definition, small mines produced 906 million tons, valued at \$16.4 billion, or about 83% of coal production and about 84% of coal revenues.⁶

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 2001.⁷ Growth in western coal mines is due, in part, to environmental concerns that increase 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.

Average domestic coal prices (nominal and real prices) for the period 1950-2001 are presented in Table II-5. 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-5, 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 Organization of the Petroleum Exporting Countries (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

⁵ Coal prices are the average open market sales prices for 2002. U.S. Department of Energy, Energy Information Administration, *Annual Coal Report 2002*, DOE/EIS-0584 (2002), Table 28, p. 52.

⁶ Coal production obtained from U.S. Department of Labor, Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2002 data. Average U.S. coal price estimates obtained from the Department of Energy, Energy Information Administration, *Annual Coal Report 2002*, March 2003, Table 28, p. 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-5: Coal Prices 1950-2001
(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.

COAL 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, to about 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.

THE STRUCTURE OF THE METAL/NONMETAL MINING INDUSTRY

The M/NM mining sector consists of about 80 different commodities including industrial minerals. There were 12,435 M/NM mines in the U.S. in 2002, of which 10,690 (86%) were small mines and 1,745 (14%) were large mines, using MSHA's traditional definition of small and large mines. Based on SBA's definition, however, only 18 M/NM mines (0.15%) were large mines.¹²

The data in Table II-3 indicate that employment at M/NM mines in 2002 was 175,701, of which 62,531 workers (36%) were employed by small mines and 113,170 workers (64%) were employed by large mines (excluding contractor workers), using MSHA's definition. Based on SBA's definition, however, 160,545 workers (91%) were employed by small mines and 15,156 workers (9%) were employed by large mines (excluding contractor workers). Using MSHA's definition, the average employment is 6 workers at a small M/NM mine and 65 workers at a large M/NM mine. Using SBA's definition, there is an average of 13 workers in each small M/NM mine and 842 workers in each large M/NM mine.¹³

Metal Mining

There are about 24 metal commodities mined in the U.S. Underground metal mines use a few basic mining methods, such as room and pillar and block caving, but all these mines, small and large, rely heavily on diesel-powered production and support equipment.

Surface metal mines normally include drilling, blasting, loading, and hauling; such processes are typical in all surface mines, irrespective of commodity types. Surface metal mines in the U.S. rank among some of the largest mines in the world.

Metal mines constitute 2 percent of all M/NM mines and employ 17 percent of all M/NM miners. Under MSHA's traditional definition of a small mine, 51 percent of metal mines are small, and these mines employ 3 percent of all miners working in metal mines. Using SBA's definition, 95 percent of metal mines are small, and they employ 57 percent of all miners working in metal mines.¹⁴

Stone Mining

In the stone mining subsector, there are eight different stone commodities, of which seven are further classified as either dimension stone or crushed and broken stone. Stone mining in the U.S. is predominantly done by quarrying, with only a few slight variations. Crushed stone mines typically drill and blast, while dimension stone mines generally use channel burners, drills, or wire saws. Diesel powered-haulage is used to transfer the broken rock from the quarry to the mill where crushing and sizing are done.

¹² U.S. Department of Labor Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, calendar year 2002 data.

¹³ Ibid.

¹⁴ Ibid.

Stone mines constitute 35 percent of all M/NM mines, and they employ 45 percent of all M/NM miners. Using MSHA's definition of a small mine, 75 percent of stone mines are small, and these mines employ 31 percent of all miners working in stone mines. Using SBA's definition, 99.98 percent of stone mines are small, and they employ 99 percent of all miners working in stone mines.¹⁵

Sand & Gravel Mining

Sand and gravel, for construction, is generally extracted from surface deposits using dredges or draglines. Further preparation involves washing and screening. As in other surface mining operations, sand and gravel uses diesel-driven machines, such as front-end loaders, trucks, and bulldozers, for haulage. The preparation of industrial sand and silica flour involves the use of crushers, ball mills, vibrating screens, and classifiers.

The sand and gravel subsector represents the single largest commodity group in the U.S. mining industry based on the number of mining operations. Sand and gravel mines comprise 57 percent of all M/NM mines, and they employ 25 percent of all M/NM miners. Using MSHA's definition of a small mine, 95 percent of sand and gravel mines are small, and these mines employ 75 percent of all miners working in sand and gravel mines. Using SBA's definition, 100 percent of sand and gravel mines are small, and they employ approximately 35,714 miners.¹⁶

Other Nonmetal Mining

For enforcement and statistical purposes, MSHA separates stone and sand and gravel mining from other nonmetal mining such as potash, clay, salt, cement, soda ash, and phosphate rock. There are about 35 other nonmetal commodities, not including stone, and sand and gravel. Nonmetal mining uses a wide variety of underground mining methods such as continuous mining (similar to coal mining), in-situ retorting, block caving, and room and pillar. The mining method is dependent on the geologic characteristics of the ore and host rock. Some nonmetal operations use kilns and dryers in ore processing. Ore crushing and milling are processes common to both nonmetal and metal mining.

As with underground mining, there is a wide range of mining methods utilized in extracting minerals by surface mining. In addition to drilling and blasting, other mining methods, such as evaporation and dredging, are also utilized, depending on the ore formation.

“Other” nonmetal mines comprise 6 percent of all M/NM mines, and they employ 13 percent of all M/NM miners. Using MSHA's definition of a small mine, 70 percent of other nonmetal mines are small, and they employ 14 percent of all miners working in these nonmetal mines. Using SBA's definition, 99.6 percent of other nonmetal mines are small, and they employ 90 percent of all miners working in these nonmetal mines.¹⁷

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

ECONOMIC CHARACTERISTICS OF THE METAL/NONMETAL MINING INDUSTRY

The value of all M/NM mining output in 2002 was estimated at \$37.9 billion. Metal mines, which include copper, gold, iron, lead, silver, tin, and zinc mines, contributed \$7.9 billion.¹⁸ Nonmetal production was valued at \$30 billion: \$9.3 billion from stone mining, \$6.4 billion from sand and gravel, and \$14.3 billion from other nonmetals such as potash, clay, and salt.¹⁹

The end uses of M/NM mining output are diverse. For example, iron and aluminum are used to produce vehicles and other heavy duty equipment, as well as consumer goods such as household equipment and beverage cans. Other metals, such as uranium and titanium, have more limited uses. Nonmetals, like cement, are used in construction while salt is used as a food additive and for road de-icing in the winter. Soda ash, phosphate rock, and potash also have a wide variety of commercial uses. Stone and sand and gravel are used in numerous industries and extensively in the construction industry.

¹⁸ U.S. Department of Interior, U.S. Geological Survey, *Mineral Commodity Summaries 2003*, January 31, 2003, p. 7.

¹⁹ *Ibid.*, pp.142, 144, 158, 160.

III. BENEFITS

INTRODUCTION

For purposes of the benefits chapter, we are combining shaft and slope construction contractor workers working at either underground coal or M/NM mines together as one group. The reason is that these contractor workers could be employed at either an underground coal or M/NM mine upon completion of new miner training or experienced miner training. In the period from 1982 through August 2003, there were 15 fatalities of shaft and slope construction contract workers employed at underground mines. This includes three miners killed in January 2003 in a shaft and slope construction accident. In addition, there were an estimated 1,819 NFDL injuries for shaft and slope workers during the same period.²⁰

The hazards that shaft and slope construction workers face are similar to hazards faced by all underground or surface miners. Therefore, they should receive similar training. Current training regulations in 30 CFR part 48 exempt shaft and slope construction workers. MSHA has determined this final rule, which removes the language exempting shaft and slope construction workers from being required to take part 48 training, will provide safety benefits relative to the existing rule by including these workers. Shaft and slope construction workers, will receive the same type of training afforded to miners working in underground or surface areas of underground mines.

METHODOLOGY

MSHA reviewed its own accident and injury data from 1983 to March 2005 as the basis for determining the number of work-related fatalities for shaft and slope construction workers. We estimated the number of NFDL injuries based on the ratio of fatalities to injuries from the six known shaft and slope construction companies. We applied this ratio to the total number of fatalities in the shaft and slope construction industry reported from 1982 through August 2003.

MSHA assumes that the past history of mining fatalities and injuries can be used as a basis to forecast the number of mining fatalities and injuries in future years. MSHA believes that lack of training is a major factor in the number of accidents and injuries involving shaft and slope construction workers. Conversely, MSHA expects that training contributes to a reduction in accidents, injuries, illnesses, and fatalities by fostering safe work practices, increasing job skills, and enhancing hazard awareness and hazard prevention. The decrease in the number of fatalities and injuries which MSHA has estimated is based on these assumptions.

As previously discussed in the preamble, the agency further analyzed the incidence rates of six shaft and slope construction contractors, five of which represent the majority of the industry. The purpose of this analysis was to further evaluate the need for

²⁰ This estimate is based on (1) the number of fatalities for the industry from 1982 to August 2003 and (2) the ratio of fatalities to injuries from the six known shaft and slope construction companies from 1983 to 2005.

comprehensive training. However, this analysis is a snapshot of a subset of the shaft and slope construction industry today. Accordingly for purposes of estimating the benefits of this final rule, MSHA is using the number of the industry's fatalities as the basis for determining the industry-wide accident and injury rates.

PROJECTED BENEFITS

Safety and health professionals from all sectors of industry recognize that training is a critical element of an effective safety and health program. Training informs miners of safety and health hazards inherent in the workplace and enables them to identify and avoid such hazards. Training further teaches miners health and safety principles and safe operating procedures in performing their work tasks. Training becomes more important with the influx of new and less experienced miners and mine operators; longer work hours to meet demands; and increased demand for contractors who may be less familiar with the dangers on mine property.

As previously mentioned, there were 15 shaft and slope construction worker fatalities from 1982 to August 2003 and an estimated 1,819 NFDL injuries. This will be equivalent to 0.69 fatalities and 86.64 days-lost injuries annually for shaft and slope construction workers.

In support of MSHA's 1999 part 46 final rule, we estimated the effect of M/NM miner training using data on injury and fatality rates for mines that conducted training versus those that did not. On average, mines that conducted training had fatality rates that were 60 percent lower and days-lost injury rates that were 26 percent lower, relative to mines that did not conduct training. We noted that the mines with training tended to be larger and safer (independent of training) and assumed that only half of the observed lower injury and fatality rates was due to training itself. Therefore, for part 46, we estimated that miner training will reduce fatality rates by 30 percent and injury rates by 13 percent.

Applying these same rates to shaft and slope construction worker training, we estimate that the final rule will prevent approximately 0.2 fatalities and 11 NFDL injuries annually.

IV. COST OF COMPLIANCE

INTRODUCTION

In this chapter, we estimate the costs by section that shaft and slope construction contractors incur to provide training to shaft and slope construction workers. We recognize that shaft and slope construction contractor firms are mine operators and their contractor workers are miners. For purposes of clarity in this document, we refer to shaft and slope construction operators as contractor firms and shaft and slope construction miners as shaft and slope construction workers. Since these workers are miners, in some of the discussion they will be referred to as such. The final rule treats shaft and slope construction workers (for training purposes) like other miners already covered under part 48. Shaft and slope construction workers include those who work in underground coal and M/NM mines and at the surface areas of underground coal and M/NM mines. For the purposes of the cost analysis, we used our traditional definition of a small contractor firm as one employing fewer than 20 workers, and a large contractor firm as one employing 20 or more workers. Table IV-1 summarizes the estimated yearly compliance costs of the final rule by contractor firm size and by provision.

All cost estimates in this chapter are presented in 2003 dollars. The total costs reported in Table IV-1, and in all other tables in this chapter, are, to the best of our knowledge, the result of 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. The total yearly costs of the final rule are estimated to be about \$555,000 for all coal contractor firms and \$118,000 for all M/NM contractor firms. In addition as shown in Table IV-11, coal contractor workers are estimated to incur yearly costs of about \$96,000, and M/NM contractor workers to incur yearly costs of about \$20,000 for training prior to employment.

Table IV-1: Summary of Yearly Costs of the Final Rule for Contractor Firms*

Contractor Firm Size	Coal							Total Yearly Costs**
	§ 48.3 & § 48.23	§ 48.5 & § 48.25	§ 48.6 & § 48.26	§ 48.7 & § 48.27	§ 48.8 & § 48.28	§ 48.9 & § 48.29	§ 48.11 & § 48.31	
Small (< 20)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Large (20-500)	\$1,145	\$448,772	\$21,717	\$28,500	\$49,163	\$4,098	\$1,875	\$555,269
Large (> 500)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contractor Firm Size	M/NM							Total Yearly Costs**
	§ 48.3 & § 48.23	§ 48.5 & § 48.25	§ 48.6 & § 48.26	§ 48.7 & § 48.27	§ 48.8 & § 48.28	§ 48.9 & § 48.29	§ 48.11 & § 48.31	
Small (< 20)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Large (20-500)	\$257	\$94,478	\$4,572	\$6,000	\$10,350	\$1,108	\$1,125	\$117,891
Large (> 500)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

* Summary of costs comes from Table IV- 6, Table IV- 12, Table IV- 13, Table IV- 14, Table IV- 15, Table IV-16, and Table IV- 17.

** Total yearly costs = annualized costs + annual costs.

METHODOLOGY

For this final rule, we estimate the following costs, as appropriate: (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 annually. Intermittent costs are those costs that may recur from time to time, but not annually. Capital expenditures, such as the cost of purchasing compliance equipment that needs to be replaced every X number of years, is an example of intermittent costs. Annual costs are costs that normally occur every year. Two examples of annual costs are maintenance costs and annual refresher training. Annualized costs are one-time and intermittent costs that are allocated over the economic life of the investment using a specified interest (or discount) rate. For the purposes of this REA, one-time and intermittent costs have been annualized using a (real) annual discount rate of 7%, as recommended by the U.S. Office of Management and Budget (OMB), using the formula:

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

where

a = the annualization factor,

i = the annual discount rate, and

n = the economic life of the non-annual recurring investment.

Converting one-time and intermittent costs to annualized costs allows them to be added to annual costs in order to compute the total yearly costs of a rule.

We used an hourly compensation rate of \$20.00 for union and non-unionized shaft and slope construction contractor workers;²¹ \$30.00 for an approved instructor; \$40.00 for permanent staff;²² and \$14.43 for a clerical worker working at either a coal or M/NM mine.²³ These figures include benefits such 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 benefits.

SCOPE

This final rule extends part 48 training to coal and M/NM shaft and slope construction workers who work in underground mines or at surface areas of underground

²¹ In response to comments, MSHA increased the average hourly compensation rate for shaft and slope construction workers.

²² In response to comments, MSHA added another high-rate category of miners to reflect permanent employees who possess more technical skills and experience, and generally remain employed by the contractor when individual projects end.

²³ Based on MSHA's experience and knowledge about shaft and slope construction workers.

mines. Based on the 2nd quarter of 2003 data, the final rule will cover about 690 shaft and slope construction workers. Of this total, about 570 (or 83%) are employed by coal contractor firms, while the remaining 120 (or 17%) are employed by M/NM contractor firms. All of these contractor firms are large by MSHA standards, employing 20 to 500 workers. Table IV-2 presents our estimate of the average total numbers of underground coal and M/NM contractor firms, and their respective numbers of shaft and slope construction workers.

Table IV-2: The Average Number of Contractor Firms and Shaft & Slope Construction Workers in 2003*

Contractor Firm Size	# of Coal Contractor Firms	# of Coal Shaft & Slope Construction Workers	# of M/NM Contractor Firms	# of M/NM Shaft & Slope Construction Workers	Total # of Contractor Firms	Total # of Contractor Workers
Small (< 20)	0	0	0	0	0	0
Large (20-500)	19	570	4	120	23	690
Large (> 500)	0	0	0	0	0	0

* Numbers of coal & M/NM contractor firms and coal & M/NM shaft & slope construction workers are based on data collected from MSHA's Office of Program Evaluation and Information Resources (PEIR) on 2nd quarter of 2003.

MSHA used the mining industry data on workers' turnover rate, miners' human capital, and other characteristics to perform the preliminary regulatory economic analysis (PREA) for the shaft and slope construction industry. In the PREA in support of the proposed rule, we had assumed that 2/3 of the shaft and slope construction workers were experienced miners and that the turnover rate was 30 percent. Commenters from industry indicated that shaft and slope construction was a way for someone to become an experienced miner, with the opportunity then to obtain a more permanent, better-paying job working for a mine operator. In general, with some exceptions, experienced miners would not work in shaft and slope construction, particularly if a job were available at a mine. Correspondingly, the turnover rate for shaft and slope workers is much higher than the average for the mine industry, typically 100 percent or higher. Based on these comments, we modified our assumptions as discussed above.

The final rule covers more shaft and slope construction workers than the numbers reported above, because the final rule includes both currently employed shaft and slope construction workers and all the newly hired shaft and slope construction workers. A typical shaft and slope construction firm has about 25% permanent staff (all assumed to be experienced miners), while the remaining 75% is filled by temporary employees. Of the 75% temporary employees, about 10% is filled by experienced miners while the remaining 90% is filled by new inexperienced miners. The turnover rate for the experienced miners is estimated to be 100% annually, and for the new inexperienced miners it is estimated to be 150% annually. Accordingly, that is a total of 577 new or inexperienced shaft and slope temporary construction workers annually for coal and 122 for M/NM. In addition, there will be a total of 43 experienced miners annually who work as temporary shaft and slope construction workers for coal and 9 for M/NM.

SECTION-BY-SECTION DISCUSSION

§ 48.3 and § 48.23 Training plans; time of submission; where filed; information required; time for approval; method of disapproval; commencement of training; approval of instructors.

This section requires each contractor firm employing shaft and slope construction workers to have an MSHA approved-training plan. The plan must contain the training requirements for underground miners and/or for surface miners, who work exclusively at surface areas of shaft and slope operations.

We estimate that it would take a contractor, on average, seven hours to develop such a training plan without the aid of the Internet. MSHA has an online interactive web-based program which the contractor can use to develop and electronically submit a training plan to MSHA for approval. We estimate that it would take, on average, 75 minutes to develop a training plan using this service. We estimate that 80% of contractor firms would elect to develop a training plan without the use of the Internet and the remaining 20% would use the interactive web-based program. In addition to the time for developing a training plan, the contractor would take one hour to submit an application to the District Manager to become an approved instructor. Typically, a contractor firm would have a permanent staff person draft the training plan and fill out the application for an approved instructor. An hourly wage rate for a permanent staff member is about \$40.

Additionally, representatives from MSHA's Educational Field Services (EFS) are available to assist in developing these training plans. We also have training material and audiovisual products which can be easily ordered at our Mine Health and Safety Academy. These products can be found on the MSHA home page. Once the plan is approved, the contractor firm must provide a copy of the training plan to the miners' representative. In the event there is no representative, the contractor firm must post the plan on the bulletin board. Table IV-3 provides costs related to training plans for this final rule.

Table IV-3: Annualized Costs for Existing Contractor Firms to Develop Training Plans in Accordance with § 48.3 and § 48.23

Contractor Firm Size	Coal				
	# of Contractor Firms ^a	Cost to Develop Training Plan ^b	Cost to Submit Application to Become Approved Instructor ^c	Cost to Distribute/Post Training Plan on Bulletin Board ^d	Total Annualized Costs ^e
Small (< 20)	0	\$234	\$40.50	\$3.70	\$0
Large (20-500)	19	\$234	\$40.50	\$3.70	\$370
Large (> 500)	0	\$234	\$40.50	\$3.70	\$0
Contractor Firm Size	M/NM				
	# of Contractor Firms ^a	Cost to Develop Training Plan ^b	Cost to Submit Application to Become Approved Trainer ^c	Cost to Distribute/Post Training Plan on Bulletin Board ^d	Total Annualized Costs ^e
Small (< 20)	0	\$234	\$40.50	\$3.70	\$0
Large (20-500)	4	\$234	\$40.50	\$3.70	\$78
Large (> 500)	0	\$234	\$40.50	\$3.70	\$0

^a # of contractor firms comes from Table IV-2.

^b Cost to develop training plans = $[(T_{p1} \times W_s \times 80\%) + (T_{p2} \times W_s \times 20\%)]$, where T_{p1} is equal to the number of hours for a permanent staff employee to develop a training plan without the Internet ($T_{p1} = 7$ hours); W_s is the hourly wage rate for a permanent staff employee ($W_s = \$40$); 80% is the percentage of contractor firms who would elect to develop a training plan without the Internet; T_{p2} is equal to the number of hours for a contractor to develop a training plan with the Internet ($T_{p2} = 75$ minutes or 1.25 hours); and 20% is the percentage of contractor firms who would elect to develop a training plan with the Internet.

^c Cost to submit application to become approved instructor = $(T_a \times W_s) + p$, where T_a is the number of hours for a permanent staff employee to submit an application for an approved instructor ($T_a = 1$ hour); W_s is the hourly wage rate for a permanent staff employee ($W_s = \$40$); and p is the postage and handling to mail in the application to become approved instructor ($p = \$0.50$).

^d Cost to distribute/post training plan on bulletin board = $[(N \times \$0.15) + (T_c \times W_c) + p]$, where N is the average number of pages in training plans ($N = 10$); \$0.15 is the photocopying cost per page; T_c is the number of hours it requires for a clerical worker to photocopy training plan and either distribute the plan to miners' representative or post it on bulletin board ($T_c = 0.0833$ hours or 5 minutes); W_c is the hourly wage rate for a clerical worker ($W_c = \$14.43$); and p is the postage and handling to mail in the training plan ($p = \$1$).

^e Total annualized costs = $[\# \text{ of contractor firms} \times (\text{cost to develop training plan} + \text{cost to submit application to become approved instructor} + \text{cost to distribute/post training plan on bulletin board}) \times a]$, where a is the annualization factor ($a = 0.07$).

MSHA recognizes that there could be new contractor firms entering the industry after the rule goes into effect. Some of these new contractor firms will have done other types of work on mine property and probably would already have an approved training plan. Therefore, for these firms, there will be no additional cost related to development of a new or separate training plan for shaft and slope construction workers. For those new contractor firms coming into the industry that do not already have a part 48 training

plan, the cost related to developing a training plan is the same as indicated in Table IV-3. MSHA estimates that there will be approximately 0.20 such coal contractor firms and 0.10 M/NM contractor firms coming into the industry every year. Table IV-4 presents the costs related to new contractor firms coming into the industry.

Table IV-4: Yearly Costs for New Contractor Firms to Develop Training Plan in Accordance with § 48.3 and § 48.23

Contractor Firm Size	Coal				Total Annual Costs ^d
	# of New Contractor Firms	Cost to Develop Training Plan ^a	Cost to Submit Application to Become Approved Instructor ^b	Cost to Distribute/Post Training Plan on Bulletin Board ^c	
Small (< 20)	0	\$234	\$40.50	\$3.70	\$0
Large (20-500)	0.20	\$234	\$40.50	\$3.70	\$56
Large (> 500)	0	\$234	\$40.50	\$3.70	\$0
Contractor Firm Size	M/NM				Total Annual Costs ^d
	# of New Contractor Firms	Cost to Develop Training Plan ^a	Cost to Submit Application to Become Approved Trainer ^b	Cost to Distribute/Post Training Plan on Bulletin Board ^c	
Small (< 20)	0	\$234	\$40.50	\$3.70	\$0
Large (20-500)	0.10	\$234	\$40.50	\$3.70	\$28
Large (> 500)	0	\$234	\$40.50	\$3.70	\$0

^a Cost to develop training plans = $[(T_{p1} \times W_s \times 80\%) + (T_{p2} \times W_s \times 20\%)]$, where T_{p1} is equal to the number of hours for a permanent staff employee to develop a training plan without the Internet ($T_{p1} = 7$ hours); W_s is the hourly wage rate for a permanent staff employee ($W_s = \$40$); 80% is the percentage of contractor firms who would elect to develop a training plan without the Internet; T_{p2} is equal to the number of hours for a contractor to develop a training plan with the Internet ($T_{p2} = 75$ minutes or 1.25 hours); and 20% is the percentage of contractor firms who would elect to develop a training plan with the Internet.

^b Cost to submit application to become approved instructor = $(T_a \times W_s) + p$, where T_a is the number of hours for a permanent staff employee to submit an application for an approved instructor ($T_a = 1$ hour); W_s is the hourly wage rate for a permanent staff employee ($W_s = \$40$); and p is the postage and handling to mail in the application to become approved instructor ($p = \$0.50$).

^c Cost to distribute/post training plan on bulletin board = $[(N \times \$0.15) + (T_c \times W_c) + p]$, where N is the average number of pages in training plans ($N = 10$); $\$0.15$ is the photocopying cost per page; T_c is the number of hours it requires for a clerical worker to photocopy training plan and either distribute the plan to miners' representative or post it on bulletin board ($T_c = 0.0833$ hours or 5 minutes); W_c is the hourly wage rate for a clerical worker ($W_c = \$14.43$); and p is the postage and handling to mail in the training plan ($p = \$1$).

^d Total annual costs = $[\# \text{ of contractor firms} \times (\text{cost to develop training plan} + \text{cost to submit application to become approved instructor} + \text{cost to distribute/post training plan on bulletin board})]$.

It would take about one hour for a contractor to update and keep the training plan current starting in year two. This would be done on a yearly basis. This cost is presented in Table IV-5.

Table IV-5: Annual Recurring Costs Pertaining to Training Plan Starting in Year Two in Accordance with § 48.3 and § 48.23

Contractor Firm Size	Coal		
	# of Contractor Firms ^a	Annual Cost to Update Training Plan ^b	Total Annualized Costs ^c
Small (< 20)	0	\$40.50	\$0
Large (20-500)	19	\$40.50	\$719
Large (> 500)	0	\$40.50	\$0
M/NM			
Contractor Firm Size	# of Contractor Firms ^a	Annual Cost to Update Training Plans ^b	Total Annualized Costs ^c
Small (< 20)	0	\$40.50	\$0
Large (20-500)	4	\$40.50	\$151
Large (> 500)	0	\$40.50	\$0

^a # of contractor firms comes from table IV-2.

^b Annual cost to update training plan = $(T_p \times W_s) + \$0.50$, where T_p is the number of hours it would take for a permanent staff employee to update training plan annually ($T_p = 1$ hour); W_s is the hourly wage rate for a permanent staff employee ($W_s = \$40$); and \$0.50 is the average cost of mailing the updated training to MSHA.

^c Total annualized costs = (# of contractor firms x annual cost to update training plans) / 1.07, where 1.07 is the annualization factor to convert year two to year one.

Table IV-6 summarizes the total yearly costs associated with § 48.3 and § 48.23.

Table IV-6: Summary of Yearly Costs Associated with § 48.3 and § 48.23*

Contractor Firm Size	Costs to Coal Contractor Firms	Costs to M/NM Contractor Firms	Total Yearly Costs
Small (< 20)	\$0	\$0	\$0
Large (20-500)	\$1,145	\$257	\$1,402
Large (> 500)	\$0	\$0	\$0

* Summary of costs comes from Table IV- 3, Table IV-4, and Table IV-5.

§ 48.5 and § 48.25 Training of new miners; minimum courses of instruction; hours of instruction.

MSHA initially used 30% as the turnover rate in the PREA (Preliminary Regulatory Economic Analysis) in support of the proposed rule. As previously noted, commenters suggested that the initial estimate was too low. Accordingly, we have readjusted the figure to more closely reflect comments we received: 100% for experienced miners and 150% for new inexperienced miners.

Shaft and slope contractor firms work in areas where there is a concentration of mining activities with training companies and grants programs already in place. Shaft and slope contractors could utilize state grants training program whenever it is available to train new miners. However when grantees are unavailable, shaft and slope contractor firms will have the flexibility to use various approaches to provide training.

Some operations require new applicants to have completed 32 of underground miner training and 24 hours of surface miner training before hiring. After hiring, the operator provides the remaining 8 hours of training for underground miners and 2 to 4 hours of training for surface miners. This approach has been used for many years by mine operators and independent contractors.

Some shaft and slope contractor firms might offer 32 hours of training for underground miners and 24 hours for surface miners to a pool of perspective employees in an area where the contractors will be working. As additional employees are needed for the job, the company could call on people from the pool. This system will not only reduce the costs of training, but will provide a pool of perspective employees from which the company could draw.

Under this section, new underground miners are required to receive 40 hours of new miner training before they are assigned to work duties. MSHA anticipates that approximately 40 percent of new hires will have already received 32 hours of the training before being hired. Most-states, such as West Virginia, have a state grants program which can provide up to 32 hours of new miner training, usually for free or for a nominal charge.²⁴ We anticipate that all shaft and slope contractor workers will be in states that have a grants program. However, the state grants programs may not always meet the needs of prospective miners and operators. In places where the state grants program is unavailable, we estimate the average cost to train a new miner is \$10 an hour. We estimate the opportunity cost for a miner (not currently-employed) to attend training is \$9 per hour. MSHA estimates that about 25% of new miners coming into the industry would be able to take advantage of the state grants program, which usually charges a nominal fee or free. 15% of new miners coming into the industry would have to pay for their own training. MSHA estimates that 90% of the total number of new shaft and slope construction workers would work in underground mines and the remaining 10% would

²⁴ Based on MSHA's experience, we estimate that approximately 38 percent of state grants programs would charge an average fee of \$80, per miner, for 32 hours of training for underground miners and \$60, per miner, for 24 hours of training for surface miners.

work on surface areas of underground mines. Table IV-7 estimates the annual cost to contractor workers to receive the initial 32 hours of the 40 hours of new miner training to work in underground mines in accordance with § 48.5.

Table IV-7: Annual New Miner Training Costs That Underground Shaft and Slope Construction Workers Would Incur in Accordance with § 48.5

Contractor Firm Size	Coal			Total Annual Costs ^d
	# of New Contractor Workers Working Underground ^a	# of New Contractor Workers Having to Pay for Their Training ^b	# of New Contractor Workers Taking Advantage of State Grant Program ^c	
Small (< 20)	0	0	0	\$0
Large (20-500)	519.4	77.9	129.9	\$88,716
Large (> 500)	0	0	0	\$0
Contractor Firm Size	M/NM			Total Annual Costs ^d
	# of New Contractor Workers Working Underground ^a	# of New Contractor Workers Having to Pay for Their Training ^b	# of New Contractor Workers Taking Advantage of State Grant Program ^c	
Small (< 20)	0	0	0.0	\$0
Large (20-500)	109.4	16.4	27.3	\$18,677
Large (> 500)	0	0	0.0	\$0

^a # of new contractor workers working underground is 90% of the total number of new shaft and slope construction workers and based on a 150% turnover rate.

^b # of new contractor workers having to pay for their own training = (15% x # of new contractor workers working underground), where 15% is the percentage of new contractor workers who could not take advantage of state grants program and were not paid by their (future) employers for the training.

^c # of new contractor workers taking advantage of state grants program = (25% x # of new contractor workers working underground), where 25% is the percentage of new contractor workers who can take advantage of state grants program, but their (future) employers would not pay them for training.

^d Total annual costs = {[\$320 + (\$9 x 32)] x # of new contractor workers having to pay for training} + [(\$9 x 32 x # of new contractor workers taking advantage of state grant program) + (38% x # of new contractor workers taking advantage of state grants program x \$80)], where \$320 is the average cost for a contractor worker to receive the initial 32 hours of the 40 hours of new miner training to work in underground mine (the remaining 8 hours will be provided by the contractor firm); \$9 per hour is the opportunity cost to receive training; 32 is the number of hours of instruction; 38% is the percentage of state grants programs that would charge a fee for new miner training; and \$80 is the average fee that state grants would charge, per miner, for 32 hours of training for underground miners.

The remaining 10% of new shaft and slope construction workers would work at surface areas of shaft and slope construction sites. They are required to receive 24 hours of new miner training before they are assigned to work duties. Most states, such as West Virginia, have a state grants program which can provide 24 hours of new miner training,

usually for free or a nominal charge (\$60, per miner, for 24 hours of training for surface miners). We anticipate that all shaft and slope contractor workers will be in states that have a grants program. However, the state grants programs may not always offer timely training for individual new miners. Where the state grants program is unavailable to provide this training, we anticipate the charge for the 24 hours will be \$240, or \$10 per hour per contractor worker. We estimate the opportunity cost for a miner (not currently employed) to attend training is \$9 per hour. MSHA estimates that about 25% of new miners coming into the industry would be able to take advantage of the state grants program while 15% would have to pay for their own training. Table IV-8 estimates the annual cost to contractor workers to receive the 24 hours of training in accordance with § 48.25.

Table IV-8: Annual New Miner Training Costs That Surface Shaft and Slope Construction Workers Would Incur in Accordance with § 48.25

Contractor Firm Size	Coal			Total Annual Costs ^d
	# of New Contractor Workers Working on Surface Areas of Underground Mines ^a	# of New Contractor Workers Having to Pay for Training ^b	# of New Contractor Workers Taking Advantage of State Grant Program ^c	
Small (< 20)	0	0	0	\$0
Large (20-500)	57.7	8.7	14.4	\$7,393
Large (> 500)	0	0	0	\$0
Contractor Firm Size	M/NM			Total Annual Costs ^d
	# of New Contractor Workers Working on Surface Areas of Underground Mines ^a	# of New Contractor Workers Having to Pay for Training ^b	# of New Contractor Workers Taking Advantage of State Grant Program ^c	
Small (< 20)	0	0	0.0	\$0
Large (20-500)	12.2	1.8	3.0	\$1,556
Large (> 500)	0	0	0.0	\$0

^a # of new contractor workers on surface areas of underground mines = 10% of the total number of new shaft and slope construction workers.

^b # of new contractor workers having to pay for their own training = (15% x # of new contractor workers), where 15% is the percentage of new contractor workers who could not take advantage of state grants program and were not paid by their (future) employers for their training.

^c # of new contractor workers taking advantage of state grant program = (25% x # of new contractor workers working underground), where 25% is the percentage of new contractor workers who can take advantage of state grants program, but their (future) employers would not pay them for training.

^d Total annual costs = [(\$240 + (\$9 x 24)] x # of new contractor workers having to pay for training + [(\$9 x 24 x # of new contractor workers taking advantage of state grant program) + (38% x # of new contractor workers taking advantage of state grant program x \$60)], where \$240 is the average cost for a contractor worker to receive the 24-hour training; \$9 per hour is the opportunity cost to receive training; 24 is the number of hours of instruction; 38% is the percentage of state grants programs that would charge a fee for new miner training; and \$60 is the average fee that state grants would charge, per miner, for 24 hours of training for surface miners.

To estimate the annual training cost to contractor firms that train underground employees, MSHA estimates that the remaining 60% of new miners would be hired prior to receiving new miner training.²⁵ In addition to the \$20 hourly wage rate for contractor workers, it would cost the contractor \$10, on average, per contractor worker per hour to provide the initial 32 hours of the 40 hours of new miner training. In addition, contractor firms need to provide all contractor workers (those who would benefit from state grants programs, those who would pay for their own training, and those who would be hired before receiving any training) who will be working in underground mines the final 8 hours of new miner training at \$10 per contractor worker training cost per hour plus \$20 wages per hour before they could put the contractors to work. Table IV-9 estimates the annual cost for underground contractor firms to train new miners.

²⁵ Alternatively, the new miners might be reimbursed by the contractor firms for training after fulfilling performance criteria (such as remaining on the job for a specific period of time). Other employment arrangements are possible, but the net effect for these miners is that the contractor firm pays for the new miner training. This may help reduce the high turnover rate in the industry mentioned by commenters.

Table IV-9: Annual New Miner Training Costs That Contractor Firms Would Incur to Train Underground Contractor Workers in Accordance with § 48.5

Contractor Firm Size	Coal		Total Annual Costs ^c
	# of New Contractor Workers Working Underground ^a	# of New Contractor Workers Hired Prior to Obtaining New Miner Training ^b	
Small (< 20)	0	0	\$0
Large (20-500)	519.4	311.6	\$423,841
Large (> 500)	0	0	\$0
Contractor Firm Size	M/NM		Total Annual Costs ^c
	# of New Contractor Workers Working Underground ^a	# of New Contractor Workers Hired Prior to Obtaining New Miner Training ^b	
Small (< 20)	0	0	\$0
Large (20-500)	109.4	65.6	\$89,230
Large (> 500)	0	0	\$0

^a # of new contractor workers working underground is 90% of the total number of new shaft and slope construction workers.

^b # of new contractor workers hired prior to obtaining new miner training = (60% x # of new contractor workers), where 60% is the percentage of new contractor workers who are hired prior to obtaining new miner training.

^c Total annual costs = {[\$320 + (32 x \$20)] x # of new contractor workers who are hired prior to obtaining new miner training} + {[(20 x 8) + \$80] x # of new contractor workers working underground}, where \$320 is the average cost for a contractor worker to receive the initial 32 hours of the 40 hours of new miner training to work in underground mine; 32 is the number of hours of instruction; \$20 is the hourly wage rate for a contractor worker; 8 is remaining 8 hours of the 40 hours that contractor firms would have to train contractor workers before working in underground mines; and \$80 is average cost to provide 8 hours of training.

Similarly, to estimate the annual training cost to contractor firms for training surface employees, MSHA estimates that the remaining 60% of new miners would be hired prior to receiving new miner training. In addition to the \$20 hourly wage rate for contractor workers, it would cost the contractor \$10, on average, per contractor worker per hour to provide the 24 hours of new miner training. (For those who would be able to take advantage of the state grants program and those who would pay for their own training, the contractors will have to provide experienced miner training to these two groups of people because the existing rule requires experienced miner training for surface miners who have received new miner training within 36 months—see Table IV-13.) Table IV-10 estimates the annual cost for surface contractor firms to train new miners.

Table IV-10: Annual New Miner Training Costs That Contractor Firms Would Incur to Train Surface Contractor Workers in Accordance with § 48.25

Contractor Firm Size	Coal		Total Annual Costs ^c
	# of New Contractor Workers Working on Surface Areas of Underground Mines ^a	# of New Surface Contractor Workers Having Their Employers Pay for Training ^b	
Small (< 20)	0	0	\$0
Large (20-500)	57.7	34.63	\$24,932
Large (> 500)	0	0	\$0
Contractor Firm Size	M/NM		Total Annual Costs ^c
	# of New Contractor Workers Working on Surface Areas of Underground Mines ^a	# of New Surface Contractor Workers Having Their Employers Pay for Training ^b	
Small (< 20)	0	0	\$0
Large (20-500)	12.2	7.3	\$5,249
Large (> 500)	0	0	\$0

^a # of new contractor workers working on surface areas of underground mines = 10% of the total number of new shaft and slope construction workers.

^b # of new surface contractor workers having their employers pay for training = (60% x # of new contractor workers working on surface areas of underground mines), where 60% is the percentage of new surface contractor workers who are hired prior to obtaining new miner training.

^c Total annual costs = {[((\$20 x 24) + \$240) x # of new contractor workers having to pay for training], where \$20 is the hourly wage rate for a contractor worker; \$240 is the average cost for a contractor worker to receive the 24-hour training; and 24 is the number of hours of instruction.

Table IV-11 summarizes the total annual training costs to contractor workers associated with § 48.5 and § 48.25.

Table IV-11: Summary of Annual Training Costs to Contractor Workers Associated with § 48.5 and § 48.25*

Contractor Firm Size	Costs to Coal Contractor Workers	Costs to M/NM Contractor Workers	Total Yearly Costs
Small (< 20)	\$0	\$0	\$0
Large (20-500)	\$96,109	\$20,233	\$116,342
Large (> 500)	\$0	\$0	\$0

* Summary of costs comes from Table IV- 7 and Table IV-8.

Table IV-12 summarizes the total annual training costs to contractor firms associated with § 48.5 and § 48.25.

Table IV-12: Summary of Annual Training Costs to Contractor Firms Associated with § 48.5 and § 48.25*

Contractor Firm Size	Costs to Coal Contractor Firms	Costs to M/NM Contractor Firms	Total Yearly Costs
Small (< 20)	\$0	\$0	\$0
Large (20-500)	\$448,772	\$94,478	\$543,251
Large (> 500)	\$0	\$0	\$0

* Summary of costs comes from Table IV- 9 and Table IV-10.

§ 48.6 and § 48.26 Experienced miner training.

This section requires contractor firms to provide experienced miner training to experienced miners. In general, experienced underground miners are miners who have received 40 hours of new miner training and have at least one year of underground mining experience. In contrast, experienced surface miners are miners who have received 24 hours of new training and who have had at least 12 months of mining experience. MSHA estimates that about 10% (43 miners in coal and 9 miners in M/NM) of all newly hired shaft and slope construction workers would be considered experienced miners. It would take about four hours to conduct one-on-one experienced miner training by an MSHA approved instructor making \$30 an hour. Table IV-13 shows the annual cost to the contractor firms associated with experienced miner training.

Table IV-13: Annual Experienced Miner Training Costs that Contractor Firms Would Have to Incur in Accordance with § 48.6 and § 48.26

Contractor Firm Size	Coal			Total Annual Costs ^d
	# of Newly Hired Experienced Contractor Workers ^a	# of Surface Contractor Workers Who Received Training from State Grant Program or Paid for Their Own Training ^b	Cost to Train an Experienced Contractor Worker ^c	
Small (< 20)	0	0	\$200	\$0
Large (20-500)	85.5	23.1	\$200	\$21,717
Large (> 500)	0	0	\$200	\$0
Contractor Firm Size	M/NM			Total Annual Costs ^d
	# of Newly Hired Experienced Contractor Workers ^a	# of Surface Contractor Workers Who Received Training from State Grant Program or Paid for Their Own Training ^b	Cost to Train an Experienced Contractor Worker ^c	
Small (< 20)	0	0	\$200	\$0
Large (20-500)	18.0	4.9	\$200	\$4,572
Large (> 500)	0	0	\$200	\$0

^a # of newly hired experienced contractor workers = 10% of temporary employees.

^b From Table IV-8.

^c Cost to train an experienced contractor worker = $[4 * (W_s + W_c)]$, where 4 is the number of hours it would take for an MSHA approved instructor to provide experience miner training; W_s is the hourly wage rate for an MSHA approved instructor ($W_s = \$30$); and W_c is the hourly wage rate for a contractor worker ($W_c = \$20$).

^d Total annual costs = (# of newly hired experienced contractor workers + # of contractor workers who received training from state grant program or paid for their own training) x cost to train an experienced contractor worker.

§ 48.7 and § 48.27 Training of miners assigned to a task in which they have had no previous experience; minimum courses of instruction.

This section requires contractor firms to provide task training to shaft and slope construction workers whenever they are assigned a new task. On average, each contractor worker would be assigned to four new tasks each year and each new task would take, on average, half an hour. This average takes into account those tasks which require a demonstration of the task. However, we believe that much of the task training would be on-the-job during production or non-production time. While some of the training could be done during production, the primary focus is on the training, not the production. Therefore, for purpose of estimating the costs of this section, we assume that only half of the training entails “downtime” and therefore imposes a cost on contractor firms. The training would usually be done one-on-one with a supervisor or an approved instructor. On average, each shaft and slope contractor worker is estimated to be assigned four new tasks annually. Table IV-14 estimates the costs related to new task training.

Table IV-14: Annual Task Training Costs that Contractor Firms Would Have to Incur in Accordance with § 48.7 and § 48.27

Contractor Firm Size	Coal			
	# of Contractor Workers ^a	Total # of New Tasks Assigned Annually ^b	Average Training Cost for Each Task ^c	Total Annual Cost
Small (< 20)	0	0	\$12.50	\$0
Large (20-500)	570	2,280	\$12.50	\$28,500
Large (> 500)	0	0	\$12.50	\$0
Contractor Firm Size	M/NM			
	# of Contractor Workers ^a	Total # of New Tasks Assigned Annually ^b	Average Training Cost for Each Task ^c	Total Annual Cost
Small (< 20)	0	0	\$12.50	\$0
Large (20-500)	120	480	\$12.50	\$6,000
Large (> 500)	0	0	\$12.50	\$0

^a # of contractor workers is the average # of shaft and slope construction contractor workers

^b Total # of new tasks assigned annually = (N x # of contractor workers), where N is the average # of new tasks each shaft and slope construction worker is assigned annually (N=4).

^c Training cost for each task = [T x 0.5 x (W_s + W_w)], where T is equal to the number of hours it would take an approved instructor, a supervisor experienced in the task, or another person experienced in the task to train a shaft and slope construction worker (T= 0.5 hours); 0.5 represents only half of the tasks will be given during "downtime"; W_s is the average hourly wage rate for an approved instructor, a supervisor experienced in the task, or another person experienced in the task (W_s = \$30); and W_w is the hourly wage rate for a contractor worker (W_w = \$20).

§ 48.8 and § 48.28 Annual refresher training of miners; minimum courses of instruction; hours of instruction.

This provision requires contractor firms to provide eight hours of annual refresher training to permanently employed shaft and slope construction workers. This training would be required within 12 months of the effective date of the rule. It is a standard practice for contractors to have an independent contract trainer for annual refresher training if an in-house trainer is not available. We assume that these contractor firms are going to do the same for shaft and slope construction workers. The instructor cost is estimated to be is \$25 per contractor worker. Table IV-15 estimates the costs related to annual refresher training.

Table IV-15: Annual Refresher Training Costs that Contractor Firms Would Have to Incur in Accordance with § 48.8 and § 48.28

Contractor Firm Size	Coal		
	# of Contractor Workers ^a	Cost to Train a Contractor Worker ^b	Total Annual Cost
Small (< 20)	0	\$345	\$0
Large (20-500)	143	\$345	\$49,163
Large (> 500)	0	\$345	\$0
Contractor Firm Size	M/NM		
	# of Contractor Workers ^a	Cost to Train a Contractor Worker ^b	Total Annual Cost
Small (< 20)	0	\$345	\$0
Large (20-500)	30	\$345	\$10,350
Large (> 500)	0	\$345	\$0

^a # of contractor workers is equal to the number of permanent staff members.

^b Cost to train a contractor worker = [\$25 + (8 * \$40)], where \$25 is the instructor cost per contractor worker to provide annual refresher training; 8 is the number of hours spent to receive annual refresher training; and \$40 is the hourly wage rate for a permanent contractor worker.

§ 48.9 & § 48.29 Records of training.

Upon a shaft and slope construction worker's completion of each MSHA approved training program, the contractor firm must record and certify on MSHA form 5000-23 that the contractor worker has received the specified training. A copy of the training certificate must be given to the shaft and slope construction worker at the completion of the training. The training certificates for each miner must be available at the mine site for inspection by MSHA and for examination by the contractor worker, the contractor workers' representative, and State inspection agencies. A copy must also be available to the miner at the end of the training and employment.

For each completed training program for each contractor worker, MSHA estimates that the recordkeeping costs under this section will be three minutes (or 0.05 hours) for an approved instructor to record and certify completion of the training program; 3 minutes (or 0.05 hours) for a clerical worker to copy and distribute the certificate twice and file the form; and \$0.30 is the photocopying expense for two copies of the certificate. Recordkeeping has to be done for training of new miners, experienced miner training, task training, annual refresher training, and hazard training. Table IV-16 estimates the recordkeeping costs of this final rule.

Table IV-16: Costs that Contractor Firms Would Have to Incur to Record Training in Accordance with § 48.9 and § 48.29

Contractor Firm Size	Coal										Yearly Costs
	§ 48.5 & § 48.25		§ 48.6 & § 48.26		§ 48.7 & § 48.27		§ 48.8 & § 48.28		§ 48.11 & § 48.31		
	# of Contractor Workers ^a	Total Cost ^b	# of Contractor Workers ^c	Total Cost ^b	# of Contractor Workers ^d	Total Cost ^b	# of Contractor Workers ^e	Total Cost ^b	# of Contractor Workers ^f	Total Cost ^b	
Small (< 20)	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0
Large (20-500)	577	\$1,455	86	\$216	570	\$1,437	143	\$359	250	\$630	\$4,098
Large (> 500)	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0
Contractor Firm Size	M/NM										Yearly Costs
	§ 48.5 & § 48.25		§ 48.6 & § 48.26		§ 48.7 & § 48.27		§ 48.8 & § 48.28		§ 48.11 & § 48.31		
	# of Contractor Workers ^a	Total Cost ^b	# of Contractor Workers ^c	Total Cost ^b	# of Contractor Workers ^d	Total Cost ^b	# of Contractor Workers ^e	Total Cost ^b	# of Contractor Workers ^f	Total Cost ^b	
Small (< 20)	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0
Large (20-500)	122	\$306	18	\$45	120	\$303	30	\$76	150	\$378	\$1,108
Large (> 500)	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0

^a # of contractor workers comes from Table IV-9 and Table IV-10..

^b Total cost = # of contractor workers x [(T_s x W_s) + (T_c x W_c) + (\$0.30)], where T_s is the amount of time it would take for an approved instructor to record and certify completion of a training program for each miner (T_s = 3 minutes or 0.05 hours); W_s is the hourly wage rate for an approved instructor (W_s = \$30); T_c is the amount of time it would take for a clerical worker to photocopy, distribute the certificate twice, file the form (T_c = 3 minutes or 0.05 hours); and W_c is the hourly wage rate for a clerical worker (W_c = \$14.43); and \$0.30 is the photocopying expense for 2 copies of the training certificate.

^c # of contractor workers comes from Table IV-13.

^d # of contractor workers comes from Table IV-14.

^e # of contractor workers comes from Table IV-15.

^f # of contractor workers comes from Table IV-17.

§ 48.11 and § 48.31 Hazard training.

This section requires mine operators to provide hazard training to persons such as vendors, and delivery, maintenance and service personnel. MSHA estimates that there would be about 400 such persons: 250 coal and 150 M/NM who need hazard training annually. It would generally take, on average, about 15 minutes of an approved instructor's time to provide one-on-one hazard training. The training typically consists of watching a video and reading materials provided by another contractor worker. Contractor firms are not responsible for paying for the time persons spend taking hazard training here because these persons are not their employees. Table IV-17 estimates hazard training costs.

Table IV-17: Annual Hazard Training Costs that Contractor Firms Would Have to Incur in Accordance with § 48.11 and § 48.31

Contractor Firm Size	Coal		
	# of Persons	Cost for Approved Instructors to Provide Training ^a	Total Annual Cost
Small (< 20)	0	\$8	\$0
Large (20-500)	250	\$8	\$1,875
Large (> 500)	0	\$8	\$0
Contractor Firm Size	M/NM		
	# of Persons	Cost for Approved Instructors to Provide Training ^a	Total Annual Cost
Small (< 20)	0	\$8	\$0
Large (20-500)	150	\$8	\$1,125
Large (> 500)	0	\$8	\$0

^a Cost for contractor worker to receive training = (T x W_s), where T is the number of hours it would take for a contractor worker to receive hazard training (T = 0.25 hours or 15 minutes); and W_s is the hourly wage rate for an approved instructor (W_s = \$30) to provide hazard training.

FEASIBILITY

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

This final rule is not a technology-forcing standard and does not involve activities on the frontiers of scientific knowledge. In addition, it does not require the purchase of any machinery or equipment to implement these training plans as prescribed in part 48. Therefore, we have concluded that this final rule is technologically feasible.

As previously stated in this chapter, the total costs of the final rule are about \$555,000 annually for all coal contractor firms and \$118,000 annually for all M/NM contractor firms. We had to combine the coal and M/NM contractor firms together to estimate the yearly revenues because these contractor firms are not generally limited to one industry, and they could do shaft and slope construction work at both coal and M/NM mines. These compliance costs are well under 1 percent (about 0.19 percent) of the estimated yearly revenues of \$357 million for these contractor firms.²⁶ We believe this is convincing evidence that the final rule is economically feasible.

²⁶ U.S. Department of Labor Mine Safety and Health Administration, Office of Program Evaluation and Information Resources, 2002 data. MSHA-IRC: CT441 report Cycle 2002/381. Average U.S. coal price came from U.S. Department of Energy, Energy Information Administration, Annual Coal Report 2001, DOE/EIA-0584 (2001), March 2003, p. 52.

V. REGULATORY FLEXIBILITY CERTIFICATION

INTRODUCTION

Pursuant to the Regulatory Flexibility Act of 1980 as amended, MSHA has analyzed the impact of the final part 48 rule on small businesses. Further, MSHA has made a determination with respect to whether or not the Agency can certify that the final rule does not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. Under the Small Business Regulatory Enforcement Fairness Act (SBREFA) amendments to the Regulatory Flexibility Act (RFA), MSHA must include in the rule a factual basis for this certification. If the final rule were to impose a significant economic impact on a substantial number of small entities, then the Agency must develop an initial regulatory flexibility analysis.

DEFINITION OF A SMALL MINE

Under the RFA, in analyzing the impact of a final rule on small entities, we 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. We have not taken such an action, and hence are 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). All of the underground coal and M/NM contractor firms 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.

Traditionally, the Agency has also looked at the impacts of its final 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 the final rule and its impact 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 economic impacts on “small entities” while continuing the Agency’s traditional look at “small mines.” We conclude that we can certify that the final part 48 rule does not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking.

FACTUAL BASIS FOR CERTIFICATION

General Approach

Our analysis of economic impacts on “small entities” begins with a “screening” analysis. The screening compares the estimated compliance costs of a final rule for small entities in the sector covered by the rule to the estimated revenues for those small entities. When estimated compliance costs are less than 1 percent of the estimated revenues (for the size categories considered), we believe it is generally appropriate to conclude that there is no significant economic impact on a substantial number of small entities. When estimated compliance costs exceed 1 percent of revenues, it tends to indicate that further analysis may be warranted.

Derivation of Costs and Revenues

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

Both coal and M/NM contractor firms would incur costs to comply with this final rule. We examined the relationship between costs and revenues for the coal and M/NM contractor sectors as two independent entities in Chapter IV, rather than combining them into one category. However, we had to combine these two entities together to perform impact analysis in this chapter for the following reasons. Most of the 23 coal and M/NM contractor firms affected by this final rule are privately owned and do not make their financial data available to the public. The only two contractor firms for which we were able to obtain financial data were listed as coal contractor firms.²⁷ Moreover, these contractor firms are not generally limited to one industry, and they could do shaft and slope construction work at both coal and M/NM mines. This is a normal practice for this industry.

We used available financial data for the two publicly-traded, middle-sized contractor firms²⁸ together with *Industry Norms & Key Business Ratios*²⁹ and extrapolated the revenues to estimate revenues for the entire shaft and slope contractor industry. The financial data for each of the two contractor firms was a range of assets (i.e., \$1 million to \$5 million; \$25 million to \$50 million). Using the mid-point values for the reported assets, we calculated the average assets for a contractor firm to be \$20

²⁷ The source of the financial data for these two contractor firms was the Thomas Registry, located online at www.thomasregistry.com. Thomas Register is an online resource for finding companies and products manufactured in North America.

²⁸ Since there were no contractor firms that employ between one to 19 contractor employees, there would be no costs to either small coal or M/NM contractor firms. We did not perform separate impact analysis for that mine size category. To satisfy the requirements of SBREFA, we only have to consider a subset of the SBA’s definition of “small entities”—contractor firms that employ 20-500 contractor workers.

²⁹ *Industry Norms & Key Business Ratios*, pp. 8-10.

million. The next step was to use the assets to sales ratio for the mining industry from *Industry Norms & Key Business Ratios*³⁰ to obtain an estimate of average revenues for each contractor firm of \$15.5 million. Then, we multiplied that revenue number by the 23 contractor firms (from Table IV-2) to obtain \$357 million in estimated revenue for the contractor firms affected by the rule.

Results of Screening Analysis

As shown in Table V-1, the combined estimated yearly cost of the final rule for both coal and M/NM contractor firms is about \$673,000. For both industries, costs as percentage of revenues are well below one percent (0.19 percent for coal and M/NM contractor firms) and, therefore, we conclude that there is no significant economic impact on a substantial number of small entities.³¹

TABLE V-1: The Impact of Final Rule on the Underground Coal and M/NM Contractor Firms

Mine Type	Estimated Net Cost ^a	Estimated Revenue ^b	Costs as % of Revenue
Contractor Firms (20 - 500)	\$ 673,160	\$ 356,866,000	0.19%

^a Estimated net cost comes from Table IV-1.

^b Estimated revenue was derived from the Thomas Registry, at www.thomasregistry.com and from *Industry Norms & Key Business Ratios*.

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 small entities covered by this

³⁰ The assets to sales ratio is calculated by taking the average assets to sales ratio (of 128.9%) for coal, metal and non-metallic mineral operations, excluding fuel.

³¹ One concern about the robustness of the screening analysis is that it is based on (available) financial data for only 2 of the 23 contractor firms. If the assets and revenues for these two contractor firms were non-representative of the other contractors and in particular significantly over-estimated average contractor firm assets and revenues, then it is possible that actual revenues for all the contractor firms would be insufficient to pass the screening analysis. To address this concern, we obtained employment data, from web pages and MSHA testimony, for several of the corporations controlling the contractor firms. For the two contractor firms for which we have financial data, employment was 50-99 employees and 100-249 employees. For two other contractor firms, total employment was 50-150 employees and up to 300 employees. We found that another contractor firm was owned by Germany’s largest mining contractor, with over \$2 billion in completed projects in the Americas in recent decades. Just for these five firms, extrapolating the employment and project information to estimate revenue, we were able to estimate sufficient revenues to pass the screening analysis.

final 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.

VI. OTHER REGULATORY CONSIDERATIONS

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

We have reviewed this final rule in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 *et seq.*), the regulations of the Council on Environmental Quality (40 U.S.C. part 1500), and the Department of Labor's NEPA procedures (29 CFR part 11). This final rule is categorically excluded from NEPA requirements because it involves educational activities which have no possibility of significant environmental impact (29 CFR 11.10(a)(1)(vi)). Accordingly, we have not conducted an environmental assessment nor provided an environmental impact statement.

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, nor does it increase private sector expenditures by more than \$100 million annually, nor does it significantly or uniquely affect small governments. Accordingly, the Unfunded Mandates Reform Act of 1995 (2 USC 1501 *et seq.*) requires no further agency action or analysis.

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

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

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

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

EXECUTIVE ORDER 12988: CIVIL JUSTICE REFORM

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

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

This final rule has no adverse impact on children. Accordingly, Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, as amended by Executive Orders 13229 and 13296, requires no further agency action or analysis.

EXECUTIVE ORDER 13132: FEDERALISM

This final rule does not have “federalism implications” because it 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.” Accordingly, Executive Order 13132, Federalism, requires no further agency action or analysis.

EXECUTIVE ORDER 13175: CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS

This final 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, Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, requires no further agency action or analysis.

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

This final rule regulates both the coal and metal/nonmetal mining sectors. Because this final rule results in yearly net costs of \$673,000 (0.29% of revenues) to the shaft and slope construction industry, the final rule neither significantly reduces the supply of coal nor significantly increases its price. Regulation of the metal/nonmetal sector of the mining industry has no significant impact on the supply, distribution, or use of energy. This final rule is not a “significant energy action” because it is not “likely to have a significant adverse effect on the supply, distribution, or use of energy ... (including a shortfall in supply, price increases, and increased use of foreign supplies).” Accordingly, Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, requires no further agency action or analysis.

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

MSHA has thoroughly reviewed this 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 this REA, MSHA has determined and certified that this final rule will not have a significant economic impact on a substantial number of small entities. MSHA solicited public comment concerning the accuracy and

completeness of this potential impact when the rule was first proposed. The agency took appropriate account of comments received relevant to the rule's potential impact on small entities. Accordingly, Executive Order 13272, Proper Consideration of Small Entities in Agency Rulemaking, requires no further agency action or analysis.

VII. THE PAPERWORK REDUCTION ACT OF 1995

INTRODUCTION

The purpose of this chapter is to show the burden hours and related costs which are borne by contractor firms working in coal and M/NM mines as a result of the final rule. The costs in this chapter are derived from Chapter IV of this REA. However, in this chapter, we estimate costs only in relation to the burden hours that the final rule imposes. Therefore, not all costs derived in Chapter IV appear below. Those costs derived in Chapter IV that do not have burden hours related to them do not appear in this chapter.

SUMMARY OF PAPERWORK BURDEN HOURS AND RELATED COSTS

The part 48 rule has a total of four provisions in sections 48.3 and 48.23, and 48.9 and 48.29 that impose a paperwork burden requirement. This requirement does not involve a new type of training plan. It requires shaft and slope contractor firms to comply with the paperwork burden requirements as specified in sections 48.3 and 48.23, and 48.9 and 48.29. The reporting of this paperwork burden requirement is approved under OMB control number 1219-0009. Total first year burden hours consist of two components: first year burden hours and annual burden hours in year one. Total first year costs are equal to the total annualized costs in the first year plus annual costs in year one. Contractor firms working in coal mines would incur about 296 paperwork burden hours in the first year with associated burden hours costs of \$4,091; contractor firms working in M/NM mines would incur about 72 paperwork burden hours in the first year with associated burden hours costs of \$1,081. Of the 296 paperwork burden hours in the first year for contractor firms working in coal mines, only 132 hours were first-year only burden hours, with associated costs of \$5,229 (which is equivalent to \$366 of annualized costs); of the 72 paperwork burden hours in the first year for contractor firms working in metal and nonmetal mines, only 28 hours were first-year only burden hours, with associated costs of \$1,101 (which is equivalent to \$77 of annualized costs, from Table VII-1). Contractor firms working in coal mines would incur about 183 annual burden hours starting in year two with associated costs of \$4,425; contractor firms working in M/NM mines would incur about 49 annual burden hours starting in year two with associated costs of \$1,164. Annual burden hours starting in year two are those that occur every year after year one. Table VII-3 and Table VII-4 present annual burden hours starting in year one and associated costs, and Table VII-2 presents annual burden hours starting in year two.

§ 48.3 & § 48.23 training plans; time of submission; where filed; information required; time for approval; commencement of training; approval of instructors.

This section requires each contractor firm employing shaft and slope construction workers to have an MSHA-approved training plan. The plan must contain training requirements for underground miners and/or surface miners as applicable.

It would take a contractor, on average, 5.85 hours to develop such a training plan. In addition to the time for developing a training plan, a contractor would need an additional hour to submit an application to the District Manager to become an approved training instructor. The wage rate for a contractor is \$30 an hour. It would take a clerical worker, making \$14.43 an hour, 0.0833 hours (or 5 minutes) to distribute or post a training plan. Table VII-1 provides first year paperwork burden hours and costs related to training plans for this final rule.

Table VII-1: First-Year Paperwork Burden Costs to Contractor Firms in Accordance with § 48.3 & § 48.23

Contractor Firm Size	Coal			
	# of Contractor Firms ^a	# of Burden Hours per Mine to Comply with This Section ^b	Total # of Paperwork Burden Hours ^c	Total Annualized Costs ^d
Small (< 20)	0	6.93	0	\$0
Large (20-500)	19	6.93	132	\$366
Large (> 500)	0	6.93	0	\$0
Contractor Firm Size	M/NM			
	# of Contractor Firms ^a	# of Burden Hours per Mine to Comply with This Section ^b	Total # of Paperwork Burden Hours ^c	Total Annualized Costs ^d
Small (< 20)	0	6.93	0	\$0
Large (20-500)	4	6.93	28	\$77
Large (> 500)	0	6.93	0	\$0

^a # of contractor firms comes from Table IV-2.

^b # of burden hours per mine to comply with this section comes from Table IV-3: $[(T_{p1} \times 80\%) + (T_{p2} \times 20\%) + T_a + T_c]$, where T_{p1} is equal to the number of hours for a permanent staff employee to develop a training plan without the Internet ($T_{p1} = 7$ hours); 80% is the percentage of contractor firms who would elect to develop a training plan without the Internet; T_{p2} is equal to the number of hours for a permanent staff employee to develop a training plan with the Internet ($T_{p2} = 75$ minutes or 1.25 hours); 20% is the percentage of contractor firms who would elect to develop a training plan with the Internet; T_a is number of hours for a permanent staff employee to submit an application for an approved instructor ($T_a = 1$ hour); and T_c is the number of hours to distribute or post a training plan by a clerical worker ($T_c = 5$ minutes or 0.083 hours).

^c Total # of paperwork burden hours = (# of contractor firms x # of burden hours per mine to comply with this section).

^d Total annualized costs = $\{[(6.85 \text{ hours} \times \$40) + (0.083 \text{ hours} \times \$14.43)] \times \# \text{ of contractor firms} \times a\}$, where 6.85 is the # of hours it would take for a permanent staff employee to develop a training plan and submit an application for an approved instructor; \$40 is the hourly wage rate for a permanent staff employee; 0.083 hours is the # of hours it would take for a clerical worker to distribute/post a training plan; \$14.43 is the hourly wage rate for a clerical worker; and a is the annualization factor ($a = 0.07$).

It would take about one hour for a contractor to update and keep the training plan current. This would be done starting in year two. This cost is presented in Table VII-2.

Table VII-2: Annual Paperwork Burden Hours and Costs to Contractor Firms Starting in Year Two in Accordance with § 48.3 & § 48.23

Contractor Firm Size	Coal			
	# of Contractor Firms ^a	# of Burden Hours per Mine to Update a Training Plan ^b	Total # of Paperwork Burden Hours	Total Annual Costs ^c
Small (< 20)	0	1	0	\$0
Large (20-500)	19	1	19	\$760
Large (> 500)	0	1	0	\$0
Contractor Firm Size	M/NM			
	# of Contractor Firms ^a	# of Burden Hours per Mine to Update a Training Plan ^b	Total # of Paperwork Burden Hours	Total Annual Costs ^c
Small (< 20)	0	1	0	\$0
Large (20-500)	4	1	4	\$160
Large (> 500)	0	1	0	\$0

^a # of contractor firms comes from Table IV-2.

^b Annual cost to update training plan = ($T_p \times W_s$), where T_p is the number of hours it would take for a permanent staff employee to update training plan annually ($T_p = 1$ hour); and W_s is the hourly wage rate for a permanent staff employee ($W_s = \$40$).

^c Total annual costs = (total # of paperwork burden hours x \$40), where \$40 is the hourly wage rate for a permanent staff employee.

MSHA recognizes that there could be new contractor firms entering the shaft and slope construction sector of the industry. Some of these new contractor firms who have done other types of work on mine property would already have an approved training plan. Therefore, there would be no additional cost related to development of a new or separate training plan for shaft and slope construction workers. For those new contractor firms coming into the industry that do not already have a part 48 training plan, the paperwork cost related to developing a training plan would be the same as indicated in Table IV-1. MSHA estimates that there would be approximately 0.20 such coal contractor firms and 0.10 M/NM contractor firms coming into the industry every year. Table IV-3 presents the costs related to new contractor firms coming into the industry.

Table VII-3: Annual Paperwork Burden Hours and Costs for New Contractor Firms Starting in Year One in Accordance with § 48.3 & § 48.23

Contractor Firm Size	Coal			
	# of New Contractor Firms ^a	# of Burden Hours per Mine to Comply with This Section ^b	Total # of Paperwork Burden Hours ^c	Total Annual Costs ^d
Small (< 20)	0	6.93	0	\$0
Large (20-500)	0.20	6.93	1.39	\$55
Large (> 500)	0	6.93	0	\$0
Contractor Firm Size	M/NM			
	# of New Contractor Firms ^a	# of Burden Hours per Mine to Comply with This Section ^b	Total # of Paperwork Burden Hours ^c	Total Annual Costs ^d
Small (< 20)	0	6.93	0	\$0
Large (20-500)	0.10	6.93	0.69	\$28
Large (> 500)	0	6.93	0	\$0

^a # of contractor firms comes from Table IV-4.

^b # of burden hours per mine to comply with this section comes from Table IV-3: $[(T_{p1} \times 80\%) + (T_{p2} \times 20\%) + T_a + T_c]$, where T_{p1} is equal to the number of hours for a permanent staff employee to develop a training plan without the Internet ($T_{p1} = 7$ hours); 80% is the percentage of contractor firms who would elect to develop a training plan without the Internet; T_{p2} is equal to the number of hours for a permanent staff employee to develop a training plan with the Internet ($T_{p2} = 75$ minutes or 1.25 hours); 20% is the percentage of contractor firms who would elect to develop a training plan with the Internet; T_a is number of hours for a permanent staff employee to submit an application for an approved instructor ($T_a = 1$ hour); and T_c is the number of hours to distribute or post a training plan by a clerical worker ($T_c = 5$ minutes or 0.083 hours).

^c Total # of paperwork burden hours = (# of new contractor firms x # of burden hours per mine to comply with this section).

^d Total annual costs = $[(6.85 \text{ hours} \times \$40) + (0.083 \text{ hours} \times \$14.43)] \times \# \text{ of new contractor firms}$, where 6.85 is the # of hours it would take for a permanent staff employee to develop a training plan and submit an application for an approved instructor; \$40 is the hourly wage rate for a permanent staff employee worker; 0.083 hours is the # of hours it would take for a clerical worker to distribute/post a training plan; and \$14.43 is the hourly wage rate for a clerical worker.

§ 48.9 & § 48.29 Records of training.

Upon a shaft and slope construction worker's completion of each MSHA approved training program, the contractor firm must record and certify on MSHA form 5000-23 that the contractor worker has received the specified training. The training certificates for each miner must be available at the mine site for inspection by MSHA and for examination by the contractor worker, the contractor workers' representative, and State inspection agencies. A copy must also be available to the miner at the end of the training and employment.

It would take about five minutes (or 0.0167 hours) of a clerical worker's time to distribute and to file a training form for each contractor worker. Recordkeeping has to be done for training of new miners, experienced miner training, task training, annual refresher training, and hazard training. Table VII-4 estimates the recordkeeping costs borne by contractor firms in accordance with § 48.9 & § 48.29.

Table VII-4: Annual Records of Training Costs that Contractor Firms Would Have to Incur in Accordance with § 48.9 & § 48.29 Starting in Year One

Contractor Firm Size	Coal						Total Annual Burden Hours ^f	Total Annual Costs ^g
	# of Contractor Workers Under § 48.5 & § 48.25 ^a	# of Contractor Workers Under § 48.6 & § 48.26 ^b	# of Contractor Workers Under § 48.7 & § 48.27 ^c	# of Contractor Workers Under § 48.8 & § 48.28 ^d	# of Contractor Workers Under § 48.11 & §48.31 ^e			
Small (< 20)	0	0	0	0	0	0	\$0	
Large (20-500)	577	86	570	143	250	162.5	\$3,610	
Large (> 500)	0	0	0	0	0	0	\$0	
Contractor Firm Size	M/NM						Total Annual Burden Hours ^f	Total Annual Costs ^g
	# of Contractor Workers Under § 48.5 & § 48.25 ^a	# of Contractor Workers Under § 48.6 & § 48.26 ^b	# of Contractor Workers Under § 48.7 & § 48.27 ^c	# of Contractor Workers Under § 48.8 & § 48.28 ^d	# of Contractor Workers Under § 48.11 & §48.31 ^e			
Small (< 20)	0	0	0	0	0	0	\$0	
Large (20-500)	122	18	120	30	150	44.0	\$976	
Large (> 500)	0	0	0	0	0	0	\$0	

^a # of contractor workers comes from Table IV-9 and Table IV-10.

^b # of contractor workers comes from Table IV-13.

^c # of contractor workers comes from Table IV-14.

^d # of contractor workers comes from Table IV-15.

^e # of contractor workers comes from Table IV-17.

^f Total annual burden hours = [total # of contractor workers (under § 48.5, § 48.6, § 48.7, § 48.8, and § 48.11) x (T_c + T_s), where T_c is the number of hours it would take for clerical worker to photocopy, distribute the certificate twice, and file the form for each contractor worker (T_c = 0.05 hours); and T_s is the amount of time it would take for an approved instructor to record and certify completion of a training program for each miner (T_s = 3 minutes or 0.05 hours).

^g Total cost = (total annual burden hours x W_w), where W_w is the weighted average hourly wage rate for a clerical worker and a health and safety instructor

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