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Injury Experience in Coal Mining, 1969

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CONTENTS

	<u>Page</u>
Abstract -----	1
Introduction -----	1
General injury experience -----	2
Bituminous coal and lignite mines -----	3
Pennsylvania anthracite mines -----	4
General injury factors -----	5
Causes -----	5
Occupation of the injured -----	10
Time of injury occurrence -----	12
Other injury analyses -----	15
Injury experience by State -----	15
Major disasters, 1960-69 -----	15
Officeworkers -----	15
Historical data -----	16
Definition of terms -----	16
Appendix, Questionnaires used for collecting data -----	110

ILLUSTRATIONS

Figure 1. Distribution of injuries and average severity by major cause, 1969 -----	6
Figure 2. Number and average severity of injuries in underground workings of bituminous coal mines for selected occupations, 1969 -----	13
Figure 3. Percent distribution of injuries in the bituminous coal industry, 1969, by time of occurrence -----	13

TABLES

	<u>Page</u>
General injury experience:	
1. <u>Salient statistics</u> on injuries, injury rates, worktime, production, and productivity at coal mines in the United States, 1965-69 -----	21
2. Worktime, production, and productivity (short tons per man-hour) data on coal mines in the United States, <u>by kind of coal and general work location</u> , 1969 -----	22
3. Injury experience at bituminous coal mines in the United States, <u>by general work location</u> , 1969 -----	23
4. Injury experience at Pennsylvania anthracite mines, <u>by general work location</u> , 1969 -----	24
5. Injury experience at all coal mines in the United States, <u>by general work location</u> , 1969 -----	25
6. Number of injuries and frequency and severity rates at coal mines in the United States, <u>by degree of injury</u> , 1969 -----	25
7. Comparative injury data on bituminous coal operations (mines and mechanical cleaning plants) <u>with and without fatalities</u> in the United States, 1969 -----	26
8. Comparative injury data on Pennsylvania anthracite operations (mines and mechanical cleaning plants) <u>with and without fatalities</u> , 1969 -----	26
General injury factors:	
9. Number of injuries at coal mines in the United States, <u>by principal causes of injury, kind of coal, and general work location</u> , 1969 -----	27
10. Days of disability from injuries at coal mines in the United States, <u>by principal causes of injury, kind of coal, and general work location</u> , 1969 -----	29
11. Average severity of all injuries at coal mines in the United States, <u>by principal causes of injury, kind of coal, and general work location</u> , 1969 -----	31
12. Number and average severity of injuries at coal mines in the United States, <u>by kind of coal, detailed causes of injury, general work location, and degree of injury</u> , 1969 -----	33
13. Number and average severity of injuries at bituminous coal mines, <u>by occupation at the time of injury, general work location, and degree of injury</u> , 1969 -----	42
14. Number and average severity of injuries at Pennsylvania anthracite mines, <u>by occupation at the time of injury, general work location, and degree of injury</u> , 1969 -----	44
15. <u>Time of day of occurrence of injuries</u> at bituminous coal operations in 1969 -----	45
16. <u>Time of day of occurrence of injuries</u> at Pennsylvania anthracite operations in 1969 -----	48
17. Number of injuries, injury rates, and average severity at bituminous coal mines in the United States, <u>by part of body injured</u> , 1969 -----	49

TABLES--Continued

	<u>Page</u>
General injury factors--Continued	
18. Number of injuries, injury rates, and average severity at Pennsylvania anthracite mines, <u>by part of body injured</u> , 1969 -	51
19. Number of injuries and average severity by degree at coal mines in the United States, <u>by part of body and major cause of injury</u> , 1969 -----	53
20. Number of injuries, injury rates, and average severity at bituminous coal mines, <u>by nature of injury</u> , 1969 -----	56
21. Number of injuries, injury rates, and average severity at Pennsylvania anthracite mines, <u>by nature of injury</u> , 1969 -----	59
22. Number of injuries at bituminous coal mines in the United States, <u>by nature of injury and part of body injured</u> , 1969 ---	61
23. Number of injuries at Pennsylvania anthracite mines, <u>by nature of injury and part of body injured</u> , 1969 -----	62
Other injury factors:	
24. Closed cases of temporary total injuries for which company reported days of disability at bituminous coal mines in the United States, <u>by days of disability per injury and general work location</u> , 1969 -----	63
25. Closed cases of temporary total injuries for which company reported days of disability at Pennsylvania anthracite mines, <u>by days of disability per injury and general work location</u> , 1969 -----	64
26. Injury experience, worktime, and production data on underground bituminous coal mines (underground plus associated surface) in the United States, <u>by percentage of coal loaded mechanically</u> , 1969 -----	65
27. Injury experience, worktime, and production data on underground Pennsylvania anthracite mines (underground plus associated surface), <u>by percentage of coal loaded mechanically</u> , 1969 -----	66
28. Injury experience, worktime, and production data on bituminous coal mines in the United States, <u>by number of men employed</u> , 1969 -----	67
29. Injury experience, worktime, and production data on Pennsylvania anthracite mines, <u>by number of men employed</u> , 1969 -----	68
30. Injury experience, worktime, and production data on bituminous coal mines in the United States, <u>by length of shift</u> , 1969 -----	69
31. Injury experience, worktime, and production data on Pennsylvania anthracite mines, <u>by length of shift</u> , 1969 -----	70
32. Injury experience, worktime, and production data on bituminous coal mines in the United States, <u>by number of shifts</u> , 1969 ---	71
33. Injury experience, worktime, and production data on Pennsylvania anthracite mines, <u>by number of shifts</u> , 1969 -----	71
34. Injury experience, worktime, and production data on bituminous coal mines in the United States, <u>by days-active group</u> , 1969 --	72

TABLES--Continued

	<u>Page</u>
Other injury factors--Continued	
35. Injury experience, worktime, and production data on Pennsylvania anthracite mines, <u>by days-active group</u> , 1969 -----	73
36. Injury experience, worktime, and production data on underground bituminous coal mines (underground plus associated surface) in the United States, <u>by thickness of bed or vein</u> , 1969 -----	74
37. Injury experience, worktime, and production data on underground Pennsylvania anthracite mines (underground plus associated surface), <u>by thickness of bed or vein</u> , 1969 -----	74
38. Injury experience, worktime, and production data on bituminous coal mines in the United States, <u>by production group</u> , 1969 ---	75
39. Injury experience, worktime, and production data on Pennsylvania anthracite mines, <u>by production group</u> , 1969 -----	76
40. Injury experience, worktime, and production data on underground bituminous coal mines (underground plus associated surface) in the United States, <u>by kind of mine opening</u> , 1969 -----	77
41. Injury experience, worktime, and production data on underground Pennsylvania anthracite mines (underground plus associated surface), <u>by kind of mine opening</u> , 1969 -----	77
Injury experience by State:	
42. <u>Relative standing of States according to fatal- and nonfatal-injury rates per million man-hours of exposure</u> , 1969 -----	78
43. Worktime and production data on coal mines in the United States, <u>by State and general work location</u> , 1969 -----	79
44. Number of fatal injuries at coal mines in the United States, <u>by State, general work location, and principal causes of injury</u> , 1969 -----	81
45. Number of nonfatal injuries at coal mines in the United States, <u>by State, general work location, and principal causes of injury</u> , 1969 -----	82
46. Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, <u>by State and degree of injury</u> , 1969 -----	86
Major disasters:	
47. Major disasters at coal mines in the United States, 1960-69 ----	93
Officeworkers:	
48. Injury experience and worktime data on officeworkers at coal mines in the United States, <u>by State</u> , 1969 -----	94
Historical data:	
49. Injury, worktime, production, and productivity data on bituminous coal mines in the United States, 1930-69 -----	95
50. Injury, worktime, production, and productivity data on Pennsylvania anthracite mines, 1930-69 -----	96
51. Injury, worktime, production, and productivity data on all coal mines in the United States, 1930-69 -----	97

TABLES--Continued

	<u>Page</u>
Historical data--Continued	
52. Coal-mine-fatality rates for the United States, 1870-1969 -----	98
53. Bituminous coal mines: Fatalities, <u>by principal causes of</u> <u>injury, 1906-69</u> -----	100
54. Pennsylvania anthracite mines: Fatalities, <u>by principal causes</u> <u>of injury, 1906-69</u> -----	102
55. All coal mines: Fatalities, <u>by principal causes of injury,</u> <u>1906-69</u> -----	104
56. Bituminous coal mines: Percentage distribution of fatalities, <u>by principal causes of injury, 1906-69</u> -----	106
57. Pennsylvania anthracite mines: Percentage distribution of fatalities, <u>by principal causes of injury, 1906-69</u> -----	108

INJURY EXPERIENCE IN COAL MINING, 1969

by

Forrest T. Moyer¹ and Mary B. McNair²

ABSTRACT

In 1969, the number of fatal injuries in the coal mining industry was lower than in any previous year and the number of nonfatal injuries was lower than in any preceding year except 1968. Fatal injuries in 1969 totaled 203 with frequency rates of 0.85 per million man-hours of worktime and 0.36 per million tons of coal. These rates were new annual lows. Nonfatal injuries totaled 9,917 with frequency rates of 41.76 per million man-hours and 17.42 per million tons. The severity rate for fatal and nonfatal injuries combined was 7,359 days lost or charged per million man-hours. The average severity was 173 days lost or charged per injury. These statistics represent the injury experience of an average of 133,302 employees per day working an average of 225 days in 5,955 coal mines for a total of 237.5 million man-hours worked and a coal output of 569.2 million tons.

INTRODUCTION

Analysis and compilation of injury experience in coal mining during 1969 is to show, in as fine detail as possible, where, why, and how disabling work injuries occurred in the industry. This aggregate experience of all coal operations identifies problem hazards which have caused and will continue to cause fatalities and injuries unless counteracted by corrective measures. The textual material presents only a few of the basic elements of the data and is designed to lead the planner of effective accident prevention programs to the full scope of significant information given in the tables.

The raw data were collected under authority of the first Federal legislation in coal mine health and safety, Public Law 77-49, approved May 7, 1941, and amended in 1952 by Public Law 82-552 and in 1966 by Public Law 89-376. The information was compiled from reports furnished by producers on two questionnaires of the Bureau of Mines: Form 6-1420, "Employer's Report of Coal-Mine Injury" (appendix) and Forms 6-1420-AM and 6-1423-AM, "Coal-Mine Injuries and Employment" (appendix). Injury and employment data cover all men at an operation who are engaged in production, development, maintenance, and repair work, including supervisory and technical personnel. Data on

1/ Statistician.

2/ Research assistant.

officeworkers at the mine or plant are excluded from all data tables except tables 1 and 48. Also excluded is information on cokeworkers and employees in stores or affiliated industries other than coal production. The companies are requested to report actual man-hours and man-days of work on active and inactive days. Man-hour information is reported on a portal-to-portal basis which includes work, travel, and lunch. The average number of days active is calculated by dividing the average number of men working daily into the reported man-days of work.

Mechanical cleaning or preparation plants are those in which run-of-mine coal is cleaned with wet or pneumatic equipment such as jigs, heavy-media, concentrating tables, flotation cells, launders, and classifiers. Operations in which run-of-mine coal is hand-cleaned or is sized only by screening are not included as preparation plants, but are included in the data on general surface work.

Data on injuries come from the analysis of descriptive reports of each disabling injury as provided by the producers. A disabling injury is any injury or occupational disease which arises out of and in the course of employment and results in death, permanent impairment, or the loss of work for one full day or more after the day of injury. Days of disability for temporary total injuries are determined by counting calendar days beginning with the day following the date of injury and ending with the day before the employee returns to work. Permanent partial, permanent total, and fatal injuries are charged with days of disability according to the standard scale of time charges of the American National Standards Institute, Z16.1-1967.

GENERAL INJURY EXPERIENCE

The 10,120 disabling work injuries in 1969 comprised 203 fatal and 9,917 nonfatal injuries. The fatality record for 1969 was better than in any other reported year and each of the general measures of fatality experience set new record annual lows. The 203 fatal injuries at frequency rates of 0.85 per million man-hours and 0.36 per million tons were sharply lower than in 1968, when 311 work deaths occurred at rates of 1.33 per million man-hours and 0.56 per million tons (table 1). There were no major disasters (a single accident which results in the death of five men or more) in 1969; other calendar years with no major disasters were 1949, 1950, 1955, 1956, 1964 and 1967. In 1968, two disasters, both gas or dust explosions in underground workings, claimed 87 lives, nine in one and 78 in the other.

In 1969, there were 11 permanent total, 184 permanent partial, and 9,722 temporary total disabilities for a total of 9,917 nonfatal injuries, which occurred at a frequency rate of 41.76 per million man-hours. This total was 278 or 3 percent higher than the record low annual total of 9,639 nonfatal injuries in 1968. The 1969 frequency rate was 2 percent higher than that of 41.12 nonfatal injuries per million man-hours in 1968 and also was 2 percent

above the record annual low of 41.09 in 1959. The frequency rates for non-fatal injuries in 1969 at both bituminous coal and anthracite mines were slightly higher than the corresponding data for 1968.

Owing principally to the sharply improved fatality record, the injury-severity rate of 7,359 days lost or charged for all injuries in 1969 established a new record annual low. It was 30 percent better than that of 10,513 in 1968, the worst annual severity rate in the statistical series started in 1944.

The average severity for all injuries in 1969 was 173 days lost or charged per injury, 75 days less than in 1968, and the best annual figure since 1953. For permanent partial disabilities, the average time-loss charge in 1969 was 600 days, 163 days less than in 1968. For temporary total disabilities, the average time lost from work was 36 days per injury compared with 37 in 1968. Each fatal and permanent total injury has a standard time-loss charge of 6,000 days. The total time lost or charged from all injuries in 1969 was 1.75 million man-days compared with 2.46 million in 1968.

At all underground coal mines in 1969, the 163 fatal and 8,358 non-fatal injuries occurred at respective frequency rates of 0.95 and 48.77 per million man-hours and an overall severity rate of 8,437 days lost or charged per million man-hours. At all strip mines, the 28 fatal and 967 nonfatal injuries resulted in respective frequency rates of 0.63 and 21.84 and a severity rate of 4,729. Detailed injury data on these and other kinds of mines and on mechanical cleaning plants are listed in table 5.

The average of 133,302 men at work on active days in 1969 was 1 percent below that of 134,467 men in 1968. However, total worktime of 237.5 million man-hours was 1 percent higher than in 1968, and the average worktime per man-year in 1969 was 1,782 hours compared with 1,743 hours in 1968.

Total coal output of 569.2 million tons in 1969 comprised 558.9 million tons (98 percent) of bituminous coal and lignite and 10.3 million tons (2 percent) of Pennsylvania anthracite (table 2). Of the total production, 347.7 million tons (61 percent) was from underground workings, 201.9 million tons (35 percent) was from strip mines, 15.9 million tons (3 percent) was from bituminous coal auger mines, and 3.7 million tons (1 percent) was from anthracite culm banks and dredges.

Bituminous Coal and Lignite Mines

The 190 work deaths at bituminous coal and lignite operations occurred at a frequency rate of 0.84 per million man-hours in 1969, the lowest annual fatality record in statistical history. The fatality experience in 1969 was far better than in 1968, when 307 work deaths had a frequency of 1.37 per million man-hours. No major disasters occurred in 1969, whereas

two such disasters in 1968 claimed 87 lives, nine in one and 78 in the second. For nonfatal injuries, the 1969 record was slightly worse than that of 1968. The total of 9,425 nonfatal injuries in 1969 occurred at a rate of 41.44 per million man-hours compared with 9,135 injuries of this type at a frequency rate of 40.89 in 1968.

The injury-severity rate of 7,282 days lost or charged per million man-hours of work in 1969 was better than for any other year since such rates were first compiled in 1944. The 1969 rate was far below that of 10,825 in 1968 owing primarily to the improved fatality experience in the current year. The average severity for all injuries in 1969 was 172 days lost or charged per injury, 84 days less than in 1968.

At underground mines, the 155 fatal and 8,139 nonfatal injuries occurred at respective frequency rates of 0.92 and 48.41 per million man-hours and resulted in a severity rate of 8,273 days lost or charged in 1969. As shown in table 3, the frequency and severity rates for both fatal and nonfatal injuries for auger mines were appreciably worse than for strip mines. In fact, the fatality frequency rate for auger mines was higher than for any of the other general work locations. The detailed injury data for each of the general work locations are listed in table 3.

The average of 127,375 men at work on active days had 227.4 million man-hours of worktime during the average 225 days of active operation. Of the total men at work, 95,439 were at underground mines, 20,877 at strippings, 2,649 at auger mines, and 8,400 at mechanical cleaning plants.

Total output of 558.9 million tons in 1969 was obtained as follows: 345.6 million from 3,450 underground, 197.4 million from 1,591 strip, and 15.9 million from 495 auger mines active during all or part of the year. In addition, 439 mechanical cleaning plants were active. Overall productivity for the industry in 1969 was 2.46 tons per man-hour. Detailed information on worktime, production, and productivity data are given by general work locations in table 2.

Pennsylvania Anthracite Mines

The safety record for Pennsylvania anthracite operations in 1969 was markedly worse than in 1968, when all general measures of injury experiences were better than for any other year in statistical history. The 13 fatalities at a frequency rate of 1.29 per million man-hours in 1969 were more than three times higher than the 1968 data of four work deaths at a frequency rate of 0.36. The total of 492 nonfatal injuries was 12 less than in 1968 but the rate of occurrence in 1969 increased to 48.85 per million man-hours owing to the 9 percent reduction in worktime. The injury-severity rate of 9,090 days lost or charged was more than double that of 1968, primarily because of the unfavorable fatality experience in the current year.

At underground mines, the eight fatal and 219 nonfatal injuries in 1969 occurred at frequency rates of 2.45 and 67.05, respectively, and resulted in a severity rate of 16,913 days lost or charged. For strip mines, the safety record was three fatal and 116 nonfatal injuries with respective frequency rates of 0.90 and 34.95 and a severity rate of 6,004 for all injuries. Other details of injury experience for these mines, as well as on culm banks, dredges, and preparation plants, are listed in table 4.

An average of 5,927 men worked 232 days during 1969 and accumulated a total of 10.0 million man-hours in producing 10.3 million tons of anthracite at a productivity rate of 1.02 tons per man-hour. Of the total output of anthracite, 2.1 million tons was from 197 underground mines, 4.5 million from 124 strip mines, 3.1 million from 93 culm banks, and 0.5 million tons from five dredge operations. Detailed statistics on worktime, production, and productivity for the general work locations of the anthracite industry are given in table 2.

GENERAL INJURY FACTORS

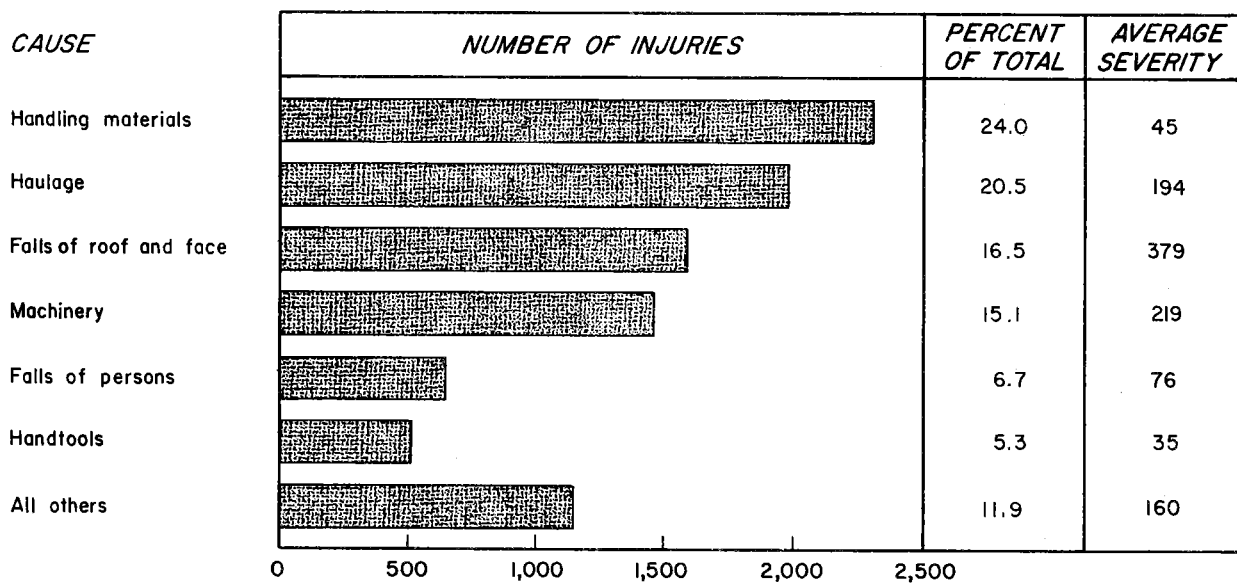
The injury and worktime information reported by mine operators for 1969 has been analyzed and classified by common factors or elements related to the accidents that resulted in work injuries. This classification of data provides summarized injury experience for the coal-mining industry (tables 9-16). The distribution of injuries within the various classifications shows where and how the injury-causing accidents occurred. The relative prevalence of injuries by occupation of the injured and time of injury occurrence are among the summarized factors.

Causes

The Bureau's system for classifying causes of mine accidents provides a first breakdown into broad groups termed "principal causes" and a second breakdown to more specific classes termed "detailed causes." In this report, there are 19 principal causes to provide broadly summarized data, as illustrated by general work location in table 9. This summarized information is classified further into 186 detailed causes as illustrated by general work location in table 12. Although the terminology of the cause classification is, in general, self-explanatory, the coverages of the 19 principal causes are described more fully on page 17 under the section "Accident Cause Classification." In the cause classification tables of this report, injuries occurring in shafts and slopes are separated from those in all other underground workings of deep mines. In general, however, the counts of injuries in these two locations are combined for totals of all injuries occurring below the surface of the ground for purposes of calculating frequency or other rates.

Of the principal causes of accidents, the following categories -- handling materials, haulage, falls of roof-face-rib (combined), machinery,

BITUMINOUS COAL AND LIGNITE MINES



PENNSYLVANIA ANTHRACITE MINES

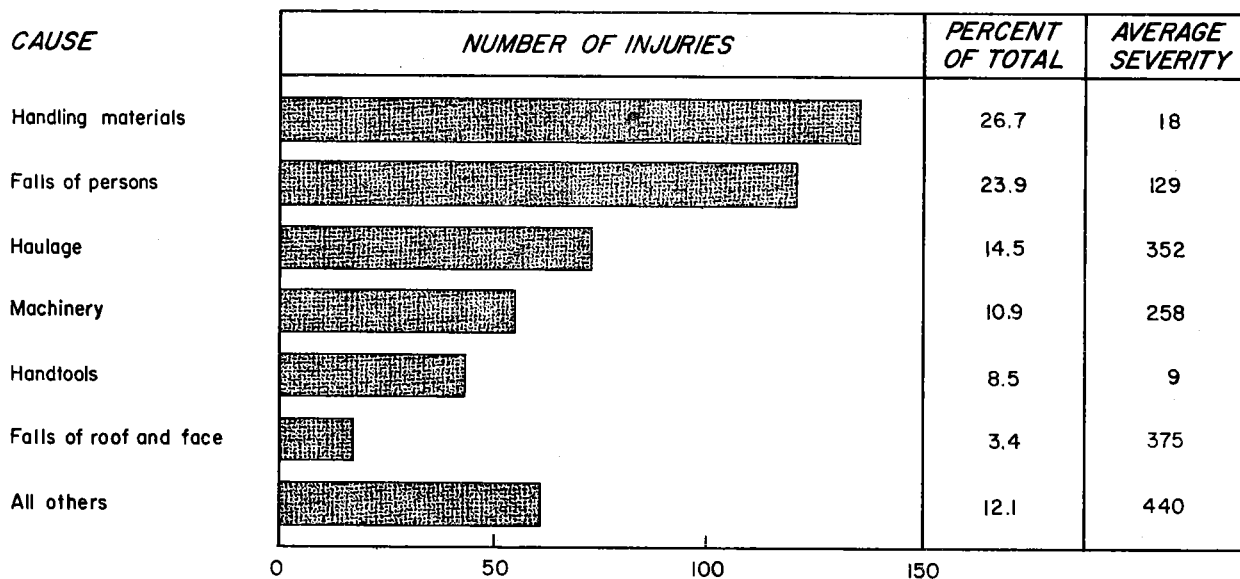


FIGURE 1. - Distribution of injuries and average severity by major cause, 1969.

falls of persons, and handtools -- resulted in 179 or 88 percent of the fatal and 8,737 or 88 percent of the nonfatal injuries at all work locations. The distribution and the average severity of injuries for each of these accident categories are graphed separately for bituminous coal and anthracite operations in figure 1 and the basic details are listed in table 9.

Falls of Roof, Face, or Rib

Falls of roof, face, or rib (including highwalls of surface mines) caused 82 fatal and 1,518 nonfatal injuries at all work locations. These accidents were the third-ranking cause of injuries, and the resulting injuries had a markedly higher average severity than any of the other leading causes shown in figure 1. When classified by location of the accident, falls of roof, face, or rib caused 78 fatal and 1,493 nonfatal injuries in underground workings (including shaft and slope); one fatality in associated surface work; two fatal and 23 nonfatal injuries at strip mines; and one fatal and two nonfatal injuries at auger mines.

The 78 fatal and 1,493 nonfatal injuries from roof and rib falls in underground workings (including shaft and slope) represented 52 and 19 percent, respectively, of the total deaths and nonfatal disabilities in underground workings. A classification by detailed cause (table 12), which gives the activity of the worker when injured, shows that the largest incidence of injuries from falls of roof, face, or rib is in those work activities performed in or near the working face areas. For example, the largest number of injuries in underground workings, including shaft and slope, from falls of roof, face, or rib occurred while preparing to or installing roof-bolts (15 fatal and 411 nonfatal injuries) and while loading with conventional equipment or by hand (15 fatal and 249 nonfatal injuries).

An analysis³ of accident factors from detailed investigations of roof- and rib-fall fatalities in bituminous coal mines disclosed that 16 occurred within 7 feet of the face, 33 were from 8 to 25 feet, 16 were from 26 to 100 feet of the face, for a total of 65 fatalities within 100 feet of the face. The analysis also classified 68 fatalities as occurring in producing areas, two in abandoned areas, and seven in other areas of the mine. Among other accident factors, the study classified the fatalities by primary deficiency as follows:

^{3/} U. S. Bureau of Mines. Coal Mine Safety. Falls of Roof, Rib, and Face-- The No. 1 Killer in Bituminous Coal Mines in 1969. Mineral Industry Survey (Roof-Fall Fatalities, Annual), March 1970, 15 pp.

<u>Primary deficiency</u>	<u>Number of deaths</u>
Failure to take down or secure loose roof or rib -----	10
Failure to examine roof or incorrect analysis of examination -----	18
Failure to comply with adopted conventional support system or lack of support plan -----	20
Failure to use temporary support -----	11
Failure to follow rules or instructions, to heed warnings, or to take ordinary precautions -----	6
Failure to abandon workings when known to be imminently dangerous -----	3
Failure to follow or failure of roof-bolting plans -----	6
Failure of mining system -----	2
Other -----	1
Total -----	<u>77</u>

Handling Materials

Handling material accidents (those resulting in injuries either from improper handling or from the materials being handled as listed in table 12) were the leading cause of injuries in 1969, as in past years. The total of 2,445 injuries from this cause at all locations comprised three fatal and 2,442 nonfatal injuries. Seventy-five percent or 1,824 of all injuries while handling materials occurred in underground workings (including shaft and slope) and, of these, 19 percent occurred while handling props, ties, or timbers. At other general work locations, handling material accidents caused the following numbers of injuries: Strip mines, 261; surface works associated with underground mines, 174; mechanical cleaning plants, 160; and other surface mining, 26.

Haulage

Haulage accidents, a serious and prevalent hazard in all general work locations, were the second ranking cause of injuries and resulted in 47 fatal and 2,001 nonfatal injuries. When classified by location of the accident, fatal and nonfatal injuries, respectively, occurred as follows: Underground workings (including shaft and slope), 33 and 1,578; associated surface of underground mines, six and 127; strip mines, three and 155; other surface mining, two and 15; and mechanical cleaning plants, three and 126 (table 9). The injuries in each of the foregoing locations are classified in greater detail in table 12 by the kind of equipment involved, the kind of accident, and/or the work activity of the injured. For example, in underground workings (excluding shaft and slope) 12 fatal, six permanent partial, and 250 temporary total injuries occurred when the injured was squeezed between a shuttle car or mobile electric truck and the roof, rib, or object. With

mine-gage haulage, six fatal, one permanent total, four permanent partial, and 113 temporary total injuries resulted when the injured was squeezed between the rail equipment and the roof, rib, or object, and most of these occurred while the injured was operating or riding the equipment. In addition, there were four fatal, 17 permanent partial, and 216 temporary total injuries when the victims were squeezed between, run over, or struck by the mine-gage cars or motors; of these, most occurred when the injured was coupling or uncoupling the equipment, or when riding or operating. There were 116 temporary total injuries from underground haulage accidents while the injured was riding or getting on or off conveyor belts. Study of the detailed classifications in table 12 will disclose the more specific hazards related with the various types of haulage equipment used in the different work locations.

Machinery

Machinery accidents, the fourth-ranking hazard in coal mining, resulted in 41 fatal and 1,468 nonfatal injuries. As summarized in table 9, this serious hazard is present in all general locations of work. It is particularly prevalent in underground workings, where it caused 18 fatal and 1,276 nonfatal injuries, and in strip mines, where it caused 14 fatal and 108 nonfatal injuries. The more specific machinery hazards, while setting up, operating, tramping, or working on or around running machines, are designated by kinds of machines in table 12. In underground workings (excluding shaft and slope), accidents while setting up and operating roof-bolt drills resulted in three fatal, 11 permanent partial, and 272 temporary total injuries. There also were 31 temporary total injuries from flying particles set in motion by roof-bolting equipment. On continuous mining machines, five fatal, three permanent partial, and 115 temporary total injuries occurred while moving (tramping), setting up, or operating such machines. Two fatal, one permanent partial, and 147 temporary total injuries resulted while setting up and operating mechanical loaders; in addition, three fatal and 39 temporary total injuries occurred while moving or tramping these machines. Accidents involving cutting or mining machines resulted in a total of 177 injuries, of which 57, including one fatality, occurred while moving or tramping, 32 while setting up, and 88 while operating cutting machines.

At strip mines, accidents involving power shovels, draglines, bulldozers, and front-end loaders resulted in nine fatal, two permanent partial, and 42 temporary total injuries. Accidents with equipment of these types, as shown in table 12, also caused four fatal and four temporary total injuries in the associated surface shops and yards at deep mines and two fatal and three temporary total injuries at mechanical cleaning plants.

Slips or Falls of Persons

Injuries from slips or falls of persons at all work locations totaled six fatal and 755 nonfatal disabilities. Approximately half of these,

four fatal and 373 nonfatal injuries, occurred in underground workings, including shaft and slope, and nearly one-fourth, one fatal and 182 nonfatal injuries, were at strip mines, as shown in table 9.

Of the total injuries from this cause at all work locations, it was determined from table 12 that one fatal and 522 nonfatal disabilities were from slips or falls on the same level and that five fatal and 233 nonfatal injuries resulted from falls from an elevation.

Handtools

The improper use of handtools or the use of defective tools by the injured worker or a coworker was the sixth-ranking cause of injuries and resulted in a total of 553 nonfatal injuries at all general work locations. Most of these, 407, occurred in underground workings (table 9) and, as shown by detailed cause in table 12, 100 of the injuries in this work location were caused by flying particles originating either from the tools or the objects worked on.

Other Causes

Accidents from other causes resulted in 24 fatal and 1,180 nonfatal injuries, or 12 percent each of the respective totals for the industry. These injuries are classed by principal causes within each general work location in table 9 and by detailed cause in table 12. Some of these causes are the disaster-type hazards, such as mine fires and explosions of gas or dust, and some involve mining hazards that result in the more serious injuries, such as the use and handling of explosives or breaking agents and electric current. Most of the remaining hazards generally do not cause the more serious injuries, but they do result in appreciable numbers of the less serious injuries.

Study of the data in tables 9 and 12 will disclose the prevalence and the seriousness of injuries from these causes and will identify the specific hazards in everyday mining work. For example, 10 fatal and 356 nonfatal injuries at all work locations resulted from contact with electric current or from electric arcs and flashes. Of these totals, seven fatal and 327 nonfatal injuries occurred in underground workings (table 9). One fatal and 175 nonfatal injuries in underground workings were from trailing cables on mobile or portable machinery and haulage equipment and two fatal and 28 nonfatal injuries were from trolley wires or poles. The remaining injuries from electric current in underground workings, as well as in other general work locations, are classified by detailed causes in table 12.

Occupation of the Injured

Injuries at coal mines in 1969 were classified by the occupation at which the injured was working at the time of the accident. The occupational

terms are those commonly used at the mines and were obtained from the completed report form shown in the appendix. The differing names used locally throughout the industry for the same occupation have been consolidated and are listed under the most widely used or generally understandable terms. In those occupations for which helpers are assigned to a principal, the injuries to both the principals and helpers are combined and listed under the principal occupation. For example, the data for "Continuous miner operators" include any injuries to the machine operators and also to the machine operators' helpers. The injuries, as throughout this report, are classified by the general work location in which the accident occurred. An occupational breakdown of total employment in the coal industry is not available; hence frequency rates of injury occurrences cannot be computed by occupation.

Occupational information was classified in 1969 on 8,740 of the total of 9,615 injuries at bituminous coal mines and on 471 of the total of 505 injuries at anthracite mines. The injuries for which the information was reported have been classified by degree of injury and by occupation within the general work location of the accident. The data for bituminous coal mines are reported in table 13 and those for anthracite mines in table 14. The data in these tables indicate the specific occupations for which there is urgent need for detailed job-safety analysis and for intensive safety training of the men in safe work procedures.

In underground workings of bituminous coal mines, the nonsupervisory occupations with the largest number of injuries were roof bolters, with 1,112 injuries; shuttle car operators, 783; laborers and move crews, 685; loading machine operators, 555; mechanics, oilers, and greasers, 397; continuous miner operators, 390; and motormen, 356. Injuries to men working in these seven occupations totaled 4,278 or 60 percent of the classifiable injuries in underground workings. The injuries to men in these occupations include many of the fatal and permanent injuries in underground workings, 87 of the 142 fatalities, five of the 10 permanent total disabilities, and 96 of the 144 permanent partial disabilities in underground workings. Roof bolters had the largest number of fatal injuries, 21, followed by continuous miner operators and loading machine operators, each with 16 work deaths. The average severity of injuries is high in several of the aforementioned occupations; for example, injuries to continuous miner operators have an average severity of 331 days lost or charged per injury; injuries to loading machine operators, 240; and injuries to motormen, 246.

Of the supervisory occupations in underground bituminous coal workings, the grouping of working foremen, crew leaders, and fire bosses had a total of 414 injuries, or 5.8 percent of the total underground injuries classified by occupation. These injuries comprised 19 fatalities, eight permanent partial, and 387 temporary total disabilities. They had a high overall average severity of 324 days lost or charged per injury. The men working in this occupation represent the first line of supervision, an occupational area which has long been recognized as the most important in securing

safe work conditions and practices. The unsatisfactory injury record of these first-line supervisors in underground workings demonstrates an immediate need for new and effective safety education aimed at developing an acute safety awareness.

In the associated surface work at bituminous coal underground mines, there were more injuries to laborers (90) and mechanics (53) than to men working in any other occupations. At bituminous coal strip mines, the largest numbers of injuries were to operators of bulldozers, graders, front-end loaders, and other mobile equipment (103), laborers (92), oilers-greasers (89), truck drivers (73), and welders (72). The largest numbers of fatalities at strip mines were to bulldozer, grader, and other mobile equipment operators (6), oilers-greasers (6), and power shovel and dragline operators (5). Most of the classifiable injuries at auger mines were to auger operators (26). At mechanical cleaning plants preparing bituminous coal, the largest numbers of injuries were to car droppers, dumpers and trimmers (63), laborers (61), mechanics, oilers and greasers (57), and tippie operators (40).

Time of Injury Occurrence

Injuries at coal mines in 1969 were classified for the first time by the time of day of the injury occurrence. The time of occurrence was reported on 7,750 of the total of 9,615 injuries at bituminous coal mines and on 462 of the total of 505 injuries at anthracite operations. The injuries for which the information was reported have been classified by degree of injury and hour of the day within the general work location of the accident at bituminous coal mines in table 15 and for all work locations at anthracite mines in table 16.

Figure 3 shows the percentage distribution during a 24-hour period of those injuries for which the time of occurrence was reported, by the hour of the day for all work locations at bituminous coal mines. The largest proportion of injuries occurring during any one hour of the day was between 10 a.m. and 11 a.m., when 8.1 percent occurred. A second peak occurs between 2 p.m. and 3 p.m., when 7.7 percent of the injuries occurred. Subsequent to the first peak, there is a sharp drop in the hourly percentages of injury occurrence to 3.7 percent between 12 noon and 1 p.m., an hour which corresponds approximately to a staggered lunch period.

Three general levels of hourly percentages of injury occurrences during the 24-hour period are apparent from figure 3. From midnight to 8 a.m., the hourly occurrences average 2.5 percent; between 8 a.m. and 4 p.m., the hourly percentages average 5.9; and for the period from 4 p.m. to midnight, the hourly average is 4.2 percent. The three levels correspond roughly to the three shifts worked during the day and would be related to the different totals of men working and of man-hours worked during each shift. From the data in table 32, it is evident that the majority of the men working in the industry

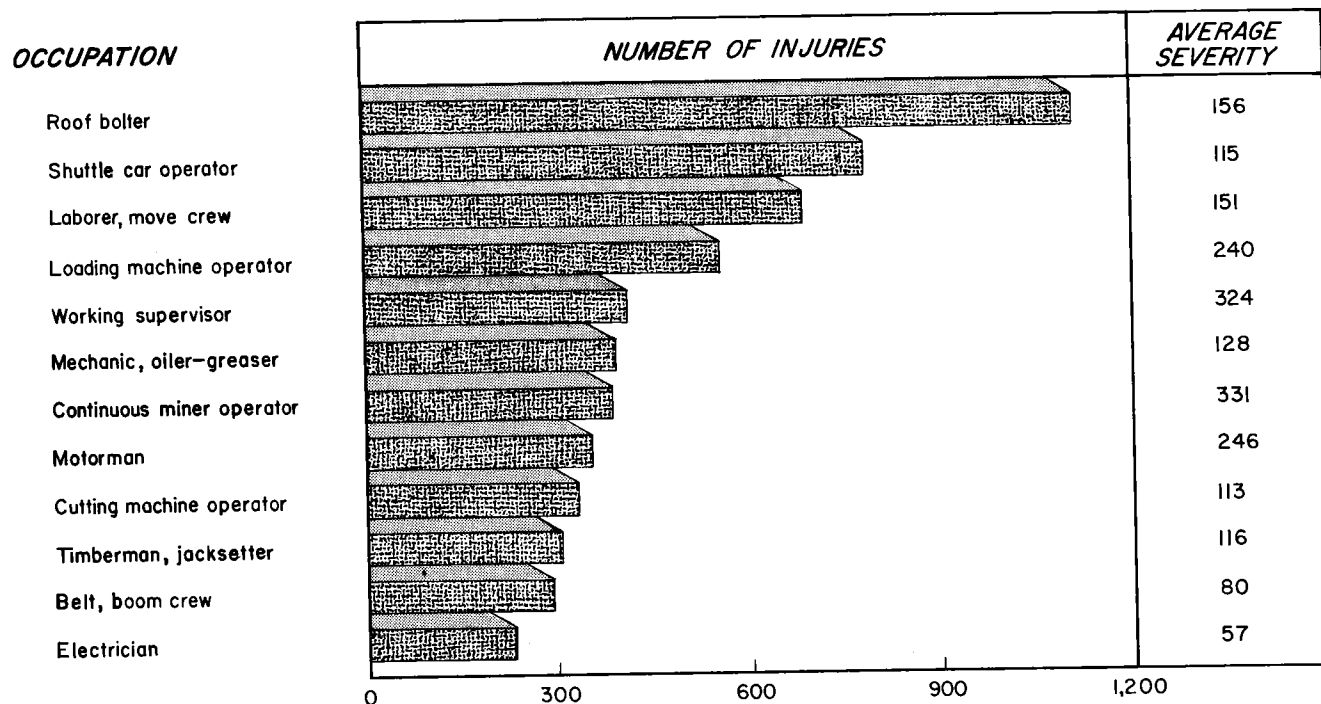


FIGURE 2. - Number and average severity of injuries in underground workings of bituminous coal mines for selected occupations, 1969. (Note: Data on all occupations at each general work location are detailed in table 13 for bituminous coal and table 14 for anthracite mines.)

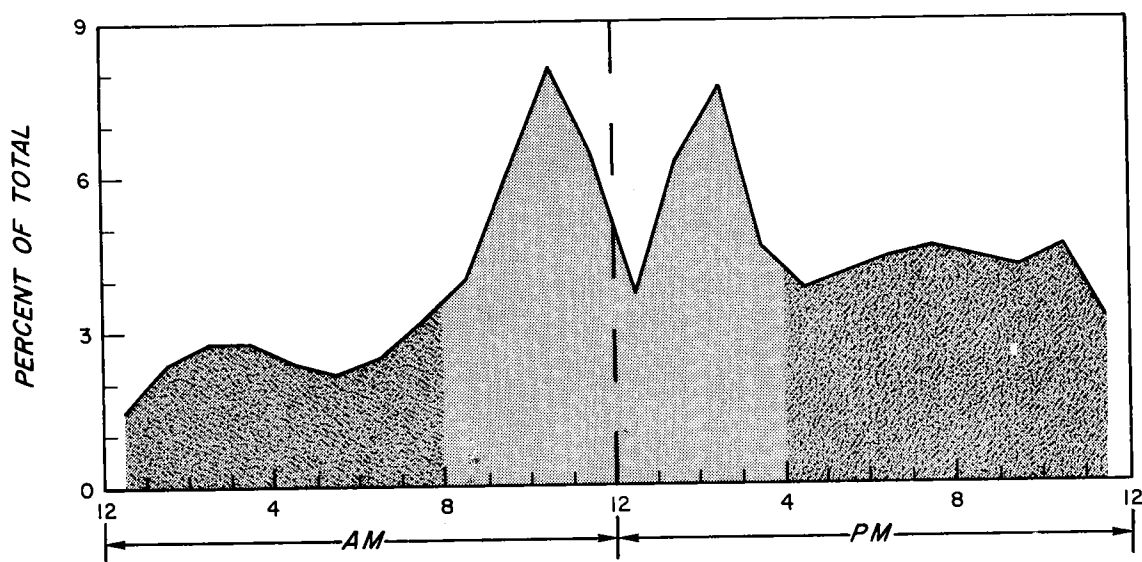


FIGURE 3. - Percent distribution of injuries in the bituminous coal industry, 1969, by time of occurrence. (Note: Totals of men working during each of the indicated shifts are not available, hence correlation of the hours of injury occurrence with work exposure data cannot be made. (See text.) Details on numbers by general location and degree of injury are given in table 15 for bituminous coal and table 16 for anthracite mines.)

would be on the day shift, inasmuch as all mines would be operated during this shift. A lower total of men would work during the afternoon shift when only mines working two or three shifts per day would be active. The lowest total of men would work the midnight shift when only mines working three shifts per day would be active.

The 24 hours of the day may be divided arbitrarily into three 8-hour periods which approximate the daily shifts; a midnight shift from midnight to 8 a.m., a day shift from 8 a.m. to 4 p.m., and an afternoon shift from 4 p.m. to midnight. The injury occurrence data arranged by these arbitrary shifts are not strictly comparable to actual shifts worked, owing to the varying actual starting times of shifts at different mines. Mines being worked three shifts per day have shifts starting at midnight, 8 a.m., and 4 p.m. At mines with two shifts per day, the day shift generally starts between 6 a.m. and 8 a.m. and the afternoon shift starts between 2 p.m. and 4 p.m. The starting time for one-shift-per-day mines commonly is between 6 a.m. and 8 a.m. Consequently, the injury occurrence data for certain hours of the day contain injuries to men just completing a shift and also to men just starting a shift. For example, injuries occurring between 6 a.m. and 8 a.m. included those to men completing the midnight shift at three-shift mines and to men starting the day shift at those mines that are operated only one or two shifts a day.

The following table presents the distribution of injuries in all work locations at bituminous coal mines in 1969 by hours within each of the arbitrary shifts of the 24-hour period. It is noted that 1,536 or 19.8 percent of the injuries with reported time of occurrence were between midnight and 8 a.m.; 3,631 or 46.9 percent were between 8 a.m. and 4 p.m.; and 2,583 or 33.3 percent were between 4 p.m. and midnight. From the hourly distributions within the arbitrary shifts, the occurrences of injuries appear to be related to the actual pace of work activities during each shift.

Hour of shift	Midnight shift (12 a.m. - 8 a.m.)		Day shift (8 a.m. - 4 p.m.)		Afternoon shift (4 p.m. - 12 p.m.)	
	Injuries	Percent	Injuries	Percent	Injuries	Percent
1st	116	7.5	310	8.5	296	11.5
2nd	189	12.3	475	13.1	319	12.3
3rd	216	14.1	630	17.4	341	13.2
4th	214	13.9	497	13.7	361	14.0
5th	187	12.2	284	7.8	341	13.2
6th	173	11.3	486	13.4	325	12.6
7th	191	12.4	595	16.4	355	13.7
8th	250	16.3	354	9.7	245	9.5
Total <u>1/</u>	1,536	100.0	3,631	100.0	2,583	100.0

1/ In addition, there were 1,865 injuries for which time of occurrence was not reported.

The overall injury and worktime data for mines being operated one, two, and three shifts per day during the year are presented in table 32 for bituminous coal mines and in table 33 for anthracite mines. Specific information on injuries and worktime during each shift or on shift starting times at the mines is not available.

Other Injury Analyses

In addition to the preceding analyses by work location, cause, and occupation, coal mine injuries in 1969 were classified by a number of other factors related to the occurrence of injuries. These factors include the parts of the body injured, the natures of the injuries, employee-size and production-size groupings of the mines, the percentage of mechanical loading, thickness of coalbed being worked, and others. These data are listed in tables 17-41.

INJURY EXPERIENCE BY STATE

Reports of coal-mining activity were received from operations in 27 States. Fatal injuries occurred in bituminous coal or lignite mines in 12 States and in the Pennsylvania anthracite industry. Nonfatal injuries were reported by operators in 22 States. The injury experience, worktime, and production data of the coal industry in the States with active mines are detailed in tables 42-46 by general work locations and causes of fatal and nonfatal injuries.

MAJOR DISASTERS, 1960-69

No major disasters occurred in coal mines during 1969. There were only six other calendar years -- 1949, 1950, 1955, 1956, 1964, and 1967 -- without major disasters in a statistical history of the coal-mining industry extending back to 1876.

A major disaster, as defined for the mineral industries, is a single accident in which five or more employees lose their lives. During the 10-year period 1960-69, 13 disasters, all in bituminous coal mines, killed 239 men (table 47). Ten of the disasters were explosions of gas or dust in underground workings. A total of 209 men lost their lives in these disasters. Two mine fire disasters accounted for 25 deaths, and five men suffocated in an oxygen-deficient atmosphere released by a breakthrough into abandoned workings.

OFFICEWORKERS

A total of 2,640 onsite officeworkers worked 5.2 million man-hours during an average of 247 days in 1969 (table 48) without any disabling injuries.

HISTORICAL DATA

Injury experience, employment, and worktime data for the bituminous coal, Pennsylvania anthracite, and total coal-mining industries are shown for 1930-69 in tables 49-51. The man-hour data for 1930-44 in these tables have been converted to a portal-to-portal basis, which became the basis of pay in 1945. Hence the injury frequency and the productivity rates are directly comparable for each year since 1930.

Historical information on fatalities in the coal-mining industry is given in tables 52-57. Figures from 1910 through 1969 represent the entire industry, while those prior to 1910 cover only the States that maintained records of fatal injuries.

Fatalities by major cause since 1906 for the bituminous coal, Pennsylvania anthracite, and total coal-mining industries are shown in tables 53-55. The corresponding percentage distribution of fatalities by major cause for the bituminous coal and anthracite industries is shown separately in tables 56 and 57. Historically, the leading cause of fatalities in underground workings of coal mines has been from falls of roof and face. In 1969, deaths from this cause represented 52 percent of the underground fatalities.

DEFINITION OF TERMS

To eliminate the lengthy repetition of explanatory footnotes in tables, the following definitions are given for terms used in headings and/or stubs:

Frequency rates.--Per million man-hours -- the number of injuries multiplied by 1 million divided by the man-hours; per million short tons -- the number of injuries multiplied by 1 million divided by the tons. Where rates are shown for total injuries (fatal and nonfatal), they may differ from the sums of the component rates because all rates are calculated separately.

Severity rates.--The number of days charged multiplied by 1 million divided by the man-hours. All fatalities and permanent total disabilities have a standard time-loss charge of 6,000 days.

Average severity.--The number of days charged divided by the number of injuries.

Degree of injury.--Permanent total disability, permanent partial disability, and temporary total disability.

Permanent total disability.--The loss of, or loss of use of, both or any two of the following: Hands, arms, legs, feet, or eyes; or any other nonfatal injury that permanently and totally incapacitates the injured person from following any gainful occupation.

Permanent partial disability.--Any nonfatal injury that permanently but only partially disables a worker. Includes the total or partial loss of, or loss of use of, an arm, hand, leg, finger(s), eye, hearing, etc., even though no time was lost.

Temporary total disability.--Any nonfatal injury that does not result in permanent impairment, but that renders the injured person unable to perform a regularly established job that is open and available to him during the entire time interval corresponding to the hours of his regular shift on any one or more days (including Sundays, days off, or plant shutdown) subsequent to the day of injury.

Distribution of all injuries, percent.--The number of injuries expressed as percentages of the total injuries for which the table subject headings were stated. Injuries for which the information was not stated are excluded. Percentages are calculated separately and may not add to 100.0.

Men at work.--Average number of men at work each day mine was active. As absenteeism and labor turnover are considered, this number is lower than the number available for work as measured by a count of names on the payroll.

Underground or deep mine.--An underground mining establishment separated into an underground department and a surface department that includes the associated supply, maintenance, repair, and yard facilities on the surface.

Accident-cause classification.--The cause classification used in this report has been developed by the Bureau of Mines through many years of analyzing descriptions of accidents resulting in injuries at mineral extractive and processing operations. It is designed to meet the particular needs of accident-prevention work in the mineral industries in which the working environment of most employees changes continuously as work progresses through each day. Examinations and trials with other methods of cause classification have demonstrated the Bureau's method to be the most useful for the industries covered. The intent of the classification is to indicate, in as fine detail as possible, the hazards in environment, work activity, equipment, materials, or improper work procedures that were the primary causes of accidents. These hazards are those requiring corrective action, in proportion to the seriousness or the number of injuries ascribed to them, utilizing the technical aspects of safety engineering, inspection, and education.

The Bureau's classification comprises 19 main or major groups of descriptive causes covering the hazards of daily work. Each major group is broken down into a varying number of detailed causes (table 12), pointing to more particular hazards within the general causes. For example, falls-of-roof accidents result from constantly changing environmental conditions for which proper support has not been provided or for which the changing roof conditions have not been properly analyzed. For the purpose of analysis,

the most useful set of detailed causes under the main fall-of-roof category has been determined to be the work activity the injured was engaged in when the roof fell. It is during those work activities with the larger number of injuries, that more attention is required for proper roof-support and roof-condition analysis.

Other major cause groups point to the use of defective equipment or improper handling, as in the handtool category. The detailed cause under this general group denotes the tool that was defective or not used properly.

The following descriptions of the major causes provide definitions, particularly in the inclusions or exclusions of accidents for which the primary cause may be subject to misinterpretation.

Falls of roof.--Falls of rock, coal, or slate from their in-place location in the mine roof. Excludes falls of roof caused by equipment knocking out support and falls from pressure bumps or bursts.

Falls of face, rib, or overburden.--Falls of face, side, rib, or pillar from their in-place location in underground workings and falls of highwalls in strip pits and auger mines. Excludes falls from equipment knocking out support and falls from pressure bumps or bursts.

Pressure bumps or bursts.--Falling or flying roof, face, or rib material caused by pressure bumps or bursts.

Inrush of water or material.--Includes inrushes of water or unconsolidated material caused by mining into or too close to flooded old workings, or unconsolidated sediments such as sand.

Other falling materials or objects.--Rolling, shifting, sliding or falling materials or objects not being handled or disturbed by the injured worker. Includes coal or rock already broken from its in-place position.

Slips or falls of persons.--Slips or falls on the same level and from an elevation are grouped separately. Slips or falls in or from haulage equipment that resulted from an accident on haulage, from the motion of haulage equipment, or while getting on or off haulage equipment are excluded. Slips or falls into moving or operating machinery or into electricity also are excluded.

Handling materials.--Includes moving, lifting, loading, carrying, or installing coal, rock, supplies, or materials and flying particles from materials being handled or moved.

Handtools.--Accidents from tools in hands of injured worker or tools in hands of fellow worker, except power-driven tools. Includes flying pieces from tools being used or materials being worked on.

Stepping or kneeling on sharp or loose objects.--Stepping or kneeling on sharp or loose objects, slips or falls from stepping on loose objects, and cases resulting in bursitis or "miner's knee," from working on hands and knees.

Striking or bumping against objects.--Cases of walking or bumping into stationary objects. Excludes cases of striking or bumping in the course of servicing equipment, repairing, handling materials, using handtools, operating machinery or haulage equipment, etc. Excludes cases of striking or bumping moving or operating machinery or electricity.

Haulage.--Haulage accidents are divided into the following six groups: (1) Mine-gage rail haulage; (2) standard-gage (railroad) haulage; (3) shuttle cars, mobile electric trucks, rubber-tired equipment, and other nonrail equipment; (4) water transportation; (5) automobile, gasoline, or diesel trucks, tractors, etc.; and (6) miscellaneous equipment (ropes, animals, cages, belts, etc.). Included in the haulage category are falls of roof or face from equipment knocking out supports; slips or falls of persons in or from haulage equipment that resulted from an accident to the equipment, from the motion of the equipment, or while getting on or off equipment; and flying particles set in motion by haulage equipment or draft therefrom.

Explosions of gas or coal dust.--Explosions of methane and/or coal dust in mine environment.

Explosives and breaking agents.--Cases in which the cause of injury was the detonation, fumes, flying fragments or improper use of the explosive or breaking agent, fuses, caps, or detonators.

Electricity.--Cases resulting from contact with electric current or from arcs or flashes.

Machinery.--Accidents while operating machines are separated from those while moving or tramping a whole machine, except continuous-mining machines. Injuries occurring while moving a repair part of a machine are classed under "handling materials." Included in the machinery classification are falls of roof or face from machinery knocking out support, setting up or servicing machinery, and flying particles set in motion by machinery. Excluded from the classification are accidents occurring in the course of repairing machines, unless the accident resulted from in-motion machinery.

Suffocation.--Divided into suffocation (1) from natural mine gases or oxygen-deficient atmosphere and (2) from foreign gases such as from oil or gasoline fumes, or from gases and smoke drawn underground from a surface fire, or from gas wells. Excludes gases from mine fires, explosions, and explosives use.

Mine fires and suffocation from fires.--Mine fire accidents are divided into (1) mine fires in which coal or timber is burning and (2) other fires in which equipment or material other than coal or timber is burning.

Miscellaneous causes.--Includes flying particles from draft or wind; gas or burns from carbide; gas, burns, or flying materials or flashes from acetylene and electric welding and cutting; irritations and burns from battery fluid or other acids; burns from controlled wood or coal fires, steam, hot grease, oil, etc.; and all other accidents not elsewhere classified.

Occupational pneumoconiosis.--Includes anthracosis, silicosis, and other occupational pulmonary diseases due to the inhalation of dust or fumes.

TABLE 1. - Salient statistics on injuries, injury rates, worktime, production, and productivity
at coal mines in the United States, 1965-69

	Excluding officeworkers					Including officeworkers				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
BITUMINOUS COAL MINES										
Number of injuries:										
Fatal -----	251	227	213	307	190	252	227	213	307	190
Nonfatal -----	10,071	9,617	9,506	9,135	9,425	10,071	9,619	9,506	9,137	9,425
Total -----	10,322	9,844	9,719	9,442	9,615	10,323	9,846	9,719	9,444	9,615
Injury rates:										
Frequency per million man-hours:										
Fatal -----	1.08	0.99	0.93	1.37	0.84	1.06	0.97	0.91	1.35	0.82
Nonfatal -----	43.30	41.80	41.44	40.89	41.44	42.24	40.90	40.58	40.04	40.57
Frequency per million tons:										
Fatal -----	.49	.43	.39	.37	.34	.49	.43	.39	.37	.34
Nonfatal -----	19.63	18.06	17.33	16.86	16.86	19.63	18.06	17.33	16.86	16.86
Severity per million man-hours:										
Fatal -----	6,474	5,919	5,571	8,245	5,013	6,342	5,791	5,455	8,072	4,907
Nonfatal -----	2,769	1,981	2,247	2,580	2,269	2,701	1,939	2,200	2,526	2,221
Severity per million tons:										
Fatal -----	2,935	2,557	2,330	3,399	2,040	2,947	2,557	2,330	3,399	2,040
Nonfatal -----	1,255	856	940	1,064	923	1,255	856	940	1,064	923
Average severity, days lost per injury:										
Permanent partial -----	752	614	625	739	600	752	614	625	739	600
Temporary total -----	37	33	34	38	37	37	33	34	36	37
All injuries -----	208	185	185	256	172	209	185	185	256	172
Average men working daily -----	137,602	135,952	131,562	127,535	127,375	140,837	138,625	134,160	129,975	129,869
Man-hours worked -----	232,613,020	230,087,139	229,415,141	223,405,681	227,411,408	238,414,264	235,180,203	234,273,697	228,206,868	232,316,502
Production -----short tons -----	513,083,704	532,558,619	548,502,581	541,848,751	558,930,950	513,083,704	532,558,619	548,502,581	541,848,751	558,930,950
Productivity:										
Tons per man-hour -----	2.21	2.31	2.39	2.43	2.46	2.15	2.26	2.34	2.37	2.41
Tons per man-day -----	17.55	18.41	18.97	19.25	19.49	17.12	18.01	18.58	18.85	19.08
ANTHRACITE MINES										
Number of injuries:										
Fatal -----	8	6	9	4	13	8	6	9	4	13
Nonfatal -----	1,067	829	609	504	492	1,068	829	609	504	492
Total -----	1,075	835	618	508	505	1,076	835	618	508	505
Injury rates:										
Frequency per million man-hours:										
Fatal -----	.49	.44	.73	.36	1.29	.48	.43	.71	.35	1.25
Nonfatal -----	65.16	60.64	49.27	45.77	48.85	63.50	59.00	48.00	44.53	47.45
Frequency per million tons:										
Fatal -----	.54	.46	.73	.35	1.27	.54	.46	.73	.35	1.27
Nonfatal -----	71.57	64.24	49.87	43.86	47.99	71.63	64.24	49.67	43.86	47.99
Severity per million man-hours:										
Fatal -----	2,931	2,633	4,369	2,180	7,764	2,854	2,562	4,256	2,120	7,523
Nonfatal -----	2,004	1,844	1,142	2,002	1,347	1,954	1,794	1,112	1,948	1,308
Severity per million tons:										
Fatal -----	3,219	2,790	4,404	2,088	7,609	3,219	2,790	4,404	2,088	7,609
Nonfatal -----	2,202	1,954	1,151	1,918	1,323	2,204	1,954	1,151	1,918	1,323
Average severity, days lost per injury:										
Permanent partial -----	210	796	183	1,720	581	210	796	188	1,720	581
Temporary total -----	29	24	23	27	23	29	24	23	27	23
All injuries -----	75	73	110	91	181	75	73	110	91	181
Average men working daily -----	11,132	9,292	7,750	6,932	5,927	11,411	9,941	7,931	7,097	6,073
Man-hours worked -----	16,375,359	13,671,866	12,359,293	11,011,239	10,072,530	16,819,078	14,051,607	12,686,859	11,318,383	10,368,604
Production -----short tons -----	14,909,337	12,905,193	12,261,791	11,491,539	10,251,165	14,909,337	12,905,193	12,261,791	11,491,539	10,251,165
Productivity:										
Tons per man-hour -----	.91	.94	.99	1.04	1.02	.89	.92	.97	1.02	.99
Tons per man-day -----	6.56	6.85	7.21	7.62	7.45	6.56	6.68	7.04	7.43	7.25
ALL COAL MINES										
Number of injuries:										
Fatal -----	259	233	222	311	203	260	233	222	311	203
Nonfatal -----	11,138	10,446	10,115	9,639	9,917	11,139	10,448	10,115	9,641	9,917
Total -----	11,397	10,679	10,337	9,950	10,120	11,399	10,681	10,337	9,952	10,120
Injury rates:										
Frequency per million man-hours:										
Fatal -----	1.04	.96	.92	1.33	.85	1.02	.93	.90	1.30	.84
Nonfatal -----	44.73	42.85	41.84	41.12	41.76	43.64	41.92	40.96	40.25	40.86
Frequency per million tons:										
Fatal -----	.49	.43	.40	.36	.36	.49	.43	.40	.36	.36
Nonfatal -----	21.09	19.15	18.04	17.42	17.42	21.10	19.15	18.04	17.42	17.42
Severity per million man-hours:										
Fatal -----	6,241	5,735	5,509	7,960	5,129	6,112	5,609	5,394	7,790	5,019
Nonfatal -----	2,718	1,973	2,190	2,553	2,230	2,652	1,930	2,144	2,499	2,182
Severity per million tons:										
Fatal -----	2,943	2,563	2,375	3,372	2,140	2,955	2,563	2,375	3,372	2,140
Nonfatal -----	1,282	882	944	1,081	931	1,282	882	944	1,082	931
Average severity, days lost per injury:										
Permanent partial -----	730	620	621	763	600	730	620	621	763	600
Temporary total -----	36	32	33	37	36	36	32	33	37	36
All injuries -----	196	176	180	248	173	196	176	180	248	173
Average men working daily -----	148,734	145,244	139,312	134,467	133,302	152,248	148,734	142,091	137,072	135,942
Man-hours worked -----	248,988,379	243,759,005	241,774,434	234,416,920	237,483,938	255,233,342	249,231,810	246,960,556	239,525,251	242,685,106
Production -----short tons -----	527,993,041	545,463,812	560,764,372	553,340,290	569,182,115	527,993,041	545,463,812	560,764,372	553,340,290	569,182,115
Productivity:										
Tons per man-hour -----	2.12	2.24	2.32	2.36	2.40	2.07	2.19	2.27	2.31	2.35
Tons per man-day -----	16.75	17.70	18.32	18.66	18.94	16.34	17.32	17.94	18.27	18.54

TABLE 2. - Worktime, production, and productivity (short tons per man-hour) data on coal mines in the United States, by kind of coal and general work location, 1969

	Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
Bituminous coal mines:							
Underground mines:							
Underground -----	84,875	220	18,661,196	149,681,005	345,603,653	2.31	3,450
Surface -----	10,564	232	2,450,148	18,440,872	-----	-----	-----
Total or average -----	95,439	221	21,111,344	168,121,877	345,603,653	2.06	3,450
Strip mines -----	20,887	246	5,129,341	40,963,633	197,397,279	4.82	1,591
Auger mines -----	2,649	140	370,994	3,050,098	15,930,018	5.22	495
Total or average, mining --	118,975	224	26,611,679	212,135,608	558,930,950	2.63	5,536
Mechanical cleaning plants ---	8,400	246	2,065,067	15,275,800	-----	-----	439
Grand total or average ----	127,375	225	28,676,746	227,411,408	558,930,950	2.46	5,975
Pennsylvania anthracite mines:							
Underground mines:							
Underground -----	1,397	236	330,145	2,304,477	2,066,463	.90	197
Surface -----	559	232	129,515	961,956	-----	-----	-----
Total or average -----	1,956	235	459,660	3,266,433	2,066,463	.63	197
Strip mines -----	1,787	256	456,915	3,319,319	4,499,849	1.36	124
Culm banks -----	488	165	80,363	591,488	3,149,484	5.32	93
Dredges -----	61	293	17,881	143,323	535,369	3.74	5
Total or average, mining --	4,292	236	1,014,819	7,320,563	10,251,165	1.40	419
Mechanical cleaning plants ---	1,635	221	361,836	2,751,967	-----	-----	111
Grand total or average ----	5,927	232	1,376,655	10,072,530	10,251,165	1.02	530
All coal mines:							
Underground mines:							
Underground -----	86,272	220	18,991,341	151,985,482	347,670,116	2.29	3,647
Surface -----	11,123	232	2,579,663	19,402,828	-----	-----	-----
Total or average -----	97,395	221	21,571,004	171,388,310	347,670,116	2.03	3,647
Strip mines -----	22,674	246	5,586,256	44,282,952	201,897,128	4.56	1,715
Auger mines -----	2,649	140	370,994	3,050,098	15,930,018	5.22	495
Culm banks -----	488	165	80,363	591,488	3,149,484	5.32	93
Dredges -----	61	293	17,881	143,323	535,369	3.74	5
Total or average, mining --	123,267	224	27,626,498	219,456,171	569,182,115	2.59	5,955
Mechanical cleaning plants ---	10,035	242	2,426,903	18,027,767	-----	-----	550
Grand total or average ----	133,302	225	30,053,401	237,483,938	569,182,115	2.40	6,505

TABLE 3. - Injury experience at bituminous coal mines in the United States, by general work location, 1969

	Underground mines			Strip mines	Auger mines	Total mining	Mechanical cleaning plants	Grand total
	Underground	Surface	Total					
Number of injuries:								
Fatal -----	142	13	155	25	3	183	7	190
Nonfatal:								
Permanent total -----	10	-----	10	1	-----	11	-----	11
Permanent partial -----	144	14	158	17	1	176	4	180
Temporary total -----	7,489	482	7,971	833	90	8,894	340	9,234
Total nonfatal -----	7,643	496	8,139	851	91	9,081	344	9,425
Grand total -----	7,785	509	8,294	876	94	9,264	351	9,615
Days Lost:								
Fatal -----	852,000	78,000	930,000	150,000	18,000	1,098,000	42,000	1,140,000
Nonfatal:								
Permanent total -----	60,000	-----	60,000	6,000	-----	66,000	-----	66,000
Permanent partial -----	85,110	8,325	93,435	12,385	1,740	107,560	480	108,040
Temporary total -----	291,138	16,219	307,357	21,111	1,895	330,363	11,671	342,034
Total nonfatal -----	436,248	24,544	460,792	39,496	3,635	503,923	12,151	516,074
Grand total -----	1,288,248	102,544	1,390,792	189,496	21,635	1,601,923	54,151	1,656,074
Frequency rates:								
Per million man-hours:								
Fatal -----	0.95	0.71	0.92	0.61	0.98	0.86	0.46	0.84
Nonfatal -----	51.06	26.90	48.41	20.77	29.84	42.81	22.52	41.44
All injuries -----	52.01	27.60	49.33	21.38	30.82	43.67	22.98	42.28
Per million tons:								
Fatal -----	.41	-----	.45	.13	.19	.33	-----	.34
Nonfatal -----	22.11	-----	23.55	4.31	5.71	16.25	-----	16.86
All injuries -----	22.53	-----	24.00	4.44	5.90	16.57	-----	17.20
Severity rates:								
Per million man-hours:								
Fatal -----	5,692	4,230	5,532	3,662	5,901	5,176	2,749	5,013
Nonfatal -----	2,915	1,331	2,741	964	1,192	2,375	795	2,269
All injuries -----	8,607	5,561	8,273	4,626	7,093	7,551	3,545	7,282
Per million tons:								
Fatal -----	2,465	-----	2,691	760	1,130	1,964	-----	2,040
Nonfatal -----	1,262	-----	1,333	200	228	902	-----	923
All injuries -----	3,728	-----	4,024	960	1,358	2,866	-----	2,963
Average severity:								
Permanent partial -----	591	595	591	729	1,740	611	120	600
Temporary total -----	39	34	39	25	21	37	34	37
All injuries -----	165	201	168	216	230	173	154	172

TABLE 4. - Injury experience at Pennsylvania anthracite mines, by general work location, 1969

	Underground mines			Strip mines	Culm banks	Dredges	Total mining	Mechanical cleaning plants	Grand total
	Underground	Surface	Total						
Number of injuries:									
Fatal -----	7	1	8	3	-----	-----	11	2	13
Nonfatal:									
Permanent total -----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Permanent partial -----	2	-----	2	1	-----	-----	3	1	4
Temporary total -----	195	22	217	115	10	-----	342	146	488
Total nonfatal -----	197	22	219	116	10	-----	345	147	492
Grand total -----	204	23	227	119	10	-----	356	149	505
Days lost:									
Fatal -----	42,000	6,000	48,000	18,000	-----	-----	66,000	12,000	78,000
Nonfatal:									
Permanent total -----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Permanent partial -----	2,200	-----	2,200	75	-----	-----	2,275	50	2,325
Temporary total -----	4,710	334	5,044	1,853	117	-----	7,014	4,225	11,239
Total nonfatal -----	6,910	334	7,244	1,928	117	-----	9,289	4,275	13,564
Grand total -----	48,910	6,334	55,244	19,928	117	-----	75,289	16,275	91,564
Frequency rates:									
Per million man-hours:									
Fatal -----	3.04	1.04	2.45	0.90	-----	-----	1.50	0.73	1.29
Nonfatal -----	85.49	22.87	67.05	34.95	16.91	-----	47.13	53.42	48.85
All injuries -----	88.52	23.91	69.49	35.85	16.91	-----	48.63	54.14	50.14
Per million tons:									
Fatal -----	3.39	-----	3.87	.67	-----	-----	1.07	-----	1.27
Nonfatal -----	95.33	-----	105.98	25.78	3.18	-----	33.65	-----	47.99
All injuries -----	98.72	-----	109.85	26.45	3.18	-----	34.73	-----	49.26
Severity rates:									
Per million man-hours:									
Fatal -----	18,225	6,237	14,695	5,423	-----	-----	9,016	4,361	7,744
Nonfatal -----	2,999	347	2,218	581	198	-----	1,269	1,553	1,347
All injuries -----	21,224	6,585	16,913	6,004	198	-----	10,285	5,914	9,090
Per million tons:									
Fatal -----	20,325	-----	23,228	4,000	-----	-----	6,438	-----	7,609
Nonfatal -----	3,344	-----	3,506	428	37	-----	906	-----	1,323
All injuries -----	23,668	-----	26,734	4,429	37	-----	7,344	-----	8,932
Average Severity:									
Permanent partial -----	1,100	-----	1,100	75	-----	-----	758	50	581
Temporary total -----	24	15	23	16	12	-----	21	29	23
All injuries -----	240	275	243	167	12	-----	211	109	181

TABLE 5. - Injury experience at all coal mines in the United States, by general work location, 1969

	Underground mines			Strip mines	Auger mines	Culm banks	Dredges	Total mining	Mechanical cleaning plants	Grand total
	Underground	Surface	Total							
Number of injuries:										
Fatal -----	149	14	163	28	3	-----	-----	194	9	203
Nonfatal:										
Permanent total ---	10	-----	10	1	-----	-----	-----	11	-----	11
Permanent partial -	146	14	160	18	1	-----	-----	179	5	184
Temporary total ---	7,684	504	8,188	948	90	10	-----	9,236	486	9,722
Total nonfatal --	7,840	518	8,358	967	91	10	-----	9,426	491	9,917
Grand total -----	7,989	532	8,521	995	94	10	-----	9,620	500	10,120
Days lost:										
Fatal -----	894,000	84,000	978,000	168,000	18,000	-----	-----	1,164,000	54,000	1,218,000
Nonfatal:										
Permanent total ---	60,000	-----	60,000	6,000	-----	-----	-----	66,000	-----	66,000
Permanent partial -	87,310	8,325	95,635	12,460	1,740	-----	-----	109,835	530	110,365
Temporary total ---	295,848	16,553	312,401	22,964	1,895	117	-----	337,377	15,896	353,273
Total nonfatal --	443,158	24,878	468,036	41,424	3,635	117	-----	513,212	16,426	529,638
Grand total -----	1,337,158	108,878	1,446,036	209,424	21,635	117	-----	1,677,212	70,426	1,747,638
Frequency rates:										
Per million man-hours:										
Fatal -----	0.98	0.72	0.95	0.63	0.98	-----	-----	0.88	0.50	0.85
Nonfatal -----	51.58	26.70	48.77	21.84	29.84	16.91	-----	42.95	27.24	41.76
All injuries ----	52.56	27.42	49.72	22.47	30.82	16.91	-----	43.84	27.73	42.61
Per million tons:										
Fatal -----	.43	-----	.47	.14	.19	-----	-----	.34	-----	.36
Nonfatal -----	22.55	-----	24.04	4.79	5.71	3.18	-----	16.56	-----	17.42
All injuries ----	22.98	-----	24.51	4.93	5.90	3.18	-----	16.90	-----	17.78
Severity rates:										
Per million man-hours:										
Fatal -----	5,882	4,329	5,706	3,794	5,901	-----	-----	5,304	2,995	5,129
Nonfatal -----	2,916	1,282	2,731	935	1,192	198	-----	2,339	911	2,230
All injuries ----	8,798	5,611	8,437	4,729	7,093	198	-----	7,643	3,907	7,359
Per million tons:										
Fatal -----	2,571	-----	2,813	832	1,130	-----	-----	2,045	-----	2,140
Nonfatal -----	1,275	-----	1,346	205	228	37	-----	902	-----	931
All injuries ----	3,846	-----	4,159	1,037	1,358	37	-----	2,947	-----	3,070
Average severity:										
Permanent partial ---	598	595	598	692	1,740	-----	-----	614	106	600
Temporary total ----	39	33	38	24	21	12	-----	37	33	36
All injuries -----	167	205	170	210	230	12	-----	174	141	173

TABLE 6. - Number of injuries and frequency and severity rates at coal mines in the United States, by degree of injury, 1969

Degree of injury	Bituminous coal mines			Pennsylvania anthracite mines			All coal mines		
	Number of injuries	Injury rates		Number of injuries	Injury rates		Number of injuries	Injury rates	
		Frequency	Severity		Frequency	Severity		Frequency	Severity
Fatal -----	190	0.84	5,013	13	1.29	7,744	203	0.85	5,129
Permanent total -----	11	.05	290	---	-----	-----	11	.05	278
Permanent partial -----	180	.79	475	4	.40	231	184	.77	465
Temporary total -----	9,234	40.60	1,504	488	48.45	1,116	9,722	40.94	1,488
Total nonfatal injuries -----	9,425	41.44	2,269	492	48.85	1,347	9,917	41.76	2,230
All injuries -----	9,615	42.28	7,282	505	50.14	9,090	10,120	42.61	7,359

TABLE 7. - Comparative injury data on bituminous coal operations (mines and mechanical cleaning plants) with and without fatalities in the United States, 1969

	Operations reporting fatal injuries	Operations reporting no fatal injuries	All bituminous- coal operations
Number of operations ^{1/} -----	183	5,792	5,975
Production -----short tons-----	88,336,601	470,594,349	558,930,950
Proportion of total tonnage -----percent-----	15.8	84.2	100.0
Number of employees -----	20,449	106,926	127,375
Proportion of total employees -----percent-----	16.1	83.9	100.0
Number of employees per operation -----	112	18	21
Man-days worked -----	4,899,349	23,777,397	28,676,746
Average days worked per man -----	240	222	225
Man-hours worked -----	39,026,924	188,384,484	227,411,408
Average hours worked per man -----	1,909	1,762	1,785
Production per man-hour -----tons-----	2.26	2.50	2.46
Number of fatalities -----	190	-----	190
Number of nonfatal injuries -----	2,004	7,421	9,425
Fatality rate per million man-hours -----	4.87	-----	.84
Nonfatal-injury rate per million man-hours -----	51.35	39.39	41.44

^{1/} Includes totals of 5,536 mines and 439 mechanical cleaning plants.

TABLE 8. - Comparative injury data on Pennsylvania anthracite operations (mines and mechanical cleaning plants) with and without fatalities, 1969

	Operations reporting fatal injuries	Operations reporting no fatal injuries	All anthracite operations
Number of operations ^{1/} -----	13	517	530
Production -----short tons-----	1,108,573	9,142,592	10,251,165
Proportion of total tonnage -----percent-----	10.8	89.2	100.0
Number of employees -----	705	5,222	5,927
Proportion of total employees -----percent-----	11.9	88.1	100.0
Number of employees per operation -----	54	10	11
Man-days worked -----	171,453	1,205,202	1,376,655
Average days worked per man -----	243	231	232
Man-hours worked -----	1,215,636	8,856,894	10,072,530
Average hours worked per man -----	1,724	1,696	1,699
Production per man-hour -----tons-----	.91	1.03	1.02
Number of fatalities -----	13	-----	13
Number of nonfatal injuries -----	105	387	492
Fatality rate per million man-hours -----	10.69	-----	1.29
Nonfatal-injury rate per million man-hours -----	86.37	43.69	48.85

^{1/} Includes totals of 419 mines and 111 mechanical cleaning plants.

TABLE 9. - Number of injuries at coal mines in the United States, by principal causes of injury, kind of coal, and general work location, 1969

Principal causes of injury	Bituminous coal mines		Pennsylvania anthra- cite mines		All coal mines	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
Underground mines:						
Underground:						
Falls of roof -----	71	1,179	1	7	72	1,186
Falls of face or rib -----	6	293	---	8	6	301
Pressure bumps or bursts -----	3	8	---	1	3	9
Other falling objects -----	---	114	1	6	1	120
Falls of persons -----	---	319	1	37	1	356
Handling materials -----	1	1,748	---	49	1	1,797
Handtools -----	---	378	---	19	---	397
Stepping on objects -----	---	144	---	4	---	148
Striking or bumping -----	---	46	---	1	---	47
Haulage -----	32	1,524	---	16	32	1,540
Explosions (gas or dust) -----	---	5	1	8	1	13
Explosives -----	1	70	---	1	1	71
Electricity -----	5	320	---	5	5	325
Machinery -----	18	1,239	---	26	18	1,265
Suffocation -----	---	---	1	---	1	---
Mine fires -----	---	33	---	---	---	33
All other -----	---	103	---	2	---	105
Pneumoconiosis -----	---	5	---	1	---	6
Total -----	137	7,528	5	191	142	7,719
Shaft and slope:						
Falls of roof -----	---	4	---	---	---	4
Falls of face or rib -----	---	2	---	---	---	2
Other falling objects -----	1	4	---	---	1	4
Falls of persons -----	2	14	1	3	3	17
Handling materials -----	---	26	---	---	---	26
Handtools -----	---	10	---	---	---	10
Stepping on objects -----	---	4	---	---	---	4
Haulage -----	---	35	1	3	1	38
Electricity -----	2	2	---	---	2	2
Machinery -----	---	11	---	---	---	11
All other -----	---	3	---	---	---	3
Total -----	5	115	2	6	7	121
Total, underground -----	142	7,643	7	197	149	7,840
Surface:						
Falls or slides of coal or overburden -----	1	---	---	---	1	---
Other falling objects -----	---	7	---	---	---	7
Falls of persons -----	1	86	---	3	1	89
Handling materials -----	1	166	---	7	1	173
Handtools -----	---	34	---	3	---	37
Stepping on objects -----	---	12	---	---	---	12
Striking or bumping -----	---	2	---	---	---	2
Haulage -----	5	121	1	6	6	127
Electricity -----	1	13	---	---	1	13
Machinery -----	4	26	---	2	4	28
Mine fires -----	---	2	---	---	---	2
All other -----	---	27	---	1	---	28
Total -----	13	496	1	22	14	518
Total, underground mines -----	155	8,139	8	219	163	8,358
Strip mines:						
Falls or slides of coal or overburden -----	2	22	---	1	2	23
Other falling objects -----	2	33	---	2	2	35
Falls of persons -----	1	151	---	31	1	182
Handling materials -----	1	232	---	28	1	260
Handtools -----	---	68	---	11	---	79
Stepping on objects -----	---	21	---	1	---	22
Striking or bumping -----	---	2	---	---	---	2
Haulage -----	2	135	1	20	3	155
Explosives -----	---	7	---	---	---	7
Electricity -----	1	9	---	1	1	10
Machinery -----	13	94	1	14	14	108
Mine fires -----	1	13	1	---	2	13
All other -----	2	64	---	7	2	71
Total -----	25	851	3	116	28	967

TABLE 9. - Number of injuries at coal mines in the United States, by principal causes of injury, kind of coal, and general work location, 1969--Continued

Principal causes of injury	Bituminous coal mines		Pennsylvania anthracite mines		All coal mines	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
Other surface mining: 1/						
Falls or slides of coal or overburden -----	1	2	---	---	1	2
Falls of persons -----	---	14	---	2	---	16
Handling materials -----	---	26	---	---	---	26
Handtools -----	---	3	---	2	---	5
Stepping on objects -----	---	1	---	1	---	2
Striking or bumping -----	---	2	---	---	---	2
Haulage -----	2	11	---	4	2	15
Machinery -----	---	26	---	---	---	26
Suffocation -----	---	1	---	---	---	1
All other -----	---	5	---	1	---	6
Total -----	3	91	---	10	3	101
Total, mining -----	183	9,081	11	345	194	9,426
Mechanical cleaning plants:						
Falling objects -----	---	7	---	1	---	8
Falls of persons -----	---	52	---	43	---	95
Handling materials -----	---	109	---	51	---	160
Handtools -----	---	17	---	8	---	25
Stepping on objects -----	---	6	---	3	---	9
Striking or bumping -----	---	3	---	---	---	3
Haulage -----	2	106	1	20	3	126
Explosives -----	---	1	---	---	---	1
Electricity -----	1	4	---	2	1	6
Machinery -----	4	19	1	11	5	30
Fires -----	---	1	---	---	---	1
All other -----	---	19	---	8	---	27
Total -----	7	344	2	147	9	491
Grand total -----	190	9,425	13	492	203	9,917

1/ Includes bituminous coal auger mines and anthracite culm banks and dredges.

TABLE 10. - Days of disability from injuries at coal mines in the United States, by principal causes of injury, kind of coal, and general work location, 1969

Principal causes of injury	Bituminous coal mines		Pennsylvania anthracite mines		All coal mines	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
Underground mines:						
Underground:						
Falls of roof -----	426,000	99,038	6,000	154	432,000	99,192
Falls of face or rib -----	36,000	13,990	-----	212	36,000	14,202
Pressure bumps or bursts -----	18,000	853	-----	88	18,000	941
Other falling objects -----	-----	3,640	6,000	287	6,000	3,927
Falls of persons -----	-----	15,692	6,000	1,357	6,000	17,049
Handling materials -----	6,000	67,606	-----	740	6,000	68,346
Handtools -----	-----	11,830	-----	150	-----	11,980
Stepping on objects -----	-----	4,464	-----	11	-----	4,475
Striking or bumping -----	-----	1,068	-----	5	-----	1,073
Haulage -----	192,000	105,781	-----	502	192,000	106,283
Explosions (gas or dust) -----	-----	173	6,000	168	6,000	341
Explosives -----	6,000	9,206	-----	17	6,000	9,223
Electricity -----	30,000	5,760	-----	153	30,000	5,913
Machinery -----	108,000	59,358	-----	984	108,000	60,342
Suffocation -----	-----	-----	6,000	-----	6,000	-----
Mine fires -----	-----	1,078	-----	-----	-----	1,078
All other -----	-----	2,750	-----	7	-----	2,757
Pneumoconiosis -----	-----	28,000	-----	2,000	-----	30,000
Total -----	822,000	430,287	30,000	6,835	852,000	437,122
Shaft and slope:						
Falls of roof -----	-----	126	-----	-----	-----	126
Falls of face or rib -----	-----	59	-----	-----	-----	59
Other falling objects -----	6,000	61	-----	-----	6,000	61
Falls of persons -----	12,000	293	6,000	31	18,000	324
Handling materials -----	-----	740	-----	-----	-----	740
Handtools -----	-----	191	-----	-----	-----	191
Stepping on objects -----	-----	89	-----	-----	-----	89
Haulage -----	-----	4,114	6,000	44	6,000	4,158
Electricity -----	12,000	37	-----	-----	12,000	37
Machinery -----	-----	241	-----	-----	-----	241
All other -----	-----	10	-----	-----	-----	10
Total -----	30,000	5,961	12,000	75	42,000	6,036
Total, underground -----	852,000	436,248	42,000	6,910	894,000	443,158
Surface:						
Falls or slides of coal or overburden -----	6,000	-----	-----	-----	6,000	-----
Other falling objects -----	-----	205	-----	-----	-----	205
Falls of persons -----	6,000	1,792	-----	10	6,000	1,802
Handling materials -----	6,000	8,854	-----	175	6,000	9,029
Handtools -----	-----	842	-----	32	-----	874
Stepping on objects -----	-----	43	-----	-----	-----	43
Striking or bumping -----	-----	268	-----	-----	-----	268
Haulage -----	30,000	5,272	6,000	62	36,000	5,334
Electricity -----	6,000	115	-----	-----	6,000	115
Machinery -----	24,000	6,577	-----	51	24,000	6,628
Mine fires -----	-----	19	-----	-----	-----	19
All other -----	-----	557	-----	4	-----	561
Total -----	78,000	24,544	6,000	334	84,000	24,878
Total, underground mines -----	930,000	460,792	48,000	7,244	978,000	468,036

TABLE 10. - Days of disability from injuries at coal mines in the United States, by principal causes of injury, kind of coal, and general work location, 1969--Continued

Principal causes of injury	Bituminous coal mines		Pennsylvania anthracite mines		All coal mines	
	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal
Strip mines:						
Falls or slides of coal or overburden -----	12,000	828	-----	6	12,000	834
Other falling objects -----	12,000	1,552	-----	4	12,000	1,556
Falls of persons -----	6,000	4,060	-----	542	6,000	4,602
Handling materials -----	6,000	5,676	-----	440	6,000	6,116
Handtools -----	-----	4,245	-----	79	-----	4,324
Stepping on objects -----	-----	408	-----	3	-----	411
Striking or bumping -----	-----	5	-----	-----	-----	5
Haulage -----	12,000	4,951	6,000	326	18,000	5,277
Explosives -----	-----	288	-----	-----	-----	288
Electricity -----	6,000	306	-----	15	6,000	321
Machinery -----	78,000	15,702	6,000	483	84,000	16,185
Mine fires -----	6,000	609	6,000	-----	12,000	609
All other -----	12,000	866	-----	30	12,000	896
Total -----	150,000	39,496	18,000	1,928	168,000	41,424
Other surface mining: 1/						
Falls or slides of coal or overburden -----	6,000	94	-----	-----	6,000	94
Falls of persons -----	-----	495	-----	6	-----	501
Handling materials -----	-----	888	-----	-----	-----	888
Handtools -----	-----	5	-----	7	-----	12
Stepping on objects -----	-----	2	-----	4	-----	6
Striking or bumping -----	-----	4	-----	-----	-----	4
Haulage -----	12,000	89	-----	87	12,000	176
Machinery -----	-----	2,018	-----	-----	-----	2,018
Suffocation -----	-----	1	-----	-----	-----	1
All other -----	-----	39	-----	13	-----	52
Total -----	18,000	3,635	-----	117	18,000	3,752
Total mining -----	1,098,000	503,923	66,000	9,289	1,164,000	513,212
Mechanical cleaning plants:						
Falling objects -----	-----	221	-----	1	-----	222
Falls of persons -----	-----	2,363	-----	1,686	-----	4,049
Handling materials -----	-----	3,181	-----	1,058	-----	4,239
Handtools -----	-----	514	-----	131	-----	645
Stepping on objects -----	-----	119	-----	14	-----	133
Striking or bumping -----	-----	12	-----	-----	-----	12
Haulage -----	12,000	4,601	6,000	677	18,000	5,278
Explosives -----	-----	6	-----	-----	-----	6
Electricity -----	6,000	137	-----	2	6,000	139
Machinery -----	24,000	813	6,000	669	30,000	1,482
Fires -----	-----	1	-----	-----	-----	1
All other -----	-----	183	-----	37	-----	220
Total -----	42,000	12,151	12,000	4,275	54,000	16,426
Grand total -----	1,140,000	516,074	78,000	13,564	1,218,000	529,638

1/ Includes bituminous coal auger mines and anthracite culm banks and dredges.

TABLE 11. - Average severity of all injuries at coal mines in the United States, by principal causes of injury, kind of coal, and general work location, 1969

Principal causes of injury	Bituminous coal mines	Pennsylvania anthracite mines	All coal mines
Underground mines:			
Underground:			
Falls of roof -----	420	769	422
Falls of face or rib -----	167	27	164
Pressure bumps or bursts -----	1,714	88	1,578
Other falling objects -----	32	898	82
Falls of persons -----	49	124	65
Handling materials -----	42	15	41
Handtools -----	31	8	30
Stepping on objects -----	31	3	30
Striking or bumping -----	23	5	23
Haulage -----	191	31	190
Explosions (gas or dust) -----	35	685	453
Explosives -----	214	17	211
Electricity -----	110	31	109
Machinery -----	133	38	131
Suffocation -----	---	6,000	6,000
Mine fires -----	33	---	33
All other -----	27	4	26
Pneumoconiosis -----	5,600	2,000	5,000
All causes -----	163	188	164
Shaft and slope:			
Falls of roof -----	32	---	32
Falls of face or rib -----	30	---	30
Other falling objects -----	1,212	---	1,212
Falls of persons -----	768	1,508	916
Handling materials -----	28	---	28
Handtools -----	19	---	19
Stepping on objects -----	22	---	22
Haulage -----	118	1,511	260
Electricity -----	3,009	---	3,009
Machinery -----	22	---	22
All other -----	3	---	3
All causes -----	300	1,509	375
All causes, underground -----	165	240	167
Surface:			
Falls or slides of coal or overburden -----	6,000	---	6,000
Other falling objects -----	29	---	29
Falls of persons -----	90	3	87
Handling materials -----	89	25	86
Handtools -----	25	11	24
Stepping on objects -----	4	---	4
Striking or bumping -----	134	---	134
Haulage -----	280	866	311
Electricity -----	437	---	437
Machinery -----	1,019	26	957
Mine fires -----	10	---	10
All other -----	21	4	20
All causes -----	201	275	205
All causes, underground mines -----	168	243	170

TABLE 11. - Average severity of all injuries at coal mines in the United States, by principal causes of injury, kind of coal, and general work location, 1969--Continued

Principal causes of injury	Bituminous coal mines	Pennsylvania anthracite mines	All coal mines
Strip mines:			
Falls or slides of coal or overburden -----	535	6	513
Other falling objects -----	387	2	366
Falls of persons -----	66	17	58
Handling materials -----	50	16	46
Handtools -----	62	7	55
Stepping on objects -----	19	3	19
Striking or bumping -----	3	---	3
Haulage -----	124	301	147
Explosives -----	41	---	41
Electricity -----	631	15	575
Machinery -----	876	432	821
Mine fires -----	472	6,000	841
All other -----	195	4	177
All causes -----	216	167	210
Other surface mining: 1/			
Falls or slides of coal or overburden -----	2,031	---	2,031
Falls of persons -----	35	3	31
Handling materials -----	34	---	34
Handtools -----	2	4	2
Stepping on objects -----	2	4	3
Striking or bumping -----	2	---	2
Haulage -----	930	22	716
Machinery -----	78	---	78
Suffocation -----	1	---	1
All other -----	8	13	9
All causes -----	230	12	209
Mining average, all causes -----			
	173	211	174
Mechanical cleaning plants:			
Falling objects -----	32	1	28
Falls of persons -----	45	39	43
Handling materials -----	29	21	26
Handtools -----	30	16	26
Stepping on objects -----	20	5	15
Striking or bumping -----	4	---	4
Haulage -----	154	318	180
Explosives -----	6	---	6
Electricity -----	1,227	1	877
Machinery -----	1,079	556	899
Fires -----	1	---	1
All other -----	10	5	8
All causes -----	154	109	141
Industry average, all causes -----			
	172	181	173

1/ Includes bituminous coal auger mines and anthracite culm banks and dredges.

TABLE 12. - Number and average severity of injuries at coal mines in the United States, by kind of coal, detailed causes of injury, general work location, and degree of injury, 1969-Continued

Causes of injury and general work location	Bituminous coal mines						Pennsylvania anthracite mines						All coal mines						
	Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity			
	Fatal	Permanent Total	Temporary total	All in-juries total	Permanent partial	Temporary total	Fatal	Permanent Total	Temporary total	All in-juries total	Permanent partial	Temporary total	Fatal	Permanent Total	Temporary total	All in-juries total	Permanent partial	Temporary total	
UNDERGROUND MINES--Continued																			
Underground--Continued																			
Explosives and breaking agents:																			
Insufficient ventilation																			
Premature shot or blast																			
Spot breaking through rib or pillar																			
Flying fragments																			
Suffocation from explosives smoke																			
Caps or detonators																			
Airdox																			
All other																			
Electricity (including sparks or flames):																			
Trolley wire or pole																			
Pneumatics, generators, etc.																			
Transmission or permanent power or lighting circuits																			
Locomotives or shuttle cars																			
Mining or loading machines																			
Cutout switches or junction boxes																			
Cables on mobile or portable machinery and haulage equipment																			
All other																			
Machinery:																			
While moving mining machines																			
While setting up mining machines																			
While operating mining machines																			
Belt conveyors																			
Chain, bucket, and shaker conveyors																			
Loading machines (including self-loading heads)																			
While moving loading machines or self-loading heads																			
While setting up loading machines																			
While operating loading machines																			
Power drills for installing roof bolts																			
Power equipment (except drills) used for installing roof bolts																			
While moving any machine except mining and loading machines																			
Flying particles set in motion by machinery (except self-loading machinery)																			
Bolt-cutting equipment																			
While moving, setting up, or operating continuous-mining machines																			
While moving, setting up, or operating longwall mining machines																			
Falls of roof or face from machinery																			
Knocking out support																			
All other (no flames or smoldering):																			
Suffocation (no flames or smoldering):																			
Mine fires and suffocation from fires:																			
Mine fires:																			
Belt conveyors																			
Equipment or material																			
Burning or exploding oil, gasoline, etc.																			
Miscellaneous causes:																			
Flying particles from draft or wind																			
Flashes or flying particles																			
Irritations or burns from battery fluid or corrosive materials																			
Burns from controlled fires																			
All other																			
Pneumoconiosis																			
Total or average, underground	137	10	143	7,375	574	39	163	5	2	189	1,100	25	188	142	10	145	7,564	581	39

TABLE 12. - Number and average severity of injuries at coal mines in the United States, by kind of coal, detailed causes of injury, general work location, and degree of injury, 1969--Continued

Causes of injury and general work location	Bituminous coal mines										Pennsylvania anthracite mines										All coal mines									
	Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity								
	Fatal	Permanent		Temporarily total	All injuries	Temporarily total	Permanent	Fatal	Temporarily total	Permanent	Fatal	Temporarily total	Permanent	Fatal	Temporarily total	Permanent	Fatal	Temporarily total	Permanent	Fatal	Temporarily total	Permanent	Fatal	Temporarily total	Permanent	Fatal	Temporarily total	Permanent		
		Total	Partial																										Temporary partial	Temporary partial
UNDERGROUND MINES--Continued																														
Shaft and slope:																														
Falls of roof:																														
While setting or pulling timbers or props																														
While preparing or installing roof bolts																														
All other																														
Falls of face or rib:																														
While preparing or installing roof bolts																														
Other falling materials or objects:																														
Falling cages																														
Sliding chocks:																														
On same level:																														
While escaping another hazard																														
While handling materials																														
All other																														
From an elevation:																														
While handling materials																														
While operating or moving machinery																														
Down shaft or slope																														
Due to failure of scaffolds, ladders,																														
All other																														
Handling materials:																														
Props, ties, or timbers																														
Coal																														
Rock or slate																														
Wire or wire ropes																														
All other																														
Handtools																														
Slipping or kneeling on sharp or loose objects																														
Stepping on nails or other sharp objects																														
Stepping on Loose objects																														
Knee or hand injuries while working on all fours																														
Railage:																														
Struck, run over, or squeezed between cars or motors:																														
Coupling or uncoupling																														
Operating or riding																														
Pushing or pulling																														
Squeezed between car or motor and rib, timber, or roof:																														
Operating or riding																														
Rerolling																														
Falling, slipping, or jumping in or from cars or motors																														
Miscellaneous haulage:																														
Coupling or uncoupling																														
Pushing or pulling																														
Riding																														
Belts																														
Shuttle cars or mobile electric trucks:																														
Squeezed between shuttle car or mobile electric trucks and roof, rib, machine, etc.																														
All other																														
Electricity (including sparks or flashes):																														
Permanent or semi-permanent power or equipment																														
Locomotives or shuttle cars																														
All other																														
Machinery:																														
Belt conveyors																														
Loading machines (including self-loading heads)																														
Power drills (except for roof bolting)																														
Power drills for installing roof bolts																														
While moving any machines except mining machines																														
Flying particles from machines																														
Machinery in motion by																														
All other																														

TABLE 12. - Number and average severity of injuries at coal mines in the United States, by kind of coal, detailed causes of injury, general work location, and degree of injury, 1959--Continued

Causes of injury and general work location	Bituminous coal mines										Pennsylvania anthracite mines										All coal mines									
	Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity								
	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial	Fatal	Permanent Total	Temporary partial						
Machinery:																														
Chain conveyors	1	1	5	4,500	41	1,529																								
Chute bucket			7		34	74																								
Scraper conveyors			16		24	471																								
Power drills	2	2	30	480	50	1,232																								
Stationary surface machinery	1					6,000																								
While moving any machine except mining and loading machines	1	1	5	940	12	1,000																								
Flying particles set in motion by machinery			8		26	26																								
All other		4	8	290	12	85																								
Miscellaneous causes:			3		133	133																								
Burning or suffocation from fires:			10		21	565																								
Burnings or exploding oil, gasoline, etc.	1																													
Miscellaneous causes:			4		8	8																								
Flying particles from draft or wind			32		8	8																								
Acetylene or electric welding (burns, flashes, or flying particles)			2		5	5																								
Irritations or burns from battery fluid or corrosive materials			11		10	10																								
Burns from controlled fires	2		15		31	733																								
All other																														
Total or average, strip mines	25	1	17	833	25	216	3	1	115	75	16	167	28	1	16	948	692	24	210											
AUGER MINES																														
Falls of coal or overburden	1		2		47	2,031																								
Slips or falls of persons:																														
On same level:			4		7	7																								
While handling materials			4		5	5																								
While operating or moving machinery			1		13	13																								
All other			5		87	87																								
From an elevation:			9		34	34																								
While operating or moving machinery			17		34	34																								
Handling materials																														
All other																														
Wire or wire ropes																														
All other																														
Handtools:																														
Flying particles from handtools or objects worked on			2		1	1																								
All other			3		3	3																								
Stepping or kneeling on sharp or loose objects			1		2	2																								
Shedders			2		2	2																								
Haulage or bumping against objects			2		4	4																								
Ropes or cables on haulage			9		9	1,098																								
Trucks, tractors, or automobiles, etc.																														
Machinery:																														
Belt conveyors			1	1,740		1,740																								
While moving any machine except mining and loading machines			3		17	17																								
Flying particles set in motion by machinery			21		11	11																								
Sifters, other than those for cleaning or smelting			1		1	1																								
Miscellaneous causes:			4		8	8																								
Acetylene or electric welding (burns, flashes, or flying particles)			1		6	6																								
All other																														
Total or average, super mines	3	1	90	1,740	21	230	3	1	110	75	16	167	28	1	16	948	692	24	210											
CUIM BANKS																														
Slips or falls of persons																														
Handtools																														
Bumpers or kneeling on sharp or loose objects																														
Haulage																														
Miscellaneous causes:																														
Burns from controlled fires																														
Total or average, culm banks																														
DREDGES																														
All causes																														
Total or average, mining	183	11	176	8,894	37	173	11	3	342	758	21	211	194	11	179	9,236	614	37	174											

TABLE 12. - Number and average severity of injuries at coal mines in the United States, by kind of coal, detailed causes of injury, general work location, and degree of injury, 1959--Continued

Causes of injury and general work location	Bituminous coal mines										Pennsylvania anthracite mines										All coal mines									
	Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity			Number of injuries			Average severity								
	Fatal	Permanent Total	Temporary total	Permanent partial	Temporary total	All injuries	Fatal	Permanent Total	Temporary total	Permanent partial	Temporary total	All injuries	Fatal	Permanent Total	Temporary total	Permanent partial	Temporary total	All injuries	Fatal	Permanent Total	Temporary total	Permanent partial	Temporary total	All injuries						
MECHANICAL CLEANING PLANTS																														
Falling materials or objects:--																														
Rolling, shifting, or sliding material			2			1																								
Falling equipment or machinery under repair			2			52																								
Slips or falls of persons:			3			39																								
On same level:																														
While handling materials			12			27																								
From handtools slipping or breaking			8			57																								
All other			4			75																								
From an elevation:																														
While escaping another hazard			15			43																								
While handling materials																														
From handtools slipping or breaking			3			13																								
From machinery			8			79																								
Due to failure of scaffolds, ladders, etc.			5			19																								
All other			1			31																								
Handling materials:																														
Props, ties, or lumber			5			17																								
Coal			6			18																								
Rock or slate			2			22																								
Rails			1			30																								
Wire-rope ropes			2			52																								
Flying particles from handling materials			7			5																								
All other			1			31																								
Handtools:																														
Hammers or sledges			4			14																								
Crowbars or bars			3			39																								
Shovels			1			38																								
All tools in hands of coworkers																														
Flying particles from handtools or objects worked on			3			56																								
All other			6			23																								
Stepping or kneeling on sharp or loose objects:																														
Stepping on nails or other sharp objects			5			17																								
Stepping on loose objects																														
Knee or hand injuries while working on all fours			3			36																								
Striking or bumping against objects																														
Haillage:																														
Mine-trape haulage			1			63																								
Mine-trape haulage			18			150																								
Steady-gage haulage (railway)			3			38																								
Trucks, tractors, automobiles, etc.			60			39																								
Water transportation			12			32																								
Explosives and breaking agents:																														
Caps or detonators			1			6																								
Electricity:																														
Trolley wire or pole			1			1																								
Permanent or semi-permanent power or lightning rods																														
Overhead cables or junction boxes			3			45																								
All other			1			6,000																								
Machinery:																														
Belt conveyors			8			60																								
Chain, bucket, or shaker conveyors			2			6,000																								
Scraper conveyors																														
Power shovels, draglines, bulldozers, etc.			2			23																								
Stationary surface machinery			2			5																								
Flying particles set in motion by machinery			3			13																								
All other			1			1																								
Miscellaneous causes:																														
Miscellaneous causes:																														
Acetylene or electric welding (burns, flashes, or flying particles)			5			3																								
Irritations or burns from battery fluid or corrosive materials			4			6																								
Burns from controlled fires			7			10																								
All other																														
Total or average, mechanical cleaning plants	7	--	4	340	120	34	154	2	1	146	50	29	109	9	5	486	106	33	141											
Grand total or average	190	11	180	9,234	600	37	172	13	4	488	981	83	181	203	11	1,984	600	36	173											

TABLE 13. - Number and average severity of injuries at bituminous coal mines, by occupation 1/
at the time of injury, general work location, and degree of injury, 1969

Occupation at time of injury and general work location	Number of injuries					All in- juries	Distri- bution of all inju- ries, per- cent	Average severity		
	Fatal	Nonfatal			Total non- fatal			Perma- nent partial	Tem- porary total	All in- juries
		Permanent		Tem- porary total						
		Total	Partial							
Underground mines:										
Underground (including shaft and slope):										
At or near face:										
Coal drillers (machine and hand) -----	4	1	---	124	125	129	1.8	-----	34	265
Continuous miner operators	16	1	6	367	374	390	5.5	1,654	46	331
Cutting-machine operators - Hand loaders (to car or conveyor) -----	3	1	4	324	329	332	4.7	143	40	113
Hand or pick miners -----	2	2	2	83	87	89	1.2	188	37	309
Loading machine operators - Longwall crew -----	1	--	---	22	23	23	.3	-----	42	301
Roof bolters -----	16	1	8	530	539	555	7.8	431	53	240
Shot firers -----	---	--	5	85	90	90	1.3	114	34	38
Timbermen and jacksitters - Haulage activities:	21	--	27	1,064	1,091	1,112	15.6	335	36	156
Belt and boom operators and crews -----	5	1	2	180	183	188	2.6	1,530	35	241
Brakemen -----	3	--	2	303	305	308	4.3	1,700	47	116
Car droppers and dumpers, and cagemen -----	2	--	5	285	290	292	4.1	163	37	80
Motormen -----	4	--	3	49	52	56	.8	163	49	480
Shuttle car operators -----	2	--	---	31	31	33	.5	-----	20	382
Trackmen, bonders and wiredmen -----	10	1	19	326	346	356	5.0	552	34	246
Tractor and truck operators	9	--	13	761	774	783	11.0	682	36	115
General:	2	--	1	146	147	149	2.1	100	35	116
Electricians -----	---	--	1	25	26	26	.4	60	31	32
Laborers and move crews ---	1	--	2	228	230	231	3.2	125	30	57
Machinists -----	10	2	10	663	675	685	9.6	827	35	151
Mechanics, oilers and greasers -----	---	--	---	18	18	18	.3	-----	23	23
Pumpmen -----	5	--	13	379	392	397	5.6	651	33	128
Rock dusters -----	1	--	3	28	31	32	.4	300	32	244
Supplymen -----	---	--	---	41	41	41	.6	-----	44	44
Ventilation men -----	1	--	3	164	167	168	2.4	152	31	68
Supervisory and technical:	1	--	---	50	50	51	.7	-----	166	280
Superintendent, mine foremen and assistants ---	---	--	2	49	51	51	.7	2,280	37	125
Working foremen, crew leaders and fire bosses --	19	--	8	387	395	414	5.8	688	38	324
All other supervisory and technical -----	---	--	---	13	13	13	.2	-----	21	21
Other, not elsewhere classified -----	3	--	2	103	105	108	1.5	1,650	32	228
Not stated -----	1	--	3	661	664	665	----	733	39	51
Total or average -----	142	10	144	7,489	7,643	7,785	----	591	39	165
Surface:										
Haulage:										
Belt operators and crew ---	1	--	1	10	11	12	2.5	200	9	524
Brakemen -----	---	--	---	5	5	5	1.1	-----	27	27
Car droppers, dumpers, and trimmers -----	---	--	---	21	21	21	4.4	-----	33	33
Motormen -----	---	--	2	30	32	32	6.7	508	23	54
Shuttle car operators -----	2	--	1	11	12	14	2.9	300	344	1,149
Tipple operators -----	2	--	---	23	23	25	5.2	-----	11	490
Trackmen -----	---	--	---	8	8	8	1.7	-----	29	29
Truck drivers -----	1	--	---	23	23	24	5.0	-----	31	279
General:										
Bulldozer, grader, and other mobile equipment operators	1	--	---	18	18	19	4.0	-----	344	344
Carpenters and timbermen --	---	--	---	10	10	10	2.1	-----	18	18
Cutting-machine operators -	---	--	---	2	2	2	.4	-----	25	25
Electricians -----	---	--	---	30	30	30	6.3	-----	32	32
Laborers -----	3	--	1	86	87	90	18.8	4,500	31	279
Machinists -----	---	--	---	9	9	9	1.9	-----	20	20
Mechanics -----	---	--	4	49	53	53	11.1	121	21	29
Supplymen -----	---	--	---	24	24	24	5.0	-----	30	30
Welders -----	---	--	2	15	17	17	3.5	563	15	80

TABLE 13. - Number and average severity of injuries at bituminous coal mines, by occupation ^{1/}
at the time of injury, general work location, and degree of injury, 1969--Continued

Occupation at time of injury and general work location	Number of injuries						Distri- bution of all inju- ries, per- cent	Average severity		
	Fatal	Nonfatal				All in- juries		Perma- nent partial	Tem- porary total	All in- juries
		Permanent		Tem- porary total	Total non- fatal					
		Total	Partial							
Underground mines--Continued:										
Surface--Continued:										
Supervisory and technical:										
Superintendent and assistants -----	1	--	---	4	4	5	1.0	-----	17	1,214
Working foremen -----	---	--	1	16	17	17	3.5	300	25	41
All other supervisory and technical -----	---	--	---	3	3	3	.6	-----	20	20
Other, not elsewhere classified -----	2	--	2	55	57	59	12.3	200	34	241
Not stated -----	---	--	---	30	30	30	-----	-----	24	24
Total or average -----	13	--	14	482	496	509	-----	595	34	201
Total or average, underground mines -----	155	10	158	7,971	8,139	8,294	-----	591	39	168
Strip mines:										
Bulldozer, grader, and other mobile equipment operators ---	6	--	2	95	97	103	13.6	520	23	404
Car dumpers and droppers -----	2	--	---	12	12	14	1.8	-----	25	878
Drillers -----	3	--	---	41	41	44	5.8	-----	26	433
Electricians -----	1	--	---	22	22	23	3.0	-----	22	282
Groundmen or pitmen -----	---	--	1	26	27	27	3.6	300	33	43
Laborers -----	1	--	4	87	91	92	12.2	800	27	125
Machinists -----	---	--	---	2	2	2	.3	-----	19	19
Mechanics -----	---	--	1	59	60	60	7.9	75	16	17
Oilers and greasers -----	6	1	1	81	83	89	11.8	200	26	497
Power shovel and dragline operators -----	5	--	1	33	34	39	5.2	150	21	791
Pumpmen -----	---	--	---	7	7	7	.9	-----	11	11
Shot firers -----	---	--	1	24	25	25	3.3	200	29	36
Supervisory and technical:										
Superintendent and assistants -----	---	--	1	6	7	7	.9	940	25	155
Working foremen -----	1	--	---	20	20	21	2.8	-----	20	305
Tipple operators -----	---	--	---	21	21	21	2.8	-----	51	51
Truck drivers -----	---	--	---	73	73	73	9.7	-----	26	26
Welders -----	---	--	1	71	72	72	9.5	600	24	32
Other, not elsewhere classified -----	---	--	2	35	37	37	4.9	2,280	19	141
Not stated -----	---	--	2	118	120	120	-----	560	30	39
Total or average -----	25	1	17	833	851	876	-----	729	25	216
Auger mines:										
Auger operators -----	1	--	---	25	25	26	54.2	-----	20	250
Bulldozer, grader, and other mobile equipment operators ---	1	--	---	3	3	4	8.3	-----	5	1,504
Laborers -----	---	--	---	5	5	5	10.4	-----	34	34
Mechanics -----	---	--	---	1	1	1	2.1	-----	20	20
Supervisory and technical -----	1	--	---	2	2	3	6.2	-----	10	2,006
Truck drivers -----	---	--	---	3	3	3	6.2	-----	5	5
Other, not elsewhere classified -----	---	--	1	5	6	6	12.5	1,740	21	307
Not stated -----	---	--	---	46	46	46	-----	-----	23	23
Total or average -----	3	--	1	90	91	94	-----	1,740	21	230
Mechanical cleaning plants:										
Belt operators -----	---	--	---	2	2	2	.6	-----	90	90
Bulldozer, grader, and other mobile equipment operators ---	1	--	---	9	9	10	3.0	-----	43	638
Car droppers, dumpers and trimmers -----	---	--	---	63	63	63	18.7	-----	37	37
Cleaning equipment operators --	1	--	---	20	20	21	6.2	-----	36	320
Electricians -----	---	--	---	4	4	4	1.2	-----	15	15
Laborers -----	1	--	2	58	60	61	18.1	100	27	127
Mechanics, oilers and greasers -----	2	--	1	54	55	57	16.9	100	40	251
Motormen -----	---	--	---	6	6	6	1.8	-----	17	17
Supervisory and technical -----	---	--	---	14	14	14	4.1	-----	25	25
Supplymen -----	---	--	---	8	8	8	2.4	-----	29	29
Tipple operators -----	1	--	1	38	39	40	11.9	180	32	185
Truck drivers -----	---	--	---	14	14	14	4.1	-----	28	28
Welders -----	1	--	---	13	13	14	4.1	-----	17	444
Other, not elsewhere classified -----	---	--	---	23	23	23	6.8	-----	54	54
Not stated -----	---	--	---	14	14	14	-----	-----	34	34
Total or average -----	7	--	4	340	344	351	-----	120	34	154
Grand total -----	190	11	180	9,234	9,425	9,615	-----	600	37	172

^{1/} For those listed occupations which generally have "helpers" assigned, the injuries to the "helpers" are included with those to the operator or principal.

TABLE 14. - Number and average severity of injuries at Pennsylvania anthracite mines, by occupation ^{1/} at the time of injury, general work location, and degree of injury, 1969

Occupation at time of injury and general work location	Number of injuries					Distribution of all injuries, percent	Average severity			
	Fatal	Nonfatal		All in-juries	All in-juries		Perma-nent partial	Tem-porary total	All in-juries	
		Permanent	Tem-porary total							Total non-fatal
	Total	Partial								
Underground mines:										
Underground (including shaft and slope):										
Hand or pick miners -----	4	-	-	92	92	96	51.9	-----	24	273
Laborers -----	1	-	-	65	65	66	35.7	-----	18	108
Motormen -----	-	-	1	2	3	3	1.6	200	23	82
Supervisory and technical ---	2	-	-	8	8	10	5.4	-----	37	1,230
Ventilation men -----	-	-	-	3	3	3	1.6	-----	9	9
Other, not elsewhere classified -----	-	-	-	7	7	7	3.8	-----	37	37
Not stated -----	-	-	1	18	19	19	-----	2,000	41	144
Total or average -----	7	-	2	195	197	204	-----	1,100	24	240
Surface:										
Electricians -----	-	-	-	1	1	1	4.8	-----	42	42
Laborers -----	-	-	-	9	9	9	42.8	-----	13	13
Mechanics -----	-	-	-	6	6	6	28.6	-----	13	13
Supervisory and technical ---	1	-	-	-	-	1	4.8	-----	--	6,000
Other, not elsewhere classified -----	-	-	-	4	4	4	19.0	-----	14	14
Not stated -----	-	-	-	2	2	2	-----	-----	21	21
Total or average -----	1	-	-	22	22	23	-----	-----	15	275
Total or average, underground mines -----	8	-	2	217	219	227	-----	1,100	23	243
Strip mines:										
Bulldozers, graders, and other mobile equipment operators ---	-	-	-	8	8	8	7.3	-----	9	9
Drillers -----	-	-	-	10	10	10	9.1	-----	24	24
Electricians -----	-	-	-	3	3	3	2.7	-----	40	40
Laborers -----	-	-	1	6	7	7	6.4	75	20	28
Mechanics -----	-	-	-	13	13	13	11.8	-----	9	9
Oilers and greasers -----	2	-	-	15	15	17	15.5	-----	28	731
Power shovel and dragline operators -----	-	-	-	11	11	11	10.0	-----	17	17
Shot firers -----	-	-	-	1	1	1	.9	-----	1	1
Supervisory and technical ---	-	-	-	3	3	3	2.7	-----	6	6
Truck drivers and spotters ---	-	-	-	15	15	15	13.6	-----	14	14
Welders -----	1	-	-	11	11	12	10.9	-----	8	507
Other, not elsewhere classified -----	-	-	-	10	10	10	9.1	-----	17	17
Not stated -----	-	-	-	9	9	9	-----	-----	11	11
Total or average -----	3	-	1	115	116	119	-----	75	16	167
Culm banks:										
Truck drivers -----	-	-	-	3	3	3	-----	-----	24	24
Other, not elsewhere classified -----	-	-	-	7	7	7	-----	-----	6	6
Total or average -----	-	-	-	10	10	10	-----	-----	12	12
Dredges -----										
Mechanical cleaning plants:										
Car droppers and dumpers -----	-	-	-	10	10	10	6.9	-----	59	59
Carpenters -----	-	-	-	4	4	4	2.8	-----	44	44
Cleaning equipment operators --	-	-	-	8	8	8	5.5	-----	44	44
Electricians -----	-	-	-	4	4	4	2.8	-----	43	43
Laborers -----	-	-	-	57	57	57	39.3	-----	16	16
Mechanics -----	-	-	-	10	10	10	6.9	-----	26	26
Supervisory and technical ---	-	-	-	3	3	3	2.0	-----	27	27
Truck drivers -----	1	-	-	9	9	10	6.9	-----	17	615
Welders -----	-	-	-	11	11	11	7.6	-----	27	27
Other, not elsewhere classified -----	1	-	1	26	27	28	19.3	50	37	250
Not stated -----	-	-	-	4	4	4	-----	-----	72	72
Total or average -----	2	-	1	146	147	149	-----	50	29	109
Grand total or average -----	13	-	4	488	492	505	-----	581	23	181

^{1/} For those listed occupations which generally have "helpers" assigned, the injuries to the "helpers" are included with those to the operator or principal.

TABLE 15. - Time of day of occurrence of injuries
at bituminous coal operations in 1969 ^{1/}

Time of day	Fatal	Nonfatal				All injuries	Distribution of all injuries, percent
		Permanent		Temporary total	Total non-fatal		
		Total	Partial				
Underground mines:							
Underground (including shaft and slope):							
12 Midnight - 12:59 A.M.	4	-	4	89	93	97	1.5
1:00 A.M. - 1:59 A.M.	4	-	4	154	158	162	2.6
2:00 A.M. - 2:59 A.M.	3	1	4	184	189	192	3.1
3:00 A.M. - 3:59 A.M.	5	-	1	194	195	200	3.2
4:00 A.M. - 4:59 A.M.	4	-	1	163	164	168	2.7
5:00 A.M. - 5:59 A.M.	---	-	3	148	151	151	2.4
6:00 A.M. - 6:59 A.M.	5	-	7	155	162	167	2.7
7:00 A.M. - 7:59 A.M.	6	-	8	178	186	192	3.1
8:00 A.M. - 8:59 A.M.	5	-	5	211	216	221	3.5
9:00 A.M. - 9:59 A.M.	5	1	7	347	355	360	5.7
10:00 A.M. - 10:59 A.M.	8	-	9	456	465	473	7.5
11:00 A.M. - 11:59 A.M.	7	1	7	372	380	387	6.2
12:00 Noon - 12:59 P.M.	6	-	3	214	217	223	3.6
1:00 P.M. - 1:59 P.M.	11	-	7	355	362	373	6.0
2:00 P.M. - 2:59 P.M.	17	-	8	429	437	454	7.2
3:00 P.M. - 3:59 P.M.	6	1	6	239	246	252	4.0
4:00 P.M. - 4:59 P.M.	7	-	6	214	220	227	3.6
5:00 P.M. - 5:59 P.M.	3	-	8	250	258	261	4.2
6:00 P.M. - 6:59 P.M.	5	-	6	296	302	307	4.9
7:00 P.M. - 7:59 P.M.	7	1	6	305	312	319	5.1
8:00 P.M. - 8:59 P.M.	9	1	4	278	283	292	4.7
9:00 P.M. - 9:59 P.M.	5	-	5	273	278	283	4.5
10:00 P.M. - 10:59 P.M.	5	-	9	291	300	305	4.9
11:00 P.M. - 11:59 P.M.	5	-	5	187	192	197	3.1
Total -----	142	6	133	5,982	6,121	6,263	----
Surface:							
12 Midnight - 12:59 A.M.	---	-	---	6	6	6	1.4
1:00 A.M. - 1:59 A.M.	---	-	---	5	5	5	1.2
2:00 A.M. - 2:59 A.M.	---	-	---	6	6	6	1.4
3:00 A.M. - 3:59 A.M.	---	-	1	1	2	2	.5
4:00 A.M. - 4:59 A.M.	---	-	---	1	1	1	.2
5:00 A.M. - 5:59 A.M.	---	-	---	4	4	4	1.0
6:00 A.M. - 6:59 A.M.	---	-	1	7	8	8	1.9
7:00 A.M. - 7:59 A.M.	---	-	2	17	19	19	4.5
8:00 A.M. - 8:59 A.M.	1	-	---	33	33	34	8.1
9:00 A.M. - 9:59 A.M.	2	-	1	26	27	29	7.9
10:00 A.M. - 10:59 A.M.	2	-	2	42	44	46	10.9
11:00 A.M. - 11:59 A.M.	---	-	1	33	34	34	8.1
12:00 Noon - 12:59 P.M.	---	-	---	16	16	16	3.8
1:00 P.M. - 1:59 P.M.	1	-	---	27	27	28	6.7
2:00 P.M. - 2:59 P.M.	3	-	1	39	40	43	10.2
3:00 P.M. - 3:59 P.M.	1	-	---	35	35	36	8.6
4:00 P.M. - 4:59 P.M.	1	-	1	21	22	23	5.5
5:00 P.M. - 5:59 P.M.	1	-	---	15	15	16	3.8
6:00 P.M. - 6:59 P.M.	---	-	1	7	8	8	1.9
7:00 P.M. - 7:59 P.M.	1	-	---	11	11	12	2.9
8:00 P.M. - 8:59 P.M.	---	-	---	11	11	11	2.6
9:00 P.M. - 9:59 P.M.	---	-	1	10	11	11	2.6
10:00 P.M. - 10:59 P.M.	---	-	---	10	10	10	2.4
11:00 P.M. - 11:59 P.M.	---	-	---	12	12	12	2.9
Total -----	13	-	12	395	407	420	----
Total, underground mines -----	155	6	145	6,377	6,528	6,683	----

See footnote at end of table.

TABLE 15. - Time of day of occurrence of injuries
at bituminous coal operations in 1969 1/--Continued

Time of day	Fatal	Nonfatal			All injuries	Distribution of all injuries, percent	
		Permanent		Temporary total			
		Total	Partial				
Strip mines:							
12 Midnight - 12:59 A.M.	---	-	1	5	6	6	0.8
1:00 A.M. - 1:59 A.M.	1	-	1	15	16	17	2.4
2:00 A.M. - 2:59 A.M.	---	-	---	11	11	11	1.5
3:00 A.M. - 3:59 A.M.	---	-	---	5	5	5	.7
4:00 A.M. - 4:59 A.M.	---	-	1	8	9	9	1.3
5:00 A.M. - 5:59 A.M.	---	-	---	11	11	11	1.5
6:00 A.M. - 6:59 A.M.	2	-	---	9	9	11	1.5
7:00 A.M. - 7:59 A.M.	---	-	1	29	30	30	4.1
8:00 A.M. - 8:59 A.M.	---	-	---	39	39	39	5.4
9:00 A.M. - 9:59 A.M.	---	-	3	60	63	63	8.7
10:00 A.M. - 10:59 A.M.	1	1	---	73	74	75	10.3
11:00 A.M. - 11:59 A.M.	3	-	2	51	53	56	7.7
12:00 Noon - 12:59 A.M.	4	-	---	29	30	34	4.7
1:00 P.M. - 1:59 P.M.	---	-	1	58	59	59	8.1
2:00 P.M. - 2:59 P.M.	4	-	3	63	66	70	9.7
3:00 P.M. - 3:59 P.M.	4	-	1	48	49	53	7.3
4:00 P.M. - 4:59 P.M.	2	-	---	31	31	33	4.6
5:00 P.M. - 5:59 P.M.	1	-	---	23	23	24	3.3
6:00 P.M. - 6:59 P.M.	1	-	---	18	18	19	2.6
7:00 P.M. - 7:59 P.M.	1	-	---	14	14	15	2.1
8:00 P.M. - 8:59 P.M.	---	-	1	21	22	22	3.0
9:00 P.M. - 9:59 P.M.	1	-	---	19	19	20	2.8
10:00 P.M. - 10:59 P.M.	---	-	---	27	27	27	3.7
11:00 P.M. - 11:59 P.M.	---	-	---	16	16	16	2.2
Total -----	25	1	16	683	700	725	----
Auger mines:							
12 Midnight - 12:59 A.M.	---	-	---	---	---	---	---
1:00 A.M. - 1:59 A.M.	---	-	---	---	---	---	---
2:00 A.M. - 2:59 A.M.	---	-	---	---	---	---	---
3:00 A.M. - 3:59 A.M.	---	-	---	---	---	---	---
4:00 A.M. - 4:59 A.M.	---	-	---	---	---	---	---
5:00 A.M. - 5:59 A.M.	---	-	---	---	---	---	---
6:00 A.M. - 6:59 A.M.	---	-	---	---	---	---	---
7:00 A.M. - 7:59 A.M.	---	-	1	3	4	4	9.3
8:00 A.M. - 8:59 A.M.	---	-	---	3	3	3	7.0
9:00 A.M. - 9:59 A.M.	1	-	---	2	2	3	7.0
10:00 A.M. - 10:59 A.M.	---	-	---	3	3	3	7.0
11:00 A.M. - 11:59 A.M.	---	-	---	4	4	4	9.3
12:00 Noon - 12:59 P.M.	---	-	---	2	2	2	4.7
1:00 P.M. - 1:59 P.M.	---	-	---	7	7	7	16.2
2:00 P.M. - 2:59 P.M.	1	-	---	3	3	4	9.3
3:00 P.M. - 3:59 P.M.	---	-	---	2	2	2	4.7
4:00 P.M. - 4:59 P.M.	---	-	---	5	5	5	11.6
5:00 P.M. - 5:59 P.M.	---	-	---	4	4	4	9.3
6:00 P.M. - 6:59 P.M.	---	-	---	1	1	1	2.3
7:00 P.M. - 7:59 P.M.	---	-	---	---	---	---	---
8:00 P.M. - 8:59 P.M.	---	-	---	---	---	---	---
9:00 P.M. - 9:59 P.M.	---	-	---	---	---	---	---
10:00 P.M. - 10:59 P.M.	---	-	---	---	---	---	---
11:00 P.M. - 11:59 P.M.	1	-	---	---	---	1	2.3
Total -----	3	-	1	39	40	43	----
Total mining -----	183	7	162	7,099	7,268	7,451	----

See footnote at end of table.

TABLE 15. - Time of day of occurrence of injuries
at bituminous coal operations in 1969 ^{1/}---Continued

Time of day	Fatal	Nonfatal			All injuries	Distribution of all injuries, percent	
		Permanent		Temporary total			Total non-fatal
		Total	Partial				
Mechanical cleaning plants:							
12 Midnight - 12:59 A.M.	---	-	---	7	7	7	2.3
1:00 A.M. - 1:59 A.M.	---	-	---	5	5	5	1.7
2:00 A.M. - 2:59 A.M.	---	-	---	7	7	7	2.3
3:00 A.M. - 3:59 A.M.	---	-	---	7	7	7	2.3
4:00 A.M. - 4:59 A.M.	---	-	---	9	9	9	3.0
5:00 A.M. - 5:59 A.M.	1	-	---	6	6	7	2.3
6:00 A.M. - 6:59 A.M.	---	-	---	5	5	5	1.7
7:00 A.M. - 7:59 A.M.	---	-	---	5	5	5	1.7
8:00 A.M. - 8:59 A.M.	---	-	1	12	13	13	4.3
9:00 A.M. - 9:59 A.M.	1	-	1	18	19	20	6.7
10:00 A.M. - 10:59 A.M.	---	-	---	33	33	33	11.0
11:00 A.M. - 11:59 A.M.	---	-	1	15	16	16	5.4
12:00 Noon - 12:59 P.M.	---	-	---	9	9	9	3.0
1:00 P.M. - 1:59 P.M.	---	-	---	19	19	19	6.4
2:00 P.M. - 2:59 P.M.	3	-	---	21	21	24	8.0
3:00 P.M. - 3:59 P.M.	1	-	---	10	10	11	3.7
4:00 P.M. - 4:59 P.M.	---	-	1	7	8	8	2.7
5:00 P.M. - 5:59 P.M.	1	-	---	13	13	14	4.7
6:00 P.M. - 6:59 P.M.	---	-	---	7	7	7	2.3
7:00 P.M. - 7:59 P.M.	---	-	---	14	14	14	4.7
8:00 P.M. - 8:59 P.M.	---	-	---	16	16	16	5.4
9:00 P.M. - 9:59 P.M.	---	-	---	11	11	11	3.7
10:00 P.M. - 10:59 P.M.	---	-	---	13	13	13	4.3
11:00 P.M. - 11:59 P.M.	---	-	---	19	19	19	6.4
Total -----	7	-	4	288	292	299	----
All work locations:							
12 Midnight - 12:59 A.M.	4	-	5	107	112	116	1.5
1:00 A.M. - 1:59 A.M.	5	-	5	179	184	189	2.4
2:00 A.M. - 2:59 A.M.	3	1	4	208	213	216	2.8
3:00 A.M. - 3:59 A.M.	5	-	2	207	209	214	2.8
4:00 A.M. - 4:59 A.M.	4	-	2	181	183	187	2.4
5:00 A.M. - 5:59 A.M.	1	-	3	169	172	173	2.2
6:00 A.M. - 6:59 A.M.	7	-	8	176	184	191	2.5
7:00 A.M. - 7:59 A.M.	6	-	12	232	244	250	3.2
8:00 A.M. - 8:59 A.M.	6	-	6	298	304	310	4.0
9:00 A.M. - 9:59 A.M.	9	1	12	453	466	475	6.1
10:00 A.M. - 10:59 A.M.	11	1	11	607	619	630	8.1
11:00 A.M. - 11:59 A.M.	10	1	11	475	487	497	6.4
12:00 Noon - 12:59 P.M.	10	-	4	270	274	284	3.7
1:00 P.M. - 1:59 P.M.	12	-	8	466	474	486	6.3
2:00 P.M. - 2:59 P.M.	28	-	12	555	567	595	7.7
3:00 P.M. - 3:59 P.M.	12	1	7	334	342	354	4.6
4:00 P.M. - 4:59 P.M.	10	-	8	278	286	296	3.8
5:00 P.M. - 5:59 P.M.	6	-	8	305	313	319	4.1
6:00 P.M. - 6:59 P.M.	6	-	7	328	335	341	4.4
7:00 P.M. - 7:59 P.M.	9	1	6	345	352	361	4.6
8:00 P.M. - 8:59 P.M.	9	1	5	326	332	341	4.4
9:00 P.M. - 9:59 P.M.	6	-	6	313	319	325	4.2
10:00 P.M. - 10:59 P.M.	5	-	9	341	350	355	4.6
11:00 P.M. - 11:59 P.M.	6	-	5	234	239	245	3.2
Total -----	190	7	166	7,387	7,560	7,750	----

^{1/} In addition, there were 1,522 nonfatal injuries at underground workings, 89 nonfatal injuries on surface at underground mines, 151 nonfatal injuries at strip mines, 51 nonfatal injuries at auger mines, and 52 nonfatal injuries at mechanical cleaning plants for which time of day of occurrence was not reported.

TABLE 16. - Time of day of occurrence of injuries
at Pennsylvania anthracite operations in 1969 ^{1/}

Time of day	Fatal	Nonfatal			All injuries	Distribution of all injuries, percent	
		Permanent		Temporary total			Total non-fatal
		Total	Partial				
12 Midnight - 12:59 A.M.	--	-	-	3	3	3	0.6
1:00 A.M. - 1:59 A.M.	--	-	-	3	3	3	.6
2:00 A.M. - 2:59 A.M.	--	-	-	3	3	3	.6
3:00 A.M. - 3:59 A.M.	1	-	-	2	2	3	.6
4:00 A.M. - 4:59 A.M.	--	-	-	4	4	4	.9
5:00 A.M. - 5:59 A.M.	--	-	-	5	5	5	1.1
6:00 A.M. - 6:59 A.M.	--	-	-	6	6	6	1.3
7:00 A.M. - 7:59 A.M.	1	-	-	21	21	22	4.7
8:00 A.M. - 8:59 A.M.	2	-	1	31	32	34	7.3
9:00 A.M. - 9:59 A.M.	1	-	1	49	50	51	11.1
10:00 A.M. - 10:59 A.M.	1	-	-	48	48	49	10.6
11:00 A.M. - 11:59 A.M.	1	-	-	46	46	47	10.1
12:00 Noon - 12:59 P.M.	--	-	-	21	21	21	4.5
1:00 P.M. - 1:59 P.M.	4	-	-	48	48	52	11.2
2:00 P.M. - 2:59 P.M.	--	-	-	38	38	38	8.2
3:00 P.M. - 3:59 P.M.	--	-	1	21	22	22	4.7
4:00 P.M. - 4:59 P.M.	--	-	-	17	17	17	3.7
5:00 P.M. - 5:59 P.M.	--	-	-	10	10	10	2.2
6:00 P.M. - 6:59 P.M.	--	-	-	12	12	12	2.6
7:00 P.M. - 7:59 P.M.	--	-	-	19	19	19	4.1
8:00 P.M. - 8:59 P.M.	1	-	-	14	14	15	3.2
9:00 P.M. - 9:59 P.M.	--	-	-	17	17	17	3.7
10:00 P.M. - 10:59 P.M.	--	-	-	7	7	7	1.5
11:00 P.M. - 11:59 P.M.	1	-	-	3	3	4	.9
Total -----	13	-	3	448	451	464	----

^{1/} In addition, there were 41 nonfatal injuries for which the time of day of occurrence was not reported.

TABLE 17. - Number of injuries, injury rates and average severity at bituminous coal mines in the United States, by part of body injured, 1969

General work location and part of body injured	Number of injuries						Distri- bution of all inju- ries, per- cent	Frequency rates per million man-hours		Severity rates per million man-hours		Average Severity			
	Fatal	Nonfatal			All in- juries	Non- fatal		Fatal	Non- fatal	Fatal	Non- fatal	Perma- nent partial	Tem- porary total	All in- juries	
		Permanent	Total												Total non- fatal
			Partial	Total											
Underground mines: Underground (including shaft and slope):	36	2	488	490	526	7.4	0.24	3.27	1,443	92	600	26	437		
Head, face, neck (excl. eye)	---	2	320	322	322	4.5	---	2.15	---	55	1,800	15	26		
Eye	---	13	2,248	2,271	2,302	34.3	.21	15.17	1,243	1,117	535	45	153		
Trunk	---	4	269	273	273	3.8	---	1.82	---	138	2,073	16	76		
Arm (above wrist)	---	94	1,272	1,366	1,366	19.1	---	9.13	---	367	392	29	40		
Wrist, hand, fingers	---	13	893	906	975	13.7	.01	6.51	40	557	3,002	46	92		
Leg (above ankle)	---	13	396	399	466	12.7	.45	2.67	2,686	286	589	39	47		
Ankle, foot, toes	---	3	642	642	649	6.5	.05	4.29	281	169	114	49	905		
Multiple	---	---	---	---	---	---	---	---	---	---	---	40	104		
Unclassified (no data)	---	---	---	---	---	---	---	---	---	---	---	---	---		
Total or average	142	10	7,489	7,643	7,785	---	.95	51.06	5,692	2,915	591	39	165		
Surface:	3	---	24	24	27	5.6	.16	1.30	976	17	---	13	679		
Head, face, neck (excl. eye)	---	---	23	23	23	4.8	---	1.25	---	16	---	13	13		
Eye	---	---	152	152	156	32.4	.22	8.24	1,301	401	---	49	201		
Trunk	---	---	17	18	18	3.7	---	.98	---	267	4,500	25	273		
Arm (above wrist)	---	1	70	82	82	17.0	---	4.49	---	118	275	21	58		
Wrist, hand, fingers	---	12	67	67	67	13.9	---	3.63	---	169	---	32	32		
Leg (above ankle)	---	1	79	80	80	16.6	.27	4.34	---	51	525	33	39		
Ankle, foot, toes	---	---	24	24	29	6.0	.05	1.30	1,627	33	---	39	1,067		
Multiple	---	---	26	26	27	---	---	1.41	325	---	---	23	245		
Unclassified (no data)	---	---	---	---	---	---	---	---	---	---	---	---	---		
Total or average	13	14	482	496	509	---	.71	26.90	4,230	1,331	595	34	201		
Total or average, underground mines	155	10	7,971	8,139	8,294	---	.92	48.41	5,532	2,741	591	39	168		
Strip mines:	6	---	47	47	53	7.0	.15	1.15	879	18	---	15	693		
Head, face, neck (excl. eye)	---	1	49	50	50	6.6	---	1.22	---	55	1,800	9	45		
Eye	---	---	284	285	291	38.3	.15	6.96	879	343	---	28	172		
Trunk	---	---	22	23	23	3.0	---	.56	---	122	4,500	23	218		
Arm (above wrist)	---	14	87	101	101	13.3	---	2.42	---	182	424	18	74		
Wrist, hand, fingers	---	---	99	99	99	13.0	---	2.42	---	58	---	24	24		
Leg (above ankle)	---	---	87	88	88	11.6	---	2.15	---	49	150	22	23		
Ankle, foot, toes	---	---	42	42	42	7.2	.32	1.03	1,904	85	---	48	1,455		
Multiple	---	---	116	116	116	---	---	2.83	---	---	---	30	30		
Unclassified (no data)	---	---	---	---	---	---	---	---	---	---	---	---	---		
Total or average	25	1	833	851	876	---	.61	20.77	3,662	964	729	25	216		

TABLE 17. - Number of injuries, injury rates and average severity at bituminous coal mines in the United States, by part of body injured, 1969--Continued

General work location and part of body injured	Fatal		Number of injuries				Distribution of all injuries, percent	Frequency rates per million man-hours		Severity rates per million man-hours		Average Severity			
	Fatal	Nonfatal	Nonfatal		Total non-fatal	All injuries		Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries	
			Total	Partial											Temporary total
Auger mines:															
Head, face, neck (excl. eye) -	1	---	---	---	6	7	14.6	0.33	1.97	1,967	11	6	862		
Eye -	---	---	---	---	2	2	4.2	---	.66	---	1	2	2		
Trunk -	---	---	---	---	11	11	22.9	---	3.61	---	104	29	29		
Arm (above wrist) -	---	---	---	---	2	2	4.2	---	.86	---	4	6	6		
Wrist, hand, fingers -	---	---	1	---	10	11	22.9	---	3.61	---	689	36	191		
Leg (above ankle) -	---	---	---	---	7	7	14.6	---	2.30	---	14	8	8		
Ankle, foot, toes -	---	---	---	---	3	3	6.2	---	.98	---	8	14	14		
Multiple -	2	---	---	---	3	3	10.4	---	.66	---	3,934	23	2,409		
Unclassified (no data) -	---	---	---	---	46	46	---	---	15.08	---	346	23	23		
Total or average -	3	---	1	---	90	94	---	.98	29.84	5,901	1,192	1,740	230		
Total or average, mining -															
Total or average, mining -	183	11	176	---	8,894	9,081	---	.86	42.81	5,176	2,375	611	37	173	
Mechanical cleaning plants:															
Head, face, neck (excl. eye) -	1	---	---	---	14	15	4.5	.07	.92	393	18	19	418		
Eye -	---	---	---	---	22	22	6.5	---	1.44	---	15	10	10		
Trunk -	1	---	---	---	131	132	39.2	.07	8.58	393	285	33	78		
Arm (above wrist) -	---	---	---	---	10	10	3.0	---	.65	---	27	42	42		
Wrist, hand, fingers -	---	---	4	---	49	53	15.7	---	3.47	---	133	32	38		
Leg (above ankle) -	---	---	---	---	48	48	14.2	---	3.14	---	113	36	36		
Ankle, foot, toes -	---	---	---	---	39	39	11.6	---	2.55	---	150	59	59		
Multiple -	5	---	---	---	13	18	5.3	.33	.85	1,964	20	24	1,684		
Unclassified (no data) -	---	---	---	---	14	14	---	---	.92	---	35	38	38		
Total or average -	7	---	4	---	340	344	---	.46	22.52	2,749	795	120	194		
Grand total or average -															
Grand total or average -	190	11	180	---	9,234	9,425	---	.84	41.44	5,013	2,269	600	37	172	

TABLE 18. - Number of injuries, injury rates and average severity at Pennsylvania anthracite mines,
by part of body injured, 1962

General work location and part of body injured	Number of injuries						Distribution of all injuries, per cent	Frequency rates per million man-hours		Severity rates per million man-hours		Average Severity					
	Fatal	Nonfatal			All injuries	Fatal		Non-fatal	Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries		
		Total	Permanent	Partial												Temporary total	Total non-fatal
Underground mines:																	
Underground (including shaft and slope):																	
Head, face, neck (excl. eye)	-	-	-	18	18	22	11.8	1.74	7.81	10,415	184	-	24	1,110			
Eye	-	-	-	20	20	20	10.7	-	8.68	-	33	-	4	4			
Trunk	-	1	1	40	41	43	23.0	.87	17.79	5,207	1,323	2,000	28	352			
Arm (above wrist)	-	-	-	7	7	7	3.7	-	3.04	-	25	-	8	8			
Wrist, hand, fingers	-	1	1	38	39	39	20.9	-	16.92	-	435	200	21	26			
Leg (above ankle)	-	-	-	21	21	21	11.2	-	9.11	-	247	-	27	27			
Ankle, foot, toes	-	-	-	18	18	18	9.6	.43	7.81	2,604	228	-	29	29			
Multiple	-	-	-	16	16	17	9.1	-	6.94	-	193	-	28	379			
Unclassified (no data)	-	-	-	17	17	17	9.1	-	7.38	-	300	-	41	41			
Total or average	7	-	2	195	197	204	----	3.04	85.49	18,225	2,999	1,100	24	240			
Surface:																	
Head, face, neck (excl. eye)																	
Eye	-	-	-	2	2	2	9.5	-	2.08	-	19	-	9	9			
Trunk	-	-	-	7	7	7	4.8	-	1.04	-	2	-	2	2			
Arm (above wrist)	-	-	-	---	---	---	33.3	-	7.28	-	109	-	15	15			
Wrist, hand, fingers	-	-	-	---	---	---	9.5	-	2.08	-	45	-	22	22			
Leg (above ankle)	-	-	-	1	1	1	4.8	-	1.04	-	72	-	69	69			
Ankle, foot, toes	-	-	-	6	6	6	28.6	-	6.24	-	35	-	6	6			
Multiple	-	-	-	1	1	2	9.5	-	1.04	6,237	22	-	21	3,011			
Unclassified (no data)	-	-	-	2	2	2	9.5	-	2.08	-	44	-	21	21			
Total or average	1	-	-	22	22	23	----	1.04	22.87	6,237	347	----	15	275			
Strip mines:																	
Head, face, neck (excl. eye)																	
Eye	-	-	-	6	6	6	5.2	-	1.81	-	9	-	5	5			
Trunk	-	-	-	38	38	38	5.2	-	1.81	-	208	-	18	18			
Arm (above wrist)	-	-	-	5	5	5	33.0	-	11.45	-	20	-	13	13			
Wrist, hand, fingers	-	1	1	22	23	23	20.0	-	1.51	-	179	75	24	26			
Leg (above ankle)	-	-	-	14	14	14	12.2	-	4.22	-	37	-	9	9			
Ankle, foot, toes	-	-	-	9	9	9	7.8	-	2.71	-	46	-	17	17			
Multiple	-	-	-	11	11	14	12.2	.90	3.31	5,423	34	-	10	1,294			
Unclassified (no data)	-	-	-	4	4	4	----	-	1.21	-	43	-	36	36			
Total or average	3	-	1	115	116	119	----	.90	34.95	5,423	581	75	16	167			
Total or average, underground mines																	
Underground mines																	
Surface																	
Strip mines																	
Total or average																	
Underground mines																	
Strip mines																	
Total or average																	

TABLE 18. - Number of injuries, injury rates and average severity at Pennsylvania anthracite mines,
by part of body injured, 1969--Continued

General work location and part of body injured	Number of injuries						Distribution of all injuries, per cent	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity			
	Fatal	Nonfatal			Total non-fatal	All injuries		Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries	
		Total	Permanent	Partial											Total
Other surface mining: 1/															
Head, face, neck (excl. eye) -	-	-	-	2	2	20.0	2.72	10			4	4	4		
Eye -	-	-	-	-	-	-	-	-	-	-	-	-	-		
Trunk -	-	-	-	2	2	20.0	2.72	15			6	6	6		
Arm (above wrist) -	-	-	-	2	2	20.0	2.72	19			7	7	7		
Wrist, hand, fingers -	-	-	-	-	-	-	-	-	-	-	-	-	-		
Leg (above ankle) -	-	-	-	2	2	20.0	2.72	93			34	34	34		
Ankle, foot, toes -	-	-	-	1	1	10.0	1.36	5			4	4	4		
Multiple -	-	-	-	1	1	10.0	1.36	18			13	13	13		
Unclassified (no data) -	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total or average -	-	-	-	10	10	-	13.61	159			12	12	12		
Total or average, mining -	11	3	342	345	356	-	47.13	1,269	9,016	758	21	211	211		
Mechanical cleaning plants:															
Head, face, neck (excl. eye) -	-	-	-	4	4	3.5	1.45	44	2,180		31	31	1,224		
Eye -	-	-	-	15	15	10.3	5.45	40			7	7	7		
Trunk -	-	-	-	41	41	29.0	14.90	403	2,180		27	27	169		
Arm (above wrist) -	-	-	-	10	10	6.9	3.63	123			34	34	34		
Wrist, hand, fingers -	-	-	-	28	28	20.0	10.34	432			50	50	41		
Leg (above ankle) -	-	-	-	17	17	11.7	6.18	135			22	22	22		
Ankle, foot, toes -	-	-	-	19	19	13.1	6.90	157			23	23	23		
Multiple -	-	-	-	8	8	5.5	2.91	115			40	40	40		
Unclassified (no data) -	-	-	-	4	4	-	1.45	105			72	72	72		
Total or average -	2	1	146	147	149	-	53.42	1,553	4,361	50	29	109	109		
Grand total or average -	13	4	488	492	505	-	148.85	1,347	7,744	581	23	181	181		

1/ Culum banks and dredges.

TABLE 19. - Number of injuries and average severity by degree at coal mines in the United States, by part of body and major cause of injury, 1969

Part of body and major cause of injury	All coal mines										
	Bituminous coal mines					Pennsylvania anthracite mines					All coal mines
	Number of injuries			Average severity		Number of injuries			Average severity		Average severity
	Fatal	Permanent	Temporary	Perma-ment partial	Tempo-rary total	Fatal	Permanent	Temporary	Perma-ment partial	Tempo-rary total	All in-juries total
Head, face, neck (excl. eye):											
Falls of roof	18	1	98	1,140	35	1,004	1	2	14	2,009	1,030
Pressure bumps or bursts	2	---	35	---	2,023	---	---	---	---	---	2,023
Falls of face or rib	1	---	22	---	526	---	1	12	12	---	505
Other falling objects	1	---	14	---	417	---	---	17	17	---	417
Falls of persons	3	---	10	---	1,398	2	3	56	56	---	1,692
Handing materials	1	---	19	---	137	---	---	11	11	---	123
Handtools	---	---	13	---	13	---	---	7	7	---	13
Striking or bumping	---	---	52	---	15	---	---	5	5	---	21
Haillage	11	1	170	60	382	1	7	10	177	60	401
Explosions (gas or dust)	---	---	15	---	27	---	---	17	17	---	3,096
Explosives	---	---	23	---	24	---	---	17	17	---	24
Electricity	---	---	28	---	24	---	---	15	15	---	24
Machinery	9	---	71	---	697	---	5	15	9	---	657
Slipping on	---	---	1	---	1	---	---	---	---	---	1
Mine fires	---	---	9	---	18	---	---	---	---	---	18
All other	1	---	15	---	7	---	---	---	---	---	382
Total or average	47	2	579	600	24	473	5	32	19	887	493
Eye:											
Falls of roof	---	---	8	---	16	---	---	---	---	---	8
Falls of face or rib	---	---	7	---	7	---	---	---	---	---	16
Other falling objects	---	---	1	---	1	---	---	---	---	---	7
Falls of persons	---	---	69	---	35	---	---	---	---	---	31
Handing materials	---	---	2	---	3	---	---	---	---	---	73
Handtools	---	---	2	---	6	---	---	---	---	---	6
Striking or bumping	---	---	40	---	7	---	---	---	---	---	16
Haillage	---	---	6	---	16	---	---	---	---	---	16
Explosives	---	---	67	---	14	---	---	---	---	---	13
Electricity	---	---	81	---	10	---	---	---	---	---	10
Machinery	---	---	2	---	8	---	---	---	---	---	7
Mine fires	---	---	56	---	10	---	---	---	---	---	1
All other	---	---	3	---	14	---	---	---	---	---	24
Total or average	---	---	416	1,800	14	26	---	42	5	5	13
Trunk:											
Falls of roof	15	5	330	580	58	399	---	1	58	58	399
Falls of face or bursts	---	---	2	---	88	---	---	---	---	---	2,059
Falls of face or rib	1	---	94	100	52	115	---	1	29	100	51
Other falling objects	---	---	24	---	36	---	---	---	---	---	283
Falls of persons	---	---	266	60	13	3,093	---	54	25	60	32
Handing materials	---	---	1,193	126	43	24	---	37	1,180	128	41
Handtools	---	---	24	---	33	---	---	---	---	---	32
Stepping on objects	---	---	19	---	19	---	---	---	---	---	30
Striking or bumping	---	---	5	---	34	---	---	---	---	---	30
Haillage	11	1	2	210	42	173	13	18	23	210	168
Explosions (gas or dust)	---	---	2	---	32	---	---	---	---	---	32
Explosives	---	---	19	---	33	---	---	---	---	---	33
Electricity	1	---	9	---	16	---	---	---	---	---	17
Machinery	---	---	239	120	46	374	---	6	27	10	45
Surfocation	13	1	1	---	7	---	---	---	---	---	388
Mine fires	---	---	14	---	24	---	---	---	---	---	6,000
All other	---	---	4	4,000	---	5,600	---	2	1	---	7
Pneumoconiosis	---	---	1	---	---	---	---	---	---	---	23
Total or average	42	11	13	2,886	43	194	3	128	24	174	639

TABLE 20. - Number of injuries, injury rates, and average severity at bituminous coal mines, by nature of injury, 1969

General work location and nature of injury	Number of injuries						Frequency rates per million man-hours		Severity rates per million man-hours		Average severity				
	Fatal	Nonfatal			All injuries	Distribution of all injuries, percent	Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries		
		Total	Permanent	Partial										Temporary total	Total non-fatal
Underground mines:															
Underground (including shaft and slope):															
Amputation, enucleation	1	111	---	---	111	1.7	0.01	40	507	684	---	731			
Asphyxiation	3	---	15	15	18	1.3	.02	120	1	---	7	1,006			
Crushing, contusion, bruise	78	14	1,921	1,935	2,013	31.0	.52	3,127	344	69	26	2,258			
Burn, scald (except chemical)	---	---	226	226	226	3.5	1.51	---	33	---	22	22			
Chemical burn	---	---	4	4	4	1.1	---	---	(1/)	---	3	3			
Radiation, radiating substance	---	6	93	93	93	1.4	.62	---	5	---	9	9			
Cut, laceration, puncture	---	---	785	791	791	12.2	5.28	---	136	247	24	26			
Dermatitis	---	---	23	1	1	(2/)	---	---	(1/)	---	9	9			
Electric shock	7	---	146	23	30	5	.05	281	3	---	20	26			
Foreign body in eye	---	---	1,266	146	146	2.3	.96	---	13	---	14	14			
Fracture	20	3	1,266	1,275	1,295	20.0	.13	802	18	---	75	194			
Hernia (inguinal)	---	---	85	85	85	1.3	8.92	---	35	---	61	61			
Poisoning (systemic)	---	---	2	2	2	(2/)	---	---	(1/)	---	20	20			
Strain, sprain, dislocation	---	7	1,586	1,593	1,593	24.5	10.64	---	408	147	38	38			
Silicosis	---	4	---	4	4	1.1	.03	---	160	---	---	6,000			
Pneumoconiosis (except silicosis)	---	1	---	1	1	(2/)	---	---	27	4,000	---	4,000			
Concussion (cerebral)	1	---	16	16	17	3	.01	40	4	---	34	385			
Hernia (except inguinal)	1	---	12	12	13	1.2	.08	40	6	---	77	532			
Inflammation or irritation of joints, tendons, muscles	---	---	23	23	23	3	---	---	5	---	30	30			
Hearing loss, impairment	---	---	22	22	22	(2/)	---	---	(1/)	---	2	2			
Other, not elsewhere classified	---	---	1,262	22	22	1.3	.15	---	344	---	36	36			
Unclassified (no data)	31	2	---	1,264	1,295	---	.21	1,243	---	831	40	183			
Total or average	142	10	144	7,489	7,643	---	.95	5,692	2,915	591	39	165			
Surface:															
Amputation, enucleation	---	14	---	---	14	3.1	.76	---	451	595	---	595			
Asphyxiation	1	---	88	88	94	4	.05	325	(1/)	---	7	3,004			
Crushing, contusion, bruise	6	---	14	14	14	20.8	4.77	1,952	89	---	19	400			
Burn, scald (except chemical)	---	---	3	3	3	3.1	---	---	8	---	10	10			
Chemical burn	---	---	63	6	6	7	.16	---	(1/)	---	2	2			
Radiation, radiating substance	---	---	63	63	63	13.9	3.42	---	38	---	2	2			
Cut, laceration, puncture	1	---	12	12	12	2.2	.05	325	---	---	11	11			
Electric shock	---	---	78	78	80	2.6	.65	---	13	---	---	6,000			
Foreign body in eye	---	---	14	14	14	17.7	.11	651	207	---	49	198			
Fracture	2	---	145	145	145	32.0	7.86	---	33	---	44	44			
Hernia (inguinal)	---	---	3	3	3	1.2	---	---	4	---	50	50			
Strain, sprain, dislocation	---	---	3	3	3	.9	.05	325	3	---	68	68			
Hernia (except inguinal)	1	---	54	54	56	1.9	.11	651	89	---	21	1,516			
Other, not elsewhere classified	2	---	---	---	---	---	---	---	---	---	30	30			
Unclassified (no data)	---	---	---	---	---	---	---	---	---	---	---	---			
Total or average	13	14	482	496	509	---	.71	4,230	1,331	595	34	201			
Total or average, underground mines	155	10	158	8,139	8,294	---	.92	48,411	2,741	591	39	168			

See footnotes at end of table.

TABLE 20. - Number of injuries, injury rates, and average severity at bituminous coal mines, by nature of injury, 1969--Continued

General work location and nature of injury	Number of injuries						Distribution of all injuries, percent	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity					
	Fatal	Nonfatal			All injuries	Total non-fatal		Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries			
		Total	Permanent	Partial											Temporary total	Fatal	Non-fatal
Strip:																	
Amputation, enucleation	---	15	---	15	15	2.1	0.37	---	251	686	---	---	686				
Asphyxiation	1	---	---	1	1	3	0.02	---	146	---	---	---	---				
Crushing, contusion, bruise	19	---	---	139	158	22.2	3.39	---	2,783	---	---	---	18				
Burn, scald (except chemical)	1	---	---	38	39	5.5	.93	---	146	---	---	---	24				
Chemical burn	---	---	---	2	2	3	.05	---	---	---	---	---	5				
Radiation, radiating substance	---	---	---	11	11	1.6	.27	---	---	---	---	---	3				
Cut, laceration, puncture	1	2	---	84	84	11.8	2.05	---	83	1,050	---	---	41				
Electric shock	---	---	---	1	1	3	.02	---	146	---	---	---	1				
Foreign body in eye	2	---	---	31	31	4.4	.76	---	10	---	---	---	13				
Fracture	---	1	---	111	113	15.9	.05	---	293	---	---	---	203				
Hernia (inguinal)	---	---	---	14	14	2.0	.34	---	---	---	---	---	4				
Poisoning (systemic)	---	---	---	1	1	1	.02	---	---	---	---	---	4				
Strain, sprain, dislocation	---	---	---	227	227	31.9	5.54	---	111	---	---	---	20				
Concussion (cerebral)	---	---	---	1	1	1	.02	---	---	---	---	---	4				
Hernia (except inguinal)	1	---	---	2	3	.4	.05	---	146	---	---	---	2,025				
Inflammation or irritation of joints, tendons, muscles	---	---	---	2	2	3	.05	---	---	---	---	---	18				
Other, not elsewhere classified	---	---	---	6	6	.8	.15	---	---	---	---	---	52				
Unclassified (no data)	---	---	---	165	165	---	4.03	---	---	---	---	---	32				
Total or average	25	1	17	833	851	876	.61	20.77	3,662	729	25	25	216				
Auger:																	
Amputation, enucleation	---	1	---	1	1	2.2	.33	---	---	1,740	---	---	1,740				
Asphyxiation	---	---	---	1	1	2.2	.33	---	570	---	---	---	---				
Crushing, contusion, bruise	3	---	---	5	8	17.8	1.64	---	47	---	---	---	1				
Burn, scald (except chemical)	---	---	---	2	2	4.4	.66	---	8	---	---	---	2,268				
Radiation, radiating substance	---	---	---	1	1	2.2	.33	---	---	---	---	---	12				
Cut, laceration, puncture	---	---	---	9	9	20.0	2.95	---	33	---	---	---	2				
Foreign body in eye	---	---	---	1	1	2.2	.33	---	---	---	---	---	11				
Fracture	---	---	---	9	9	20.0	2.95	---	96	---	---	---	1				
Strain, sprain, dislocation	---	---	---	12	12	26.7	3.93	---	75	---	---	---	33				
Other, not elsewhere classified	---	---	---	1	1	2.2	.33	---	---	---	---	---	19				
Unclassified (no data)	---	---	---	49	49	---	16.07	---	---	---	---	---	2				
Total or average	3	---	1	90	91	94	.98	29.84	5,901	1,192	21	21	230				
Total or average, mining	183	11	176	8,894	9,081	9,264	.86	42.81	5,176	2,375	37	37	173				

See footnotes at end of table.

TABLE 20. - Number of injuries, injury rates, and average severity at bituminous coal mines, by nature of injury, 1959--Continued

General work location and nature of injury	Number of injuries				Distribution of all injuries, percent	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity					
	Fatal	Nonfatal				All injuries	Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries		
		Total	Permanent	Partial										Total non-fatal	Temporary total
Mechanical cleaning plants:															
Amputation, enucleation	---	---	4	4	1.2	---	0.26	---	---	120	---	120			
Asphyxiation	---	---	---	3	.9	---	.20	---	---	---	---	---			
Crushing, contusion, bruise	6	---	54	60	18.5	---	3.54	2,357	(1/)	---	2	628			
Burn, scald (except chemical)	---	---	11	11	3.4	---	.72	---	15	---	31	20			
Chemical burn	---	---	1	1	.3	---	.07	---	1	---	13	13			
Radiation, radiating substance	---	---	---	1	.3	---	.07	---	(1/)	---	1	1			
Cut, laceration, puncture	---	---	42	42	12.9	---	2.75	---	57	---	21	21			
Electric shock	1	---	---	1	.3	---	.07	393	---	---	---	6,000			
Foreign body in eye	---	---	---	12	3.7	---	.79	---	2	---	3	3			
Fracture	---	---	65	65	20.0	---	4.26	---	254	---	60	60			
Hernia (inguinal)	---	---	7	7	2.2	---	.46	---	27	---	59	59			
Strain, sprain, dislocation	---	---	116	116	35.7	---	7.59	---	234	---	31	31			
Hernia (except inguinal)	---	---	2	2	.6	---	.13	---	3	---	27	27			
Unclassified (no data)	---	---	26	26	---	---	1.70	---	61	---	36	36			
Total or average	7	---	4	344	---	---	.46	2,749	795	120	34	154			
Grand total or average	190	11	180	9,425	9,615	---	.84	5,013	2,269	600	37	172			

1/ Less than 0.5
2/ Less than 0.05.

TABLE 21. - Number of injuries, injury rates, and average severity at Pennsylvania anthracite mines, by nature of injury, 1962

General work location and nature of injury	Number of injuries						Distribution of all injuries, percent.	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity				
	Fatal	Nonfatal			All injuries	Fatal		Non-fatal	Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries	
		Total	Permanent	Partial												Total non-fatal
Underground mines:																
Underground (including shaft and slope):																
Amputation, emucleation	2		1		1		0.5	0.87	0.43	87	200			200		
Asphyxiation				58	58		1.1	25.17		503				6,000		
Crushing, contusion, bruise				11	11		31.7	4.77		100				20		
Burn, scald (except chemical)				1	1		6.0			38				21		
Radiation, radiating substance	1			48	49		5	.43		278				88		
Cut, laceration, puncture	4			8	12		26.8	20.83		2,604				136		
Foreign body in eye				16	16		4.4	3.47		10				3		
Fracture				1	1		10.9	6.94		368				53		
Hernia (inguinal)				1	1		5	.43		10				1,242		
Strain, sprain, dislocation				30	30		16.4	13.02		345				23		
Silicosis				1	1		.5	.43		868				27		
Other, not elsewhere classified				1	1		.5	.43		3				6		
Unclassified (no data)				21	21			9.11		390				43		
Total or average	7	2	197	204	197	204	3.04	85.49	18,225	2,999	1,100	24	15	240		
Surface:																
Crushing, contusion, bruise	1		7	8	7	8	40.0	1.04	7.28	52				756		
Chemical burn			1	1	1	1	5.0		1.04	2				2		
Cut, laceration, puncture			3	3	3	3	15.0		3.12	77				25		
Fracture			5	5	5	5	25.0		5.20	97				19		
Hernia (inguinal)			1	1	1	1	5.0		1.04	57				55		
Strain, sprain, dislocation			2	2	2	2	10.0		2.08	17				8		
Unclassified (no data)			3	3	3	3		3.12		46				15		
Total or average	1	22	22	23	22	23	1.04	22.87	6,237	347	1,100	15	23	275		
Strip:																
Amputation, emucleation	2		19	21	19	21	19.8	.60	5.72	23				75		
Crushing, contusion, bruise	1		3	4	3	4	3.8	.30	1,808	109				589		
Burn, scald (except chemical)			21	21	21	21	19.8		6.33	8				1,506		
Cut, laceration, puncture			5	5	5	5	4.7		1.51	105				17		
Foreign body in eye			15	15	15	15	14.2		4.52	97				4		
Fracture			1	1	1	1	.9		.30	25				22		
Hernia (inguinal)			37	37	37	37	34.9		11.15	141				84		
Strain, sprain, dislocation			13	13	13	13	.9		3.92	66				13		
Other, not elsewhere classified			1	1	1	1				1				4		
Unclassified (no data)			115	116	115	116		.90	34.95	5,423				17		
Total or average	3	1	115	119	116	119	1.04	67.05	14,695	2,218	1,100	23	16	167		

TABLE 21. - Number of injuries, injury rates, and average severity at Pennsylvania anthracite mines, by nature of injury, 1969--Continued

General work location and nature of injury	Number of injuries						Distribution of all injuries, percent	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity					
	Fatal	Nonfatal			All injuries	Fatal		Non-fatal	Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries		
		Total	Permanent	Partial												Temporary total	Total non-fatal
Other surface mining:																	
Crushing, contusion, bruise	---	---	---	1	1	10.0	---	1.36	---	5	---	---	4	4			
Burn, scald (except chemical)	---	---	---	1	1	10.0	---	1.36	---	18	---	---	13	13			
Cut, laceration, puncture	---	---	---	4	4	40.0	---	5.44	---	29	---	---	5	5			
Fracture	---	---	---	1	1	10.0	---	1.36	---	12	---	---	9	9			
Strain, sprain, dislocation	---	---	---	3	3	30.0	---	4.08	---	95	---	---	23	23			
Total or average	---	---	---	10	10	---	---	13.61	---	159	---	---	12	12			
Total or average, mining	11	---	3	342	345	---	---	47.13	9,016	1,269	758	---	21	211			
Mechanical cleaning plants:																	
Amputation, enucleation	---	---	---	1	1	.7	---	.36	---	18	---	---	---	50			
Crushing, contusion, bruise	2	---	---	34	34	27.1	---	12.35	4,361	292	---	---	24	356			
Burn, scald (except chemical)	---	---	---	7	7	5.3	---	2.54	---	20	---	---	8	8			
Radiation, radiating substance	---	---	---	2	2	1.5	---	.73	---	1	---	---	2	2			
Cut, laceration, puncture	---	---	---	22	22	16.5	---	7.99	---	290	---	---	36	36			
Foreign body in eye	---	---	---	5	5	3.8	---	1.82	---	24	---	---	13	13			
Fracture	---	---	---	15	15	11.3	---	5.45	---	225	---	---	41	41			
Hernia (inguinal)	---	---	---	5	5	3.8	---	1.82	---	83	---	---	46	46			
Strain, sprain, dislocation	---	---	---	37	37	27.8	---	13.44	---	280	---	---	21	21			
Other, not elsewhere classified	---	---	---	3	3	2.3	---	1.09	---	18	---	---	17	17			
Unclassified (no data)	---	---	---	16	16	---	---	5.81	---	303	---	---	52	52			
Total or average	2	---	1	146	147	---	---	53.42	4,361	1,533	90	---	29	109			
Grand total or average	13	---	4	488	492	---	---	48.85	7,744	1,347	581	---	23	181			

TABLE 22. - Number of injuries at bituminous coal mines in the United States, by nature of injury and part of body injured, 1962

Nature of injury	Total		Part of body														Unclassified (no data)			
	Fatal	Nonfatal	Head, face, neck (excluding eye)	Eye		Trunk		Arm (above wrist)		Wrist, hand, fingers		Leg (above ankle)		Ankle, foot, toes		Multiple		Fatal	Nonfatal	
				Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal			
Amputation, enucleation	1	145																		
Asphyxiation	5	21			2	1	3		4											
Crushing, contusion, bruise	112	2,221	1	1	27	29	20		107											
Burn, scald (except chemical)	1	291	114	39	30		6		9											
Chemical burn		10	2	2	2				1											
Radiation, radiating substance		112	8	8	69				1											
Cut, laceration, puncture		989	198	198	65		36		26											
Dermatitis		1																		
Electric shock	10	24					2													
Foreign body in eye		202			201				96											
Fracture	24	1,538	16	63		4														
Hernia (inguinal)		120					120													
Poisoning (systemic)		3																		
Strain, sprain, dislocation		2,093			1				43											
Silicosis		4							4											
Pneumoconiosis (except silicosis)		1																		
Concussion (cerebral)	1	17																		
Hernia (except inguinal)	2	17																		
Inflammation or irritation of joints, tendons, muscles		25							3											
Hearing loss, impairment		1																		
Other, not elsewhere classified	1	32	1	8	1															
Unclassified (no data)	33	1,558	4	62	21	3	286		34											
Total	190	9,425	47	581	419	42	2,850		326		1,613	1	1,195		1,116	92	481	8	844	

TABLE 23. - Number of injuries at Pennsylvania anthracite mines, by nature of injury and part of body injured, 1969

Nature of injury	Total		Part of body																Unclassified (no data)		
			Head, face, neck (excluding eye)		Eye		Trunk		Arm (above wrist)		Wrist, hand, fingers		Leg (above ankle)		Ankle, foot, toes		Multiple				
	Fatal	Nonfatal	Fatal		Nonfatal		Fatal		Nonfatal		Fatal		Nonfatal		Fatal		Nonfatal		Fatal	Nonfatal	
			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal			
Amputation, emucleation -----	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asphyxiation -----	5	119	1	8	1	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crushing, contusion, bruise -----	1	22	-	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burn, scald (except chemical) -----	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical burn -----	-	3	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiation, radiating substance -----	1	98	-	19	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cut, laceration, puncture -----	-	18	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foreign body in eye -----	4	52	4	1	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fracture -----	-	8	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hernia (inguinal) -----	-	109	-	1	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strain, sprain, dislocation -----	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicosis -----	-	5	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other, not elsewhere classified -----	-	53	-	2	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified (no data) -----	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total -----	13	1492	5	32	42	3	129	-	24	-	93	-	55	-	53	5	37	-	-	-	27

TABLE 24. - Closed cases ^{1/} of temporary total injuries for which company reported days of disability at bituminous coal mines in the United States, by days of disability per injury and general work location, 1969

Days of disability per injury	Number of temporary total injuries							Grand total
	Underground mines			Strip mines	Auger mines	Total mining	Mechanical cleaning plants	
	Underground	Surface	Total					
1 -----	372	32	404	80	5	489	23	512
2 -----	256	27	283	66	5	354	10	364
3 -----	290	24	314	43	3	360	27	387
4 -----	288	21	309	33	5	347	12	359
5 -----	246	20	266	32	3	301	8	309
6 -----	260	22	282	35	3	320	11	331
7 -----	182	14	196	18	7	221	9	230
8 -----	130	13	143	13	2	158	10	168
9 -----	190	10	200	16	--	216	4	220
10 -----	181	9	190	20	2	212	10	222
11 -----	194	9	203	10	2	215	1	216
12 -----	173	8	181	17	2	200	7	207
13 -----	148	17	165	13	5	183	9	192
14 -----	94	3	97	14	1	112	2	114
15 -----	75	7	82	10	--	92	6	98
16 -----	104	4	108	11	2	121	6	127
17 -----	111	7	118	5	1	124	2	126
18 -----	82	12	94	9	--	103	2	105
19 -----	107	5	112	6	--	118	6	124
20 -----	106	5	111	10	3	124	4	128
21 -----	59	1	60	6	1	67	2	69
22 -----	47	6	53	7	--	60	1	61
23 -----	66	6	72	4	--	76	4	80
24 -----	66	3	69	11	--	80	5	85
25 -----	76	6	82	4	--	86	2	88
26 -----	66	7	73	5	--	78	3	81
27 -----	72	5	77	7	--	84	6	90
28 -----	40	2	42	10	--	52	2	54
29 -----	38	3	41	2	--	43	4	47
30 -----	68	6	74	5	--	79	7	86
31 -----	56	3	59	5	--	64	3	67
32 -----	77	5	82	5	--	87	1	88
33 -----	51	2	53	2	--	55	2	57
34 -----	65	5	70	13	2	85	2	87
35 -----	33	4	37	1	--	38	2	40
36 -----	49	5	54	2	--	56	4	60
37 -----	85	1	86	8	--	94	1	95
38 -----	37	--	37	4	--	41	5	46
39 -----	48	3	51	3	--	54	--	54
40 -----	38	--	38	3	--	41	--	41
41 -----	62	--	62	4	--	66	2	68
42 -----	33	3	36	3	--	39	--	39
43 -----	32	2	34	4	--	38	2	40
44 -----	22	--	22	2	--	24	3	27
45 -----	32	3	35	--	--	35	1	36
46-60 -----	411	25	436	32	2	470	15	485
61-90 -----	406	19	425	41	3	469	21	490
91-120 -----	204	10	214	17	--	231	6	237
121-150 -----	114	2	116	7	2	125	6	131
151 days or more ---	306	13	319	14	--	333	13	346
Total -----	6,348	419	6,767	692	61	7,520	294	7,814

^{1/} In addition to the temporary total injuries for which companies reported days of disability, there were 1,420 temporary total injuries for which days of disability were not reported. To obtain total severity data for the industry, these "open cases" were closed by assigning average days of disability by cause classification of the reported temporary total injuries.

TABLE 25. - Closed cases ^{1/} of temporary total injuries for which company reported days of disability at Pennsylvania anthracite mines, by days of disability per injury and general work location, 1969

Days of disability per injury	Number of temporary total injuries							
	Underground mines			Strip mines	Other surface mining ^{2/}	Total mining	Mechanical cleaning plants	Grand total
	Underground	Surface	Total					
1 -----	12	1	13	17	-	30	12	42
2 -----	11	5	16	8	2	26	9	35
3 -----	13	--	13	9	-	22	11	33
4 -----	13	2	15	6	1	22	8	30
5 -----	10	1	11	5	1	17	9	26
6 -----	12	1	13	8	1	22	6	28
7 -----	5	--	5	1	-	6	2	8
8 -----	3	--	3	1	-	4	1	5
9 -----	3	1	4	2	-	6	2	8
10 -----	5	1	6	1	-	7	2	9
11 -----	4	--	4	--	-	4	2	6
12 -----	4	--	4	3	-	7	3	10
13 -----	2	--	2	--	1	3	--	3
14 -----	1	1	2	2	-	4	2	6
15 -----	2	--	2	2	-	4	2	6
16 -----	1	--	1	2	-	3	1	4
17 -----	2	1	3	4	-	7	1	8
18 -----	1	--	1	--	-	1	--	1
19 -----	4	--	4	1	-	5	1	6
20 -----	1	--	1	4	-	5	1	6
21 -----	2	2	4	1	-	5	1	6
22 -----	-	--	-	--	-	-	2	2
23 -----	2	--	2	--	-	2	--	2
24 -----	2	--	2	1	-	3	2	5
25 -----	-	--	-	--	-	-	--	-
26 -----	1	--	1	1	-	2	--	2
27 -----	2	--	2	1	-	3	2	5
28 -----	1	--	1	--	-	1	--	1
29 -----	2	--	2	1	-	3	--	3
30 -----	1	--	1	1	-	2	--	2
31 -----	2	--	2	1	-	3	1	4
32 -----	-	--	-	--	-	-	1	1
33 -----	1	--	1	--	-	1	--	1
34 -----	-	--	-	--	-	-	1	1
35 -----	1	--	1	1	-	2	--	2
36 -----	-	--	-	--	-	-	1	1
37 -----	-	--	-	1	-	1	--	1
38 -----	2	--	2	1	-	3	--	3
39 -----	-	--	-	--	-	-	--	-
40 -----	1	--	1	1	-	2	--	2
41 -----	3	--	3	--	-	3	--	3
42 -----	-	1	1	--	-	1	--	1
43 -----	-	--	-	--	-	-	--	-
44 -----	-	--	-	--	-	-	--	-
45 -----	1	--	1	--	-	1	1	2
46-60 -----	6	1	7	2	-	9	8	17
61-90 -----	13	1	14	5	1	20	9	29
91-120 -----	2	--	2	--	-	2	3	5
121-150 -----	1	--	1	2	-	3	2	5
151 days or more --	4	--	4	--	-	4	3	7
Total -----	159	19	178	96	7	281	112	393

^{1/} In addition to the temporary total injuries for which companies reported days of disability, there were 95 temporary total injuries for which days of disability were not reported. To obtain total severity data for the industry, these "open cases" were closed by assigning average days of disability by cause classification of the reported temporary total injuries.

^{2/} Culm banks and dredges.

TABLE 26. - Injury experience, worktime, and production data on underground bituminous coal mines (underground plus associated surface) in the United States, by percentage of coal loaded mechanically, 1969

Coal loaded mechanically, percent	Number of injuries						Distribution of all injuries, percent	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity					
	Fatal	NonFatal			All injuries	Fatal		Non-fatal	Fatal	Non-fatal	Fatal	Non-fatal	Permanent partial	Temporary total	All injuries		
		Total	Permanent	Partial												Temporary total	Total non-fatal
All hand loading -----	5	2	2	176	180	185	2.3	0.87	31.26	5,210	3,199	68	36	262			
1 to 19 -----	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
20 to 39 -----	---	---	---	2	2	2	(2/)	---	22.32	14,426	379	---	17	17			
40 to 59 -----	1	---	---	32	33	34	.4	2.40	79.34	14,426	3,578	300	37	220			
60 to 79 -----	1	---	---	12	12	13	.2	3.84	46.06	23,032	1,608	---	35	494			
80 to 99 -----	---	---	---	11	11	11	.1	---	28.66	---	2,027	---	71	71			
100 -----	138	8	---	7,497	7,654	7,792	97.0	.90	49.98	5,407	2,752	557	39	160			
Not stated -----	7	---	---	204	208	215	---	1.29	38.19	7,711	2,315	1,319	36	294			
Surface 1/ -----	3	---	2	37	39	42	---	1.14	14.83	6,844	2,150	2,400	23	563			
Total or average -----	155	10	158	7,971	8,139	8,294	---	.92	48.41	5,532	2,741	591	39	168			

All hand loading -----	Number of mines	Average men working daily	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour
All hand loading -----	776	4,438	724,140	5,757,990	6,573,656	1.14
1 to 19 -----	1	2	426	2,982	6,365	2.13
20 to 39 -----	7	61	11,200	89,606	89,694	1.00
40 to 79 -----	11	249	52,366	415,928	507,138	1.22
60 to 79 -----	9	160	32,620	260,503	360,005	1.38
80 to 99 -----	23	200	48,114	383,748	584,646	1.45
100 -----	1,791	83,302	19,212,775	153,133,923	329,116,415	2.15
Not stated -----	832	5,609	684,657	5,447,096	8,395,734	1.54
Surface 1/ -----	---	1,413	344,906	2,630,101	---	---
Total or average -----	3,450	95,439	21,111,344	168,121,877	345,603,653	2.06

1/ Data on 30 surface installations that could not be assigned to any single mine.

2/ Less than 0.05.

TABLE 27. - Injury experience, worktime, and production data on underground Pennsylvania anthracite mines (underground plus associated surface) by percentage of coal loaded mechanically, 1969

Coal loaded mechanically, percent	Number of injuries						Distri- bution of all inju- ries, percent	Frequency rates per million man-hours		Severity rates per million man-hours		Average severity		
	Fatal	Nonfatal			All in- juries	Fatal		Non- fatal	Fatal	Non- fatal	Perma- nent partial	Tem- porary total	ALL in- juries	
		Total	Permanent	Partial										Total non- fatal
All hand loading	4	-	-	55	55	59	26.5	3.82	52.57	22,942	1,092	21	426	
1 to 19	1	-	-	5	5	6	2.7	12.89	64.47	77,361	1,315	20	1,017	
20 to 39	-	-	-	2	2	2	.9	---	182.18	---	2,095	12	12	
40 to 59	1	-	-	6	6	7	3.1	23.02	138.12	138,122	3,522	26	879	
60 to 79	1	-	-	3	3	4	1.8	8.95	26.85	53,696	233	9	1,507	
80 to 99	1	2	-	142	144	145	65.0	.55	79.04	3,293	3,111	24	80	
100	-	-	-	1	1	1	---	---	30.61	---	3,000	98	98	
Not stated	-	-	-	3	3	3	---	---	24.58	---	262	11	11	
Surface 1/	-	-	-	-	-	-	---	---	---	---	---	---	---	
Total or average	8	2	2	217	219	227	---	2.45	67.05	14,695	2,218	23	243	

Number of mines	Average men working daily	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour
134	659	154,973	1,046,134	707,220	0.68
3	47	12,045	77,558	92,314	1.19
3	11	1,880	10,978	15,741	1.43
4	---	---	---	---	---
4	30	6,329	43,440	35,282	.81
10	65	16,409	111,740	127,893	1.14
36	1,051	248,320	1,821,850	1,075,140	.59
7	28	4,673	32,664	12,873	.39
Surface 1/	65	15,031	122,069	---	---
Total or average	1,956	459,660	3,266,433	2,066,463	.63

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 28. - Injury experience, worktime, and production data on bituminous coal mines in the United States, by number of men employed, 1969

Number of men employed	Number of injuries		Frequency rates				Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
	Fatal	Nonfatal	Per million man-hours		Per million tons							
			Fatal	Nonfatal	Fatal	Nonfatal						
Underground mines (includes surface works):												
1 to 4	4	92	1.32	30.31	0.91	20.87	115	382,962	3,034,982	4,408,694	1.45	1,204
5 to 9	12	294	1.52	37.30	1.86	21.09	144	989,111	7,882,771	13,941,538	1.77	1,031
10 to 19	18	477	1.90	50.42	1.00	26.94	176	1,180,587	9,459,663	17,971,262	1.90	515
20 to 34	13	580	1.39	62.06	1.66	29.24	208	1,171,207	9,345,818	19,835,900	2.12	220
35 to 49	6	1,089	1.17	60.21	1.65	33.52	207	644,743	5,148,228	9,248,625	1.80	77
50 to 99	20	1,354	1.13	61.55	1.51	27.98	217	2,217,252	17,692,543	38,914,864	2.20	142
100 to 149	24	1,354	1.16	65.70	1.49	27.90	244	2,582,334	20,607,391	48,533,984	2.36	85
150 to 249	29	2,010	1.47	53.82	1.38	26.55	242	4,683,661	37,347,953	75,715,589	2.03	99
250 or more	26	1,894	1.34	14.83	1.22	16.18	245	6,914,581	54,972,427	117,033,187	2.13	77
Surface 1/	3	39	1.14	14.83	1.22	16.18	243	344,906	2,630,101	-----	-----	-----
Total or average	155	8,139	.92	48.41	.45	23.55	221	21,111,344	168,121,877	345,603,653	2.06	3,450
Strip mines:												
1 to 4	1	24	.46	11.06	.13	3.08	172	264,781	2,170,110	7,780,185	3.59	595
5 to 9	6	78	1.09	14.22	.29	3.76	204	653,010	5,483,612	20,768,246	3.79	484
10 to 19	6	137	.90	20.50	.24	5.59	214	789,930	6,681,355	24,501,668	3.67	279
20 to 34	4	78	.72	14.10	.16	3.20	245	678,192	5,531,365	24,397,504	4.41	113
35 to 49	2	57	.56	15.90	.12	3.46	257	434,981	3,584,502	16,482,551	4.60	41
50 to 99	4	198	.50	24.70	.09	4.60	282	1,692,981	8,016,533	43,045,765	5.37	51
100 to 149	2	174	.41	35.86	.07	5.98	317	1,045,150	4,851,535	29,089,959	6.00	17
150 to 249	---	102	---	25.28	---	3.62	274	531,131	4,038,572	28,197,130	6.98	10
250 or more	---	3	---	4.95	---	.96	272	85,656	606,029	3,124,271	5.16	1
Total or average	25	851	.61	20.77	.13	4.31	246	5,129,341	40,963,633	197,397,279	4.82	1,591
Auger mines:												
1 to 4	2	37	2.45	45.34	.37	6.78	139	97,359	815,983	5,454,659	6.68	295
5 to 9	---	32	1.46	30.54	---	5.72	143	125,900	1,047,877	5,596,102	5.34	138
10 to 19	1	15	1.46	21.92	.33	4.94	152	83,809	684,305	3,033,821	4.43	44
20 to 34	---	6	---	22.09	---	5.29	107	34,601	271,662	1,135,217	4.18	13
35 or more	---	1	---	4.31	---	1.41	150	29,325	230,271	710,219	3.08	5
Total or average	3	91	.98	29.84	.19	5.71	140	370,994	3,050,098	15,930,018	5.22	495
Total or average, mining	183	9,081	.86	42.81	.33	16.25	224	26,611,679	212,135,608	558,930,950	2.63	5,536
Mechanical cleaning plants:												
1 to 4	---	24	---	60.16	---	---	200	49,354	398,914	---	---	94
5 to 9	2	45	1.99	44.77	---	---	221	129,803	1,005,169	---	---	85
10 to 19	1	76	.24	29.80	---	---	237	340,579	2,550,176	---	---	104
20 to 34	1	98	.24	23.85	---	---	247	559,710	4,108,975	---	---	88
35 to 49	1	60	.40	23.79	---	---	248	344,257	2,522,545	---	---	34
50 to 99	1	34	.28	9.46	---	---	257	489,689	3,595,825	---	---	30
100 to 149	---	4	---	8.51	---	---	265	66,095	469,888	---	---	2
150 or more	---	3	---	4.81	---	---	333	85,590	624,308	---	---	---
Total or average	7	344	.46	22.52	---	---	246	2,065,067	15,275,800	---	---	439
Total or average	190	9,425	.84	41.44	.34	16.86	225	28,676,746	227,411,408	558,930,950	2.46	5,975
Grand total	---	---	---	---	---	---	---	---	---	---	---	---

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 29. - Injury experience, worktime, and production data on Pennsylvania anthracite mines, by number of men employed, 1969

Number of men employed	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations				
	Per million man-hours		Per million tons		Average days active	Man-days worked								Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal													
Underground mines (includes surface works):																	
1 to 4	2	11	3.93	21.62	5.77	31.75	385	195	74,939	508,866	346,412	0.68	122				
5 to 9	---	20	---	42.42	---	53.94	286	241	69,060	471,497	370,784	1.79	44				
10 to 19	3	47	6.08	95.23	7.83	122.71	280	261	73,099	493,537	383,007	1.78	22				
20 to 34	2	16	10.46	83.67	9.72	77.74	111	259	26,703	191,223	205,826	1.08	5				
35 to 49	---	---	---	---	---	---	---	---	---	---	---	---	---				
50 to 99	---	---	---	---	---	---	---	---	---	---	---	---	---				
100 to 149	---	3	---	13.29	---	---	124	234	29,001	225,710	---	---	---				
150 to 249	---	47	---	68.81	---	206.55	366	245	89,521	683,058	---	---	1				
250 or more	1	72	1.75	126.21	1.88	135.11	339	237	80,306	570,473	227,547	.33	2				
Surface 1/	---	3	---	24.58	---	---	65	231	15,031	122,069	532,887	.93	1				
Total or average	8	219	2.45	67.05	3.87	105.98	1,956	235	459,660	3,266,433	2,066,463	.63	197				
Strip mines:																	
1 to 4	---	---	---	---	---	---	86	190	16,304	125,062	176,389	1.41	37				
5 to 9	---	18	---	58.90	---	37.23	216	202	43,638	305,628	483,440	1.58	31				
10 to 19	---	21	---	30.95	---	24.74	383	243	93,114	678,430	848,903	1.25	28				
20 to 34	1	19	1.54	29.16	1.02	19.38	318	284	90,406	651,485	980,161	1.50	14				
35 to 49	---	3	---	12.05	---	8.86	116	281	32,610	248,938	338,486	1.36	3				
50 or more	2	55	1.53	41.99	1.20	32.89	668	271	180,843	1,309,776	1,672,470	1.28	11				
Total or average	3	116	.90	34.95	.67	25.78	1,787	256	456,915	3,319,319	4,499,849	1.36	124				
Culm banks:																	
1 to 4	---	5	---	34.58	---	4.38	138	141	19,428	144,590	1,141,132	7.89	58				
5 to 9	---	2	---	13.50	---	3.34	128	159	20,297	148,129	598,807	4.04	20				
10 to 19	---	2	---	10.64	---	1.72	147	176	25,810	187,888	1,165,132	6.20	12				
20 or more	---	1	---	9.02	---	4.09	75	198	14,828	110,881	244,413	2.20	3				
Total or average	---	10	---	16.91	---	3.18	488	165	80,363	591,488	3,149,484	5.32	93				
Dredges:																	
1 to 4	---	---	---	---	---	---	8	125	1,000	8,280	15,573	1.88	3				
5 to 9	---	---	---	---	---	---	8	240	1,920	15,360	52,842	3.44	1				
10 to 19	---	---	---	---	---	---	---	---	---	---	---	---	---				
20 to 34	---	---	---	---	---	---	---	---	---	---	---	---	---				
35 or more	---	---	---	---	---	---	45	332	14,961	119,683	466,954	3.90	1				
Total or average	---	---	---	---	---	---	61	293	17,881	143,323	535,369	3.74	5				
Total or average, mining	11	345	1.50	47.13	1.07	33.65	4,292	236	1,014,819	7,320,563	10,251,165	1.40	419				
Mechanical cleaning plants:																	
1 to 4	1	4	7.51	30.03	---	---	93	188	17,500	133,207	---	---	36				
5 to 9	---	26	---	68.97	---	---	221	219	48,504	371,610	---	---	34				
10 to 19	---	17	---	44.77	---	---	213	239	50,943	379,752	---	---	16				
20 to 34	---	56	---	59.33	---	---	346	234	80,982	606,742	---	---	13				
35 to 49	---	13	---	48.79	---	---	160	217	36,360	266,454	---	---	4				
50 to 99	1	22	1.51	33.25	---	---	385	217	83,870	661,734	---	---	6				
100 or more	---	29	---	87.23	---	---	217	202	43,877	332,468	---	---	2				
Total or average	2	147	.73	53.42	---	---	1,635	221	361,836	2,751,967	---	---	111				
Grand total or average	13	492	1.29	48.85	1.27	47.99	5,927	232	1,376,655	10,072,530	10,251,165	1.02	530				

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 30. - Injury experience, worktime, and production data on bituminous coal mines in the United States, by length of shift, 1969

Length of shift, hours	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
	Fatal	Nonfatal	Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Underground mines (includes surface works):													
5.5 to 6.4	---	4	---	83.75	---	81.99	151	7,981	47,762	48,788	1.02	25	
6.5 to 7.4	---	24	---	32.93	---	28.39	202	101,275	728,837	845,314	1.16	66	
7.5 to 8.4	151	7,983	0.92	18.82	0.44	23.44	221	20,517,598	163,519,189	340,569,096	2.08	3,326	
8.5 to 9.4	1	85	.87	74.15	.25	20.94	249	132,895	1,146,360	4,059,184	3.54	21	
All other	---	4	---	80.60	---	49.22	145	6,689	49,688	81,271	1.64	12	
Surface 1/	3	39	1.14	14.83	---	---	243	344,906	2,630,101	---	---	---	
Total or average	155	8,139	.92	48.41	.45	23.55	221	21,111,344	168,121,877	345,603,653	2.06	3,450	
Strip mines:													
5.5 to 6.4	---	---	---	---	---	---	94	472	2,857	5,422	1.90	4	
6.5 to 7.4	3	247	0.32	26.55	0.05	4.32	282	1,295,181	9,303,012	57,217,020	6.15	99	
7.5 to 8.4	18	475	.74	19.22	.16	4.15	232	3,068,615	24,339,276	114,584,172	4.71	1,177	
8.5 to 9.4	2	66	.53	17.50	.15	5.03	255	420,647	3,772,061	13,121,032	3.48	172	
All other	2	63	.53	17.76	.16	5.05	247	394,426	3,946,427	12,469,633	3.52	139	
Total or average	25	851	.61	20.77	.13	4.31	246	5,129,341	40,963,633	197,397,279	4.82	1,591	
Auger mines:													
5.5 to 6.4	---	---	---	---	---	---	183	366	2,196	41,356	18.83	1	
6.5 to 7.4	---	11	---	54.15	---	12.04	138	27,949	203,136	913,388	4.50	17	
7.5 to 8.4	---	56	---	25.74	---	4.96	133	271,659	2,175,931	11,300,354	5.19	365	
8.5 to 9.4	3	15	7.35	36.75	1.45	7.24	189	45,343	408,214	2,071,388	5.07	76	
All other	---	9	---	34.53	---	5.61	166	25,677	260,621	1,603,532	6.15	36	
Total or average	3	91	.98	29.84	.19	5.71	140	370,994	3,050,098	15,930,018	5.22	495	
Total or average, mining	183	9,081	.86	42.81	.33	16.25	224	26,611,679	212,135,608	598,930,950	2.63	5,536	
Mechanical cleaning plants:													
5.5 to 6.4	---	---	---	---	---	---	---	---	---	---	---	---	---
6.5 to 7.4	5	272	.41	22.08	---	---	247	1,698,160	12,317,715	---	---	---	
7.5 to 8.4	2	63	.76	24.06	---	---	241	330,597	2,617,970	---	---	290	
8.5 to 9.4	---	2	---	10.40	---	---	258	21,455	192,322	---	---	122	
All other	---	7	---	47.36	---	---	232	14,855	147,793	---	---	14	
Total or average	7	344	.46	22.52	---	---	246	2,065,067	15,275,800	---	---	13	
Grand total or average	190	9,425	.84	41.44	.34	16.86	225	28,676,746	227,411,408	598,930,950	2.46	5,975	

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 31. - Injury experience, worktime, and production data on Pennsylvania anthracite mines, by length of shift, 1969

Length of shift, hours	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
	Per million man-hours		Per million tons		Fatal	Nonfatal							
	Fatal	Nonfatal	Fatal	Nonfatal									
Underground mines (includes surface works):													
5.5 to 6.4	3	10	8.91	29.69	8.56	28.54	225	244	54,820	336,781	350,339	1.04	39
6.5 to 7.4	5	145	2.96	89.92	3.66	106.16	1,028	235	241,792	1,687,594	1,365,858	.81	120
7.5 to 8.4	--	57	--	54.07	--	198.41	573	239	136,892	1,054,230	287,285	.27	21
8.5 to 9.4	--	2	--	106.01	--	86.06	15	141	2,121	18,867	23,240	1.23	2
All other	--	2	--	42.65	--	50.33	50	180	9,004	46,892	39,741	.85	15
Surface $\frac{1}{2}$	--	3	--	24.53	--	--	65	231	15,031	122,069	--	--	--
Total or average	8	219	2.45	67.05	3.87	105.98	1,956	235	459,660	3,266,433	2,066,463	.63	197
Strip mines:													
5.5 to 6.4	--	--	--	--	--	--	16	320	5,125	29,648	28,874	.97	2
6.5 to 7.4	3	95	1.29	40.98	.86	27.29	1,289	256	329,553	2,318,458	3,480,638	1.50	80
7.5 to 8.4	--	21	--	22.08	--	21.76	472	254	119,981	950,913	965,256	1.02	40
8.5 to 9.4	--	--	--	--	--	--	10	226	2,256	20,300	25,061	1.24	2
All other	--	--	--	--	--	--	--	--	--	--	--	--	--
Total or average	3	116	.90	34.95	.67	25.78	1,787	256	456,915	3,319,319	4,499,819	1.36	124
Culm banks:													
5.5 to 6.4	--	--	--	--	--	--	6	42	252	1,512	3,840	2.54	3
6.5 to 7.4	--	4	--	10.77	--	2.42	321	164	52,531	371,390	1,655,536	4.46	56
7.5 to 8.4	--	6	--	28.70	--	4.10	141	187	26,301	209,051	1,461,819	6.99	28
8.5 to 9.4	--	--	--	--	--	--	10	77	773	6,732	14,675	2.18	4
All other	--	--	--	--	--	--	10	51	506	2,803	13,614	4.86	2
Total or average	--	10	--	16.91	--	3.18	488	165	80,363	591,488	3,149,484	5.32	93
Dredges:													
7.5 to 8.4	--	--	--	--	--	--	59	301	17,741	141,923	530,269	3.74	4
All other	--	--	--	--	--	--	2	70	140	1,400	5,100	3.64	1
Total or average	--	--	--	--	--	--	61	293	17,881	143,323	535,369	3.74	5
Total or average, mining	11	345	1.50	47.13	1.07	33.65	4,292	236	1,014,819	7,320,563	10,251,165	1.40	419
Mechanical cleaning plants:													
5.5 to 6.4	--	--	--	--	--	--	14	264	3,694	22,796	--	--	2
6.5 to 7.4	1	69	.81	56.19	--	--	812	216	172,112	1,227,921	--	--	49
7.5 to 8.4	1	60	.93	59.66	--	--	589	232	136,428	1,077,899	--	--	44
8.5 to 9.4	--	18	--	42.78	--	--	213	217	46,217	420,753	--	--	13
All other	--	--	--	--	--	--	7	55	385	2,598	--	--	3
Total or average	2	147	.73	53.42	--	--	1,635	221	361,836	2,751,967	--	--	111
Grand total or average	13	492	1.29	48.85	1.27	47.99	5,927	232	1,376,655	10,072,530	10,251,165	1.02	530

$\frac{1}{2}$ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 32. - Injury experience, worktime, and production data on bituminous coal mines in the United States, by number of shifts, 1969

Number of shifts	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Underground mines (includes surface works):													
1	38	1,002	1.62	42.80	0.97	25.68	18,685	157	2,935,514	23,413,629	39,013,257	1.67	2,694
2	57	3,750	.97	63.67	.44	29.02	32,259	229	7,333,690	58,898,127	129,214,483	2.19	516
3	5	3,251	.70	40.03	.33	18.66	41,972	243	10,188,465	81,207,968	174,252,445	2.15	229
Combination	---	97	---	49.19	---	31.06	1,105	225	248,769	1,972,112	3,123,468	1.58	11
Surface 1/	3	39	1.14	14.83	---	---	1,418	243	344,906	2,630,101	---	---	---
Total or average	155	8,139	.92	48.41	.45	23.55	95,439	221	21,111,344	168,121,877	345,603,653	2.06	3,450
Strip mines:													
1	14	281	.80	16.08	.19	3.85	10,092	216	2,179,729	17,477,838	73,067,013	4.18	1,181
2	8	328	.59	24.17	.11	4.42	6,409	260	1,669,327	13,572,595	74,166,336	5.46	297
3	2	207	.25	25.86	.05	5.32	3,542	292	1,033,674	8,004,151	38,902,090	4.86	86
Combination	1	35	.52	18.33	.09	3.11	844	292	246,611	1,909,139	11,561,840	5.90	27
Total or average	25	851	.61	20.77	.13	4.31	20,887	246	5,129,341	40,963,633	197,397,279	4.82	1,591
Auger mines:													
1	1	73	.40	29.16	.08	5.62	2,211	138	305,819	2,503,501	12,980,846	5.19	449
2	2	18	3.66	32.93	.68	6.10	438	149	65,175	546,597	2,949,172	5.40	46
Total or average	3	91	.98	29.84	.19	5.71	2,649	140	370,994	3,050,098	15,930,018	5.22	495

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 33. - Injury experience, worktime, and production data on Pennsylvania anthracite mines, by number of shifts, 1969

Number of shifts	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Underground mines (includes surface works):													
1	7	83	4.39	52.10	5.69	67.41	1,022	230	235,089	1,593,020	1,231,301	0.77	189
2	1	83	1.57	130.24	1.65	136.93	375	241	90,262	637,284	606,154	.95	4
3	---	47	---	68.81	---	206.55	366	245	89,521	683,058	227,547	.33	2
Combination	---	3	---	12.99	---	2,053.39	128	232	29,757	231,002	1,461	.01	2
Surface 1/	---	3	---	24.58	---	---	65	231	15,031	122,069	---	---	---
Total or average	8	219	2.45	67.05	3.87	105.98	1,956	235	459,660	3,266,433	2,056,463	.63	197
Strip mines:													
1	---	18	---	23.56	---	19.82	460	216	99,578	763,885	908,347	1.19	65
2	1	8	1.10	21.14	3.32	26.56	191	264	50,388	378,507	301,198	1.80	10
3	2	63	1.10	34.70	.76	23.94	881	191	256,340	1,815,119	2,631,119	1.45	32
Combination	---	27	---	74.77	---	40.96	255	198	50,609	361,124	659,185	1.83	17
Total or average	3	116	.90	34.95	.67	25.78	1,787	256	456,915	3,319,319	4,499,849	1.36	124

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 34. - Injury experience, worktime, and production data on bituminous coal mines in the United States, by days-active group, 1962

Days-active group	Number of injuries		Frequency rates				Average men working daily	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
	Per million man-hours		Per million tons		Average days active							
	Fatal	Nonfatal	Fatal	Nonfatal								
Underground mines (includes surface works):												
1 to 49	8	32	11.14	44.57	7.29	29.14	3.140	90,178	718,024	1,098,088	1.53	502
50 to 99	4	76	1.77	33.63	1.04	19.81	3.854	283,540	2,260,174	3,837,256	1.70	615
100 to 149	2	217	5.1	55.08	.28	30.29	3.960	893,736	3,939,422	7,164,867	1.82	496
150 to 199	9	359	1.30	43.90	.80	29.99	4.912	1,711,229	6,933,040	11,303,380	1.63	475
200 to 249	107	5,810	.88	47.92	.43	23.10	63,719	15,228,674	251,569,453	2,081,754	2.08	1,083
250 to 299	21	1,578	.71	53.38	.30	22.84	14,116	3,693,343	29,561,757	69,081,754	2.34	254
300 or more	1	48	1.18	56.74	.65	30.99	320	105,738	845,947	1,548,855	1.83	25
Surface 1/	3	39	1.14	14.83	---	---	1,418	344,906	2,630,101	---	---	---
Total or average	155	8,139	.92	48.41	.45	23.55	95,439	21,111,344	168,121,877	345,603,653	2.06	3,450
Strip mines:												
1 to 49	1	6	6.38	38.26	1.12	6.74	725	19,512	156,815	890,051	5.68	144
50 to 99	1	14	1.07	14.94	.25	3.46	1,499	116,509	936,940	4,040,737	4.31	208
100 to 149	1	29	.60	17.49	.16	4.57	1,551	199,922	1,657,733	6,348,703	3.83	182
150 to 199	4	38	2.33	22.12	.50	4.73	1,166	211,337	1,717,853	8,029,340	4.67	153
200 to 249	4	119	.50	14.78	.10	3.00	4,158	1,032,909	8,054,102	39,636,489	4.92	343
250 to 299	9	372	.54	22.42	.10	4.27	7,279	2,085,075	16,593,120	87,203,872	5.26	332
300 or more	5	273	.42	23.04	.10	5.33	4,509	1,464,077	11,847,070	51,246,087	4.33	229
Total or average	25	851	.61	20.77	.13	4.31	20,887	5,129,341	40,963,633	197,397,279	4.82	1,591
Auger mines:												
1 to 49	---	5	---	53.30	---	10.46	417	11,716	93,814	478,079	5.10	61
50 to 99	---	11	---	33.57	---	5.96	568	40,105	327,713	1,845,091	5.63	102
100 to 149	---	10	---	21.51	---	3.99	468	57,659	464,911	2,508,222	5.40	100
150 to 199	---	21	---	39.23	---	7.31	380	64,659	534,531	2,870,900	5.37	95
200 to 249	1	31	1.02	31.59	.22	6.79	525	120,585	981,444	4,566,471	4.65	94
250 to 299	2	12	3.38	20.27	.64	3.82	270	69,788	592,069	3,145,464	5.31	34
300 or more	---	1	---	17.98	---	1.94	21	6,502	55,616	515,791	9.27	9
Total or average	3	91	.98	29.84	.19	5.71	2,649	370,994	3,050,098	15,930,018	5.22	495
Total or average, mining	183	9,081	.86	42.81	.33	16.25	118,975	26,611,679	212,135,608	558,930,950	2.63	5,536
Mechanical cleaning plants:												
1 to 49	---	1	---	25.36	---	---	176	5,306	39,439	---	---	18
50 to 99	---	1	---	16.17	---	---	110	8,389	61,830	---	---	17
100 to 149	---	3	---	28.02	---	---	109	13,977	107,080	---	---	13
150 to 199	---	31	---	56.23	---	---	356	70,018	532,412	---	---	36
200 to 249	7	198	.74	20.82	---	---	5,284	1,298,314	9,508,464	---	---	239
250 to 299	---	89	---	22.82	---	---	1,696	518,458	3,900,207	---	---	93
300 or more	---	21	---	18.64	---	---	469	150,625	1,126,368	---	---	23
Total or average	7	344	.46	22.52	---	---	8,400	2,065,067	15,275,800	---	---	439
Grand total or average -	190	9,425	.84	41.44	.34	16.86	127,375	28,676,746	227,411,408	558,930,950	2.46	5,975

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 35. - Injury experience, worktime, and production data on Pennsylvania anthracite mines, by days-active group, 1969

Days-active group	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of operations
			Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Underground mines (includes surface works):													
1 to 49	1	---	132.87	---	213.27	40	29	1,142	7,526	4,689	0.62	13	
50 to 99	---	2	---	78.66	---	53	75	3,977	25,425	9,916	.39	16	
100 to 149	---	2	---	42.91	---	55	115	6,347	46,604	25,519	.55	13	
150 to 199	1	6	12.51	75.04	17.67	73	175	12,761	79,953	56,604	.71	17	
200 to 249	5	142	2.48	70.50	4.30	1,163	237	276,086	2,014,205	1,163,619	.58	60	
250 to 299	---	28	---	48.64	---	307	273	83,788	575,654	441,624	.77	59	
300 or more	1	36	2.53	91.14	2.74	200	303	60,528	394,997	364,492	.92	19	
Surface 1/	1	3	---	24.58	---	65	231	15,031	122,069	---	---	---	
Total or average	8	219	2.45	67.05	3.87	1,956	235	459,660	3,266,433	2,066,463	.63	197	
Strip mines:													
1 to 49	---	2	---	230.41	---	79	15	1,196	8,680	15,442	1.78	7	
50 to 99	---	---	---	---	---	70	74	5,206	40,467	47,690	1.18	9	
100 to 149	---	---	---	---	---	49	132	6,487	46,935	83,823	1.79	13	
150 to 199	1	14	4.87	68.16	3.42	161	179	28,793	205,401	292,801	1.43	19	
200 to 249	1	29	1.96	56.80	1.40	300	232	69,685	510,561	715,996	1.40	19	
250 to 299	46	46	---	34.47	---	632	289	182,931	1,334,576	1,697,200	1.27	33	
300 or more	1	25	.85	21.32	.61	496	328	162,617	1,172,699	1,646,897	1.40	24	
Total or average	3	116	.90	34.95	.67	1,787	256	456,915	3,319,319	4,499,849	1.36	124	
Culm banks:													
1 to 49	---	---	---	---	---	60	29	1,726	12,589	79,828	6.34	21	
50 to 99	---	---	---	---	---	85	66	5,651	40,820	262,593	6.43	18	
100 to 149	---	---	---	---	---	62	130	8,055	57,804	200,885	3.47	10	
150 to 199	3	---	---	51.86	---	62	183	11,349	81,983	319,714	3.90	13	
200 to 249	---	1	---	4.49	---	130	232	30,168	222,839	876,893	3.94	16	
250 to 299	---	6	---	34.62	---	88	263	23,114	173,313	1,405,846	8.11	14	
300 or more	---	---	---	---	---	1	300	300	2,100	3,725	1.77	1	
Total or average	---	10	---	16.91	---	488	165	80,363	591,488	3,149,484	5.32	93	
Dredges:													
50 to 99	---	---	---	---	---	2	70	140	1,400	5,100	3.64	1	
100 to 149	---	---	---	---	---	4	110	220	1,760	3,473	1.97	1	
150 to 199	---	---	---	---	---	8	160	640	5,120	7,000	1.37	1	
200 to 249	---	---	---	---	---	---	240	1,920	15,360	52,842	3.44	1	
250 to 299	---	---	---	---	---	---	---	---	---	---	---	---	
300 or more	---	---	---	---	---	45	332	14,961	119,683	466,954	3.90	1	
Total or average	---	---	---	---	---	61	293	17,681	143,323	535,369	3.74	5	
Mechanical cleaning plants:													
1 to 49	---	---	---	---	---	17	23	385	3,048	---	---	4	
50 to 99	---	---	---	---	---	30	81	2,419	18,189	---	---	10	
100 to 149	---	---	---	---	---	44	143	6,297	47,108	---	---	4	
150 to 199	1	5	2.39	52.63	---	317	174	55,240	418,052	---	---	21	
200 to 249	1	22	.68	54.24	---	854	226	193,158	1,474,813	---	---	34	
250 to 299	---	36	---	58.49	---	300	274	88,152	615,526	---	---	26	
300 or more	---	3	---	17.12	---	73	304	22,185	175,231	---	---	12	
Total or average	2	147	.73	53.42	---	1,635	221	361,836	2,751,967	---	---	111	
Grand total or average	13	492	1.29	48.85	1.27	5,927	232	1,376,655	10,072,530	10,251,165	1.02	530	

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 36. - Injury experience, worktime, and production data on underground bituminous coal mines (underground plus associated surface) in the United States, by thickness of bed or vein, 1969

Thickness of bed or vein, inches	Number of injuries		Frequency rates				Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons							
			Fatal	Nonfatal	Fatal	Nonfatal						
Less than 25	---	4	20.32	29.02	---	194	158	196,893	137,813	0.70	43	
25 to 36	21	720	1.45	49.83	0.86	9,907	183	14,448,370	24,443,070	1.69	936	
37 to 48	38	2,239	1.01	59.47	.57	22,273	212	37,652,144	67,032,393	1.78	1,019	
49 to 60	36	2,445	.91	56.40	.42	22,710	232	41,866,511	91,503,154	2.19	444	
61 to 72	31	1,171	1.09	41.09	.52	15,093	237	28,501,182	60,046,536	2.11	228	
73 to 84	10	655	.53	34.93	.22	9,686	243	18,752,196	46,138,893	2.46	122	
85 to 96	6	380	.49	30.83	.22	6,337	250	12,323,138	27,740,215	2.25	63	
97 to 108	3	203	.71	47.79	.09	2,099	238	4,248,161	12,788,091	3.01	19	
109 and more	1	183	.21	39.08	.23	2,476	238	589,205	4,683,006	2.36	40	
Not stated	4	100	1.42	35.48	.85	3,246	109	2,818,175	11,098,377	1.67	536	
Surface 1/	3	39	1.14	14.83	---	1,418	243	2,630,101	---	---	---	
Total or average	155	8,139	.92	48.41	.45	95,439	221	21,111,344	345,603,653	2.06	3,450	

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 37. - Injury experience, worktime, and production data on underground Pennsylvania anthracite mines (underground plus associated surface), by thickness of bed or vein, 1969

Thickness of bed or vein, inches	Number of injuries		Frequency rates				Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons							
			Fatal	Nonfatal	Fatal	Nonfatal						
Less than 25	---	---	---	---	---	---	---	---	---	---	---	---
25 to 36	---	3	37.47	76.62	---	49	228	80,065	39,054	0.49	12	
37 to 48	1	12	3.58	4.48	4.48	176	243	279,296	222,977	.80	31	
49 to 60	1	13	4.18	54.38	5.73	157	221	239,055	174,522	.73	38	
61 to 72	3	84	3.69	103.34	4.07	482	241	812,862	736,261	.91	26	
73 to 84	---	15	68.62	92.67	---	129	250	218,589	161,871	.74	23	
85 to 96	---	8	18.33	46.22	---	268	227	436,355	173,082	.40	22	
97 to 108	---	51	66.54	167.92	---	421	243	766,449	303,714	.85	16	
109 and more	3	29	10.33	92.89	12.21	189	217	290,329	245,613	.85	23	
Not stated	---	1	46.81	106.74	---	20	170	21,364	9,369	.44	6	
Surface 1/	---	3	24.58	---	---	65	231	122,069	---	---	---	
Total or average	8	219	2.45	67.05	3.87	1,956	235	3,266,433	2,066,463	.63	197	

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 38. - Injury experience, worktime, and production data on bituminous coal mines in the United States, by production group, 1969

Production group, tons	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production short tons	Tons per man-hour	Number of mines
			Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Underground mines (includes surface works):													
Less than 25,000	24	458	1.89	36.04	1.50	28.71	13,354	1,597,819	12,707,122	15,951,495	1.26	2,399	
25,000 to 49,999	5	320	.69	44.18	.40	34.91	4,651	904,658	7,242,397	12,386,971	1.71	348	
50,000 to 99,999	14	512	1.81	66.07	.95	35.91	4,706	968,657	7,749,767	14,667,749	1.89	208	
100,000 to 249,999	24	1,089	1.45	65.81	.72	32.55	9,055	2,075,327	16,546,652	33,458,631	2.02	207	
250,000 to 499,999	23	1,515	1.00	65.85	.53	35.08	12,496	2,887,016	23,008,413	43,190,534	1.88	119	
500,000 to 749,999	20	1,000	.96	48.11	.48	23.99	10,811	2,604,921	20,787,777	41,663,576	2.01	69	
750,000 to 999,999	15	794	.74	38.93	.36	18.99	10,129	2,566,160	20,397,674	44,822,527	2.05	118	
1,000,000 or more	27	2,412	.47	42.28	.19	16.93	28,619	7,161,880	57,051,974	142,442,170	2.50	92	
Surface 1/	3	39	1.14	14.83	----	----	1,418	344,906	2,630,101	-----	----	----	
Total or average	155	8,139	.92	48.41	.45	23.55	95,439	21,111,344	168,121,877	345,603,653	2.06	3,450	
Strip mines:													
Less than 25,000	2	46	.56	12.90	.28	6.44	3,130	433,135	3,566,527	7,140,404	2.00	727	
25,000 to 49,999	3	54	.91	16.34	.29	5.18	1,945	394,894	3,304,767	10,414,818	3.15	292	
50,000 to 99,999	4	80	.87	13.44	.22	4.33	3,153	714,292	2,952,131	18,475,955	3.10	261	
100,000 to 249,999	5	81	.80	12.90	.21	3.36	2,924	733,707	6,277,186	24,105,410	3.84	163	
250,000 to 499,999	4	81	1.02	20.65	.21	4.35	1,729	479,120	3,923,268	18,612,912	4.74	54	
500,000 to 749,999	4	73	1.34	24.46	.24	4.32	1,408	377,516	2,984,603	16,884,362	5.66	29	
750,000 to 999,999	1	83	.35	29.04	.06	5.07	1,270	370,506	2,858,083	16,384,297	5.73	19	
1,000,000 or more	2	353	.17	29.18	.02	4.13	5,328	1,606,171	12,097,068	85,379,121	7.06	16	
Total or average	25	851	.61	20.77	.13	4.31	20,887	5,129,341	40,963,633	197,397,279	4.82	1,591	
Auger mines:													
Less than 25,000	1	36	1.12	40.27	.30	10.79	1,128	108,430	893,917	3,336,504	3.73	305	
25,000 to 49,999	1	20	1.43	28.65	.27	5.43	625	85,822	698,009	3,681,161	5.27	100	
50,000 to 99,999	---	23	---	30.81	---	5.19	497	90,656	746,420	4,430,159	5.94	63	
100,000 to 249,999	1	10	1.80	18.04	.29	3.19	319	66,917	554,368	3,399,805	6.13	24	
250,000 or more	---	2	---	12.71	---	1.85	80	19,169	157,384	1,082,389	6.88	3	
Total or average	3	91	.98	29.84	.19	5.71	2,649	370,994	3,050,098	15,930,018	5.22	495	

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 39. - Injury experience, worktime, and production data on Pennsylvania anthracite mines, by production group, 1969

Production group, tons	Number of injuries		Frequency rates						Average men working daily	Average days active	Man-days worked	Man-hours worked	Production short tons	Tons per man-hour	Number of mines
			Per million man-hours		Per million tons		Fatal	Nonfatal							
			Fatal	Nonfatal	Fatal	Nonfatal									
Underground mines (includes surface works):															
Less than 25,000	4	73	2.47	45.14	4.13	75.38	1.034	225	232,960	1,617,104	968,389	0.60	185		
25,000 to 49,999	2	19	10.10	95.94	8.56	81.34	110	278	30,570	198,032	233,599	1.18	7		
50,000 to 99,999	1	5	13.21	66.05	9.61	48.06	42	268	11,272	75,697	104,041	1.37	2		
100,000 to 249,999	-	47	-----	68.81	-----	206.55	366	245	89,521	683,058	227,247	.33	2		
250,000 or more	1	72	1.75	126.21	1.88	135.11	339	237	80,306	570,473	532,887	.93	1		
Surface 1/	3	3	-----	24.58	-----	-----	65	231	15,031	122,069	-----	-----	-----		
Total or average	8	219	2.45	67.05	3.87	105.98	1,956	235	459,660	3,266,433	2,066,463	.63	197		
Strip mines:															
Less than 25,000	-	16	-----	23.16	-----	24.12	537	175	94,139	690,915	663,378	.96	80		
25,000 to 49,999	1	19	2.43	46.13	1.58	30.02	224	261	58,383	411,877	632,884	1.54	17		
50,000 to 99,999	-	19	-----	25.72	-----	21.61	325	299	97,109	738,668	879,185	1.19	12		
100,000 to 249,999	2	54	1.68	45.33	1.11	50.02	574	290	166,339	1,191,248	1,798,703	1.51	13		
250,000 or more	-	8	-----	27.91	-----	15.22	127	322	40,945	286,611	525,699	1.83	2		
Total or average	3	116	.90	34.95	.67	25.78	1,787	256	456,915	3,319,319	4,499,849	1.36	124		
Chulm banks:															
Less than 25,000	-	1	-----	5.07	-----	2.22	231	117	27,066	197,109	449,829	2.28	61		
25,000 to 49,999	-	4	-----	48.57	-----	8.90	63	177	11,179	82,348	449,644	5.46	13		
50,000 to 99,999	-	5	-----	33.47	-----	7.60	95	211	20,032	149,390	657,880	4.40	10		
100,000 to 249,999	-	---	-----	-----	-----	-----	78	220	17,170	124,726	1,019,155	8.17	7		
250,000 or more	-	---	-----	-----	-----	-----	21	234	4,916	37,915	572,976	15.11	2		
Total or average	-	10	-----	16.91	-----	3.18	488	165	80,363	591,488	3,149,484	5.32	93		
Dredges:															
Less than 25,000	-	---	-----	-----	-----	-----	8	125	1,000	8,280	15,573	1.88	3		
25,000 to 49,999	-	---	-----	-----	-----	-----	8	240	1,920	15,360	52,842	3.44	1		
50,000 to 99,999	-	---	-----	-----	-----	-----	45	332	14,961	119,683	466,994	3.90	1		
100,000 to 249,999	-	---	-----	-----	-----	-----	61	293	17,881	143,323	535,369	3.74	5		
250,000 or more	-	---	-----	-----	-----	-----	---	---	---	---	---	---	---		
Total or average	-	---	-----	-----	-----	-----	---	---	---	---	---	---	---		

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 40. - Injury experience, worktime, and production data on underground bituminous coal mines (underground plus associated surface) in the United States, by kind of mine opening, 1969

Kind of opening	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Shaft -----	20	1,413	0.61	43.10	0.29	20.59	244	4,106,236	32,781,026	68,634,542	2.09	109	
Slope -----	32	2,091	.83	54.30	.39	25.62	241	4,846,593	38,506,710	81,615,324	2.12	249	
Drift -----	96	4,507	1.05	49.33	.50	23.64	213	11,456,999	91,369,871	190,634,253	2.09	2,554	
Not stated -----	4	89	1.41	31.40	.85	18.86	109	354,610	2,834,169	4,719,534	1.67	538	
Surface 1/ -----	3	39	1.14	14.83	-----	-----	243	344,906	2,630,101	-----	-----	-----	
Total or average -----	155	8,139	.92	48.41	.45	23.55	221	21,111,344	168,121,877	345,603,653	2.06	3,450	

1/ Data on 30 surface installations that could not be assigned to any single mine.

TABLE 41. - Injury experience, worktime, and production data on underground Pennsylvania anthracite mines (underground plus associated surface), by kind of mine opening, 1969

Kind of opening	Number of injuries		Frequency rates				Average men working daily	Average days active	Man-days worked	Man-hours worked	Production, short tons	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons								
			Fatal	Nonfatal	Fatal	Nonfatal							
Shaft -----	-	3	-----	13.29	-----	-----	234	29,001	225,710	1,895,684	0.70	1	
Slope -----	6	196	2.23	72.69	3.18	103.94	236	382,892	2,696,518	162,831	.83	174	
Drift -----	2	14	10.24	71.65	12.28	85.98	226	28,523	195,382	17,948	.67	16	
Not stated -----	-	3	-----	112.13	-----	167.15	192	4,213	26,754	-----	-----	6	
Surface 1/ -----	-	3	-----	24.58	-----	-----	231	15,031	122,069	-----	-----	-----	
Total or average -----	8	219	2.45	67.05	3.87	105.98	235	499,660	3,266,433	2,066,463	.63	197	

1/ Data on 6 general repair shops that could not be assigned to any single mine.

TABLE 42. - Relative standing of States according to fatal- and nonfatal-injury rates per million man-hours of exposure, 1969

State	Fatality rate	State	Nonfatal-injury rate
Indiana -----	----	Texas -----	----
Missouri -----	----	Washington -----	----
New Mexico -----	----	California -----	----
Maryland -----	----	Arizona -----	----
North Dakota -----	----	Oregon -----	----
Kansas -----	----	Montana -----	10.35
Iowa -----	----	Maryland -----	11.25
Texas -----	----	Alabama -----	14.08
Arkansas -----	----	Kansas -----	15.32
Alaska -----	----	Wyoming -----	15.39
Montana -----	----	North Dakota -----	18.43
Washington -----	----	Iowa -----	20.09
California -----	----	Tennessee -----	21.06
Arizona -----	----	Pennsylvania (bituminous) -	25.90
Oregon -----	----	Colorado -----	29.07
Utah -----	0.45	New Mexico -----	30.83
Alabama -----	.56	Missouri -----	32.03
Pennsylvania (bituminous) -	.63	Ohio -----	33.09
Illinois -----	.67	Oklahoma -----	36.34
Ohio -----	.84	Alaska -----	38.06
U. S. Average (bituminous)	.84	Illinois -----	39.20
U. S. Average (all coal) -	.85	U. S. Average (bituminous)	41.44
Tennessee -----	.92	Indiana -----	41.70
Kentucky -----	.93	U. S. Average (all coal) -	41.76
Virginia -----	.93	Kentucky -----	42.07
West Virginia -----	.97	Pennsylvania (anthracite) -	48.85
Pennsylvania (anthracite) -	1.29	Arkansas -----	51.84
Colorado -----	1.71	West Virginia -----	54.28
Oklahoma -----	4.19	Utah -----	55.72
Wyoming -----	4.20	Virginia -----	57.52

TABLE 13. - Working and production data on coal mines in the United States, by State and general work location, 1969

State	Number of operations										Average men working daily										Man-days of work												
	Underground					Strip					Other					Underground mines					Strip mines					Other					Total mining	Mechanical cleaning plants	Grand total
	Underground	Strip	Other	Total	Grand total	Underground	Strip	Other	Total	Grand total	Underground	Strip	Other	Total	Grand total	Underground	Strip	Other	Total	Grand total	Underground	Strip	Other	Total	Grand total								
																										Mechanical cleaning plants	Total mining	Mechanical cleaning plants	Total mining	Mechanical cleaning plants	Total mining	Mechanical cleaning plants	Total mining
Alabama	76	63	1	140	23	163	3	3,562	1,079	14	4,655	244	1,899	229	710,177	105,044	812,221	245,324	3,344	1,063,889	56,287	1,120,176	18,492	1,138,668	18,492								
Alaska	1	3	1	5	3	8	3	3	62	3	65	3	62	62	420	420	420	18,492	3,344	21,836	---	21,836	---	21,836	---								
Arizona	2	10	1	13	1	14	3	43	62	---	108	3	111	202	8,927	670	9,627	12,236	---	12,236	---	12,236	---	12,236	---								
Arkansas	55	11	1	67	4	71	1	1,160	137	---	1,297	28	1,325	225	216,070	44,794	260,864	39,063	---	255,827	3,966	259,793	287,873	259,793									
California	28	35	63	126	66	192	108	4,361	544	7,337	1,029	8,566	266	1,091,532	158,712	1,250,244	144,131	---	1,394,375	281,596	1,675,971	602,743	1,675,971	602,743									
Colorado	6	33	39	78	15	93	94	4,963	1,920	1,873	302	2,178	277	1,659	36,645	146,860	183,505	35,752	---	229,257	81,734	310,991	40,988	310,991									
Illinois	3	12	1	16	2	18	2	10	108	---	165	165	165	165	11,619	11,619	11,619	11,619	---	11,619	---	11,619	---	11,619	---								
Iowa	1,073	161	136	1,370	55	1,425	2	15,757	1,474	1,021	21,362	28	21,390	297	3,156,919	314,134	3,471,053	743,637	146,410	4,317,463	7,573	4,325,036	4,693,784	4,325,036									
Kentucky	38	10	9	57	5	62	5	115	168	27	340	340	340	340	28,920	1,494	30,414	33,075	5,170	35,584	14,237	49,821	13,368	49,821									
Maryland	1	1	1	3	1	4	1	5	339	---	344	53	397	357	4,265	463	4,728	7,660	---	12,388	---	12,388	---	12,388	---								
Missouri	1	1	1	3	1	4	1	3	47	---	50	50	50	50	25,300	6,437	31,737	59,721	---	87,533	---	87,533	---	87,533	---								
Montana	2	2	2	6	1	7	1	116	28	---	144	11	155	155	814,619	166,765	981,384	832,370	36,663	1,018,043	1,674	1,019,717	1,993,748	1,019,717									
New Mexico	59	223	53	335	23	358	23	3,351	3,120	192	7,310	396	7,706	254	25,163	4,037	29,200	69,659	72	88,178	4,109	92,287	92,287	92,287									
North Dakota	3	8	1	12	3	15	163	17	208	3	32	18	340	340	3,371,009	482,513	3,853,522	944,794	14,707	4,868,283	355,737	5,224,020	5,224,020	5,224,020									
Oklahoma	1	1	1	3	1	4	1	19,795	3,811	126	19,921	1,344	21,139	245	3,371,009	482,513	3,853,522	944,794	14,707	4,868,283	355,737	5,224,020	5,224,020	5,224,020									
Oregon	282	489	48	819	62	881	62	15,953	3,811	126	19,921	1,344	21,139	245	3,371,009	482,513	3,853,522	944,794	14,707	4,868,283	355,737	5,224,020	5,224,020	5,224,020									
Pennsylvania (bituminous)	115	67	11	193	2	195	105	1,460	575	45	2,080	19	2,099	192	258,110	20,224	278,334	113,900	6,512	399,046	4,631	403,677	403,677	403,677									
South Dakota	2	2	2	6	1	7	1	116	116	---	116	116	116	116	116	116	116	116	---	232	---	232	---	232	---								
Tennessee	24	24	24	72	7	79	31	853	232	---	1,085	108	1,193	236	198,980	55,882	254,862	37,245	---	332,107	28,986	361,093	361,093	361,093									
Texas	677	86	94	857	30	887	8,416	892	493	211	9,966	467	10,433	207	1,744,696	173,481	1,918,177	90,724	34,023	2,049,200	113,706	2,162,906	2,162,906	2,162,906									
Utah	4	2	2	8	2	10	8	27	27	---	36	3	39	220	5,228	1,458	6,686	1,458	---	8,144	---	8,144	---	8,144	---								
Virginia	979	299	146	1,424	160	1,584	31,873	3,878	35,752	1,010	39,659	3,242	42,501	214	6,906,631	857,210	7,763,841	1,458,470	124,686	8,988,527	742,671	9,731,198	9,731,198										
West Virginia	5	10	1	16	1	17	10	52	330	---	330	9	339	239	7,260	2,002	9,262	82,635	---	91,897	1,735	93,632	93,632	93,632									
Wyoming	3,460	1,521	495	5,476	439	5,915	84,875	95,439	20,887	2,649	118,975	8,400	127,375	225	18,661,196	2,450,148	21,111,344	5,129,341	370,994	26,611,679	2,655,087	29,266,766	29,266,766										
Grand total or average - bituminous	197	124	98	419	111	530	1,397	559	1,787	949	4,292	1,633	5,927	532	330,145	129,315	459,460	146,915	96,244	1,014,819	361,636	1,376,455	1,376,455	1,376,455									
Grand total or average - anthracite	3,647	1,715	593	5,955	590	6,545	86,272	97,395	22,674	3,198	123,267	10,035	133,302	225	18,994,311	2,579,663	21,573,974	5,586,236	469,238	27,666,498	2,426,903	30,093,401	30,093,401	30,093,401									

See footnote at end of table.

TABLE 13. - Worktime and production data on coal mines in the United States, by State and general work location, 1969--Continued

State	Underground mines				Man-hours of work				Production, short tons				Tons per man-hour		
	Under-ground	Surface	Total	Strip mines	Other surface mining	Total mining	Mechanical cleaning plants	Grand total	Under-ground mines	Strip mines	Other surface mining	Grand total	Under-ground mines	Strip mines	Other surface mining
Alabama	5,697,443	785,569	6,483,012	1,493,454	24,217	8,499,733	424,323	8,875,016	9,304,317	8,072,633	38,753	17,442,703	1.43	4.15	1.60
Alaska	3,360	---	3,360	157,633	---	157,633	---	157,633	---	666,433	---	666,433	---	4.23	---
Arizona	71,656	5,042	76,698	96,928	---	173,626	---	173,626	---	---	---	---	---	1.77	---
Arkansas	---	---	---	2,066,533	---	2,066,533	---	2,330,158	3,630,504	1,079,394	---	5,719,898	1.75	7.88	---
California	1,571,163	10,046,574	11,617,737	5,724,272	---	15,768,646	2,062,995	17,831,601	30,148,629	31,673,324	---	64,761,799	3.00	6.04	---
Colorado	1,029,874	430,158	1,460,032	2,829,905	---	4,030,041	622,268	4,652,309	2,109,951	17,973,345	---	20,083,136	1.75	6.36	---
Illinois	94,312	21,238	115,550	232,564	---	348,414	---	348,414	368,221	---	---	---	---	2.30	---
Indiana	25,096,104	2,412,317	27,508,421	5,824,870	1,209,328	34,542,629	54,591	36,488,840	63,660,334	1,312,775	7,047,296	1,312,775	2.31	2.47	5.83
Iowa	213,618	11,922	225,540	265,574	14,288	330,129	---	330,129	320,907	37,946,819	108,832	1,416,558	1.42	3.72	---
Kentucky	3,366	3,623	7,000	767,442	---	774,442	103,341	877,783	1,277	3,326,972	---	3,328,249	3.8	4.34	---
Kansas	33,876	47,637	81,513	59,166	---	140,679	20,022	160,701	35,314	995,240	---	1,030,594	9.4	16.82	---
Maryland	202,121	249,798	451,919	443,735	---	895,654	13,722	909,376	868,900	3,665,410	---	4,474,310	3.24	8.26	---
Massachusetts	6,516,320	1,244,616	7,760,936	6,995,904	314,429	14,801,249	763,130	15,564,379	18,624,487	30,725,660	---	4,795,660	---	10.02	---
Michigan	269,768	29,191	298,959	453,552	632	684,042	31,428	715,470	116,940	1,713,221	---	51,469,464	2.39	4.59	---
Minnesota	27,041,230	3,570,360	30,611,590	8,032,199	127,180	38,770,969	2,653,286	41,424,255	56,034,705	21,651,398	488,854	78,177,957	1.82	3.78	13.15
Missouri	2,068,140	160,287	2,228,427	227,276	---	2,455,703	33,276	2,488,979	4,041,711	3,446,210	294,524	8,345,445	2.08	3.60	4.58
Montana	1,604,195	410,438	2,014,633	2,014,633	---	4,029,266	122,762	4,152,028	4,661,898	---	---	4,661,898	2.31	---	---
Nebraska	13,922,638	1,339,817	15,262,455	743,206	282,572	16,318,233	896,149	17,214,382	34,321,436	3,559,038	1,613,760	35,536,956	1.99	4.79	5.73
Nevada	46,844	11,664	58,508	3,600	---	62,108	5,260	67,368	120,930,410	14,362,713	---	139,976,944	1.92	1.44	---
New York	55,521,508	6,447,377	61,968,885	3,684,744	999,927	66,482,550	5,445,973	71,928,523	122,511	4,483,407	4,381,421	139,976,944	1.95	4.02	4.61
North Carolina	26,108	15,198	41,306	688,980	---	704,278	12,277	716,555	115,726	148,174	---	4,661,338	1.67	7.13	---
Ohio	---	---	---	---	---	---	---	---	---	---	---	604,230	0.83	1.20	---
Oklahoma	149,681,005	18,440,872	168,121,877	40,963,633	3,050,098	212,135,608	15,278,800	227,414,408	345,603,693	197,397,279	15,930,018	598,930,950	2.06	4.82	5.22
Oregon	2,304,477	961,956	3,266,433	3,319,319	734,811	7,300,963	2,751,947	10,072,950	2,066,463	4,499,849	3,684,893	10,251,165	.63	1.36	1.02
Pennsylvania (anthracite)	151,995,482	19,402,828	171,398,310	44,282,952	3,784,909	219,456,171	18,027,767	237,483,938	347,670,116	201,897,128	19,614,871	569,182,115	2.03	4.56	5.18
Pennsylvania (bituminous)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Texas	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tennessee	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Utah	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Virginia	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Washington	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Virginia	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Wyoming	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
All other	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total or average, bituminous	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pennsylvania (anthracite)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Grand total or average	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

1/ Includes bituminous coal auger mines and anthracite culm banks and dredges.
 2/ Production included in "all other."

TABLE 45. - Number of nonfatal injuries at coal mines in the United States, by State, general work location, and principal causes of injury, 1969

State	Underground														Total underground		
	Falls of roof	Falls of face or rib	Pressure bumps or bursts	Other falling materials or objects	Slips or falls of persons	Handling materials	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosions (gas or dust)	Explosives	Electricity	Machinery		Mine fires	All other
Alabama	15	5		4	6	17	6	5	1	19		2	7		1		
Alaska																	
Arizona																	
Arkansas	2					4	1										
California																	
Colorado	10	1	1	1	7	12	3	2		10		1	1				
Illinois	91	29		8	31	103	12	14		72		31	80				
Indiana	13	3		3	5	19	6		2	14		3	16		6		
Iowa	2					2											
Kansas																	
Kentucky	150	35	1	22	52	256	70	16	7	260		56	213	1	14	4	1,189
Maryland						1											
Missouri	1																
Montana																	
New Mexico							2										
North Dakota	3				1					1							
Ohio	80	10		10	18	75	26	12	3	80		20	85		9		14
Oklahoma	3	1			4	6						6					
Oregon													3				
Pennsylvania (bituminous)	139	17		9	39	210	33	8	7	188		15	169		9		434
South Dakota																	
Tennessee	5	2			2	12	1	1	1	15		3	6				
Texas																	
Utah	15	7	2	6	9	24	3	5	1	10		4	16	1	1		50
Virginia	180	28		17	24	181	40	15	5	155		27	160	4	16		104
Washington																	
West Virginia	469	155	4	34	121	823	171	66	19	696		158	473	26	45		859
Wyoming	1					1											
Total bituminous	1,179	293	8	114	319	1,748	378	144	46	1,524	5	320	1,239	33	103	5	7,228
Pennsylvania (anthracite)	7	8	1	6	37	49	19	4	1	16	8	5	26		2	1	191
All coal	1,186	301	9	120	356	1,797	397	148	47	1,540	13	325	1,265	33	105	6	7,719

TABLE 45. - Number of nonfatal injuries at coal mines in the United States, by State, general work location, and principal causes of injury, 1969--Continued

State	Shaft and slope										Surface										Total, underground mines						
	Falls of roof	Falls of face or rib	Other falling materials or objects	Slips or falls of persons	Handling materials	Handtools	Stepping or kneeling on sharp or loose objects	Haulage	Electricity	Machinery	All other	Total, shaft and slope (including shaft and slope)	Other falling materials or objects	Slips or falls of persons	Handling materials	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Electricity		Machinery	Mine fires	All other	Total, surface		
Alabama												88															
Alaska																											
Arizona												9															
Arkansas																											
California												53															
Colorado												462															
Illinois												87															
Indiana												4															
Iowa																											
Kansas												1,191															
Kentucky												2															
Maryland												3															
Massachusetts																											
Missouri												14															
Montana																											
New Mexico																											
North Dakota												1															
Ohio												455															
Oklahoma												22															
Oregon												871															
Pennsylvania (bituminous)												24															
South Dakota																											
Tennessee												50															
Texas												1															
Utah												105															
Virginia												870															
Washington												11															
West Virginia												72															
Wyoming												3															
Total bituminous	4	2	4	14	26	10	4	35	2	11	3	115	7,643	7	86	166	34	12	2	121	13	26	2	27	496	8,120	
Pennsylvania (anthracite)				3				3				6	191		3	7	3			6		2		1	22	219	
All coal	4	2	4	17	26	10	4	38	2	11	3	121	7,840	7	89	173	37	12	2	127	13	28	2	28	518	8,358	

All coal

TABLE 45. - Number of nonfatal injuries at coal mines in the United States, by State, general work location, and principal causes of injury, 1969--Continued

State	Strip										Other surface mining 1/										Total mining				
	Falls of coal or overburden	Other falling materials or objects	Slips or falls of persons	Handling materials	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects	Haulage	Explosives	Electricity	Machinery	Mine fires	All other	Total, strip mines	Falls of coal or overburden	Slips or falls of persons	Handling materials	Handtools	Stepping or kneeling on sharp or loose objects	Striking or bumping against objects		Haulage	Machinery	Suffocation	All other
Alabama	1	6	6	3	1	9	7	33	3	7	1	3	33	1	1	1	1	1	1	1	1	1	1	1	1
Alaska	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Arizona	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Arkansas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
California	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Colorado	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Illinois	3	7	20	48	5	27	17	169	18	17	1	18	169	1	1	1	1	1	1	1	1	1	1	1	1
Indiana	3	10	24	5	1	23	6	84	5	6	2	5	84	1	1	1	1	1	1	1	1	1	1	1	1
Iowa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kansas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kentucky	4	6	33	72	19	40	20	227	21	20	6	21	227	1	1	1	1	1	1	1	1	1	1	1	1
Maryland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maryland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Massachusetts	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Montana	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
New Mexico	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
North Dakota	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ohio	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ohio	4	5	13	11	4	6	5	52	1	5	1	1	52	1	1	1	1	1	1	1	1	1	1	1	1
Oklahoma	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Oregon	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pennsylvania (bituminous)	4	2	32	26	9	7	12	101	6	12	1	6	101	1	1	1	1	1	1	1	1	1	1	1	1
South Dakota	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tennessee	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Texas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Utah	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Virginia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Washington	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
West Virginia	3	2	18	22	3	15	7	16	2	7	1	2	16	1	1	1	1	1	1	1	1	1	1	1	1
Wyoming	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total bituminous	22	33	151	232	68	135	94	891	64	13	13	64	891	2	14	26	3	1	2	11	26	1	5	91	9,081
Pennsylvania (anthracite)	1	2	31	28	11	20	14	116	7	14	1	7	116	1	2	2	2	1	1	4	10	1	1	10	345
All coal	23	35	182	260	79	155	108	967	71	13	13	71	967	2	16	26	5	2	2	15	26	1	6	101	9,426

See footnote at end of table.

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969

State	Number of injuries				Distri- bution of all inju- ries, percent	Frequency rates				Severity rates				Average severity		
	Fatal	Nonfatal				All in- juries	Per million man-hours	Per million tons		Per million man-hours	Per million tons		Perma- nent partial	Tem- porary total	All in- juries	
		Total	Perma- nent	Tem- porary total				Fatal	Nonfatal		Fatal	Nonfatal				
																Fatal
Underground mines: shaft and slope):																
Alabama	3		85	88	91	0.53	15.45	0.32	9.46	3,159	960	1,995	588	183	58	258
Alaska		3														
Arizona																
Arkansas			9	9	9		125.60		(1/)		3,908		(1/)		31	31
California																
Colorado	4	2	51	53	57	2.31	30.64	1.10	14.64	13,876	1,206	6,629	576	80	38	458
Illinois	4	5	487	492	496	.45	55.37	.13	16.32	2,701	8,028	796	744	595	40	94
Indiana		3	84	87	87		112.41		41.23					1,053	36	71
Iowa		1	3	4	4		42.41		10.86		3,001			100	61	71
Kansas																
Kentucky	29	6	17	1,191	1,220	1.16	47.46	.46	18.72	6,933	3,239	2,735	1,278	483	32	209
Maryland			3	3	3		14.04		9.35		473				34	34
Missouri																
Montana																
New Mexico		1	13	14	14		69.27		17.31		2,746			300	20	40
North Dakota																
Ohio	7	5	430	435	442	1.07	66.45	.38	23.35	6,416	2,953	2,255	1,038	1,350	29	139
Oklahoma	3		22	22	25	14.95	109.63	25.74	188.78	89,701	5,626	194,453	9,688		51	765
Oregon		25	845	871	889	.67	32.21	.32	15.54	3,994	2,535	1,927	1,223	897	44	199
Pennsylvania (bituminous)	3	1	48	50	53		24.18	.65	10.77	8,703	4,867	3,878	2,169	2,400	35	530
Tennessee																
Texas		2	103	105	106	.62	65.45	.21	22.52	2,740	2,727	1,287	938	338	36	98
Utah	16	14	855	870	886	1.15	62.35	.53	28.66	6,880	3,157	3,162	1,451	243	41	158
Virginia		65	3,280	3,346	3,399	.96	60.44	.44	27.75	5,744	3,072	2,637	1,410	477	41	144
Washington																
West Virginia	53	1		3	4	17.21	51.63	8.16	24.49	103,256	241	48,975	114		5	1,503
Wyoming	1															
Total or average, bituminous	142	10	144	7,489	7,633	.95	51.06	.41	22.11	5,692	2,915	2,465	1,262	591	39	165
Pennsylvania (anthracite)	7		2	195	204	3.04	85.49	3.39	95.33	18,225	2,999	20,325	3,344	1,100	24	240
Total or average, underground (including shaft and slope)	149	10	146	7,684	7,840	.98	51.58	.43	22.55	5,882	2,916	2,571	1,275	598	39	167

See footnotes at end of table.

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969--Continued

State	Number of injuries						Distri- bution of all inju- ries, percent	Frequency rates				Severity rates				Average severity		
	Fatal	Nonfatal			All in- juries	Per million man-hours		Per million tons		Fatal	Nonfatal	Per million man-hours	Per million tons		Perma- nent partial	Tem- porary total	All in- juries	
		Total	Partial	Tem- porary total				Total non- fatal	Fatal				Nonfatal	Fatal				Nonfatal
Underground mines:																		
Alabama	1	--	2	2	3	0.6	1.27	2.55	--	--	71	--	--	--	28	2,019		
Alaska	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Arizona	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Arkansas	--	--	9	9	9	1.8	--	26.71	--	798	--	--	--	30	30			
California	--	--	14	14	14	2.7	--	12.10	--	709	--	--	--	15	15			
Colorado	--	--	12	12	12	2.4	--	27.90	--	407	--	--	--	--	--			
Illinois	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Indiana	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Iowa	--	--	54	54	57	11.2	1.24	22.39	--	7,462	2,046	--	308	79	402			
Kansas	3	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Kentucky	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Maryland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Missouri	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Montana	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
New Mexico	--	--	13	14	15	2.9	.80	11.25	--	4,821	473	--	300	22	439			
North Dakota	1	1	1	1	1	.2	--	34.26	--	2,569	--	--	75	75				
Ohio	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Oklahoma	--	--	45	49	51	10.0	.56	13.72	--	3,361	1,992	--	1,269	41	371			
Oregon	2	4	--	--	--	--	--	--	--	--	--	--	500	19	139			
Pennsylvania (bituminous)	--	2	6	8	8	1.6	--	49.91	--	--	6,938	--	--	11	11			
South Dakota	--	--	17	17	17	3.3	--	41.42	--	--	448	--	--	11	11			
Tennessee	--	--	54	57	57	11.2	--	42.54	--	--	1,701	--	317	25	40			
Texas	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Utah	--	1	258	259	265	52.1	.93	40.17	--	5,584	1,109	--	75	27	163			
Virginia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
West Virginia	6	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Wyoming	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Total or average, bituminous	13	--	482	496	509	--	.71	26.90	--	4,230	1,331	--	595	34	201			
Pennsylvania (anthracite)	1	--	22	22	23	--	1.04	22.87	--	6,237	347	--	--	15	275			
Total or average, surface	14	--	504	518	532	--	.72	26.70	--	4,329	1,282	--	595	33	205			

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969--Continued

State	Number of injuries						Distribution of all injuries, percent	Frequency rates				Severity rates				Average severity			
	Fatal	Nonfatal						All injuries	Per million man-hours		Per million tons		Per million man-hours		Per million tons		Permanent partial	Temporary total	All injuries
		Total	Permanent	Temporary total	Total non-fatal	Total			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal			
Underground mines:																			
Deep mines:																			
Alabama	4	3	87	90	94	1.1	0.62	13.88	0.43	9.68	3,702	852	2,580	594	183	57	314		
Alaska																			
Arizona																			
Arkansas																			
California																			
Colorado	4	2	60	62	66	.8	1.94	30.00	1.10	17.12	11,614	1,140	6,629	650	80	37	399		
Illinois	4	5	501	506	510	6.1	.40	50.39	.13	16.78	2,390	2,315	796	771	595	40	93		
Indiana		3	96	99	99	1.2		82.22	46.92			5,305	2,443	3,028	1,053	34	65		
Iowa		1	3	4	4	1		34.53	10.86					769	100	61	71		
Kansas																			
Kentucky	32	20	1,219	1,245	1,277	15.4	1.16	45.26	.50	19.57	6,980	3,134	3,018	1,355	457	34	218		
Maryland			3	3	3	(2/)		13.30	9.35			448		315			34		
Missouri																			
Montana																			
New Mexico		1	13	14	14	.2		56.05		17.31		2,222		686			20		
North Dakota																			
Ohio	8	6	443	449	457	5.5	1.03	57.63	.43	24.11	6,161	2,557	2,577	1,069	1,175	29	149		
Oklahoma	3		23	23	26	.3	13.05	100.06	25.74	197.36	78,509	5,238	154,453	10,331		52	739		
Oregon																			
Pennsylvania (bituminous)	20	1	890	890	940	11.3	.65	30.05	.36	16.42	3,920	2,465	2,142	1,347	1,032	44	208		
South Dakota																			
Tennessee	3	1	54	58	61	.7	1.35	26.03	.65	12.50	8,077	5,016	3,878	2,408	1,133	33	478		
Texas																			
Utah	1	2	120	122	123	1.5	.50	60.56	.21	26.17	2,978	2,262	1,287	978	337	32	86		
Virginia	16	1	909	927	943	11.4	1.05	60.62	.53	30.54	6,278	3,029	3,162	1,526	256	40	151		
Washington																			
West Virginia	59	1	3,538	3,605	3,664	44.2	.95	58.33	.49	29.89	5,728	2,867	2,936	1,469	471	40	145		
Wyoming	1		3	3	4	.1	13.65	40.95	8.16	24.49	81,893	191	48,975	114		5	1,503		
Total or average, bituminous	155	10	7,971	8,139	8,294	---	.92	48.41	.45	23.55	5,532	2,741	2,691	1,333	591	39	168		
Pennsylvania (anthracite)	8	2	217	219	227	---	2.45	67.05	3.87	105.98	14,695	2,218	23,228	3,506	1,100	23	243		
Total or average, deep mines	163	10	8,188	8,358	8,521	---	.95	48.77	.47	24.04	5,706	2,731	2,813	1,346	598	38	170		

See footnote at end of table.

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969--Continued

State	Number of injuries						Distri- bution of all inju- ries, percent	Frequency rates				Severity rates				Average severity	
	Fetal	Nonfatal			All in- juries	Per million man-hours		Per million tons		Per million man-hours		Per million tons		Perma- nent partial	Tem- porary total	All in- juries	
		Total	Perma- nent	Tem- porary total		Fatal		Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal				Nonfatal
Strip mines:																	
Alabama		1	32	33	3.8	16.98	4.09	792	191	600	29	47					
Alaska			6	6	.7	38.06	9.00	165	39		4	4					
Arizona																	
Arkansas																	
California		6	6	6	.7	24.89	3.16	631	80		25	25					
Colorado		4	169	176	20.1	29.51	4.88	1,269	210	780	25	280					
Illinois	7	1	83	84	9.6	29.72	6.61	1,056	166	740	27	36					
Indiana		1	3	3	.3	12.90	4.67	142	62		11	11					
Iowa			3	3	.7	14.92	4.57	90	27		6	6					
Kansas		7	220	228	26.0	38.97	6.02	1,474	159	449	25	64					
Kentucky	1		1	1	.1	3.77	1.01	777	179		22	22					
Maryland			27	27	3.1	35.18	8.12	51	3	4,500	3	3					
Missouri			1	1	.1	16.90	1.00	10,258	1,242		7	7					
Montana		1	7	8	.9	18.03	2.18	348	35		21	21					
New Mexico		1	8	9	.9	16.85	1.68	1,240	780	112	42	577					
North Dakota		2	49	51	6.4	7.77	1.13	322	85		49	49					
Ohio	4	1	3	3	.3	6.61	1.75										
Oklahoma																	
Oregon			101	101	12.1	12.57	4.66	278	103		22	304					
Pennsylvania (bituminous)	5		11	11	1.3	11.49	3.19	357	99		31	31					
South Dakota																	
Tennessee																	
Texas																	
Utah			15	16	1.8	21.53	4.50	597	125	60	26	28					
Virginia		1	82	83	10.1	22.25	5.34	481	120		22	429					
Washington		1	7	8	1.0	11.14	1.56	305	43		27	1,355					
West Virginia	6																
Wyoming	2																
Total or average, bituminous	25	17	833	851	876	.61	20.77	964	760	729	25	216					
Pennsylvania (anthracite)	3	1	115	116	119	.90	34.95	581	4,000	75	16	167					
Total or average, strip mines	28	18	948	967	995	.63	21.84	935	832	692	24	210					
Other surface mining: 3/																	
Kentucky	1	1	26	27	28	.83	22.33	4,961	851	1,740	24	298					
Maryland			2	2	2	3.18	47.30	5,487	2,132		15	116					
Ohio	1		2	2	3	3.18	6.36	19,082	3,373		15	2,010					
Oklahoma																	
Pennsylvania (bituminous)			4	4	4	4.3	31.45	244	63		8	8					
Tennessee			25	25	25	26.6	88.47	1,366	238		15	15					
Virginia			31	31	32	34.0	31.22	602	131		19	206					
West Virginia	1																
Total or average, bituminous	3	1	90	91	94	.98	29.84	5,901	1,130	1,740	21	230					
Pennsylvania (anthracite)			10	10	10		13.61	159	32		12	12					
Total or average, other surface mining	3	1	100	101	104	.79	26.68	4,756	918	1,740	20	209					

See footnote at end of table.

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969--Continued

State	Number of injuries						Distribution of all injuries, percent		Severity rates				Average severity			
	Fatal	Nonfatal					All injuries	Percent	Per million man-hours		Per million tons		Permanent partial	Temporary total	All injuries	
		Total	Permanent	Temporary	Total non-fatal	Fatal			Fatal	Nonfatal	Fatal	Nonfatal				
																Fatal
Mechanical cleaning plants:																
Alabama	1	-	2	2	3	0.8	2.36	4.71	-	-	14,141	75	-	-	16	2,011
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	1	1	10	11	25	7.1	.48	11.63	-	-	2,908	380	-	33	271	
Indiana	-	-	24	24	25	3.1	-	17.68	-	-	-	849	-	35	48	
Iowa	-	-	1	1	1	.3	-	18.32	-	-	-	55	-	3	3	
Kansas	-	-	36	36	36	10.3	-	18.50	-	-	-	613	-	33	33	
Kentucky	-	-	1	1	1	.3	-	9.68	-	-	-	68	-	7	7	
Maryland	-	-	1	1	1	.3	-	-	-	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Dakota	-	-	1	1	1	.3	-	72.88	-	-	-	73	-	1	1	
Ohio	-	-	11	12	12	3.4	-	15.72	-	-	-	350	-	15	22	
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pennsylvania (bituminous)	1	1	47	48	49	14.0	.38	18.09	-	-	2,261	744	-	50	163	
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah	-	-	1	1	1	.3	-	5.19	-	-	-	737	-	142	142	
Virginia	-	-	20	20	20	5.7	-	23.30	-	-	-	801	-	34	34	
Washington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Virginia	4	1	185	186	190	54.1	.73	34.15	-	-	4,407	1,150	-	33	159	
Wyoming	-	-	1	1	1	.3	-	77.06	-	-	-	20,960	-	272	272	
Total or average, bituminous	7	4	340	344	351	10.0	.46	22.52	-	-	2,749	795	-	120	154	
Pennsylvania (anthracite)	2	1	146	147	149	4.3	.73	53.42	-	-	4,361	1,553	-	50	109	
Total or average, mechanical cleaning plants	9	5	486	491	500	14.7	.50	27.24	-	-	2,995	911	-	106	141	

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969.-Continued

State	Number of injuries					Distri- bution of all inju- ries, percent	Frequency rates				Severity rates				Average severity		
	Fatal	Nonfatal			All in- juries		Per million man-hours		Per million tons		Per million man-hours		Per million tons		Perma- nent partial	Tem- porary total	All in- juries
		Total	Permanent	Partial			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal			
Total mining:	4	119	123	127	1.4	0.47	14.55	0.23	7.06	2,840	836	1,378	406	287	50	245	
Alabama	---	6	6	6	.1	38.06	---	---	9.00	---	165	---	39	---	4	4	
Alaska	---	---	---	---	---	---	---	---	(1/)	---	---	---	---	---	---	---	
Arizona	---	9	9	9	.1	51.84	---	---	---	---	1,613	---	(1/)	---	31	31	
Arkansas	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
California	---	66	68	72	.8	1.73	29.47	.72	12.32	10,401	1,086	4,348	454	80	36	368	
Colorado	4	666	675	686	7.4	.70	42.81	.17	10.42	4,186	1,935	1,019	467	677	37	141	
Illinois	11	179	183	183	2.0	---	45.41	---	9.11	---	2,336	---	467	975	31	51	
Indiana	---	6	6	6	.1	---	20.09	---	7.75	---	907	---	350	100	36	45	
Iowa	---	1	1	1	.1	---	14.92	---	4.57	---	90	---	27	---	6	6	
Kansas	---	1,465	1,499	1,533	16.5	.96	43.40	.31	13.83	5,906	2,813	1,883	897	501	32	196	
Kentucky	34	6	6	6	.1	---	---	---	---	---	2,860	---	324	---	76	76	
Maryland	---	---	---	---	---	---	---	---	---	---	773	---	179	---	22	22	
Missouri	---	27	27	27	.3	---	35.03	---	8.11	---	---	---	31	---	3	3	
Montana	---	1	1	1	.1	---	10.35	---	4.24	---	---	---	3	---	---	---	
New Mexico	---	20	22	22	.2	---	31.72	---	4.92	---	7,364	---	1,141	---	15	232	
North Dakota	---	8	8	8	.1	---	16.85	---	1.68	---	348	---	35	---	21	21	
Ohio	13	494	503	516	5.6	.88	33.98	.25	9.83	5,270	1,909	1,524	552	909	30	206	
Oklahoma	3	26	26	29	.3	4.39	38.01	1.63	14.14	26,314	1,974	9,789	734	---	52	667	
Oregon	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Pennsylvania (bituminous)	25	995	1,025	1,050	11.3	.64	26.44	.32	13.11	3,869	2,004	1,919	994	1,052	41	217	
Pennsylvania (anthracite)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
South Dakota	---	3	3	3	.8	.93	21.28	.36	8.27	5,552	3,553	2,157	1,380	1,133	33	410	
Tennessee	---	65	69	72	.8	---	---	---	---	---	---	---	---	---	---	---	
Texas	---	120	122	123	1.3	.50	60.56	.21	26.17	2,978	2,262	1,287	978	337	32	86	
Utah	1	949	968	984	10.6	.98	59.32	.45	27.24	5,883	2,889	2,701	1,327	245	39	145	
Virginia	16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Washington	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
West Virginia	66	1	1	3,718	40.8	.99	55.92	.47	26.56	5,956	2,701	2,829	1,283	471	39	152	
Wyoming	3	10	10	13	.1	4.27	14.25	.65	2.17	25,647	294	3,908	45	---	21	1,400	
Total or average, bituminous	183	176	8,894	9,081	9,264	.86	42.81	.33	16.25	5,176	2,375	1,964	902	611	37	173	
Pennsylvania (anthracite)	11	3	342	356	---	1.50	47.13	1.07	33.65	9,016	1,269	6,438	906	738	21	211	
Total or average, mining	194	179	9,236	9,426	9,620	.88	42.95	.34	16.56	5,304	2,339	2,045	902	614	37	174	

See footnote at end of table.

TABLE 46. - Number of injuries, by percentage distribution, injury rates, and average severity at coal mines in the United States, by State and degree of injury, 1969--Continued

State	Number of injuries						Distri- bution of all inju- ries, percent	Frequency rates				Severity rates				Average severity					
	Fatal	Nonfatal			Total non- fatal	All in- juries		Fatal	Per million man-hours		Per million tons		Fatal	Per million man-hours		Fatal	Perma- nent partial	Tem- porary total	All in- juries		
		Total	Permanent	Partial					Fatal	Nonfatal	Fatal	Nonfatal		Fatal	Nonfatal					Fatal	Nonfatal
Grand total:	5	4	121	125	130	1.4	0.56	14.08	0.29	7.18	3,380	800	1,723	408	287	49	285				
Alabama	---	---	6	6	6	.1	---	38.06	---	9.00	---	165	---	39	---	4	---				
Alaska	---	---	9	9	9	.1	---	51.84	---	(1/)	---	1,613	---	(1/)	---	31	---				
Arizona	---	---	66	68	72	.7	1.71	29.07	.72	12.32	10,260	1,072	4,348	454	80	36	368				
Arkansas	---	---	690	699	711	7.4	.67	39.20	.19	10.79	4,038	1,755	1,112	483	677	37	145				
California	---	---	189	194	194	2.0	---	41.70	---	9.66	---	2,128	---	---	816	31	51				
Colorado	---	---	7	7	7	.1	---	20.09	---	7.75	---	907	---	350	100	36	45				
Illinois	---	---	1,501	1,532	1,569	16.3	.93	15.32	---	5.33	---	85	---	---	---	6	6				
Indiana	---	---	6	6	6	.1	---	42.07	.31	14.17	5,591	2,695	1,883	908	501	32	193				
Iowa	---	---	28	28	28	.3	---	11.25	---	4.24	---	860	---	---	---	76	76				
Kansas	---	---	1	1	1	.1	---	10.35	---	8.41	---	690	---	181	---	22	22				
Kentucky	---	---	1	1	1	.1	---	30.83	---	.97	---	31	---	3	---	3	3				
Maryland	---	---	20	22	22	.2	---	18.43	---	4.92	---	340	---	1,141	2,400	15	232				
Massachusetts	---	---	505	515	528	5.5	.84	33.09	.25	10.06	---	1,832	---	577	819	18	18				
Michigan	---	---	26	26	29	.3	4.19	36.34	1.63	14.14	---	1,887	---	734	---	52	667				
Minnesota	---	---	1,042	1,073	1,099	11.4	.63	29.90	.33	13.73	3,766	1,924	1,996	---	---	---	---				
Missouri	---	---	65	69	72	.7	.92	21.06	.36	8.27	5,495	3,517	2,157	1,380	1,133	33	410				
Montana	---	---	121	123	124	1.3	.45	55.72	.21	26.38	2,718	2,129	1,287	1,008	337	33	86				
New Mexico	---	---	969	988	1,004	10.4	.93	57.52	.45	27.80	5,589	2,785	2,701	1,346	245	39	143				
North Dakota	---	---	3,836	3,904	3,974	41.3	---	54.28	.50	27.89	5,839	2,584	3,000	1,328	466	39	152				
Ohio	---	---	11	11	14	.2	4.20	15.39	.65	2.39	25,181	669	3,908	104	---	43	1,320				
Oklahoma	---	---	9,234	9,425	9,615	---	.84	41.44	.34	16.86	5,013	2,269	2,040	923	600	37	172				
Oregon	---	---	488	492	505	---	1.29	48.85	1.27	47.99	7,744	1,347	7,609	1,323	581	23	181				
Pennsylvania (bituminous)	---	---	184	9,722	10,120	---	.85	41.76	.36	17.42	5,129	2,230	2,140	931	600	36	173				
South Dakota	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Tennessee	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Texas	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Utah	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Virginia	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Washington	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
West Virginia	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Wyoming	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Total or average, bituminous	190	11	180	9,425	9,615	---	.84	41.44	.34	16.86	5,013	2,269	2,040	923	600	37	172				
Pennsylvania (anthracite)	13	---	4	492	505	---	1.29	48.85	1.27	47.99	7,744	1,347	7,609	1,323	581	23	181				
Grand total or average	203	11	184	9,722	10,120	---	.85	41.76	.36	17.42	5,129	2,230	2,140	931	600	36	173				

1/ Production included in "all other" in Table 43.

2/ Less than 0.05.

3/ Includes bituminous coal auger mines and anthracite culm banks and dredges.

TABLE 47. - Major disasters 1/ at coal mines in the United States, 1960-69

Date	Mine	Location of mine	Cause	Number killed
1960: Mar. 8	No. 22	Holden, W. Va.	Mine fire	18
1961: Mar. 2	Viking	Terre Haute, Ind.	Explosion	22
1962: Jan. 10	No. 2	Herrin, Ill.	Explosion	11
1962: Dec. 6	Robena No. 3	Carmichaels, Pa.	do	37
1963: Apr. 25	Compass No. 2	Dola, W. Va.	Explosion	22
1963: Dec. 16	No. 2	Helper, Utah	do	9
1964: No major disaster				--
1965: May 24	No. 2A	Robbins, Tenn.	Explosion	5
1965: Oct. 16	Mars No. 2	Wilsonburg, W. Va.	Mine fire	7
1965: Dec. 28	Dutch Creek	Redstone, Colo.	Explosion	9
1966: June 1	Dora No. 2	Dora, Pa.	Suffocation	5
1966: July 23	Siltex	Mt. Hope, W. Va.	Explosion	7
1967: No major disaster				--
1968: Aug. 7	River Queen No. 1	Greenville, Ky.	Explosion	9
1968: Nov. 20	Consol No. 9	Farmington, W. Va.	do	78
1969: No major disaster				--

1/ A single accident in which 5 men or more are killed.

TABLE 48. - Injury experience and worktime data on officeworkers at coal mines in the United States, by State, 1969

State	Injuries		Frequency rates per million man-hours			Severity rates per million man-hours		Average men working daily	Average days active	Man-days worked	Man-hours worked	
	Fatal	Nonfatal	Fatal	Nonfatal	Total	Fatal	Nonfatal					Total
Alabama	-	-	-	-	-	-	-	-	256	32,273	258,566	
Alaska	-	-	-	-	-	-	-	-	301	602	4,816	
Arizona	-	-	-	-	-	-	-	-	-	-	-	
Arkansas	-	-	-	-	-	-	-	-	247	494	2,964	
California	-	-	-	-	-	-	-	-	-	-	-	
Colorado	-	-	-	-	-	-	-	-	-	-	-	
Illinois	-	-	-	-	-	-	-	-	238	13,102	103,581	
Indiana	-	-	-	-	-	-	-	-	277	70,294	561,240	
Iowa	-	-	-	-	-	-	-	-	279	19,533	156,787	
Kansas	-	-	-	-	-	-	-	-	237	1,659	13,772	
Kentucky	-	-	-	-	-	-	-	-	312	624	4,992	
Maryland	-	-	-	-	-	-	-	-	233	92,876	768,177	
Missouri	-	-	-	-	-	-	-	-	188	1,500	11,504	
Montana	-	-	-	-	-	-	-	-	8	7,095	56,549	
New Mexico	-	-	-	-	-	-	-	-	23	654	5,285	
North Dakota	-	-	-	-	-	-	-	-	4	164	1,060	
Ohio	-	-	-	-	-	-	-	-	50	13,247	106,027	
Oklahoma	-	-	-	-	-	-	-	-	24	6,365	51,017	
Oregon	-	-	-	-	-	-	-	-	352	92,344	749,130	
Pennsylvania	-	-	-	-	-	-	-	-	22	254	44,704	
Pennsylvania (bituminous)	-	-	-	-	-	-	-	-	-	-	-	
South Dakota	-	-	-	-	-	-	-	-	316	75,564	589,414	
Tennessee	-	-	-	-	-	-	-	-	239	-	-	
Texas	-	-	-	-	-	-	-	-	190	4,745	39,060	
Utah	-	-	-	-	-	-	-	-	25	2,473	19,833	
Virginia	-	-	-	-	-	-	-	-	9	275	2,473	
Washington	-	-	-	-	-	-	-	-	54	256	106,480	
West Virginia	-	-	-	-	-	-	-	-	182	34,263	265,320	
Wyoming	-	-	-	-	-	-	-	-	482	116,764	922,437	
Total or average, bituminous	-	-	-	-	-	-	-	-	27	7,633	61,039	
Pennsylvania (anthracite)	-	-	-	-	-	-	-	-	2,494	613,505	4,905,094	
Total or average, all mines	-	-	-	-	-	-	-	-	146	37,650	296,074	
	-	-	-	-	-	-	-	-	2,640	651,155	5,201,168	

TABLE 49. - Injury, worktime, production, and productivity data on bituminous coal mines in the United States, 1930-62

Year	Number of injuries		Frequency rates				Severity rates		Average severity, all injuries	Average men working daily	Average days active	Man-days worked (thousands)	Man-hours worked (thousands)	Production, short-tons (thousands)	Tons per man-hours	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons		Per million man-hours	Nonfatal								
			Fatal	Nonfatal	Fatal	Nonfatal										
1930	1,619	71,217	1.90	83.75	3.46	192.33	NA	NA	493,202	187	92,326	850,359	467,526	0.55	5,890	
1931	1,080	53,975	1.60	79.98	2.83	141.26	NA	NA	450,274	163	73,349	674,871	382,105	.57	5,652	
1932	1,958	39,352	1.77	72.58	3.09	127.06	NA	NA	406,380	146	59,260	542,181	309,710	.52	5,473	
1933	833	13,906	1.31	68.87	2.50	131.72	NA	NA	418,752	167	69,882	638,124	333,631	.53	5,629	
1934	958	46,982	1.41	69.39	2.67	130.74	NA	NA	458,044	178	81,648	677,115	359,368	.56	6,290	
1935	968	47,529	1.46	71.47	2.60	127.64	NA	NA	462,354	178	82,292	665,047	372,369	.57	6,332	
1936	1,098	50,514	1.43	65.62	2.52	115.73	NA	NA	482,500	197	95,262	769,819	436,468	.57	6,577	
1937	1,198	52,847	1.54	68.05	2.68	118.41	NA	NA	462,246	196	96,130	776,561	447,047	.58	6,531	
1938	880	36,794	1.52	63.47	2.59	105.28	NA	NA	445,246	161	71,747	579,747	349,548	.60	6,401	
1939	867	38,544	1.36	60.52	2.19	97.18	NA	NA	440,847	177	78,966	636,828	356,631	.62	7,274	
1940	1,204	43,904	1.68	61.28	2.61	95.37	NA	NA	440,847	201	88,771	717,969	461,319	.64	7,492	
1941	1,072	46,637	1.35	58.93	2.08	90.42	NA	NA	457,744	214	98,000	791,429	515,769	.65	7,401	
1942	1,245	53,193	1.41	60.21	2.14	91.44	NA	NA	448,797	244	109,491	883,518	581,705	.66	6,940	
1943	1,225	51,067	1.39	57.79	2.06	86.05	NA	NA	407,135	263	106,912	883,709	593,471	.67	6,490	
1944	1,124	51,253	1.23	56.02	1.81	82.49	7,371	2,198	376,293	278	104,695	914,952	621,358	.68	6,435	
1945	925	46,194	1.13	56.52	1.60	80.12	6,591	2,497	364,997	257	82,550	817,316	576,525	.71	6,358	
1946	885	46,025	1.09	58.81	1.49	80.25	7,360	2,689	385,142	215	97,105	727,995	533,520	.73	6,942	
1947	862	42,078	1.15	57.32	1.45	70.97	6,917	2,687	411,845	236	94,575	747,686	592,923	.79	9,419	
1948	494	27,548	.93	51.67	1.13	63.22	5,559	3,231	409,431	220	67,552	533,166	435,719	.82	8,739	
1949	550	28,390	.92	47.73	1.06	54.82	5,548	3,231	408,623	185	75,510	594,896	435,719	.87	8,817	
1950	684	28,081	1.16	47.56	.96	50.53	6,951	3,097	372,138	201	74,898	590,406	533,132	.90	8,679	
1951	449	23,719	.90	47.64	.87	44.12	5,111	3,098	338,719	186	63,028	447,914	469,373	1.04	8,994	
1952	397	20,112	.89	45.26	.85	44.12	5,361	2,681	295,425	191	56,294	444,329	455,885	1.03	8,640	
1953	334	14,746	.99	43.66	.78	34.52	5,934	2,566	241,919	177	42,765	337,727	391,952	1.16	7,934	
1954	360	15,966	.96	42.76	.79	33.22	5,785	2,398	225,539	210	48,392	373,384	462,519	1.24	8,676	
1955	392	16,486	1.02	42.99	.87	33.22	6,134	2,196	209,539	212	46,020	363,442	489,175	1.34	9,117	
1956	427	15,915	1.14	43.74	.87	33.22	7,040	2,197	223,900	206	46,020	266,758	410,936	1.43	9,459	
1957	326	12,036	1.14	41.97	.79	29.29	6,821	2,425	196,350	183	36,280	266,660	412,078	1.55	9,085	
1958	290	10,440	.92	39.15	.68	25.24	5,535	2,446	180,303	187	33,738	232,871	403,222	1.73	8,691	
1959	260	10,501	1.13	40.85	.70	24.56	6,268	2,502	151,776	190	32,417	257,075	416,098	1.85	9,347	
1960	275	9,902	1.15	42.52	.68	23.14	7,085	2,692	147,276	196	28,863	228,267	422,838	1.89	8,865	
1961	263	9,783	1.09	42.38	.55	19.93	6,913	2,799	143,628	204	29,289	232,136	460,285	1.98	8,976	
1962	282	9,768	.94	41.92	.62	17.37	6,513	2,321	131,617	212	29,200	232,037	488,086	2.10	8,341	
1963	218	10,071	.88	43.80	.43	19.63	5,637	2,675	137,602	213	28,242	232,613	513,083	2.21	8,208	
1964	251	9,617	.99	41.80	.43	18.06	5,919	2,769	135,952	213	28,968	230,087	532,559	2.31	7,216	
1965	227	9,506	.93	41.44	.39	17.33	5,571	1,981	131,562	220	28,910	229,415	548,503	2.39	6,328	
1966	307	9,135	1.37	40.89	.57	16.86	6,245	2,580	127,535	221	28,144	223,406	541,849	2.43	5,784	
1968	190	9,425	.84	41.44	.34	16.86	5,013	2,269	127,375	225	28,677	227,411	558,931	2.46	5,536	

1/ Man-hours of exposure were reported by coal producers for the first time in 1930; from 1930 through 1944, these hours represented worktime or face-time only for underground employees. Since portal-to-portal hours were reported from 1945 on, the face-time hours reported from 1930 through 1944 were converted to portal-to-portal hours--See Bulletin 509, "Injury Experience in Coal Mining, 1948," page 5 for method used.

NA Not available.

TABLE 50. - Injury, worktime, production, and productivity data on Pennsylvania anthracite mines, 1930-69

Year	Number of Injuries		Frequency rates				Severity rates		Average severity, all injuries	Average days active	Man-days worked (thousands)	Man-hours worked (thousands)	Production, short tons (thousands)	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons		Per million man-hours								
			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal							
1930	444	28,764	1.76	113.90	6.40	414.56	NA	NA	209	31,568	252,543	69,385	0.27	NA	
1931	383	23,983	1.84	115.07	6.42	402.09	NA	NA	186	25,915	208,415	59,646	.29	NA	
1932	249	16,931	1.59	107.88	4.99	339.60	NA	NA	161	19,486	156,944	49,855	.32	NA	
1933	231	15,183	1.49	98.13	4.66	306.47	NA	NA	185	19,344	154,723	49,541	.32	NA	
1934	268	15,877	1.50	104.15	4.69	324.95	NA	NA	206	22,292	178,372	57,168	.32	NA	
1935	274	15,897	1.78	103.16	5.24	304.17	NA	NA	187	19,280	154,096	52,263	.34	NA	
1936	244	17,026	1.56	108.80	4.46	311.43	NA	NA	192	19,630	156,186	52,263	.35	NA	
1937	215	13,412	1.58	98.72	4.15	259.19	NA	NA	189	18,711	135,854	51,745	.38	NA	
1938	225	12,842	1.94	110.85	4.88	278.27	NA	NA	172	16,528	115,852	46,149	.40	NA	
1939	211	13,229	1.71	107.37	4.11	297.65	NA	NA	186	17,524	123,211	51,346	.42	NA	
1940	184	13,782	1.50	112.55	3.57	267.67	NA	NA	207	17,468	122,447	51,489	.42	NA	
1941	194	14,420	1.49	110.83	3.58	266.47	NA	NA	239	19,644	130,107	54,115	.42	NA	
1942	226	13,581	1.64	98.73	3.88	232.89	NA	NA	268	22,805	163,549	53,592	.39	NA	
1943	226	13,527	1.50	89.68	3.80	227.32	NA	NA	268	22,805	163,549	53,592	.39	NA	
1944	174	12,438	1.06	76.05	2.74	195.59	1,776	103	293	21,385	150,832	58,316	.42	NA	
1945	195	15,595	1.01	77.32	2.60	198.60	6,383	106	268	22,805	163,549	53,592	.39	NA	
1946	173	12,833	1.14	82.65	2.86	207.31	6,073	108	268	22,805	163,549	53,592	.39	NA	
1947	173	11,635	1.18	79.41	3.03	203.67	7,084	114	257	20,997	141,275	54,999	.40	665	
1948	137	11,394	.91	75.69	2.40	199.62	5,460	106	268	20,207	146,523	57,128	.39	747	
1949	91	7,857	.83	71.88	2.11	181.87	4,995	102	263	20,207	146,523	57,128	.38	690	
1950	93	8,874	.80	76.14	2.09	199.75	4,787	95	263	20,207	146,523	57,128	.38	592	
1951	101	7,472	.95	69.94	2.41	178.64	2,495	119	211	15,721	109,310	43,201	.40	594	
1952	99	6,355	1.03	66.35	2.44	156.55	2,369	127	207	12,975	95,784	40,595	.42	555	
1953	64	4,146	1.02	59.85	2.10	135.85	2,064	125	169	9,275	69,275	30,518	.44	570	
1954	62	2,972	1.23	59.18	2.14	102.72	7,407	167	164	6,832	50,223	28,933	.58	451	
1955	60	2,919	1.30	63.46	2.07	100.84	7,827	158	182	6,285	45,995	28,948	.63	451	
1956	56	3,330	1.12	66.31	1.74	103.36	6,691	141	212	6,893	50,220	32,216	.64	1,506	
1957	51	2,877	1.15	64.93	2.00	112.69	6,906	141	196	6,057	44,311	25,530	.58	1,508	
1958	32	2,124	.90	59.88	1.51	99.90	5,413	127	183	4,861	35,471	21,260	.60	1,542	
1959	47	1,723	1.60	58.66	2.29	84.07	9,601	127	173	4,036	29,371	20,496	.70	1,521	
1960	35	1,401	1.43	57.30	1.85	73.98	8,588	179	176	3,960	24,452	18,938	.77	1,445	
1961	19	1,295	.82	57.75	1.09	73.97	5,084	131	196	3,098	22,424	17,507	.83	1,369	
1962	26	1,161	1.26	61.53	1.52	67.76	7,544	164	204	2,912	21,048	18,344	.87	1,265	
1963	24	1,342	1.18	65.89	1.74	70.60	9,122	196	214	2,812	20,368	17,133	.86	1,161	
1964	6	1,067	.44	65.16	.54	76.74	7,070	144	204	2,271	16,375	14,909	.91	1,052	
1965	6	829	.44	60.64	.46	64.24	2,931	75	204	1,883	13,672	12,905	.94	943	
1966	9	609	.73	49.27	.73	49.67	2,633	73	203	1,883	13,672	12,905	.99	702	
1967	4	504	.36	45.77	.35	43.86	2,180	110	219	1,701	11,359	12,282	1.04	557	
1968	13	492	1.29	48.85	1.27	47.99	7,744	91	217	1,508	11,011	11,492	1.04	538	
1969								181	232	1,577	10,073	10,251	1.02	419	

NA Not available.

TABLE 51. - Injury, worktime, production, and productivity data on all coal mines in the United States, 1930-69

Year	Number of injuries		Frequency rates				Severity rates		Average severity, all injuries	Average men working daily	Average days active	Man-days worked (thousands)	Man-hours worked (thousands) 1/	Production, short tons (thousands)	Tons per man-hour	Number of mines
	Fatal	Nonfatal	Per million man-hours		Per million tons		Per million man-hours									
			Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal								
1930	2,063	93,981	1.87	90.65	3.84	186.22	NA	NA	644,006	192	123,894	1,102,902	536,911	0.49	NA	
1931	1,463	77,958	1.66	88.26	3.31	176.47	NA	NA	589,705	168	99,264	883,286	441,751	.50	NA	
1932	1,207	56,283	1.73	80.50	3.36	156.53	NA	NA	527,623	149	76,745	699,125	359,565	.51	NA	
1933	1,064	59,129	1.34	74.58	2.78	154.31	NA	NA	523,182	171	89,236	792,847	383,172	.48	NA	
1934	1,226	69,759	1.43	76.63	2.94	157.39	NA	NA	566,426	184	103,940	855,487	416,536	.49	NA	
1935	1,242	63,426	1.52	77.43	2.92	149.37	NA	NA	565,202	180	101,572	813,143	424,632	.52	NA	
1936	1,342	67,540	1.45	72.91	2.73	137.82	NA	NA	584,582	197	114,891	926,309	451,139	.53	NA	
1937	1,413	66,259	1.45	72.62	2.73	132.84	NA	NA	589,856	195	114,871	912,435	496,793	.55	NA	
1938	1,105	49,636	1.59	71.36	2.79	125.44	NA	NA	541,528	163	88,276	695,599	395,697	.57	NA	
1939	1,078	51,773	1.42	68.12	2.41	115.57	NA	NA	539,375	179	96,490	760,039	447,977	.59	NA	
1940	1,388	57,776	1.65	68.75	2.71	112.67	NA	NA	533,267	199	106,239	840,416	512,808	.61	NA	
1941	1,266	61,657	1.37	66.26	2.22	107.14	NA	NA	546,692	213	116,441	921,536	569,884	.62	NA	
1942	1,471	66,774	1.44	65.40	2.30	104.33	NA	NA	530,861	243	129,436	1,021,078	610,021	.63	NA	
1943	1,451	64,594	1.40	62.44	2.22	98.92	NA	NA	486,516	264	128,297	1,078,474	684,950	.64	NA	
1944	1,296	63,691	1.20	59.06	1.90	92.99	2,134	NA	453,937	281	127,500	958,591	631,323	.66	7,021	
1945	1,068	57,117	1.11	59.58	1.69	90.44	2,422	NA	437,921	259	113,424	879,628	593,976	.68	6,992	
1946	968	55,350	1.10	62.92	1.63	84.16	2,486	NA	463,079	254	103,847	949,539	685,162	.72	9,852	
1947	999	57,660	1.22	60.72	1.60	82.26	2,686	NA	490,356	239	117,312	898,231	650,003	.75	10,109	
1948	985	53,472	1.11	59.53	1.54	82.26	3,087	NA	507,333	227	115,093	842,476	478,920	.79	9,331	
1949	865	35,405	.91	55.11	1.22	73.93	5,423	NA	485,306	170	82,437	711,390	562,305	.82	10,273	
1950	643	37,264	.90	52.38	1.14	66.27	5,423	NA	483,239	189	94,231	697,247	574,960	.86	9,564	
1951	785	35,573	1.13	50.99	1.37	58.07	7,755	NA	441,905	202	89,365	593,698	509,967	.95	9,159	
1952	548	30,074	.92	50.66	1.07	49.67	5,338	NA	401,326	189	76,003	513,594	420,885	1.08	8,385	
1953	461	24,258	.90	47.23	.95	42.10	2,586	NA	351,126	175	65,688	387,950	491,468	1.17	10,182	
1954	396	17,718	1.00	45.67	.85	38.43	6,009	NA	283,705	206	53,591	419,379	528,447	1.22	10,754	
1955	420	18,885	1.03	45.69	.85	37.50	2,268	NA	260,889	212	55,286	433,662	432,147	1.26	10,659	
1956	448	19,816	1.17	46.04	.93	36.51	7,026	NA	254,725	204	52,077	408,207	514,706	1.34	10,980	
1957	476	18,792	1.11	43.04	.68	32.76	2,768	NA	224,890	183	41,121	322,229	432,196	1.46	10,530	
1958	358	14,160	.99	41.09	.68	28.12	5,939	NA	203,597	186	37,773	281,031	432,574	1.55	10,712	
1959	293	12,163	1.15	42.48	.75	27.36	2,449	NA	189,679	189	35,778	255,296	439,972	1.65	10,060	
1960	325	11,902	1.15	43.86	.75	26.61	6,926	NA	167,668	194	31,716	248,946	420,729	1.77	10,137	
1961	294	10,944	1.16	43.96	.66	24.87	2,686	NA	151,286	197	32,000	253,185	478,629	2.00	9,393	
1962	289	10,944	1.12	43.97	.59	23.26	6,965	NA	157,126	205	32,042	252,405	505,573	2.12	9,151	
1963	284	11,133	1.06	43.86	.49	21.09	2,398	NA	150,761	212	31,513	248,988	527,993	2.24	7,918	
1964	242	11,070	1.04	44.73	.49	18.04	2,668	NA	148,734	212	31,513	248,988	545,464	2.32	6,895	
1965	259	10,446	1.04	42.85	.43	16.04	5,753	NA	145,244	220	30,611	243,759	560,764	2.36	6,322	
1966	233	10,446	.96	42.85	.40	18.04	5,509	NA	139,312	221	24,177	241,774	553,340	2.40	5,955	
1967	222	10,115	.92	41.84	.56	17.42	7,960	NA	134,467	221	23,417	234,117	569,182	2.40	5,955	
1968	311	9,639	1.33	41.76	.36	17.42	5,129	NA	133,302	225	30,053	237,484	569,182	2.40	5,955	
1969	203	9,917	.85	41.76	.36	17.42	5,129	NA	133,302	225	30,053	237,484	569,182	2.40	5,955	

1/ All man-hours are shown on a portal-to-portal basis.

NA Not available.

TABLE 52. - Coal-mine-fatality rates for the United States, 1870-1969 1/
(Includes underground and surface injuries)

Year	Bituminous coal mines			Anthracite mines			Total		
	Per thousand employed	Per thousand 300-day workers	Per million tons mined	Per thousand employed	Per thousand 300-day workers	Per million tons mined	Per thousand employed	Per thousand 300-day workers	Per million tons mined
1870	----	----	----	5.93	----	13.47	5.93	----	13.47
1871	----	----	----	5.60	----	10.86	5.60	----	10.86
1872	----	----	----	4.98	----	9.20	4.98	----	9.20
1873	----	----	----	5.46	----	10.06	5.46	----	10.06
1874	2.11	----	8.88	4.33	----	9.31	3.87	----	9.26
1875	1.60	----	4.93	3.37	----	10.50	3.06	----	9.51
Average	----	----	----	4.58	----	9.94	4.30	----	9.72
1876	1.00	----	4.29	3.22	----	9.96	2.83	----	9.20
1877	2.17	----	5.90	2.90	----	7.56	2.77	----	7.28
1878	1.86	----	3.17	2.92	----	8.62	2.62	----	6.38
1879	2.02	----	3.39	3.81	----	8.67	3.30	----	6.82
1880	1.43	----	2.95	2.75	----	7.05	2.21	----	5.16
Average	1.66	----	3.42	3.12	----	8.31	2.72	----	6.68
1881	1.67	----	2.75	3.59	4.87	8.55	2.93	----	6.04
1882	1.95	----	3.63	3.54	4.87	8.29	2.75	----	5.72
1883	3.09	----	4.99	3.53	4.56	8.40	3.34	----	6.58
1884	2.26	----	4.11	3.28	5.12	8.94	2.80	----	6.17
1885	1.68	----	3.48	3.58	5.26	9.36	2.58	----	5.91
Average	2.12	----	3.88	3.50	4.94	8.72	2.85	----	6.09
1886	1.85	----	3.89	2.70	4.13	7.12	2.25	----	5.23
1887	1.55	----	3.08	2.95	4.25	7.46	2.20	----	4.86
1888	2.23	----	4.38	2.98	4.10	7.81	2.55	----	5.61
1889	1.77	----	3.44	3.11	4.81	8.45	2.36	----	5.22
1890	2.15	2.85	3.56	3.00	4.50	8.13	2.52	3.50	5.01
Average	1.94	----	3.68	2.96	4.36	7.82	2.39	----	5.19
1891	2.86	3.85	4.94	3.39	5.01	8.45	3.08	4.30	6.06
1892	3.05	4.17	5.06	3.24	4.91	7.97	3.12	4.42	5.98
1893	2.26	3.32	4.07	3.42	5.21	8.43	2.70	4.03	5.39
1894	2.26	3.96	4.65	3.38	5.34	8.57	2.67	4.50	5.91
1895	3.09	4.78	5.46	2.95	4.51	7.26	3.04	4.68	6.00
Average	2.69	4.02	4.84	3.27	4.99	8.12	2.91	4.38	5.87
1896	2.51	3.92	4.45	3.36	5.79	9.22	2.85	4.62	5.85
1897	2.38	3.64	3.99	2.82	5.64	8.04	2.55	4.27	5.08
1898	2.64	3.75	4.06	2.82	5.57	7.70	2.71	4.28	4.97
1899	3.05	3.91	4.25	3.30	5.72	7.63	3.14	4.40	5.08
1900	3.74	4.79	5.32	2.85	5.15	7.16	3.44	4.87	5.72
Average	2.90	4.06	4.46	3.03	5.58	7.94	2.95	4.50	5.34
1901	3.16	4.21	4.74	3.53	5.40	7.60	3.27	4.54	5.40
1902	3.93	5.13	5.58	2.03	5.25	7.25	3.38	5.15	5.81
1903	3.47	4.63	5.07	3.44	5.01	6.94	3.46	4.72	5.47
1904	3.35	4.98	5.26	3.82	5.73	8.13	3.48	5.17	5.88
1905	3.53	5.02	5.14	3.89	5.43	8.29	3.63	5.14	5.78
Average	3.49	4.81	5.17	3.36	5.38	7.69	3.45	4.95	5.67
1906	3.38	4.76	4.72	3.43	5.28	7.81	3.39	4.87	5.27
1907	4.99	6.40	6.46	4.23	5.77	8.27	4.81	6.25	6.78
1908	3.50	5.44	5.42	3.89	5.84	8.14	3.60	5.54	5.97
1909	4.15	5.58	5.46	3.40	4.79	6.99	3.96	5.35	5.73
1910	4.00	5.53	5.32	3.55	4.65	7.11	3.89	5.30	5.62
Average	4.01	5.57	5.50	3.70	5.25	7.67	3.94	5.48	5.89
1911	3.53	5.02	4.82	4.02	4.90	7.73	3.65	4.97	5.35
1912	3.31	4.46	4.04	3.45	4.48	7.12	3.35	4.46	4.53
1913	3.79	4.90	4.53	3.52	4.10	6.75	3.73	4.70	4.89
1914	3.19	4.90	4.40	3.31	4.05	6.55	3.22	4.66	4.78
1915	3.02	4.47	3.80	3.32	4.33	6.58	3.09	4.44	4.27
Average	3.27	4.75	4.31	3.52	4.37	6.95	3.40	4.65	4.76
1916	2.98	3.88	3.33	3.47	4.11	6.34	3.09	3.93	3.77
1917	3.50	4.33	3.83	3.77	3.98	5.84	3.56	4.25	4.14
1918	3.30	3.97	3.50	3.75	3.83	5.58	3.38	3.94	3.80
1919	2.71	4.16	3.62	4.11	4.64	7.21	2.99	4.28	4.19
1920	2.78	3.79	3.13	3.38	3.74	5.48	2.90	3.78	3.45
Average	3.05	4.03	3.48	3.70	4.06	6.07	3.18	4.03	3.86

See footnote at end of table.

TABLE 52. - Coal-mine-fatality rates for the United States, 1870-1969 ^{1/}--Continued
(includes underground and surface injuries)

Year	Bituminous coal mines			Anthracite mines			Total		
	Per thousand employed	Per thousand 300-day workers	Per million tons mined	Per thousand employed	Per thousand 300-day workers	Per million tons mined	Per thousand employed	Per thousand 300-day workers	Per million tons mined
1921 -----	2.18	4.38	3.48	3.43	3.80	6.05	2.42	4.20	3.94
1922 -----	2.45	5.16	3.99	1.91	3.81	5.49	2.35	4.90	4.16
1923 -----	2.77	4.65	3.46	3.23	3.62	5.45	2.85	4.39	3.74
1924 -----	3.08	5.39	3.94	3.10	3.39	5.64	3.08	4.80	4.20
1925 -----	3.12	4.79	3.53	2.50	4.12	6.47	2.98	4.65	3.84
Average -----	2.70	4.87	3.67	2.83	3.71	5.80	2.73	4.58	3.96
1926 -----	3.48	4.86	3.60	2.74	3.37	5.36	3.32	4.50	3.83
1927 -----	2.93	4.60	3.36	2.96	3.94	6.11	2.94	4.43	3.73
1928 -----	3.31	4.90	3.45	2.78	3.85	5.93	3.19	4.64	3.78
1929 -----	3.39	4.63	3.19	3.18	4.24	6.53	3.34	4.54	3.59
1930 -----	3.28	5.26	3.46	2.94	4.22	6.40	3.20	5.00	3.84
Average -----	3.27	4.84	3.42	2.92	3.90	6.04	3.19	4.61	3.75
1931 -----	2.40	4.42	2.83	2.75	4.43	6.42	2.48	4.42	3.31
1932 -----	2.36	4.85	3.09	2.05	3.83	4.99	2.29	4.60	3.36
1933 -----	1.99	3.58	2.50	2.21	3.58	4.66	2.03	3.58	2.78
1934 -----	2.09	3.52	2.67	2.47	3.61	4.69	2.16	3.54	2.94
1935 -----	2.09	3.53	2.60	2.66	4.26	5.24	2.20	3.67	2.92
Average -----	2.18	3.93	2.73	2.44	3.96	5.23	2.24	3.93	3.06
1936 -----	2.28	3.46	2.52	2.39	3.73	4.46	2.30	3.50	2.73
1937 -----	2.44	3.74	2.68	2.17	3.44	4.15	2.40	3.69	2.83
1938 -----	1.98	3.68	2.52	2.34	4.08	4.88	2.04	3.76	2.79
1939 -----	1.95	3.29	2.19	2.24	3.61	4.11	2.00	3.35	2.41
1940 -----	2.73	4.07	2.61	1.99	3.16	3.57	2.60	3.92	2.71
Average -----	2.28	3.65	2.51	2.23	3.60	4.23	2.27	3.64	2.70
1941 -----	2.34	3.28	2.08	2.18	3.16	3.58	2.32	3.26	2.22
1942 -----	2.77	3.41	2.14	2.75	3.45	3.88	2.77	3.42	2.30
1943 -----	3.01	3.44	2.06	2.85	3.17	3.80	2.98	3.39	2.22
1944 -----	2.99	3.22	1.81	2.24	2.29	2.74	2.86	3.05	1.90
1945 -----	2.53	2.96	1.60	1.96	2.19	2.60	2.44	2.82	1.69
Average -----	2.72	3.27	1.94	2.41	2.84	3.32	2.67	3.20	2.06
1946 -----	2.06	2.88	1.49	2.22	2.47	2.86	2.09	2.80	1.63
1947 -----	2.39	3.02	1.57	2.20	2.57	3.02	2.36	2.96	1.69
1948 -----	2.01	2.73	1.45	1.76	2.00	2.40	1.97	2.60	1.54
1949 -----	1.21	2.19	1.13	1.20	1.83	2.11	1.21	1.13	1.22
1950 -----	1.35	2.19	1.06	1.25	1.77	2.09	1.33	2.11	1.14
Average -----	1.80	2.65	1.36	1.73	2.16	2.54	1.79	2.56	1.47
1951 -----	1.84	2.74	1.28	1.45	2.09	2.41	1.78	2.64	1.37
1952 -----	1.33	2.14	.96	1.58	2.29	2.44	1.37	2.16	1.07
1953 -----	1.34	2.12	.87	1.15	2.04	2.10	1.31	2.11	.95
1954 -----	1.38	2.34	.85	1.48	2.72	2.14	1.40	2.40	.94
1955 -----	1.60	2.28	.78	1.74	2.86	2.07	1.61	2.35	.85
Average -----	1.51	2.35	.96	1.46	2.32	2.26	1.50	2.34	1.05
1956 -----	1.72	2.43	.79	1.72	2.44	1.74	1.72	2.43	.85
1957 -----	1.91	2.78	.87	1.65	2.53	2.00	1.88	2.75	.93
1958 -----	1.64	2.70	.79	1.21	1.97	1.51	1.59	2.61	.83
1959 -----	1.36	2.19	.60	2.02	3.49	2.29	1.44	2.33	.68
1960 -----	1.70	2.68	.70	1.84	3.12	1.85	1.71	2.73	.75
Average -----	1.68	2.56	.76	1.67	2.63	1.87	1.68	2.57	.81
1961 -----	1.81	2.80	.68	1.20	1.84	1.09	1.75	2.71	.70
1962 -----	1.79	2.73	.62	1.86	2.73	1.52	1.79	2.73	.66
1963 -----	1.75	2.58	.55	2.37	3.30	1.74	1.81	2.65	.59
1964 -----	1.58	2.24	.45	1.83	2.56	1.37	1.61	2.27	.48
1965 -----	1.82	2.58	.49	.72	1.06	.54	1.74	2.47	.49
Average -----	1.75	2.59	.55	1.61	2.34	1.28	1.74	2.57	.58
1966 -----	1.67	2.35	.43	.65	.96	.46	1.60	2.27	.43
1967 -----	1.62	2.21	.39	1.16	1.59	.73	1.59	2.18	.40
1968 -----	2.41	3.27	.57	.58	.80	.35	2.31	3.15	.56
1969 -----	1.49	1.99	.34	2.19	2.83	1.27	1.52	2.03	.36

^{1/} Before 1910 certain States did not maintain records of injuries. The above rates are based exclusively on tonnage and men employed in States for which injury records are available.

TABLE 53. - Bituminous coal mines: Fatalities, by principal causes of injury, 1906-69 1/

Year	Underground workings									Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	All other under- ground	Total under- ground	Shaft and slope	Total		
1906	826	192	219	115	52	27	1,431	73	1,504	77	1,581
1907	911	260	911	134	49	99	2,364	59	2,423	111	2,534
1908	829	229	320	109	53	97	1,637	53	1,690	77	1,767
1909	975	240	264	122	52	312	1,965	37	2,002	73	2,075
1910	1,061	295	477	113	76	46	2,068	60	2,128	92	2,220
Average	921	243	438	119	56	116	1,893	56	1,949	86	2,035
1911	1,007	294	331	72	92	44	1,840	31	1,871	86	1,957
1912	943	296	255	70	75	44	1,683	39	1,722	96	1,818
1913	1,007	344	464	63	79	82	2,039	32	2,071	96	2,167
1914	903	309	305	56	86	55	1,714	41	1,755	104	1,859
1915	818	269	270	76	85	35	1,553	30	1,583	100	1,683
Average	936	303	325	67	83	52	1,766	35	1,801	96	1,897
1916	850	330	183	60	81	49	1,553	34	1,587	84	1,671
1917	965	433	319	55	76	60	1,908	44	1,952	162	2,114
1918	1,052	446	103	85	77	76	1,839	41	1,880	149	2,029
1919	878	310	149	57	64	79	1,537	39	1,576	112	1,688
1920	937	342	124	82	70	72	1,627	34	1,661	120	1,781
Average	936	372	176	68	74	67	1,693	38	1,731	126	1,857
1921	782	275	62	74	76	71	1,340	25	1,365	83	1,448
1922	780	286	298	55	71	56	1,546	36	1,582	102	1,684
1923	948	347	330	66	70	64	1,825	31	1,856	97	1,953
1924	846	299	486	46	72	56	1,805	17	1,822	84	1,906
1925	910	310	302	49	80	76	1,727	30	1,757	77	1,834
Average	853	303	296	58	74	65	1,649	27	1,676	89	1,765
1926	994	384	373	46	94	62	1,953	27	1,980	85	2,065
1927	924	309	187	48	94	70	1,632	22	1,654	88	1,742
1928	825	313	347	41	82	54	1,662	13	1,675	54	1,729
1929	922	349	168	45	75	56	1,615	17	1,632	73	1,705
1930	856	285	234	31	63	68	1,537	9	1,546	73	1,619
Average	904	328	262	42	82	62	1,680	17	1,697	75	1,772
1931	624	194	68	15	62	44	1,007	19	1,026	54	1,080
1932	466	146	162	21	42	45	882	13	895	63	958
1933	458	162	27	24	46	45	762	10	772	61	833
1934	539	168	40	21	53	64	885	9	894	64	958
1935	524	198	26	31	43	70	892	13	905	63	968
Average	522	174	65	22	49	54	886	12	898	61	959
1936	624	202	41	31	44	81	1,023	11	1,034	64	1,098
1937	606	244	116	31	52	64	1,113	15	1,128	70	1,198
1938	474	142	84	23	38	53	814	9	823	57	880
1939	500	155	43	15	49	56	818	5	823	44	867
1940	520	192	292	28	30	62	1,124	12	1,136	68	1,204
Average	545	187	115	26	42	63	978	11	989	60	1,049

NOTE: Beginning with 1941, the cause classification in this historical series is changed as follows: (1) Fatalities in shafts and slopes have been included in "Underground workings" and are distributed according to the specified causes; prior to 1941 these deaths were grouped and shown as "Shaft and slope." (2) Fatalities from underground machinery accidents are grouped and shown separately; prior to 1941 such deaths were included in "All other underground." (3) Fatalities from roof or face falls caused by haulage equipment or machinery knocking out roof-support have been included in the respective haulage or machinery classifications; prior to 1941 such deaths were included in "Falls of roof and face." (4) Fatalities from pressure bumps and bursts and from inrush of water or material are included in "All other underground;" prior to 1941 such deaths were included in "Falls of roof and face."

Year	Underground workings								Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	Machinery	All other under- ground	Total		
1941	552	206	89	24	42	39	42	994	78	1,072
1942	579	253	148	16	51	49	47	1,143	102	1,245
1943	561	253	166	27	33	31	59	1,130	95	1,225
1944	551	239	32	21	27	49	96	1,015	109	1,124
1945	429	216	72	23	20	40	31	831	94	925
Average	534	233	102	22	35	42	55	1,023	95	1,118

See footnotes at end of table.

TABLE 53. - Bituminous coal mines: Fatalities, by principal causes of injury, 1906-69 ^{1/}--Continued

Year	Underground workings							Total	Surface ^{2/}	Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Elec-tricity	Machinery	All other under-ground			
1946 -----	420	172	27	12	17	34	29	711	84	795
1947 -----	434	213	154	23	20	23	27	894	91	985
1948 -----	430	182	44	22	19	22	42	761	101	862
1949 -----	259	108	3	14	10	21	10	425	69	494
1950 -----	296	121	3	10	11	19	9	469	81	550
Average -----	368	159	46	16	15	24	24	652	85	737
1951 -----	284	112	153	7	18	27	17	618	66	684
1952 -----	228	109	11	5	10	15	11	389	60	449
1953 -----	221	81	9	4	12	14	8	349	48	397
1954 -----	168	69	17	5	11	16	5	291	43	334
1955 -----	186	69	2	10	15	16	5	303	57	360
Average -----	217	88	39	6	13	18	9	390	55	445
1956 -----	208	73	5	8	14	18	16	342	50	392
1957 -----	198	56	63	7	11	18	22	375	52	427
1958 -----	157	46	41	7	14	12	12	289	3/ 37	326
1959 -----	135	37	10	4	7	13	4	210	36	246
1960 -----	145	38	3	3	18	14	25	246	44	290
Average -----	169	50	24	6	13	15	16	293	43	336
1961 -----	135	41	26	4	12	12	12	242	33	275
1962 -----	105	43	52	4	6	16	--	226	37	263
1963 -----	123	37	31	2	5	14	6	218	34	252
1964 -----	114	42	3	1	5	17	6	188	30	218
1965 -----	126	34	19	1	4	14	17	215	36	251
Average -----	121	40	26	2	6	15	8	218	34	252
1966 -----	110	40	10	3	2	12	12	189	38	227
1967 -----	94	29	12	2	10	14	5	166	47	213
1968 -----	98	31	88	2	17	15	16	267	40	307
1969 -----	77	32	--	1	7	18	7	142	48	190

^{1/} Figures for 1906-09 cover only those States that maintained complete records of fatal injuries. These represented 98 to 99 percent of the total production of coal in the United States. Figures for 1910 to date represent the entire bituminous coal industry.

^{2/} Includes fatalities that occurred at all other work locations, including the associated surface works of underground mines, strip mines and mechanical cleaning plants; beginning with 1955, includes fatalities in auger mines.

^{3/} Includes one surface fatality resulting from a fall of roof underground in Kentucky, 1958.

TABLE 54. - Pennsylvania anthracite mines: Fatalities, by principal causes of injury, 1906-69

Year	Underground workings									Surface 1/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	All other under- ground	Total under- ground	Shaft and slope	Total		
1906	214	67	46	82	1	27	437	19	456	101	557
1907	294	88	45	87	3	57	574	27	601	107	708
1908	299	90	55	94	1	33	572	24	596	82	678
1909	254	71	31	69	6	49	480	10	490	77	567
1910	253	93	20	82	3	38	489	20	509	92	601
Average	262	82	39	83	3	41	510	20	530	92	622
1911	252	92	34	88	2	126	594	21	615	84	699
1912	243	79	35	77	5	37	476	22	498	103	601
1913	257	85	50	75	1	55	523	30	553	65	618
1914	228	76	44	90	3	45	486	47	533	62	595
1915	261	80	34	79	4	58	516	10	526	60	586
Average	248	83	39	82	3	64	519	26	545	75	620
1916	215	64	43	86	9	57	474	15	489	66	555
1917	265	64	41	55	3	39	467	16	483	99	582
1918	242	66	26	50	11	47	442	11	453	98	551
1919	229	73	42	149	4	49	546	13	559	76	635
1920	197	66	36	49	6	40	394	22	416	75	491
Average	229	67	38	78	7	46	465	15	480	83	563
1921	243	70	64	68	4	50	499	11	510	37	547
1922	128	58	13	38	3	19	259	5	264	36	300
1923	219	73	42	49	5	45	433	15	448	61	509
1924	216	58	50	53	8	45	430	12	442	54	496
1925	170	56	43	53	4	20	346	4	350	50	400
Average	195	63	42	52	5	36	393	10	403	47	450
1926	220	52	49	50	2	39	412	8	420	33	453
1927	225	52	60	62	6	43	448	7	455	34	489
1928	243	52	29	33	6	42	405	12	417	30	447
1929	260	65	27	43	6	31	432	12	444	38	482
1930	243	40	30	47	8	34	402	2	404	40	444
Average	238	52	39	47	6	38	420	8	428	35	463
1931	234	43	20	25	3	23	348	4	352	31	383
1932	161	33	7	15	5	12	233	2	235	14	249
1933	119	32	13	10	7	17	198	6	204	27	231
1934	150	29	12	15	3	25	234	4	238	30	268
1935	140	30	23	19	2	15	229	10	239	35	274
Average	161	33	15	17	4	18	248	5	253	28	281
1936	120	26	16	20	8	26	216	6	222	22	244
1937	120	31	--	14	4	16	185	5	190	25	215
1938	128	23	20	11	2	17	201	3	204	21	225
1939	121	27	3	17	2	15	185	6	191	20	211
1940	105	36	5	8	7	8	169	3	172	12	184
Average	118	29	9	14	5	16	191	5	196	20	216

NOTE: Beginning with 1941, the cause classification in this historical series is changed as follows: (1) Fatalities in shafts and slopes have been included in "Underground workings" and are distributed according to the specified causes; prior to 1941 these deaths were grouped and shown as "Shaft and slope." (2) Fatalities from underground machinery accidents are grouped and shown separately; prior to 1941 such deaths were included in "All other underground." (3) Fatalities from roof or face falls caused by haulage equipment or machinery knocking out roof-support have been included in the respective haulage or machinery classifications; prior to 1941 such deaths were included in "Falls of roof and face." (4) Fatalities from pressure bumps and bursts and from inrush of water or material are included in "All other underground;" prior to 1941 such deaths were included in "Falls of roof and face."

Year	Underground workings								Surface 1/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	Machinery	All other under- ground	Total		
1941	91	27	8	12	5	--	29	172	22	194
1942	123	38	9	13	6	1	20	210	16	226
1943	104	36	15	9	2	3	28	197	29	226
1944	68	24	4	16	3	--	36	151	23	174
1945	62	25	4	11	1	1	25	129	14	143
Average	90	30	8	12	3	1	28	172	21	193

See footnote at end of table.

TABLE 54. - Pennsylvania anthracite mines: Fatalities, by principal causes of injury, 1906-69--Continued

Year	Underground workings								Surface 1/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	Machinery	All other under- ground	Total		
1946 -----	93	23	2	8	3	1	22	152	21	173
1947 -----	76	17	35	7	4	--	14	153	20	173
1948 -----	78	14	2	7	1	1	16	119	18	137
1949 -----	52	14	5	3	--	--	9	83	8	91
1950 -----	52	7	5	5	1	--	8	78	15	93
Average -----	70	15	10	6	2	(2/)	14	117	16	133
1951 -----	43	17	9	5	1	1	13	89	12	101
1952 -----	36	19	4	4	--	2	20	85	14	99
1953 -----	42	2	5	1	2	--	8	60	4	64
1954 -----	36	8	1	--	1	--	5	51	11	62
1955 -----	31	8	2	2	--	--	6	49	11	60
Average -----	38	11	4	2	1	1	10	67	10	77
1956 -----	31	6	4	1	2	--	4	48	8	56
1957 -----	30	5	3	4	1	--	6	49	2	51
1958 -----	19	--	1	1	--	1	4	26	6	32
1959 -----	18	8	--	2	--	--	13	41	6	47
1960 -----	18	4	--	1	--	--	5	28	7	35
Average -----	23	5	1	2	1	(2/)	6	38	6	44
1961 -----	9	3	--	1	--	1	--	14	5	19
1962 -----	8	2	--	--	--	--	8	18	8	26
1963 -----	13	2	5	3	--	--	4	27	5	32
1964 -----	9	5	3	3	--	--	2	22	2	24
1965 -----	5	1	--	--	--	--	2	8	--	8
Average -----	9	3	2	1	--	(2/)	3	18	4	22
1966 -----	5	--	--	--	--	--	--	5	1	6
1967 -----	7	--	--	--	--	1	--	8	1	9
1968 -----	1	--	--	--	--	--	--	1	3	4
1969 -----	1	1	1	--	--	--	4	7	6	13

1/ Includes strip mines, culm banks, dredges, and mechanical cleaning plants.

2/ Less than 0.5.

TABLE 55. - All coal mines: Fatalities, by principal causes of injury, 1906-69 1/

Year	Underground workings									Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	All other under- ground	Total under- ground	Shaft and slope	Total		
1906	1,040	259	265	197	53	54	1,868	92	1,960	178	2,138
1907	1,205	348	956	221	52	156	2,938	86	3,024	218	3,242
1908	1,128	319	375	203	54	130	2,209	77	2,286	159	2,445
1909	1,229	311	295	191	58	361	2,445	47	2,492	150	2,642
1910	1,314	388	497	195	79	84	2,557	80	2,637	184	2,821
Average	1,183	325	478	201	59	157	2,403	76	2,480	178	2,658
1911	1,259	386	365	160	94	170	2,434	52	2,486	170	2,656
1912	1,186	375	290	147	80	81	2,159	61	2,220	199	2,419
1913	1,264	429	514	138	80	137	2,562	62	2,624	161	2,785
1914	1,131	385	349	146	89	100	2,200	88	2,288	166	2,454
1915	1,079	349	304	155	89	93	2,069	40	2,109	160	2,269
Average	1,184	385	364	149	86	116	2,285	61	2,345	171	2,517
1916	1,065	394	226	146	90	106	2,027	49	2,076	150	2,226
1917	1,230	497	360	110	79	79	2,375	60	2,435	261	2,696
1918	1,294	512	129	135	88	123	2,261	52	2,333	247	2,580
1919	1,107	383	191	206	68	128	2,083	52	2,135	188	2,323
1920	1,134	408	160	131	76	112	2,021	56	2,077	195	2,272
Average	1,166	439	213	146	80	114	2,157	54	2,211	208	2,419
1921	1,025	345	126	142	80	121	1,839	36	1,875	120	1,995
1922	908	344	311	93	74	75	1,805	41	1,846	138	1,984
1923	1,167	420	372	115	75	109	2,258	46	2,304	158	2,462
1924	1,062	357	536	99	80	101	2,235	29	2,264	138	2,402
1925	1,080	366	345	102	84	96	2,073	34	2,107	127	2,234
Average	1,048	366	338	110	79	100	2,042	37	2,079	136	2,215
1926	1,214	436	422	96	96	101	2,365	35	2,400	118	2,518
1927	1,149	361	247	110	100	113	2,080	29	2,109	122	2,231
1928	1,068	365	376	74	88	96	2,067	25	2,092	84	2,176
1929	1,182	414	195	88	81	87	2,047	29	2,076	111	2,187
1930	1,099	325	264	78	71	102	1,939	11	1,950	113	2,063
Average	1,142	380	301	89	87	100	2,100	26	2,125	110	2,235
1931	858	237	88	40	65	67	1,355	23	1,378	85	1,463
1932	627	179	169	36	47	57	1,115	15	1,130	77	1,207
1933	577	194	40	34	53	62	960	16	976	88	1,064
1934	689	197	52	36	56	89	1,119	13	1,132	94	1,226
1935	664	228	49	50	45	85	1,121	23	1,144	98	1,242
Average	683	207	80	39	53	72	1,134	18	1,152	88	1,240
1936	744	228	57	51	52	107	1,239	17	1,256	86	1,342
1937	726	275	116	45	56	80	1,298	20	1,318	95	1,413
1938	602	165	104	34	40	70	1,015	12	1,027	78	1,105
1939	621	182	46	32	51	71	1,003	11	1,014	64	1,078
1940	625	228	297	36	37	70	1,293	15	1,308	80	1,388
Average	664	216	124	40	47	80	1,170	15	1,185	80	1,265

NOTE: Beginning with 1941, the cause classification in this historical series is changed as follows: (1) Fatalities in shafts and slopes have been included in "Underground workings" and are distributed according to the specified causes; prior to 1941 these deaths were grouped and shown as "Shaft and slope." (2) Fatalities from underground machinery accidents are grouped and shown separately; prior to 1941 such deaths were included in "All other underground." (3) Fatalities from roof or face falls caused by haulage equipment or machinery knocking out roof-support have been included in the respective haulage or machinery classifications; prior to 1941 such deaths were included in "Falls of roof and face." (4) Fatalities from pressure bumps and bursts and from inrush of water or material are included in "All other underground;" prior to 1941 such deaths were included in "Falls of roof and face."

Year	Underground workings								Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	Machinery	All other under- ground	Total		
1941	643	233	97	36	47	39	71	1,166	100	1,266
1942	702	291	157	29	57	50	667	1,353	118	1,471
1943	665	289	181	36	35	34	87	1,327	124	1,451
1944	619	263	36	37	30	49	132	1,166	132	1,298
1945	491	241	76	34	21	41	56	960	108	1,068
Average	624	263	110	34	38	43	83	1,195	116	1,311

See footnotes at end of table.

TABLE 55. - All coal mines: Fatalities, by principal causes of injury, 1906-69 ^{1/}--Continued

Year	Underground workings							Total	Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust ex- plosions	Explo- sives	Elec- tricity	Machinery	All other under- ground			
1946 -----	513	195	29	20	20	35	51	863	105	968
1947 -----	510	230	189	30	24	23	41	1,047	111	1,158
1948 -----	508	196	46	29	20	23	58	880	119	999
1949 -----	311	122	8	17	10	21	19	508	77	585
1950 -----	348	128	8	15	12	19	17	547	96	643
Average -----	438	174	56	22	17	24	38	769	102	871
1951 -----	327	129	162	12	19	28	30	707	78	785
1952 -----	264	128	15	9	10	17	31	474	74	548
1953 -----	263	83	14	5	14	14	16	409	52	461
1954 -----	204	77	18	5	12	16	10	342	54	396
1955 -----	217	77	4	12	15	16	11	352	68	420
Average -----	255	99	43	9	14	18	19	457	65	522
1956 -----	239	79	9	9	16	18	20	390	58	448
1957 -----	228	61	66	11	12	18	28	424	54	478
1958 -----	176	46	42	8	14	13	16	315	3/ 43	358
1959 -----	153	45	10	6	7	13	17	251	42	293
1960 -----	163	42	3	4	18	14	30	274	51	325
Average -----	192	54	26	8	13	15	22	330	50	380
1961 -----	144	44	26	5	12	13	12	256	38	294
1962 -----	113	45	52	4	6	16	8	244	45	289
1963 -----	136	39	36	5	5	14	10	245	39	284
1964 -----	123	47	6	4	5	17	8	210	32	242
1965 -----	131	35	19	1	4	14	19	223	36	259
Average -----	130	42	28	4	6	15	11	236	38	274
1966 -----	115	40	10	3	2	12	12	194	39	233
1967 -----	101	29	12	2	10	15	5	174	48	222
1968 -----	99	31	88	2	17	15	16	268	43	311
1969 -----	78	33	1	1	7	18	11	149	54	203

1/ Figures for 1906-09 cover only those States that maintained complete records of fatal injuries. These represented 98 to 99 percent of the total production of coal in the United States. Figures for 1910 to date represent the entire coal industry.

2/ Includes fatalities that occurred at all other work locations, including the associated surface works of underground mines, strip mines, culm banks, dredges, and mechanical cleaning plants; beginning with 1955, includes fatalities in auger mines.

3/ Includes one surface fatality resulting from a fall of roof underground in a bituminous coal mine in Kentucky, 1958.

TABLE 56. - Bituminous coal mines: Percentage distribution of fatalities, by principal causes of injury, 1906-69 1/

Year	Underground workings									Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Electricity	All other underground	Total underground	Shaft and slope	Total		
1906 -----	52.2	12.1	13.9	7.3	3.3	1.7	90.5	4.6	95.1	4.9	100.0
1907 -----	36.0	10.3	36.0	5.2	1.9	3.9	93.3	2.3	95.6	4.4	100.0
1908 -----	46.9	13.0	18.1	6.1	3.0	5.5	92.6	3.0	95.6	4.4	100.0
1909 -----	47.0	11.6	12.7	5.9	2.5	15.0	94.7	1.8	96.5	3.5	100.0
1910 -----	47.8	13.3	21.5	5.1	3.4	2.1	93.2	2.7	95.9	4.1	100.0
Average -----	45.3	11.9	21.5	5.8	2.8	5.7	93.0	2.8	95.8	4.2	100.0
1911 -----	51.5	15.0	16.9	3.7	4.7	2.2	94.0	1.6	95.6	4.4	100.0
1912 -----	51.9	16.3	14.0	3.9	4.1	2.4	92.6	2.1	94.7	5.3	100.0
1913 -----	46.5	15.9	21.4	2.9	3.6	3.8	94.1	1.5	95.6	4.4	100.0
1914 -----	48.6	16.6	16.4	3.0	4.6	3.0	92.2	2.2	94.4	5.6	100.0
1915 -----	48.6	16.0	16.0	4.5	5.1	2.1	92.3	1.8	94.1	5.9	100.0
Average -----	49.3	16.0	17.1	3.5	4.4	2.8	93.1	1.8	94.9	5.1	100.0
1916 -----	50.9	19.7	11.0	3.6	4.8	2.9	92.9	2.1	95.0	5.0	100.0
1917 -----	45.7	20.5	15.1	2.6	3.6	2.8	90.3	2.0	92.3	7.7	100.0
1918 -----	51.8	22.0	5.1	4.2	3.8	3.7	90.6	2.1	92.7	7.3	100.0
1919 -----	52.0	18.4	8.8	3.4	3.8	4.7	91.1	2.3	93.4	6.6	100.0
1920 -----	52.6	19.2	7.0	4.6	3.9	4.1	91.4	1.9	93.3	6.7	100.0
Average -----	50.4	20.0	9.5	3.7	4.0	3.6	91.2	2.0	93.2	6.8	100.0
1921 -----	54.0	19.0	4.3	5.1	5.2	4.9	92.5	1.8	94.3	5.7	100.0
1922 -----	46.3	17.0	17.7	3.3	4.2	3.3	91.8	2.1	93.9	6.1	100.0
1923 -----	48.5	17.8	16.9	3.3	3.6	3.3	93.4	1.6	95.0	5.0	100.0
1924 -----	44.4	15.7	25.5	2.4	3.8	2.9	94.7	.9	95.6	4.4	100.0
1925 -----	49.6	16.9	16.5	2.7	4.4	4.1	94.2	1.6	95.8	4.2	100.0
Average -----	48.3	17.1	16.8	3.3	4.2	3.7	93.4	1.6	95.0	5.0	100.0
1926 -----	48.1	18.6	18.1	2.2	4.6	3.0	94.6	1.3	95.9	4.1	100.0
1927 -----	53.1	17.7	10.7	2.8	5.4	4.0	93.7	1.2	94.9	5.1	100.0
1928 -----	47.7	18.1	20.1	2.4	4.7	3.1	96.1	.8	96.9	3.1	100.0
1929 -----	54.1	20.5	9.9	2.6	4.4	3.2	94.7	1.0	95.7	4.3	100.0
1930 -----	52.9	17.6	14.4	1.9	3.9	4.2	94.9	.6	95.5	4.5	100.0
Average -----	51.0	18.5	14.8	2.4	4.6	3.5	94.8	1.0	95.8	4.2	100.0
1931 -----	57.8	18.0	6.3	1.4	5.7	4.0	93.2	1.8	95.0	5.0	100.0
1932 -----	48.7	15.2	16.9	2.2	4.4	4.7	92.1	1.3	93.4	6.6	100.0
1933 -----	55.0	19.4	3.3	2.9	5.5	5.4	91.5	1.2	92.7	7.3	100.0
1934 -----	56.3	17.5	4.2	2.2	5.5	6.7	92.4	.9	93.3	6.7	100.0
1935 -----	54.1	20.5	2.7	3.2	4.4	7.2	92.1	1.4	93.5	6.5	100.0
Average -----	54.4	18.2	6.8	2.3	5.1	5.6	92.4	1.2	93.6	6.4	100.0
1936 -----	56.8	18.4	3.8	2.8	4.0	7.4	93.2	1.0	94.2	5.8	100.0
1937 -----	50.6	20.4	9.7	2.6	4.3	5.3	92.9	1.3	94.2	5.8	100.0
1938 -----	53.9	16.1	9.6	2.6	4.3	6.0	92.5	1.0	93.5	6.5	100.0
1939 -----	57.7	17.9	4.9	1.7	5.7	6.4	94.3	.6	94.9	5.1	100.0
1940 -----	43.2	15.9	24.3	2.3	2.5	5.2	93.4	1.0	94.4	5.6	100.0
Average -----	51.9	17.8	11.0	2.5	4.0	6.0	93.2	1.1	94.3	5.7	100.0

NOTE: Beginning with 1941, the cause classification in this historical series is changed as follows: (1) Fatalities in shafts and slopes have been included in "Underground workings" and are distributed according to the specified causes; prior to 1941 these deaths were grouped and shown as "Shaft and slope." (2) Fatalities from underground machinery accidents are grouped and shown separately; prior to 1941 such deaths were included in "All other underground." (3) Fatalities from roof or face falls caused by haulage equipment or machinery knocking out roof-support have been included in the respective haulage or machinery classifications; prior to 1941 such deaths were included in "Falls of roof and face." (4) Fatalities from pressure bumps and bursts and from inrush of water or material are included in "All other underground;" prior to 1941 such deaths were included in "Falls of roof and face."

Year	Underground workings								Surface 2/	Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Electricity	Machinery	All other underground	Total		
1941 -----	51.5	19.2	8.3	2.2	3.9	3.7	3.9	92.7	7.3	100.0
1942 -----	46.5	20.3	11.9	1.3	4.1	3.9	3.8	91.8	8.2	100.0
1943 -----	45.8	20.6	13.6	2.2	2.7	2.5	4.8	92.2	7.8	100.0
1944 -----	49.0	21.3	2.8	1.9	2.4	4.4	8.5	90.3	9.7	100.0
1945 -----	46.4	23.3	7.8	2.5	2.2	4.3	3.3	89.8	10.2	100.0
Average -----	47.8	20.8	9.1	2.0	3.1	3.8	4.9	91.5	8.5	100.0

See footnotes at end of table.

TABLE 56. - Bituminous coal mines: Percentage distribution of fatalities, by principal causes of injury, 1906-69 ^{1/}--Continued

Year	Underground workings								Surface ^{2/}	Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Electricity	Machinery	All other underground	Total		
1946 -----	52.8	21.6	3.4	1.5	2.1	4.3	3.7	89.4	10.6	100.0
1947 -----	44.1	21.6	15.6	2.3	2.0	2.4	2.5	90.8	9.2	100.0
1948 -----	49.9	21.1	5.1	2.6	2.2	2.5	4.9	88.3	11.7	100.0
1949 -----	52.4	21.9	.6	2.8	2.0	4.3	2.0	86.0	14.0	100.0
1950 -----	53.8	22.0	.6	1.8	2.0	3.5	1.6	85.3	14.7	100.0
Average -----	49.9	21.6	6.2	2.2	2.0	3.3	3.3	88.5	11.5	100.0
1951 -----	41.5	16.4	22.4	1.0	2.6	4.0	2.5	90.4	9.6	100.0
1952 -----	50.8	24.2	2.5	1.1	2.2	3.3	2.5	86.6	13.4	100.0
1953 -----	55.7	20.4	2.3	1.0	3.0	3.5	2.0	87.9	12.1	100.0
1954 -----	50.3	20.6	5.1	1.5	3.3	4.8	1.5	87.1	12.9	100.0
1955 -----	51.6	19.2	.6	2.8	4.2	4.4	1.4	84.2	15.8	100.0
Average -----	48.8	19.8	8.8	1.4	2.9	4.0	2.0	87.7	12.3	100.0
1956 -----	53.0	18.6	1.3	2.0	3.6	4.6	4.1	87.2	12.8	100.0
1957 -----	46.4	13.1	14.8	1.6	2.6	4.2	5.1	87.8	12.2	100.0
1958 -----	48.1	14.1	12.6	2.1	4.3	3.7	3.7	88.6	11.4	100.0
1959 -----	54.9	15.0	4.1	1.6	2.9	5.3	1.6	85.4	14.6	100.0
1960 -----	50.0	13.1	1.0	1.0	6.2	4.9	8.6	84.8	15.2	100.0
Average -----	50.3	14.9	7.1	1.8	3.9	4.5	4.7	87.2	12.8	100.0
1961 -----	49.0	14.9	9.5	1.4	4.4	4.4	4.4	88.0	12.0	100.0
1962 -----	39.9	16.3	19.8	1.5	2.3	6.1	---	85.9	14.1	100.0
1963 -----	48.8	14.7	12.3	.8	2.0	5.5	2.4	86.5	13.5	100.0
1964 -----	52.2	19.3	1.4	.5	2.3	7.8	2.7	86.2	13.8	100.0
1965 -----	50.2	13.5	7.6	.4	1.6	5.6	6.8	85.7	14.3	100.0
Average -----	48.0	15.9	10.3	.8	2.4	5.9	3.2	86.5	13.5	100.0
1966 -----	48.5	17.6	4.4	1.3	.9	5.3	5.3	83.3	16.7	100.0
1967 -----	44.1	13.6	5.6	.9	4.7	6.6	2.4	77.9	22.1	100.0
1968 -----	31.9	10.1	28.7	.7	5.5	4.9	5.2	87.0	13.0	100.0
1969 -----	40.5	16.8	---	.5	3.7	9.5	3.7	74.7	25.3	100.0

^{1/} Figures for 1906-09 cover only those States that maintained complete records of fatal injuries. These represented 98 to 99 percent of the total production of coal in the United States. Figures for 1910 to date represent the entire bituminous coal industry.

^{2/} Includes fatalities that occurred at all other work locations, including the associated surface works of underground mines, strip mines and mechanical cleaning plants; beginning with 1955, includes fatalities in auger mines.

TABLE 57. - Pennsylvania anthracite mines: Percentage distribution of fatalities, by principal causes of injury, 1906-69

Year	Underground workings										Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Elec-tricity	All other under-ground	Total under-ground	Shaft and slope	Total	Surface 1/	
1906	38.4	12.0	8.3	14.7	0.2	4.9	78.5	3.4	81.9	18.1	100.0
1907	41.5	12.4	6.4	12.3	.4	8.1	81.1	3.8	84.9	15.1	100.0
1908	44.1	13.3	8.1	13.9	.1	4.9	84.4	3.5	87.9	12.1	100.0
1909	44.8	12.5	5.5	12.2	1.1	8.6	84.7	1.7	86.4	13.6	100.0
1910	42.1	15.5	3.3	13.7	.5	6.3	81.4	3.3	84.7	15.3	100.0
Average	42.1	13.2	6.3	13.3	.5	6.6	82.0	3.2	85.2	14.8	100.0
1911	36.1	13.2	4.9	12.6	.2	18.0	85.0	3.0	88.0	12.0	100.0
1912	40.4	13.2	5.8	12.8	.8	6.2	79.2	3.7	82.9	17.1	100.0
1913	41.6	13.8	8.1	12.1	.1	8.9	84.6	4.9	89.5	10.5	100.0
1914	38.3	12.8	7.4	15.1	.5	7.6	81.7	7.9	89.6	10.4	100.0
1915	44.5	13.7	5.8	13.5	.7	9.9	88.1	1.7	89.8	10.2	100.0
Average	40.0	13.4	6.3	13.2	.5	10.3	83.7	4.2	87.9	12.1	100.0
1916	38.7	11.5	7.8	15.5	1.6	10.3	85.4	2.7	88.1	11.9	100.0
1917	45.5	11.0	7.0	9.5	.5	6.7	80.2	2.8	83.0	17.0	100.0
1918	43.9	12.0	4.7	9.1	2.0	8.5	80.2	2.0	82.2	17.8	100.0
1919	36.1	11.5	6.6	23.5	.6	7.7	86.0	2.0	88.0	12.0	100.0
1920	40.1	13.5	7.3	10.0	1.2	8.1	80.2	4.5	84.7	15.3	100.0
Average	40.7	11.9	6.7	14.0	1.1	8.2	82.6	2.7	85.3	14.7	100.0
1921	44.4	12.8	11.7	12.4	.7	9.2	91.2	2.0	93.2	6.8	100.0
1922	42.7	19.3	4.3	12.7	1.0	6.3	86.3	1.7	88.0	12.0	100.0
1923	43.0	14.3	8.3	9.6	1.0	8.9	85.1	2.9	88.0	12.0	100.0
1924	43.5	11.7	10.1	10.7	1.6	9.1	86.7	2.4	89.1	10.9	100.0
1925	42.5	14.0	10.8	13.2	1.0	5.0	86.5	1.0	87.5	12.5	100.0
Average	43.3	14.0	9.3	11.6	1.1	8.0	87.3	2.3	89.6	10.4	100.0
1926	48.6	11.5	10.8	11.0	.4	8.6	90.9	1.8	92.7	7.3	100.0
1927	46.0	10.6	12.3	12.7	1.2	8.8	91.6	1.4	93.0	7.0	100.0
1928	54.4	11.6	6.5	7.4	1.3	9.4	90.6	2.7	93.3	6.7	100.0
1929	53.9	13.5	5.6	8.9	1.2	6.5	89.6	2.5	92.1	7.9	100.0
1930	54.7	9.0	6.8	10.6	1.8	7.6	90.5	.5	91.0	9.0	100.0
Average	51.4	11.2	8.4	10.2	1.3	8.2	90.7	1.7	92.4	7.6	100.0
1931	61.1	11.2	5.2	6.6	.8	6.0	90.9	1.0	91.9	8.1	100.0
1932	64.7	13.3	2.8	6.0	2.0	4.8	93.6	.8	94.4	5.6	100.0
1933	51.5	13.9	5.6	4.3	3.0	7.4	85.7	2.6	88.3	11.7	100.0
1934	56.0	10.8	4.5	5.6	1.1	9.3	87.3	1.5	88.8	11.2	100.0
1935	51.1	11.0	8.4	6.9	.7	5.5	83.6	3.6	87.2	12.8	100.0
Average	57.3	11.8	5.3	6.1	1.4	6.4	88.3	1.7	90.0	10.0	100.0
1936	49.2	10.7	6.6	8.2	3.2	10.6	88.5	2.5	91.0	9.0	100.0
1937	55.8	14.4	---	6.5	1.9	7.4	86.0	2.4	88.4	11.6	100.0
1938	56.9	10.2	8.9	4.9	.9	7.5	89.3	1.4	90.7	9.3	100.0
1939	57.3	12.8	1.4	8.1	1.0	7.1	87.7	2.8	90.5	9.5	100.0
1940	57.1	19.6	2.7	4.3	3.8	4.3	91.8	1.7	93.5	6.5	100.0
Average	54.6	13.4	4.2	6.5	2.3	7.4	88.4	2.3	90.7	9.3	100.0

NOTE: Beginning with 1941, the cause classification in this historical series is changed as follows: (1) Fatalities in shafts and slopes have been included in "Underground workings" and are distributed according to the specified causes; prior to 1941 these deaths were grouped and shown as "Shaft and slope." (2) Fatalities from underground machinery accidents are grouped and shown separately; prior to 1941 such deaths were included in "All other underground." (3) Fatalities from roof or face falls caused by haulage equipment or machinery knocking out roof-support have been included in the respective haulage or machinery classifications; prior to 1941 such deaths were included in "Falls of roof and face." (4) Fatalities from pressure bumps and bursts and from inrush of water or material are included in "All other underground;" prior to 1941 such deaths were included in "Falls of roof and face."

Year	Underground workings								Surface 1/	Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Elec-tricity	Machinery	All other under-ground	Total		
1941	46.9	13.9	4.1	6.2	2.6	---	15.0	88.7	11.3	100.0
1942	54.4	16.8	4.0	5.8	2.7	.4	8.8	92.9	7.1	100.0
1943	46.0	15.9	6.6	4.0	.9	1.4	12.4	87.2	12.8	100.0
1944	39.1	13.8	2.3	9.2	1.7	---	20.7	86.8	13.2	100.0
1945	43.3	17.5	2.8	7.7	.7	.7	17.5	90.2	9.8	100.0
Average	46.6	15.6	4.1	6.2	1.6	.5	14.5	89.1	10.9	100.0

See footnote at end of table.

TABLE 57. - Pennsylvania anthracite mines: Percentage distribution of fatalities, by principal causes of injury, 1906-69--Continued

Year	Underground workings								Surface 1/	Grand total
	Falls of roof and face	Haulage	Gas or dust explosions	Explosives	Electricity	Machinery	All other underground	Total		
1946 -----	53.8	13.3	1.2	4.6	1.7	0.6	12.7	87.9	12.1	100.0
1947 -----	43.9	9.8	20.2	4.1	2.3	---	8.1	88.4	11.6	100.0
1948 -----	57.0	10.2	1.5	5.1	.7	.7	11.7	86.9	13.1	100.0
1949 -----	57.1	15.4	5.5	3.3	---	---	9.9	91.2	8.8	100.0
1950 -----	55.9	7.5	5.4	5.4	1.1	---	8.6	83.9	16.1	100.0
Average -----	52.7	11.3	7.5	4.5	1.5	(2/)	10.5	88.0	12.0	100.0
1951 -----	42.6	16.8	8.9	5.0	1.0	1.0	12.8	88.1	11.9	100.0
1952 -----	36.3	19.2	4.1	4.1	---	2.0	20.2	85.9	14.1	100.0
1953 -----	65.7	3.1	7.8	1.6	3.1	---	12.5	93.8	6.2	100.0
1954 -----	58.1	12.9	1.6	---	1.6	---	8.1	82.3	17.7	100.0
1955 -----	51.7	13.4	3.3	3.3	---	---	10.0	81.7	18.3	100.0
Average -----	49.3	14.3	5.2	2.6	1.3	1.3	13.0	87.0	13.0	100.0
1956 -----	55.4	10.7	7.1	1.8	3.6	---	7.1	85.7	14.3	100.0
1957 -----	58.8	9.8	5.9	7.8	2.0	---	11.8	96.1	3.9	100.0
1958 -----	59.4	---	3.1	3.1	---	3.1	12.5	81.2	18.8	100.0
1959 -----	38.3	17.0	---	4.3	---	---	27.6	87.2	12.8	100.0
1960 -----	51.4	11.5	---	2.8	---	---	14.3	80.0	20.0	100.0
Average -----	52.3	11.4	4.5	4.5	(2/)	(2/)	13.7	86.4	13.6	100.0
1961 -----	47.3	15.8	---	5.3	---	5.3	---	73.7	26.3	100.0
1962 -----	30.8	7.6	---	---	---	---	30.8	69.2	30.8	100.0
1963 -----	40.6	6.3	15.6	9.4	---	---	12.5	84.4	15.6	100.0
1964 -----	37.5	20.9	12.5	12.5	---	---	8.3	91.7	8.3	100.0
1965 -----	62.5	12.5	---	---	---	---	25.0	100.0	---	100.0
Average -----	40.9	13.6	9.1	4.6	---	(2/)	13.6	81.8	18.2	100.0
1966 -----	83.3	---	---	---	---	---	---	83.3	16.7	100.0
1967 -----	77.8	---	---	---	---	11.1	---	88.9	11.1	100.0
1968 -----	25.0	---	---	---	---	---	---	25.0	75.0	100.0
1969 -----	7.7	7.7	7.7	---	---	---	30.7	53.8	46.2	100.0

1/ Includes strip mines, culm banks, dredges, and mechanical cleaning plants.

2/ Less than 0.05.

APPENDIX

Form 6-1420

Form 6-1420
(October 1970)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

O.M.B.
No. 42-R0027
Approval Expires
June 30, 1971

EMPLOYER'S REPORT OF COAL-MINE INJURY

Section 80.33 of Title 30, Code of Federal Regulations, requires you to file a copy of this form for each fatal and nonfatal injury with the U.S. Bureau of Mines, Washington, D.C. 20240. "Fatal injury" means any work injury resulting in death regardless of the time intervening between injury and death. "Nonfatal injury" means any work injury which does not result in death but which either results in permanent impairment to the injured person or causes the injured person to lose one full day or more from work after the day of injury. As used in this definition "permanent impairment" means total incapacitation of the injured person for any gainful work, or total or partial loss of, or loss of use of, any member or function of the body. (ANZI Z16.1-1967). For each fatal injury, this form must be filled in and filed immediately. For each nonfatal injury, a report on this form shall be filed on or before the fifteenth day of the month following the report period in which the injury occurred. Monthly reporting mines: If disability extends beyond the date on which the report is made, report the termination of the injury in part A-2 of the appropriate Form 6-1423AM, "Injuries and Employment, Bituminous Coal and Lignite Mines" or Form 6-1420AM, "Injuries and Employment, Pennsylvania Anthracite Mines," for the month when the injured person returns to work.

EM- PLOY- ER	1. Name of operating company (Employer) _____	Do not use this column
	2. Office address _____ City _____ State _____	
MINE	3. Name of mine or plant _____	
	4. Location: State _____ County _____ Nearest town _____	
	5. Principal product or kind of coal produced _____	
	6. If mine, type of mine (underground or open cut) _____	
TIME	7. Date of accident _____ Hour _____ m. 8. Hour employee began work _____ m.	
	9. Date disability began _____ Hour of day _____ m.	
INJURED EMPLOYEE	10. Name _____ Address _____ Soc. Sec. No. _____	
	11. Age _____ Sex _____ Nationality (country of birth) _____ U. S. citizen? _____	
	12. Number of dependents: Wife _____ Children _____ Others _____	
	13. Occupation when injured _____ Was this his regular occupation? _____	
PLACE	14. If not, what was his regular occupation? _____ Wages per week \$ _____	
	(a) How long employed by you at this occupation? _____ (b) Total experience at this occupation? _____ (c) Total experience in coal mines? _____	
	15. Did accident occur on company property? _____	
CAUSE	16. If at mine, did accident occur underground? _____ Open-cut _____ Surface _____	
	17. If underground, state whether in shaft, slope, entry, room, breast, etc. _____	
	18. If surface, state whether at tippie, breaker, tramline, powerplant, shops, etc. _____	
	19. If underground, state whether working in pillar or solid _____ Pitch or flat _____	
	20. If injured by cars, state whether on slope, entry, room, etc. _____	
NATURE AND LOCATION OF INJURY	21. What was injured person doing when accident occurred? _____	
	22. Describe fully how accident occurred _____	
	23. Name of machine, tool, object, or substance involved _____	
	24. Kind of power used by above machine _____ 25. Part of machine on which injury occurred _____	
RETURN TO DUTY Length of Disability	26. Was machine or any part of it defective? _____	
	27. State whether fracture, amputation, laceration, bruise, strain, sprain, crushing injury, etc. _____	
	28. Part of body injured (head, right arm, left eye, great toe on left foot, index finger on right hand, etc.) _____ 29. If amputation, state part of body lost _____	
PRE- VENTION	30. Date physically able to return to work _____ Date actually returned _____	
	31. If injured employee returned to work, did he return to the duties of his regular job, the job on which he was injured, or some other job (state which) _____	
	32. Number of calendar days employee was disabled (not including day of accident) from all work _____ from his regular work _____	
	33. Did injury result in death? _____ If so, give date _____	
	34. Was safety appliance or regulation provided? _____	
	35. Was accident caused by injured employee's failure to use or observe same? _____	
	36. Could accident have been prevented? _____ If so, how? _____	

(Signed) _____

(Company official to whom correspondence should be addressed)

(Official position)

(Date of this report)

Form 6-1420-AM
(March 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

O.M.B. No. 42-R0026.
Approval expires February 28, 1973.



INJURIES AND EMPLOYMENT
PENNSYLVANIA ANTHRACITE MINES

(Please correct if name or address has changed.)

Section 80.34 of Title 30, Code of Federal Regulations, requires each coal mine operator to complete all items on this form which are relevant to his coal mine. Each mine which employed 20 men or more on any day during the calendar year is required to report on this form on or before the 15th day of each month for the immediately preceding month, including those months the mine was idle. Each mine which employed fewer than 20 men on any day during the calendar year is required to report on this form on or before January 15th of each year for the preceding calendar year.

PART A - INJURIES

1. Enter on the first line the number of fatal and other disabling work injuries (*) that occurred during the period covered by this report. On the second line enter the number of delayed reports of injuries that occurred in previous months and have not been reported to date. If none, write "none." Attach an individual Form 6-1420 for each nonfatal injury. Fatal injury reports must be made at time of occurrence.

	Number of fatal injuries	Number of nonfatal injuries
Injuries during month or period covered by this report		
Previous injuries that have not been reported to date		

A disabling injury is one which occurs in the course of and arises out of employment, irrespective of whether the injury is compensable and whether or not your establishment was operating on the days following the date of injury. The term "injury" includes occupational diseases. A disabling work injury is one which results in death or permanent impairment or which temporarily disables the worker for 1 full day or more after the day of injury (ANSI Z16.1-1967).

2. List the names of men injured in previous periods who have returned to work but whose Forms 6-1420 did not show their return to duty date.

Name of employee	Date injury occurred	Date able to return to work	Note any change of data originally reported for kind or severity of injury

PART B - EMPLOYMENT AND PRODUCTION

REPORTING INSTRUCTIONS. - Report data for all men engaged in production, development, maintenance, and repair work - including supervisory and technical personnel at the operation. Include proprietors and firm members (owners, operators, or partners) performing manual labor. Report separate data on all office workers at the mine or plant. Exclude coke workers and employees in stores or affiliated industries other than the production of coal.

The average number of men working on active days may be computed approximately for each department by dividing the number of man-shifts by the number of days active. The number of calendar days active should include only the number of days during period each department was engaged in production

or development work, including major construction work by your own employees. Report total man-shifts and man-hours worked during the period for each department, including both active and inactive (maintenance) days. Use actual records of man-shifts and man-hours whenever available, including overtime actually worked. If records of man-shifts or man-hours are not available, estimate them from payroll or other records. The number of man-shifts worked may be estimated from the number of man-hours by dividing the latter by the customary length of shift. Report the customary number of hours per shift per worker; do not indicate minor variations. For men on a portal-to-portal basis, include working time, plus travel time, plus lunch time. Exclude vacation hours.

NOTE: DO NOT REPORT ANY ONE EMPLOYEE TO MORE THAN ONE DEPARTMENT.

Department (See instructions on reverse side)	Average no. of men working on active days	Days active	Total man-shifts worked during period	Length of shift (Hrs.)	Total man-hours worked during period	Production of prepared coal
Underground Mine						
(01) Underground						
(02) Surface at underground mine						
(03) Strip mine						
(05) Culm bank						
(06) Dredge						
(30) Preparation plant						
(00) Office workers at mine						

(OVER)

Form 6-1423-AM
(September 1968)
(Formerly Form 6-1420B)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Budget Bureau No. 42-R1286.
Approval expires February 28, 1973.



INJURIES AND EMPLOYMENT
BITUMINOUS COAL AND LIGNITE MINES

Please separate
forms at
perforations

Retain a copy
for your files

Section 105 of the Federal Coal Mine Safety Act (30 U.S.C. sec. 455) requires you to furnish complete and correct information to the best of your knowledge concerning any and all accidents involving bodily injury or loss of life occurring at your coal mine. The information on this form is also required by the Federal Mine Safety Code. Each mine which employed 20 men or more on any one day is required to report monthly including those months the mine was idle. All other mines are required to report annually.

Name of operating company Identification number assigned to
Office address this mine by Bureau of Mines

Name of mine Location of mine County

PART A—INJURIES

1. Enter on the first line the number of fatal and other disabling work injuries (*) that occurred during the period covered by this report. On the second line enter the number of delayed reports of injuries that occurred in previous months and have not been reported to date. If none, write "none." Attach an individual Form 6-1420 for each nonfatal injury. *Fatal injury reports must be made at time of occurrence.

Injuries during month or period covered by this report.....	Number of Fatal Injuries	Number of Nonfatal Injuries
.....
Previous injuries that have not been reported to date.....

*A disabling injury is one which occurs in the course of and arises out of employment, irrespective of whether the injury is compensable and whether or not your establishment was operating on the days following the date of injury. The term "injury" includes occupational diseases. A disabling work injury is one which results in death or permanent impairment or which temporarily disables the worker for 1 full day or more after the day of injury (USAS 216.1-1967).

2. List the names of men injured in previous periods who have returned to work but whose Forms 6-1420 did not show their return to duty date.

Name of Employee	Date Injury Occurred	Date Able To Return To Work	Note Any Change of Data Originally Reported for Kind or Severity of Injury
.....
.....
.....
.....

PART B—EMPLOYMENT AND PRODUCTION

REPORTING INSTRUCTIONS.—Report data for all men engaged in production, development, maintenance, and repair work—including supervisory and technical personnel at the operation. Include proprietors and firm members (owners, operators, or partners) performing manual labor. Report separate data on all office workers at the mine or plant. Exclude coke workers and employees in stores or affiliated industries other than the production of coal.

The average number of men working on active days may be computed approximately for each department by dividing the number of man-shifts by the number of days active. The number of calendar days active should include only the number of days during period each department was engaged in production or development work, including major construction work by your own employees. Report total man-shifts and man-hours worked during the period for each department, including both active and inactive (maintenance) days. Use actual records of man-shifts and man-hours whenever available, including overtime actually worked. If records of man-shifts or man-hours are not available, estimate them from payroll or other records. The number of man-shifts worked may be estimated from the number of man-hours by dividing the latter by the customary length of shift. Report the customary number of hours per shift per worker; do not indicate minor variations. For men on a portal-to-portal basis, include working time, plus travel time, plus lunch time. Exclude vacation hours.

DEPARTMENT (See Instructions on Reverse Side)	Average Number of Men Working On Active Days	Days Active	Total Man-Shifts Worked During Period	Length of Shift (Hrs.)	Total Man-Hours Worked During Period	Production of Clean Coal (Short tons)
(01) Underground.....
(02) Surface (mine shops, yards, etc.).....	X X X X X
(03) Strip pit.....
(04) Auger.....
(30) Mechanical cleaning plant.....	X X X X X
(00) Office workers.....	X X X X X

(OVER)

INSTRUCTIONS for supplying the data requested in Part B—Employment and Production:

Underground: include all men working below the surface, including the shaft and slope.
Surface: include all men engaged in any surface work about the mine necessary to the mining operation; exclude employees in the mechanical cleaning plant and office workers who are reported as separate groups.
Strip: include all men working in and around the pit and those engaged in transporting coal and materials to and from the pit.

Auger: report all employees directly engaged in auger mining or transporting coal or material to or from the auger operation.
Mechanical cleaning plant: include all activities in plants where coal is cleaned with mechanical devices. Do not include activities where coal is screened only.
Office workers: include all office employees directly connected with the production and preparation of coal at this operation.
Production: includes all coal shipped to consumers, and that used for mine fuel. Exclude purchased coal and refuse.

PART C—GENERAL INFORMATION

(Fill in the following only on December report or annual report)

- How many mines do you consider as reported in the data on the reverse side? (Number)
If more than one, list names:
.....;;;
.....;;;
- State number of shifts, per 24 hours, operation was usually worked during year
- State the approximate percentage of your annual coal production that was loaded by mechanical methods (by mobile loaders, scrapers, pit-car loaders, conveyors with self-loading heads, or hand-loaded onto face conveyors): percent.
- Average thickness of coalbed: feet inches (include partings).
- If underground mine, indicate kind of opening: (1) Shaft; (2) Slope; (3) Drift.

NOTE.—Your mine was assigned an identification number by the U.S. Bureau of Mines. Only this number should appear on the face of this schedule opposite your firm name. If, however, you opened a new mine, or if your mine or any part of it has changed hands, in any way, since your last report; please indicate this information in the appropriate space below:

Business name and address of the predecessor or successor (check which)

Nature of the transaction: Sold; Purchased; Leased; Subcontracted. Date

If subcontracted, indicate:
Name and business address of the subcontractor

Identification and location of the operations subcontracted

Date subcontracted
If you have opened a new mine(s), give the name and location so that a number may be assigned

..... (Please type or print name of Company official to whom correspondence should be addressed) (Official position)

..... (Signature)