PRELIMINARY REGULATORY ECONOMIC ANALYSIS

AND

PRELIMANARY REGULATORY FLEXIBILITY ANALYSIS

PROPOSED RULE ON 30 CFR PART 57

DIESEL PARTICULATE MATTER EXPOSURE OF UNDERGROUND METAL AND NONMETAL MINERS

RIN 1219-AB29

Office of Standards, Regulations, and Variances
Mine Safety and Health Administration
U.S. Department of Labor

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I. EXECUTIVE SUMMARY

INTRODUCTION

We, the Mine Safety and Health Administration (MSHA), are revising some of the provisions in our existing Diesel Particulate Matter (DPM) rule for underground metal and non-metal mines. This proposed rule revises § 57.5060 Limit on concentration of diesel particulate matter; § 57.5061 Compliance determinations; § 57.5062 Diesel particulate matter control plan; § 57.5071 Environmental monitoring; and § 57.5075 Diesel particulate records. Section 101 of the Federal Mine Safety and Health Act of 1977 provides the authority for this rulemaking.

Based on its analysis of compliance costs, MSHA has determined that this standard would 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 (E.O.) 12866.

BENEFITS SUMMARY

As discussed in Chapter III of this PREA, the amended provisions in this proposed rule will assist mine operators in complying with the existing final rule, thereby reducing a significant health risk to underground miners. This risk includes lung cancer and death from cardiovascular, cardiopulmonary, or respiratory causes, as well as sensory irritation and respiratory symptoms.

COMPLIANCE COST SUMMARY

The final rule results in net cost of approximately $4,539 annually. These costs are primarily due to applications for special extensions to the interim and final limits.

REGULATORY FLEXIBILITY CERTIFICATION AND ANALYSIS

In accordance with section 605 of the Regulatory Flexibility Act, we certify that the final rule would not have a significant economic impact on a substantial number of small entities. Under the Small Business Regulatory Enforcement Fairness Act (SBREFA) amendments to the Regulatory Flexibility Act, we must include in the proposed rule a factual basis for this certification. The Agency must also publish the regulatory flexibility certification statement in the Federal Register, along with the factual basis, followed by an opportunity for the public to comment. The analysis that provides the factual basis for this certification is discussed in Chapter V of this document and will be included in the preamble to the proposed 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

This industry profile provides background information about the structure and economic characteristics of the mining industry. It provides data on the number of mines, their size, the number of employees, and the diesel powered equipment used.

THE STRUCTURE OF THE METAL/NONMETAL MINING INDUSTRY

MSHA divides the mining industry into two major segments based on commodity: (1) coal mines and (2) metal and nonmetal (M/NM) mines. These segments are further divided based on type of operation (e.g., underground mines or surface mines). MSHA maintains its own data on mine type, size, and employment, and the Agency also collects data on the number of independent contractors and contractor employees by major industry segment. Since the proposed rule only affects underground M/NM mines, we are focusing mainly on the underground M/NM mining industry in this chapter.

MSHA categorizes mines by size based on employment. For rulemaking purposes, MSHA has consistently defined a small mine to be one that employs fewer than 20 workers and a large mine to be one that employs 20 or more workers. To comply with the requirements of the Small Business Regulatory Enforcement Fairness Act (SBREFA) amendments to the Regulatory Flexibility Act (RFA), however, an agency must use the Small Business Administration's (SBA's) criteria for a small entity—for mining, 500 or fewer employees—when determining a rule's economic impact on small entities.

Table II-1 presents the total number of small and large mines and the corresponding number of miners, excluding contractors, for the M/NM mining segment. 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-1 indicates, 98 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-2 presents corresponding data on the number of independent contractors and their employees working in the M/NM mining segment.

TABLE II-1: Distribution of M/NM Mine Operations and Employment (Excluding Contractors) by Mine Type and Size[a]

Size of M/NM Mine[b]		Mine Type			
		Underground	Surface	Office Workers	Total M/NM
Fewer Than 20 Employees	Mines	90	9,838	-	9,928
	Employees	793	50,274	9,521	60,588
20 to 500 Employees	Mines	117	1,575	-	1,692
	Employees	10,016	75,543	13,877	99,436
Over 500 Employees	Mines	4	17	-	21
	Employees	3,167	13,143	1,923	18,233
All M/NM Mines	Mines	211	11,430	-	11,641
	Employees	13,976	138,960	25,321	178,257

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

[b] 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 both the <20 employees and 20 to 500 employees categories.

TABLE II-2: Distribution of M/NM Contractors and Contractor Employment by Size of Operation[a]

Size of Contractor[b]		Contractors			
		Underground	Surface	Office Workers	Total M/NM
Fewer Than 20 Employees	Mines	404	3,268	-	3,672
	Employees	1,568	15,859	807	18,234
20 to 500 Employees	Mines	49	395	-	444
	Employees	2,092	21,157	1,324	24,573
Over 500 Employees	Mines	0	2	-	2
	Employees	0	799	406	1,205
Total Contractors	Mines	453	3,665	-	4,118
	Employees	3,661	37,814	2,537	44,012

[a] Source: U.S. Department of Labor Mine Safety and Health Administration, Directorate of Program Evaluation and Information Resources, 2001 data, and U.S. Department of Labor, Mine Safety and Health Administration, 2001 Final Data, CT441 Report, cycle 2001/334.

[b] 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 both the <20 employees and 20 to 500 employees categories.

The M/NM mining sector consists of about 80 different commodities including industrial minerals. There were 11,641 M/NM mines in the U.S. in 2001, of which 9,928 (85%) were small mines and 1,713 (15%) were large mines, using MSHA's traditional definition of small and large mines. Based on SBA's definition, however, only 21 M/NM mines (0.2%) were large mines.[1]

The data in Table II-1 indicate that employment at M/NM mines in 2001 was 178,257, of which 60,588 workers (34%) were employed by small mines and 117,669 workers (66%) were employed by large mines, using MSHA's definition. Based on SBA's definition, however, 160,024 workers (90%) were employed by small mines and 18,233 workers (10%) were employed by large mines. Using MSHA's definition, the average employment is 6 workers at a small M/NM mine and 69 workers at a large M/NM mine. Using SBA's definition, there is an average of 14 workers in each small M/NM mine and 868 workers in each large M/NM mine.[2]

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

[2] Ibid.

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 19 percent of all M/NM miners. Under MSHA's traditional definition of a small mine, 43 percent of metal mines are small, and these mines employ 2 percent of all miners working in metal mines. Using SBA's definition, 93 percent of metal mines are small, and they employ 53 percent of all miners working in metal mines.[3]

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 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.

Stone mines constitute 35 percent of all M/NM mines, and they employ 44 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.[4] A full 60 percent of underground M/NM mines using diesel equipment are stone mines.

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.

[3] Ibid.

[4] Ibid.

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 23 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.[5]

Other Nonmetal Mining

For enforcement and statistical purposes, MSHA separates stone and sand and gravel mining from other nonmetal mining. 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 14 percent of all M/NM miners. Using MSHA's definition of a small mine, 68 percent of other nonmetal mines are small, and they employ 13 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.[6]

[5] Ibid.

[6] Ibid.

ECONOMIC CHARACTERISTICS OF THE METAL/NONMETAL MINING INDUSTRY

The value of all M/NM mining output in 2001 was estimated at $38.9 billion. Metal mines, which include copper, gold, iron, lead, silver, tin, and zinc mines, contributed $9.0 billion.[7] Nonmetal production was valued at $29.9 billion: $9.2 billion from stone mining, $6.1 billion from sand and gravel, and $14.6 billion from other nonmetals such as potash, clay, and salt.[8]

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 soft drink 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.

A detailed economic picture of the M/NM mining industry is difficult to develop because most mines are either privately held corporations or 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. 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 M/NM companies, and these data are not representative of the entire industry.

UNDERGROUND M/NM MINES THAT USE DIESEL POWERED EQUIPMENT

The M/NM Mine DPM Rule applies only to underground M/NM mines that use diesel powered equipment. Because most M/NM mines do not have the risk of explosion, unlike underground coal mines with methane present in the atmosphere, the adoption of diesel powered equipment has been unimpeded. Over 85 percent of underground M/NM mines use diesel powered equipment. Most of the mines not using diesel powered equipment are small mines with fewer than 20 employees.

In January 1998, MSHA conducted a census of underground M/NM mines to identify the number of diesel powered machines used in these mines. MSHA inspectors collected data from a total of 203 mines. They reported a total of 4,081 pieces of diesel equipment and 18,922 employees. MSHA removed the nonproducing mines from the database. This adjustment reduced the number of underground M/NM mines using diesel equipment to 196. These mines reported 3,998 pieces of diesel equipment and 18,702 employees.

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[7] U.S. Department of Interior, U.S. Geological Survey, Mineral Commodity Summaries 2002, January 25, 2002, p. 7.

[8] Ibid., pp. 140, 142, 156, and 158.

In 2002, MSHA conducted a second census of underground M/NM mines to identify the number of diesel powered machines used in these mines. MSHA inspectors collected data from a total of 172 mines.

Data are estimated for 2001 based on these two censuses. These estimates are shown in Table II-3. Of the 182 mines, four of these are large mines according to SBA's definition (500 or more employees), and 178 are small mines; 117 are large mines based on MSHA's definition and 65 are small. Overall, about 86 percent of underground M/NM mines use diesel equipment, but the proportion is smaller for smaller mine sizes.[9] Of mines with 20 to 500 employees, 97 percent use diesel equipment compared to only 72 percent of mines with fewer than 20 employees.

TABLE II-3: Underground Metal/Nonmetal Mines and Miners Using Diesel Powered Equipment, by Mine Size Class

	Size of Mine					
	Fewer Than 20 Miners		20 to 500 Miners		More Than 500 Miners	
	Mines	Miners	Mines	Miners	Mines	Miners
Number	65	752	113	10,819	4	3,349
Percentage of All Underground M/NM Mines and Miners in Size Class[a]	72%	79%	97%	98%	100%	100%
Percentage of All Underground M/NM Mines and Miners With Diesel Equipment[a]	39%	4%	57%	61%	4%	35%

[a] All percentages in this table are based on 2001 data on underground M/NM mines.

Table II-4 shows the number and size distribution of underground M/NM mines for different commodity groups.

[9] Since the data for all underground M/NM mines and underground M/NM mines using diesel equipment came from different sources, these percentages may not be completely accurate. Nevertheless the differences in data sources should make little difference for comparisons between mine size classes.

TABLE II-4: Underground M/NM Mines Using Diesel Powered Equipment by Commodity Group and Size Class*

Commodity Group	Size of Mine			Total
	Fewer Than 20 Miners	20 to 500 Miners	Over 500 Miners	
Base Metals[c]	6	17	0	23
Precious Metals[b]	2	17	1	20
Stone[a]	54	55	1	110
Other Nonmetal[e]	3	24	2	29
TOTAL	65	113	4	182

* Based on 2001 data from MSHA's Directorate of Program Evaluation and Information Resources. Data includes only mines reporting employment in 2001, and presumed to be using diesel equipment in 2001, based on 1998 and 2002 diesel equipment surveys.

[a] Includes Copper Ore, Lead/Zinc, Molybdenum, and Uranium.

[b] Includes Gold, Platinum, and Silver.

[c] Includes Sand and Gravel, Lime, Limestone, Marble, and Sandstone.

[d] Includes Clay, Gemstones, Gypsum, Potash, Salt, Talc, and Trona.

INVENTORY OF DIESEL POWERED EQUIPMENT

For purposes of cost analysis, diesel powered equipment in underground M/NM mines is classified into two principal types:

- **Production Equipment.** Production equipment is characterized by relatively continuous operation under heavy engine load. Haul trucks, loaders, and jumbo drills are examples of production equipment. Production equipment uses diesel engines with a wide range of horsepower. Accordingly, for DPM control and costing purposes, MSHA has divided production engines into two size classes:
  - Greater than 150 horsepower; and
  - 150 horsepower or less.

- **Support Equipment.** Support equipment is characterized by intermittent (and typically infrequent) operation, usually under relatively light engine load. Types of support equipment include roof bolters, ANFO trucks, water trucks, personnel transport, and maintenance vehicles.

Table II-5 summarizes diesel powered equipment by type of equipment category, mine size class, and commodity being mined.

TABLE II-5: Number of Diesel Engines in Underground M/NM Mines by Mine Size Class, Commodity Group, and Equipment Type*

Commodity Group	Type/hp of Equipment	Size of Mine			Total
		<20 Miners	20-500 Miners	>500 miners	
Base Metals	Product. >150 hp	18	235	30	283
	Product. <150 hp	8	63	0	71
	Support	24	270	0	294
	TOTAL	50	568	30	648
Precious Metals	Product. >150 hp	15	158	22	195
	Product. <150 hp	2	107	39	148
	Support	7	315	66	388
	TOTAL	24	580	127	731
Stone	Product. >150 hp	172	424	16	612
	Product. <150 hp	32	41	1	74
	Support	215	399	23	637
	TOTAL	419	864	40	1,323
Other Nonmetal	Product. >150 hp	5	123	3	131
	Product. <150 hp	1	119	23	143
	Support	1	548	160	709
	TOTAL	7	790	186	983
TOTAL	Product. >150 hp	210	940	71	1,221
	Product. <150 hp	43	330	63	436
	Support	247	1,532	249	2,028
	TOTAL	500	2,802	383	3,685

* 2001 estimates based on 1998 and 2002 data on mines using diesel equipment.

Production equipment with large diesel engines (over 150 hp) makes up 33 percent of diesel powered equipment in underground M/NM mines. Production equipment with small diesel engines (150 hp or less) makes up 12 percent of diesel powered equipment in underground M/NM mines. Support equipment makes up a majority (55 percent) of all diesel powered equipment in underground M/NM mines.

III. BENEFITS

In Chapter III of the Regulatory Economic Analysis in support of the January 19, 2001 final rule (2001 REA), the Agency demonstrated that the DPM final rule for M/NM mines will reduce a significant health risk to underground miners. This risk included the potential for illnesses and premature death, as well as the attendant costs of the risk to the miners' families, to the miners' employers, and to society at large.

Benefits of the January 19, 2001 final rule include reductions in lung cancers. In the long run, as the mining population turns over, MSHA estimated that a minimum of 8.5 lung cancer deaths will be avoided per year. MSHA noted that this estimate was a lower bound figure that could significantly underestimate the magnitude of the health benefits. For example the estimate based on the mean value of all the studies examined in the January 19, 2001 final rule was 49 lung cancer deaths avoided per year.

Other benefits noted in the 2001 REA were reductions in the risk of death from cardiovascular, cardiopulmonary, or respiratory causes and reductions in the risk of sensory irritation and respiratory symptoms. However, MSHA did not include these health benefits in its estimates because the Agency could not make reliable or precise quantitative estimates of them. Nevertheless, the Agency noted that the expected reductions in the risk of death from cardiovascular, cardiopulmonary, or respiratory causes and the expected reductions in the risk of sensory irritation and respiratory symptoms are likely to be substantial.

The amended provisions in this proposed rule will assist mine operators in complying with the January 19, 2001 final rule. By improving compliance with the January 19, 2001 final rule, this proposed rule would contribute to the realization of the benefits mentioned above.

IV. COST OF COMPLIANCE

INTRODUCTION

This chapter analyzes the changes in the compliance costs associated with the revised provisions in the proposed DPM rule.

Table IV-1 presents the total yearly compliance costs by provision and mine size for the proposed revisions. The proposed rule would result in net costs for underground metal/nonmetal mine operators of $4,539 per year. All MSHA cost estimates are presented in 2001 dollars. This works out to an average yearly cost of $25 per mine for the 182 underground metal/non-metal mines that would be affected by this proposed rule. Of these 182 mines, 65 have fewer than 20 workers, 113 have 20 to 500 workers; and 4 have more than 500 workers. The cost, or cost savings (negative costs), per mine for mines in these three size classes would be -$34, $58, and $58, respectively.

Table IV-1: Summary of Costs

	Mine Size			
Provision	<20	20-500	>500	Total
Special Extensions 57.5060 (c)	$6,179	$21,117	$748	$28,044
Respirator Protection 57.5060 (d)	-$2,569	-$4,466	-$158	-$7,192
DPM Control Plan 57.5062	-$5,826	-$10,128	-$359	-$16,313
Total	-$2,215	$6,523	$231	$4,539

Source: Tables IV-3, IV-4, IV-5, IV-7. and IV-9.

The total costs reported in Table IV-1, and in all other tables in this chapter, are the Agency's best estimates of the projected costs based on our knowledge, experience, and available information. In some cases, however, our estimates may appear to deviate slightly from the sum or product of their component factors due to the fact that the component factors have been rounded in the tables for purposes of readability.

METHODOLOGY

In determining the effects of the proposed rule, MSHA estimated the following, as appropriate: (1) one-time or intermittent costs; (2) annualized costs (one-time or intermittent costs amortized over a specific number of years); and (3) annual costs. One-time costs are those that are incurred only once and do not recur. Intermittent costs are those that occur from time to time, but not annually. Examples of one-time or intermittent costs are capital expenditures, such as the cost of purchasing compliance equipment, and the cost of developing and writing a DPM control plan. For the purposes of this analysis, one-time costs have been annualized using a (real) annual discount rate of 7%, as required by the U. S. Office of Management and Budget (OMB), over an infinite (or, at least, indefinite) period using the formula:

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

where "a" is the annualization factor, "i" is the annual discount rate, and "n" is the economic life of the investment. As "n" becomes large, the value of "a" approaches the discount rate. Therefore, for one-time costs with an infinite life, MSHA has applied an annualization factor equal to the annual discount rate of 7% (that is, the annualized cost is equal to 7% of the one-time cost). Unless otherwise specified, all first year costs in this PREA were annualized using a 7 percent annualization factor.

Converting one-time costs to annualized costs allows them to be added to annual costs in order to compute the yearly costs of a rule.[10] Annual costs are costs that normally recur annually. Two examples of annual costs are (annual) refresher training costs and recordkeeping costs.

The labor costs used in this analysis for metal/non-metal miners are based upon their 2001 wage rates. The wage rates used in this analysis are:

$44.93 per hour for a supervisor;
$19.81 for a metal/non-metal miner; and
$18.44 for a clerical worker.[11]

These wage rates include benefits (which include social security, unemployment insurance, and workers' compensation), but do not reflect shift differentials or overtime pay. For convenience, MSHA will refer to miner "compensation" in this PREA as "wages," where that term is understood to include benefits.

We note that many of the assumptions and estimates of cost components in this chapter rely exclusively on MSHA's own knowledge and experience.

PROPOSED § 57.5060(a) INTERIM PERMISSIBLE EXPOSURE LIMIT (PEL)

The proposed PEL is 308 micrograms of elemental carbon per cubic meter of air (308_{EC} $\mu g/m^3$). The interim limit in the January 2001 final rule is 400 micrograms of total carbon per cubic meter of air (400_{TC} $\mu g/m^3$). The proposed interim limit, expressed in units of elemental carbon, is equivalent to the existing interim limit, which is expressed in units of total carbon. Therefore, this proposed equivalent interim limit does not change the costs of compliance. MSHA does recognize, however, that for various other reasons the compliance costs may be lower now than those estimated in the original economic analysis. First, the number of metal non-metal mines using diesel equipment has

[10] Note that many one-time costs, such as labor and testing costs or small capital costs, would not normally be financed by mine operators. Nevertheless, we have annualized all one-time costs so as to be able to provide a simple, single estimate of the cost of an MSHA regulation: its yearly cost. The yearly cost of a regulation converts all of the costs of a regulation, whenever and however frequently they occur, into an equivalent steam of uniform yearly costs.

[11] Wages are derived from U.S. Metal and Industrial Mineral Mine Salaries, Wages, and Benefits 2001 Survey Results, Western Mine Engineering, 2001.

decreased from 196 in 1998 to 182 in 2001. Second, filters have become more efficient. Third, this new rule allows mine operators to apply for special time extensions to meet the interim limit. Finally the hierarchy of controls in this rule recognizes the possibility of economic infeasibility and allows for the use of administrative controls.

PROPOSED § 57.5060(c) SPECIAL EXTENSIONS

Under the existing § 57.5060(c), a mine operator that requires additional time to come into full compliance with the final concentration limit (160_{TC} micrograms/m^3), due to technological constraints, would be allowed to file an application for a special extension. This provision provides for no more than one extension lasting no longer than two years.

In contrast to this existing provision, the proposed § 57.5060(c) would allow a mine operator that requires additional time to come into full compliance with either the interim limit (308_{EC} µg/m^3) or the final concentration limit (160_{TC} µg /m^3), due to technological or economic constraints, to file an application for a special extension. In further contrast, the proposed provision would provide for unlimited applications, each lasting no longer than one year.

Unit Cost Estimate

With the exception of updated price and wage data, MSHA uses the same estimates and assumptions as in the 2001 REA to calculate the unit cost of applying for a special extension:

To prepare and submit an application to MSHA would take a supervisor:

- 16 hours in a mine with 20 or more employees, and
- 8 hours in a mine with fewer than 20 employees.

The application would average 10 pages in length.

Copying and distribution of the application would require 20 minutes of a clerical worker's time, and would involve:

- Making 3 copies of the original application:
  - One mailed to MSHA,
  - One distributed to the miners' representative, and
  - One posted in the mine, and
- Making and posting one copy of the approved application.

Other direct costs include:

- $ .15 per page ($1.50 per application copy) for copying costs, and
- $ .60 for postage.

Table IV-2 shows the cost per mine for an application for a special extension. The cost of making an application would be $372 for a small mine and $732 for a large mine.

Table IV-2
Revised 57.5060(c) Unit Costs of Special Extension Application

Mine Size	Activity	Cost Element	Unit Cost	Units	Cost
Fewer Than 20	Prepare	Supervisor	$44.93	8 hours	$359
	Copy & Distribute	Clerical Worker	$18.44	0.33 hours	$6
	Direct Costs	Copying	$1.50	4 copies	$6
		Postage	$0.60	1 copy	$1
	Total Cost per Mine				$372
20 and Over	Prepare	Supervisor	$44.93	16 hours	$719
	Copy & Distribute	Clerical Worker	$18.44	0.33 hours	$6
	Direct Costs	Copying	$1.50	4 copies	$6
		Postage	$0.60	1 copy	$1
	Total Cost per Mine				$732

MSHA assumes that 50 percent, or roughly 91, of the 182 underground metal/non-metal mines that use diesel powered equipment would apply for a special extension to the interim limit in the first year. Of these 91 mines half, or roughly 45, would also apply for an extension in the second year. The other half would have met the interim limit by then. By the third year, the final limit will take effect.

Table IV-3 shows the estimated yearly cost for mines that apply for a single, one-year special extension to the interim limit.

Table IV-3
Revised 57.5060(c) Costs of Special Extension for Interim Limit
For Mines Applying for an Extension in the First Year Only

Mine Size	Number of Mines	Cost per Mine[a]	Total Cost	Annualized Cost[b]
Fewer than 20	16.3	$372	$6,048	$423
20 to 500	28.3	$732	$20,668	$1,447
Over 500	1.0	$732	$732	$51
Total	45.5		$27,448	$1,921

[a]See Table IV-2 for a breakdown of these costs.

[b]Using an annualization factor of 0.07

Table IV-4 shows the estimated yearly cost for mines that apply for a special extension to the interim limit in the first two years that the rule takes effect.

Table IV-4
Revised 57.5060(c) Costs of Special Extension for Interim Limit
For Mines Applying for an Extension in the First Two Years

Mine Size	Number of Mines	Cost per Mine[a]	Total Cost	Annualized Cost[b]
> 20	16.3	$372	$6,048	$819
20 to 500	28.3	$732	$20,668	$2,799
< 500	1.0	$732	$732	$99
Total	45.5		$27,448	$3,717

[a] See Table IV-2 for a breakdown of these costs.

[b] Using an annualization factor of (1+1/1.07) x 0.07

MSHA assumes that 50 percent, or roughly 91, of the 182 underground metal/non-metal mines that use diesel powered equipment would apply for a special extension to the final limit in the first year. Of these 91 mines half, or roughly 45, would also apply for an extension in the second year and every year thereafter. The other half would have met the final limit by then.

The costs of applying for a special extension to the final limit in the first year are not included in this PREA because mine operators are permitted to make a one-time application under existing § 57.5060(c). This adjustment is also made in the last column of table IV-5, which presents the costs of applying for a special extension to the final limit for mines that apply in every year.[12]

[12] The costs of complying with this provision would also be different from those in the 2001 REA because the number of mines predicted to make the application has changed. This change, however, is due to a change in MSHA's assumptions and not to a proposed change in the rule itself. Therefore, the cost effects associated with this change in assumptions are not properly attributable to this proposed rule.

Table IV-5
Revised 57.5060(c) Costs of Special Extension for Final Limit

Mine Size	Number of Mines	Annual Cost per Mine[a]	Total Annual Cost	Adjusted Total Cost[b]
> 20	16.3	$372	$6,048	$4,937
20 to 500	28.3	$732	$20,668	$16,872
< 500	1.0	$732	$732	$597
Total	45.5		$27,448	$22,406

[a] See Table IV-2 for a breakdown of these costs.

[b] Adjusted Total Cost = (total annual cost) / $(1.07)^3$, where $(1/1.07)^3$ is the three year-discounting factor using an annual discount rate of 7 percent (the annual costs are discounted for 2 years because the final limit does not go into effect until two years after the publication of this rule and a third year because mine operators unable to meet the final limit are already able (under the existing rule) to apply for a special extension in the first year only that the final limit takes effect.

PROPOSED § 57.5060(d) RESPIRATORY PROTECTION

Under the January 2001 rule, Section 57.5060(d) allows mine operators to implement a respiratory protection plan (RPP) that permits mine employees to conduct inspection, maintenance, or repair activities in certain areas of a mine where the DPM concentration limit is exceeded. This section requires mine operators to submit a written initial RPP and a written exemption plan (EP) to MSHA, as well as to revise and resubmit these plans annually. Moreover, the section contains provisions outlining requirements for respiratory equipment, training, fit testing, routine care, and inspections of respirators.

These later requirements are still included in the proposed Section 57.5060(d). However, the proposed section does not require written initial and revised RPPs and EPs. Therefore, mine operators that use respirators would accrue costs savings equal to the cost of preparing, revising, and submitting the RPP and the EP. Table IV-6 shows MSHA's estimates of these cost savings per mine. The assumptions in Table IV-6 regarding the quantity of inputs necessary to complete the RPP and EP are the same as in the January 2001 REA. The prices of these inputs have been updated. Each mine that uses respirators would realize a cost saving of $99 per year.

Table IV-6: Unit Costs of Respirator Protection and Exemption Plans

Activity	Cost Element	Unit Cost	Units	Cost Under Old 57.5060(d)	Cost Under New 57.5060(d)	Net Change in Costs
Initial Preparation	Supervisor	$ 44.93	12 hours[a]	$539	$0	-$539
	Annualized Cost[b]			$38	$0	-$38
Annual Revision	Supervisor	44.93	1 hour	$45	0	-$45
Copy & Distribute	Clerical Worker	$ 18.44	0.5 hours	$9	$0	-$9
	Copying	$ 1.50	4 copies	$6	$0	-$6
	Postage	$ 0.84	1 copy	$1	$0	-$1
Total				$99	$0	-$99

[a] One time initial hours minus recurring annual hours.

[b] Using an annualization factor of 0.07.

The number of mines that MSHA assumes will use respirators is different from the number assumed in the January 2001 REA.[13] In the January 2001 REA, MSHA assumed all mines would use respirators for inspection, maintenance, or repair activities in certain areas of the mine. In this PREA, MSHA uses the baseline sampling data to make new assumptions regarding the number of mines using respirators. MSHA now assumes that the percentage of mines in which the personal samples of mine employees engaged in inspection, maintenance, or repair activities were above the limit would be the same as the percentage of mines that would use respirators. These percentages were 6.9% (12.6 mines) and 37.9% (69 mines) for the interim and final limits, respectively. Table IV-7 shows the total cost savings for the metal/non-metal industry based on these numbers of mines.

[13] This difference in the number of mines will make the costs of complying with this proposed provision different from those in the January 2001 REA. This change, however, is due to a change in MSHA's assumptions and not to a proposed change in the rule itself. Therefore, the cost effects associated with this change in assumptions are not properly attributable to this proposed rule.

Table IV-7: Change in Costs Resulting From the Elimination of the Written Respiratory Protection and Exemption Plans

Mine Size	Number of Affected Mines	Cost Per Mine[a]	Total Cost	Present Value of Total Cost[b]
For Mines Unable to Meet the Interim Limit				
<20	4.5	-$99	-$443	-$443
20-500	7.8	-$99	-$769	-$769
>500	0.3	-$99	-$27	-$27
Total	12.6		-$1,239	-$1,239
For Mines Unable to Meet the Final Limit				
<20	24.7	-$99	-$2,434	-$2,126
20-500	42.9	-$99	-$4,232	-$3,696
>500	1.5	-$99	-$150	-$131
Total	69.0		-$6,816	-$5,953
Total Yearly Costs Savings				
<20				-$2,569
20-500				-$4,466
>500				-$158
Total				-$7,192

[a]Source: Table IV-6.

[b]Mines unable to meet the interim limit will incur immediate costs savings. Therefore, the discount factor for these mines is $1/1.07^0$, or 1. Mines unable to meet the final limit will not incur costs savings until two years after the publication of the rule. Therefore, these costs savings are discounted using a discount factor of $1/1.07^2$

PROPOSED § 57.5061 COMPLIANCE DETERMINATIONS

Under the existing Section 57.5061, compliance determinations are made by analyzing area samples for total carbon. Under the proposed Section 57.5061, compliance determinations would be made by analyzing personal samples for elemental carbon. Based on its experience MSHA has concluded that these two sampling and analytical methods do not vary in cost. Therefore, these changes to the rule would not change total compliance costs.

DIESEL PARTICULATE MATTER CONTROL PLAN (57.5062)

Under the January 2001 rule, an underground metal/non-metal mine operator, in violation of Section 57.5060(a) (the interim limit) or Section 57.5060(b) (the final limit), is required to take the following steps**:**

- establish a written diesel particulate control plan for the mine (or modify the plan if one already exists) that includes a description of the controls the mine operator will utilize to keep the DPM below the limits;
- modify the particulate control plan to reflect changes in mining equipment and circumstances;
- demonstrate the effectiveness of the particulate control plan by monitoring;
- make the control plan and sampling records available to representatives of DOL, DHHS, and the miners; and
- provide the particulate control plan to the district manager upon request.

MSHA used the following estimates and assumption in the 2001 REA to calculate the unit cost of the diesel particulate matter control plan:

- Preparation of a particulate control plan (or modification in the event of a violation) will require an average of 4 hours of a M/NM mine supervisor's time.
- Demonstration of the effectiveness of a particulate control plan will entail (for each violation) taking one verification sample per day for three days in the production area of the mine where the violation occurred.
- To take one sample will require 8 hours of a miner's time.[14]
- Modification of a particulate control plan after changes in equipment or circumstances will require an average of half an hour of a M/NM mine supervisor's time.
- The particulate control plan or modification to the plan will be 10 pages in length.
- Each mine will need to make a total of 4 copies of the plan and two copies of the modification to the plan.
- Copying and distributing the plan will require an average of:
  - Fifteen minutes per mine of a clerical worker's time for an original plan and
  - Ten minutes per mine of a clerical worker's time for modification of a plan.

The unit costs of preparing the initial plan and revising the plan, under these assumptions using updated wages and prices, appear in the third to the last column of Table IV-8.

[14] This assumption corrects the assumption made in the 2001 REA that the sampling would be done by an outside party and did not require any of the miner's time. MSHA now assumes that in most cases the sampling will be done by a mine employee.

Table IV-8: 57.5062 Unit Costs of Diesel Particulate Control Plan

Type of Plan	Cost Element	Cost or Rate/Hour	Hours or Units	Cost Under Old 57.5062	Cost Under New 57.5062	Net Change in Costs
Initial	Supervisor	$44.93	4.00	$180	$180	$0
	Clerical Worker	$18.44	0.25	$5		-$5
	Copies	$1.50	4.00	$6		-$6
	Postage	$0.60	1.00	$1		-$1
	Sampling	$19.81	24.00	$475		-$475
	Analysis	$35.85	3.00	$108		-$108
	Net Change in Unit Cost			$774	$180	-$594
Revision	Supervisor	$44.93	0.50	$22	$22	$0
	Clerical Worker	$18.44	0.17	$3		-$3
	Copies	$1.50	2.00	$3		-$3
	Postage	$0.60	1.00	$1		-$1
	Total			$29	$22	-$7

Under the proposed Section 57.5062 mine operators would not be required to establish a DPM control plan unless it would take more than 90 calendar days from the date of citation for violating Section 57.5060 to achieve compliance. Furthermore, this proposed section would no longer require the mine operator to demonstrate the plan's effectiveness or to copy and distribute the plan to representatives of DOL, DHHS, MSHA, and the miners' representative. Therefore, these requirements are omitted from calculations of the unit costs of the proposed Section 57.5062, which appear in the second to the last column of Table IV-8. The last column in this table presents the net change in the unit costs due to this revised section.

The number of mines that MSHA assumes would establish and revise a diesel particulate matter control plan is different from the number assumed in the January 2001 REA.[15] In the 2001 REA, MSHA assumed that, in every year, ten mines with 20 or more employees (roughly 8 percent of these mines) and 2 mines with fewer than 20 employees (about 3% of these mines) would receive a violation that triggers DPM control plan requirements.

In this PREA, MSHA uses the baseline sampling data to make new assumptions regarding the number of mines that would be required to produce a DPM control plan each year. Roughly thirty percent of the mines in the baseline sampling data were above the interim limit. MSHA assumes that half of these mines (15%) would have to establish an initial DPM control plan and that half of those establishing an initial plan (7.5%) would need to revise the DPM control plan. Applying these percentages to the 182 mines

[15] This difference in the number of mines would make the costs of complying with this proposed provision different from those in the January 2001 REA. This change, however, is due to a change in MSHA's assumptions and not to a change in the rule itself. Therefore, the cost effects associated with this change in assumptions are not properly attributable to this proposed rule.

affected by this rule implies that 27.3 mines would prepare an initial DPM plan each year and that 13.7 mines would prepare a revised DPM plan each year. Table IV-9 shows the total cost savings for the metal/non-metal industry based on these numbers of mines.

Table IV-9: Annual Compliance Costs of Diesel Particulate Control Plan

Type of Plan	Mine Size	Number of Mines	Unit Cost[a]	Total Annual Cost
Initial	< 20	9.8	-$594	-$5,794
	20-500	17.0	-$594	-$10,072
	> 500	0.6	-$594	-$357
	Total	27.3		-$16,222
Revision	< 20	4.9	-$7	-$33
	20-500	8.5	-$7	-$57
	> 500	0.3	-$7	-2
	Total	13.7		-$91
Total Yearly Cost of Control	< 20			-$5,826
	20-500			-$10,128
	> 500			-$359
Total				-$16,313

[a]Source: Table IV-8.

PROPOSED § 57.5071 EXPOSURE MONITORING

Under the existing Section 57.5071, environmental monitoring is conducted using area samples.[16] Under the proposed Section 57.5071, exposure monitoring would be conducted using personal samples. Based on its experience MSHA has concluded that these two sampling methods do not vary in cost. Therefore, this proposed change to the rule would not change the total compliance cost.

PROPOSED § 57.5075 DIESEL PARTICULATE RECORDS

This provision would provide an updated summary of all recordkeeping requirements of the proposed rule. There are no costs associated with this provision because the actual recordkeeping costs are included under the applicable provisions.

FEASIBILITY

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

[16] In the January 2001 rule, this section was titled "Environmental Monitoring."

This proposed rule is not a technology-forcing standard and does not involve activities on the frontiers of scientific knowledge. All devices that would be required by the proposed rule are already available in the marketplace and have been used either in the U.S. or in the international mining community. Therefore, we have concluded that this proposed rule is technologically feasible.

As previously estimated in this chapter, underground metal/nonmetal mines that use diesel powered equipment will incur costs of approximately $4,539 yearly to comply with this proposed rule. That these compliance costs represent well less than 1 percent (about 0.000148 percent) of the yearly revenues of these mines (about $3.1 billion) provides, we believe, convincing evidence that the proposed rule is economically feasible.

V. REGULATORY FLEXIBILITY CERTIFICATION

INTRODUCTION

Pursuant to the Regulatory Flexibility Act of 1980 as amended, MSHA has analyzed the impact of the proposed DPM rule on small businesses. Further, MSHA has made a determination with respect to whether or not the Agency can certify that the proposed rule would not have a significant economic impact on a substantial number of small entities that are covered by this rulemaking. Under the 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 proposed rule would have 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 proposed rule on small entities, MSHA must use the SBA definition for a small entity or, after consultation with the SBA Office of Advocacy, establish an alternative definition for the mining industry by publishing that definition in the Federal Register for notice and comment. MSHA has not taken such an action, and hence is required to use the SBA definition.

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

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

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

FACTUAL BASIS FOR CERTIFICATION

General Approach

The Agency's analysis of impacts on "small entities" begins with a "screening" analysis. The screening compares the estimated compliance costs of a proposed rule for small entities in the sector affected by the rule to the estimated revenues for those small entities. When estimated compliance costs are less than 1 percent of the estimated revenues, or they are negative (that is, they provide a net cost savings), the Agency believes it is generally appropriate to conclude that there is no significant economic impact on a substantial number of small entities. When estimated compliance costs exceed 1 percent of revenues, it tends to indicate that further analysis may be warranted.[17]

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.

In determining revenues for underground M/NM mines, we used data from the Mining and Quarrying Trends.[18] Table 1 provides information for metric tons mined, while Table 3 provides information for average price per metric ton. These figures were multiplied together to obtain an estimate of industry revenue for the underground portion of the M/NM mining industry.[19]

Since MSHA does not collect tonnage figures for metal/nonmetal production, but does collect data on hours worked, MSHA estimates the revenues for particular mine-size categories based on hours worked. MSHA estimates that, on average, each hour of work produces $100.09 per hour in the M/NM mining industry.[20]

MSHA has assumed that tonnage is proportional to employee hours (rather than employees) because this assumption implicitly adjusts for different shift lengths associated with different sizes of mines. MSHA also determined which mines use diesel equipment, and computed totals for hours worked for those mines only. Mines using diesel equipment account for 86 percent of the mines, 97.6 percent of employment, and

[17] MSHA has traditionally used a revenue screening test—whether the yearly costs of a regulation equal or exceed 1 percent of revenues—to determine whether the regulation might possibly have a significant economic impact on a substantial number of small entities. The Agency recognizes the theoretical usefulness of evaluating the effects of a regulation on profits (rather than on revenues). MSHA is currently investigating the future use of profitability analysis to evaluate whether its rules would have a significant impact on a substantial number of small entities. However, given that the yearly costs of the proposed DPM rule is miniscule or negative (there are cost savings) for any subset of small mines, MSHA is confident that, given the selection and use of any reasonable profitability test, the proposed DPM rule would be found not to have a significant economic effect on a substantial number of small entities.

[18] U.S. Department of Interior, U.S. Geological Survey, *Mineral Industry Surveys, Mining and Quarrying Trends, 2001 Annual Review*.

[19] (132 million metric tons) x ($23.67 average price) = ($3,124 million revenue).

[20] ($3,124 million revenue) / (31,215,177 hours) = ($100.09 revenue per hour).

98.2 percent of hours worked in M/NM underground mines. Smaller mines are less likely to use diesel equipment than larger mines.

Results of Screening Analysis

Table V-1 shows that the estimated yearly cost savings of the proposed DPM rule as a percentage of yearly revenues is about 0.0017 percent for mines with fewer than 20 employees. The estimated yearly costs of the proposed DPM rule as a percentage of yearly revenues is about 0.0002 percent for mines with 500 or fewer employees.

For both mine size categories, the cost of complying with the proposed rule would be either negative or less than 0.002 percent of revenues, well below the level suggesting that the proposed rule might have a significant impact on a substantial number of small entities. Accordingly, we have certified that the proposed rule would not have a significant impact on a substantial number of small underground M/NM mines using diesel equipment.

TABLE V-1: Estimated Yearly Costs of Proposed DPM Rule Relative to Yearly Revenues (Dollars in thousands)

Mine Size	Yearly Costs	Revenues [a]	Costs as Percentage of Revenues
< 20 emp.	**-$2**	**$129,581**	**-0.0017%**
≤ 500 emp.	**$4**	**$2,432,438**	**0.0002%**

[a] Data for revenues derived from U.S. Department of Interior, U.S. Geological Survey, *Mineral Industry Surveys, Mining and Quarrying Trends, 2001 Annual Review* and MSHA directorate of Program Evaluation and Information Resources, 2001 data.

VI. OTHER REGULATORY CONSIDERATIONS

THE UNFUNDED MANDATES REFORM ACT

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

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) of 1969 requires each Federal agency to consider the environmental effects of final actions and to prepare an Environmental Impact Statement on major actions significantly affecting the quality of the environment. MSHA has reviewed the proposed DPM rule in accordance with NEPA requirements (42 U.S.C. 4321 *et. seq.*), the regulations of the Council of Environmental Quality (40 CFR Part 1500), and the Department of Labor's NEPA procedures (29 CFR Part 11). As a result of this review, MSHA has determined that this proposed rule would have no significant environmental impact.

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

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

EXECUTIVE ORDER 12988: CIVIL JUSTICE REFORM

The Agency has reviewed Executive Order 12988, Civil Justice Reform, and determined that the proposed DPM rule would not unduly burden the Federal court system. The proposed rule has been written so as to provide a clear legal standard for affected conduct and have been reviewed carefully to eliminate drafting errors and ambiguities.

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

In accordance with Executive Order 13045, MSHA has evaluated the environmental health and safety effects of the proposed DPM rule on children. The Agency has determined that the proposed rule would not have an adverse impact on children.

EXECUTIVE ORDER 13132: FEDERALISM

MSHA has reviewed the proposed DPM rule in accordance with Executive Order 13132 regarding federalism and has determined that it would not have any federalism implications. The proposed rule would not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

EXECUTIVE ORDER 13175: CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS

MSHA has determined that the proposed DPM rule would not impose substantial direct compliance costs on Indian tribal governments.

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

In accordance with Executive Order 13211, the Agency has reviewed proposed DPM rule for its energy impacts. The rule would have no effect on the supply, distribution, or use of energy.

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

In accordance with Executive Order 13272, MSHA has thoroughly reviewed the proposed DPM 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 PREA, MSHA has determined that the proposed rule would not have a significant economic impact on a substantial number of small entities.

VII. THE PAPERWORK REDUCTION ACT OF 1995

INTRODUCTION

The purpose of this chapter is to show the burden hours and related costs which would be borne by underground M/NM mine operators as a result of the proposed rule. The costs in this chapter are derived from Chapter IV of this PREA. However, in this chapter, we estimate costs and savings only in relation to the burden hours that the proposed rule imposes or eliminates. Therefore, not all costs and savings derived in Chapter IV appear below. Those costs and savings 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

This proposed rule for underground M/NM mines has two provisions containing paperwork burden requirements. Due to different requirements in these provisions for the interim and final limits, the effective dates vary. There are six summary tables that show burden hours and costs relating to paperwork.

Tables VII-1 and VII-2 show a total of 1,047.78 burden hours and associated costs of $ 2,479 in year one.

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

Sections	<20		20-500		>500		Total	
	Hours	Annualized Costs	Hours	Annualized Costs	Hours	Annualized Costs	Hours	Annualized Costs
§ 57.5060 (c)	270.83	$832	922.83	$2,867	32.67	$101.50	1226.33	$3,801
§ 57.5060 (d)	-53.79	-$169	-93.52	-$294	-3.31	-$10.41	-150.62	-$474
Total	217.04	$663	829.31	$2,573	29.36	$91.09	1075.71	$3,327

*Source: Table VII-7, Table VII-8 and Table VII-10.

Table VII-2: Summary of Annual Burden Hours and Costs*

Section	<20		20-500		>500		Total	
	Hours	Annual Costs	Hours	Annual Costs	Hours	Annual Costs	Hours	Annual Costs
§ 57.5060 (d)	-6.72	-$243	-11.69	-$422	-0.41	-$15	-18.83	-$680
§ 57.5062	-3.25	-$60	-5.65	-$104	-0.20	-$4	-9.10	-$168
Total	-9.97	-$303	-17.34	-$526	-0.61	-$19	-27.93	-$847

*Source: Tables VII-10, VII-12 and VII-13.

Table VII-3 shows 613.17 burden hours occurring only in year two and associated annualized costs of $14,262.

Table VII-3: Summary Burden Hours and Annualized Costs Occurring Only in Year Two*

Section	<20		20-500		>500		Total	
	Hours	Annualized Costs	Hours	Annualized Costs	Hours	Annualized Costs	Hours	Annualized Costs
§ 57.5060 (c)	135.42	$389	461.42	$1,340	16.333	$47	613.17	$ 1,776

*Source: Table VII-8.

Tables VII-4 and VII-5 show a reduction of 931.96 burden hours occurring only in year three. The present value of the cost savings associated with these burden hours is $6,343. Table VII-5 shows a reduction in annual burden hours of 103.55 starting in year three. The discounted value of the cost savings associated with these burden hours is $3,738 annually.

Table VII-4: Summary of Burden Hours and Annualized Costs Occurring Only in Year Three*

Section	<20		20-500		>500		Total	
	Hours	Annualized Costs	Hours	Annualized Costs	Hours	Annualized Costs	Hours	Annualized Costs
§ 57.5060 (d)	-295.86	-$813	-514.34	-$1,413	-18.21	-$50	-828.41	-$2,276

*Source: Table VII-11.

Table VII-5: Summary of Annual Burden Hours and Costs Starting in Year Three*

Section	<20		20-500		>500		Total	
	Hours	Annual Costs	Hours	Annual Costs	Hours	Annual Costs	Hours	Annual Costs
§ 57.5060 (d)	-36.98	-$1,166	-64.29	-$2,027	-2.28	-$72	-103.55	-$3,265

*Source: Table VII-11.

Table VII-6 shows 613.17 annual burden hours starting in year four. The discounted value of the cost associated with these burden hours is $22,161 annually.

Table VII-6: Summary of Annual Burden Hours and Costs Starting in Year Four*

Section	<20		20-500		>500		Total	
	Hours	Annual Costs	Hours	Annual Costs	Hours	Annual Costs	Hours	Annual Costs
§ 57.5060 (c)	135.42	$4,849	461.42	$16,719	16.33	$592	613.17	$22,161

*Source: Table VII-9.

Proposed §57.5060(c) Special Extensions

Under existing §57.5060(c), a mine operator that needs additional time to come into full compliance with the final concentration limit (160_{TC} µg /m^3), due to technological constraints, is allowed to file an application for a special extension. This provision allows a one-time extension lasting no longer than two years.

The proposed §57.5060(c), however, would allow a mine operator that requires additional time to come into full compliance with either the interim exposure limit (308_{EC} µg/m^3) or the final concentration limit (160_{TC} µg /m^3), due to technological or economic constraints, to file an application for a special extension. In further contrast, the proposed provision would allow for unlimited extensions, each lasting a year.

There would be three additional paperwork requirements with the proposed rule. The first requirement applies to those mine operators requesting a special extension to the interim limit in year one. We estimate that there would be 16.3 applications made from mines that employ fewer than 20 workers; 28.3 applications made from mines that employ 20 to 500 workers; and one application made from mines that employ more than 500 workers. For mines with fewer than 20 workers, it would take a mine supervisor, making $44.93 an hour, 8 hours to prepare an application for special extension and a clerical worker, making $18.44 an hour, 0.33 hours (20 minutes) to photocopy and distribute the extension to the miners' representative. For mines with more than 20 workers, it would take a mine supervisor, making $44.93 an hour, 16 hours to prepare an application for a special extension and a clerical worker, making $18.44 an hour, 0.33 hours (20 minutes) to photocopy and distribute the extension to the miners' representative. Table VII-7 shows the burden hours and burden costs associated with this section.

Table VII-7: Paperwork Requirement for Special Extension to Interim Limit in Year One under § 57.5060 (c)

Mine Size	# of Mines Affected	Total Annual Burden Hours[a]	Total Costs for All Mines[b]	Total Annualized Burden Costs[c]
Small (< 20)	16.3	135.4	$5,941	$416
Large (20-500)	28.3	461.4	$20,482	$1,434
Large (< 500)	1.0	16.3	$725	$51
Total	45.5	613.2	$27,148	$1,900

[a] Total annual burden hours = [N x (H_s + H_c)], where H_s is the time required for a mine supervisor to prepare for a special extension (H_s=8 hours for small mines and H_s=16 hours for large mines); and H_c is the time required for a clerical worker to photocopy and distribute a copy to miners' representive (H_c=0.33 hours).

[b] Total costs for all mines = [N x (H_s x W_s) + (H_c x W_c)}, where N is the number of mines affected; H_s is the time required for a mine supervisor to prepare for a special extension (H_s=8 hours for small mines and H_s=16 hours for large mines); W_s is the hourly wage rate for a mine supervisor (W_s=$44.93); H_c is the time required for a clerical worker to photocopy and distribute a copy to miners' representive (H_c=0.33 hours); and W_c is the hourly wage rate for a clerical worker (W_c=$18.44).

[c] Total annualized burden costs = (total costs for all mines) x (0.07), where 0.07 is the annualization factor.

The second paperwork requirement applies to those mine operators requesting an application for a special extension to the interim limit in the first two years. We estimate that there would be 16.3 applications made from mines that employ fewer than 20 workers; 28.3 applications made from mines that employ 20 to 500 workers; and one application made from mines that employ more than 500 workers. For mines with fewer than 20 workers, it would take a mine supervisor, making $44.93 an hour, 8 hours to prepare an application for a special extension and a clerical worker, making $18.44 an hour, 0.33 hours (20 minutes) to photocopy and distribute the extension to the miners' representative. For mines with 20 or more workers, it would take a mine supervisor, making $44.93 an hour, 16 hours to prepare an application for a special extension and a clerical worker, making $18.44 an hour, 0.33 hours (20 minutes) to photocopy and distribute the extension to the miners' representative. Table VII-8 shows the burden hours and burden costs associated with this section.

Table VII-8: Paperwork Requirement for Special Extension to Interim Limit in the First Two Years under § 57.5060 (c)

Mine Size	# of Mines Affected	Total Annual Burden Hours[a]	Total Costs for All Mines[b]	Total Annualized Burden Costs[c]
Small (< 20)	16.3	135.4	$5,941	$805
Large (20-500)	28.3	461.4	$20,482	$2,774
Large (< 500)	1.0	16.3	$725	$98
Total	45.5	613.2	$27,148	$3,676

[a] Total annual burden hours = $[N \times (H_s + H_c)]$, where N is the number of mines affected; H_s the time required for a mine supervisor to prepare for a special extension (H_s=8 hours for small mines and H_s=16 hours for large mines); and H_c is the time required for a clerical worker to photocopy and distribute a copy to miners' representive (H_c=0.33 hours).

[b] Total costs for all mines = $[N \times (H_s \times W_s) + (H_c \times W_c)]$, where N is the number of mines affected; H_s is the time required for a mine supervisor to prepare for a special extension (H_s=8 hours for small mines and H_s=16 hours for large mines); W_s is the hourly wage rate for a mine supervisor (W_s=$44.93); H_c is the time required for a clerical worker to photocopy and distribute a copy to miners' representive (H_c=0.33 hours); and W_c is the hourly wage rate for a clerical worker (W_c=$18.44).

[c] Total annualized burden costs = (total costs for all mines) x (1+1/1.07) x (0.07), where (1+1/1.07) is the annualization factor for two equal payments occuring in the first two years; and 0.07 is the annualization factor.

The third paperwork requirement applies to those mine operators requesting an application for a special extension to the final limit on a yearly basis. We estimate that there would be 16.3 applications made from mines that employ fewer than 20 workers; 28.3 applications made from mines that employ 20 to 500 workers; and one application made from mines that employ more than 500 workers. For mines with fewer than 20 workers, it would take a mine supervisor, making $44.93 an hour, 8 hours to prepare an application for a special extension and a clerical worker, making $18.44 an hour, 0.33 hours (20 minutes) to photocopy and distribute the extension to the miners' representative. For mines with 20 or more workers, it would take a mine supervisor, making $44.93 an hour, 16 hours to prepare an application for a special extension and a clerical worker, making $18.44 an hour, 0.33 hours (20 minutes) to photocopy and distribute the extension to the miners' representative. Table VII-9 shows the burden hours and burden costs associated with this section.

Table VII-9: Paperwork Requirement for Special Extension to Final Limit on a Yearly Basis under § 57.5060 (c)

Mine Size	# of Mines Affected	Total Annual Burden Hours[a]	Total Costs for All Mines[b]	Present Value of Annual Cost Starting in Year Four[c]
Small (< 20)	16.3	135.4	$5,941	$4,849
Large (20-500)	28.3	461.4	$20,482	$16,719
Large (< 500)	1.0	16.3	$725	$592
Total	45.5	613.2	$27,148	$22,161

[a] Total annual burden hours = [N x (H_s + H_c)], where N is the number of mines affected; H_s is the time required for a mine supervisor to prepare for a special extension (H_s=8 hours for small mines and H_s=16 hours for large mines); and H_c is the time required for a clerical worker to photocopy and distribute a copy to miners' representive (H_c=0.33 hours).

[b] Total costs for all mines = [N x (H_s x W_s) + (H_c x W_c)], where H_s is the time required for a mine supervisor to prepare for a special extension (H_s=8 hours for small mines and H_s=16 hours for large mines); W_s is the hourly wage rate for a mine supervisor (W_s=$44.93); H_c is the time required for a clerical worker to photocopy and distribute a copy to miners' representive (H_c=0.33 hours); and W_c is the hourly wage rate for a clerical worker (W_c=$18.44).

[c] Total annualized burden costs = (total costs for all mines) / $(1/1.07)^3$, where 0.07 is the annualization factor; and $(1/1.07)^3$ is the three year-discounting factor using an annual discount rate of 7 percent (the annual costs are discounted for 2 years because the final limit does not go into effect until two years after the publication of this rule and a third year because mine operators unable to meet the final limit were already required (under the existing rule) to apply for a special extension in the first year only that the final limit takes effect for the first two annual

Proposed § 57.5060(d) Respiratory Protection

The existing § 57.5060(d) allows mine operators to implement a respiratory protection program (RPP) that permits miners to conduct inspection, maintenance, or repair activities in certain areas of a mine where the DPM concentration limit is exceeded. This section requires mine operators to submit a written initial respiratory protection plan (RPP) and a written exemption plan (EP) to MSHA, as well as to revise and resubmit these plans annually. The proposed § 57.5060(d) would not require written initial and revised RPPs and EPs. Therefore, these mine operators would no longer have to prepare, revise, and submit the RPP and the EP.

For the interim limit, we estimate that there would be 4.5 applications made from mines that employ fewer than 20 workers; 7.8 applications made from mines that employ 20 to 500 workers; and 0.3 applications made from mines that employ more than 500 workers. It would take a mine supervisor, making $44.93 an hour, 13 hours (12 hours to prepare and one hour to revise on a yearly basis) to prepare for an RPP and EP and a clerical worker, making $18.44 an hour, 0.5 hours to photocopy, post, and distribute the RPP and EP to miners' representative. Table IV-10 shows the burden hour and burden cost savings associated with this section.

Table VII-10: Elimination of Paperwork Requirement for Interim Limit to RPPs and EPs in the First Year under § 57.5060 (d)

Mine Size	# of Mines Affected	Total First Year Burden Hours for All mines[a]	Total First Year Costs for All Mines[b]	Total Annual Burden Hours for All Mines[c]	Total Annual Costs for All Mines[d]	Total Annualized Burden Costs[e]
Small (< 20)	4.5	-53.8	-$2,417	-6.7	-$243	-$411.93
Large (20-500)	7.8	-93.5	-$4,202	-11.7	-$422	-$716.12
Large (>500)	0.3	-3.3	-$149	-0.4	-$15	-$25.35
Total	12.6	-150.6	-$6,767	-18.8	-$680	-$1,153

[a] Total first year burden hours for all mines = ($N \times H_s$), where N is the number of mines affected; and H_s is the time required for a mine supervisor to prepare initial RPP and EP (H_s=12 hours).

[b] Total first year costs for all mines = (total first year burden hours x W_s), where W_s is the hourly wage rate for a mine supervisor (W_s=$44.93).

[c] Total annual burden hours for all mines = - [N x (Hs + Hc)], where N is the number of mines affected; H_s is the time required for a mine supervisor to revise RPP and EP (H_s=1hour); and H_c is the time required for a clerical worker to photocopy, post, and distribute RPP and EP to miners' representative (H_c=0.5 hours).

[d] Total annual costs for all mines = $-N \times [(H_s \times W_s) + (H_c \times W_c)]$, where N is the number of affected mines; H_s is the time required for a mine supervisor to revise RPP and EP (H_s=1hour); and W_s is the hourly wage rate for a mine supervisor (W_s=$44.93); H_c is the time required for a clerical worker to photocopy, post, and distribute RPP and EP to miners' representative (H_c=0.5 hours); and W_c is the hourly wage rate for a clerical worker (W_c=$18.44).

[e] Total annualized burden costs = (total first year costs for all mines X 0.07) + (total annual costs for all mines), where 0.07 is the annualization factor.

For the final limit, we estimate that there would be 24.7 applications made from mines that employ fewer than 20 workers; 42.9 applications made from mines that employ 20 to 500 workers; and 1.5 applications made from mines that employ more than 500 workers. It would take a mine supervisor, making $44.93 an hour, 12 hours to prepare an RPP and EP. On a yearly basis, it would take another hour of a supervisor's time to revise and a half hour of a clerical worker's time, making $18.44 an hour, to photocopy, post, and distribute the RPP and EP to the miners' representative. Table IV-11 shows the burden hour and burden cost savings associated with this section.

Table VII-11: Elimination of Paperwork Requirement for Final Limit to RPPs and EPs under § 57.5060 (d)

Mine Size	# of Mines Affected	Total Third Year Burden Hours for All mines[a]	Total Third Year Costs for All Mines[b]	Total Annual Burden Hours Starting in Third Year for All Mines[c]	Total Annual Costs Starting in Third Year for All Mines[d]	Total Annualized Burden Costs[e]
Small (< 20)	24.7	-295.9	-$13,293	-37.0	-$1,335	-$1,979
Large (20-500)	42.9	-514.3	-$23,110	-64.3	-$2,321	-$3,440
Large (< 500)	1.5	-18.2	-$818	-2.3	-$82	-$122
Total	69.0	-828.4	-$37,221	-72.5	-$3,738	-$5,541

[a] Total third year burden hours for all mines = ($N \times H_s$), where N is the number of mines affected; and H_s is the time required for a mine supervisor to prepare initial RPP and EP (H_s=12 hours).

[b] Total third year costs for all mines = (total third year burden hours for all mines x W_s), where W_s is the hourly wage rate for a mine supervisor (W_s=$44.93).

[c] Total annual burden hours starting in third year for all mines = $-N \times (H_s + H_c)$, where N is the number of mines affected; H_s is the time required for a mine supervisor to revise RPP and EP (H_s=1hour); and H_c is the time required for a clerical worker to photocopy, post, and distribute RPP and EP to miners' representative (H_c=0.5 hours).

[d] Total annual costs starting in third year for all mines = $-N \times[(H_s \times W_s) + (H_c \times W_c)]$, where N is the number of mines affected; H_s is the time required for a mine supervisor to revise RPP and EP (H_s=1hour); W_s is the hourly wage rate for a mine supervisor (Ws=$44.93); H_c is the time required for a clerical worker to photocopy, post, and distribute RPP and EP to miners' representative (H_c=0.5 hours); and W_c is the hourly wage rate for a clerical worker (W_c=$18.44).

[e] Total annualized burden costs = [(total first year costs for all mines x 0.07) + (total annual costs for all mines)] x $(1/1.07)^2$, where 0.07 is the annualization factor; and because mines that are unable to meet the final limit will not incur costs savings until two years after the publication of the rule, these costs savings are discounted using a discount factor of $(1/1.07)^2$.

Proposed § 57.5062 Diesel Particulate Matter Control Plan

Under the proposed Section 57.5062 mine operators would no longer be required to copy and distribute the initial DPM control plan to representatives of DOL, DHHS, MSHA, and the miners' representative. This will save a clerical worker 0.25 hours for each plan. This reduction in annual burden hours and costs is summarized in Table VII-12.

Table VII-12: Section 57.5062
Annual Burden Hours and Costs of Initial DPM Control Plan

Mine Size	Number of Initial Plans	Burden Hours per Plan	Total Annual Burden Hours	Annual Burden Cost[a]
Small (< 20)	9.8	-0.25	-2.4	-$45
Large (20-500)	17.0	-0.25	-4.2	-$78
Large (< 500)	0.6	-0.25	-0.2	-$3
Total	27.3		-6.8	-$126

[a] Annual Burden Cost = (Total Annual Burden Hours) x W_c, where W_c= $18.44 is the hourly wage rate for a clerical worker.

Also, under the proposed Section 57.5062 mine operators would no longer be required to copy and distribute the revised DPM control plan to representatives of DOL, DHHS, MSHA, and the miners' representative. This will save a clerical worker 10 minutes for each plan. This reduction in annual burden hours and costs is summarized in Table VII-13.

Table VII-13: Section 57.5062
Annual Burden Hours and Costs to Revise DPM Control Plan

Mine Size	Number of Initial Plans	Burden Hours per Plan	Total Annual Burden Hours	Annual Burden Cost[a]
Small (< 20)	4.9	-0.17	-0.81	-$15
Large (20-500)	8.5	-0.17	-1.41	-$26
Large (< 500)	0.3	-0.17	-0.05	-$1
Total	13.7		-2.275	-$42

[a] Annual Burden Cost = (Total Annual Burden Hours) x W_c, where W_c= $18.44 is the hourly wage rate for a clerical worker.

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