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COAL MINE HEALTH AND SAFETY

GOVERNMENT
Storage



HEARINGS BEFORE THE SUBCOMMITTEE ON LABOR OF THE COMMITTEE ON LABOR AND PUBLIC WELFARE UNITED STATES SENATE NINETY-FIRST CONGRESS

FIRST SESSION

ON

S. 355, S. 467, S. 1094, S. 1178, S. 1300,
S. 1907, S. 2118, S. 2284, and S. 2405

BILLS TO IMPROVE THE HEALTH AND SAFETY CONDITIONS
OF PERSONS WORKING IN THE COAL MINING INDUSTRY OF
THE UNITED STATES

Part 5
Appendix





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THE UNITED STATES

Part 5
Appendix



Printed for the use of the
Committee on Labor and Public Welfare

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1969

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(II)

FOREWORD

The material contained in this appendix to the hearing record is a compilation of data received by the Subcommittee on Labor not included in the previous volumes of the hearing record. All of this information should be of value in considering this legislation and in administering the bill once enacted.

(III)

(PAPER)

No. _____

The undersigned hereby certifies that the above-named person is a resident of the State of _____ and is entitled to the right of suffrage in the State of _____.

Witness my hand and seal this _____ day of _____, 19____.

County Clerk

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Part A.—Presidential Messages on Federal Coal Mine Health
and Safety Legislation

90TH CONGRESS } HOUSE OF REPRESENTATIVES { DOCUMENT
2d Session } { No. 382

FEDERAL COAL MINE HEALTH AND SAFETY ACT OF
1968

COMMUNICATION

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

RECOMMENDATIONS URGING THE ENACTMENT OF THE FEDERAL
COAL MINE HEALTH AND SAFETY ACT OF 1968

SEPTEMBER 11, 1968.—Referred to the Committee on Education and Labor and
ordered to be printed

THE WHITE HOUSE,
Washington, September 11, 1968.

HON. JOHN W. McCORMACK,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: When President Harry Truman signed the Coal Mine Safety Act sixteen years ago, he declared that, "the legislation falls far short of the recommendation I submitted to the Congress to meet the urgent problems in this field."

The record shows just how far short that measure fell. Since 1952, over 5,500 miners have been killed on the job. Another 250,000 were seriously disabled. No one knows how many thousands more have died, their lungs blackened by the ravages of coal dust disease—pneumoconiosis.

Today, despite the safety measures on the books, coal mining remains the most dangerous and hazardous occupation for the American worker. The National Safety Council reports that of the forty major industries in this country, coal mining ranks highest in frequency and severity of death and injury.

We have succeeded in preventing many of the major coal mine disasters that took dozens of lives at a time. But coal miners are still crushed by cave-ins, burned by explosions, maimed by antiquated and

unsafe equipment. They still pay with their health for the right of earning a living because the air they breathe is thick with coal dust. At the very least, one out of every ten active miners—and one out of every five retired miners—suffers from a serious respiratory disease. For the tens of thousands of miners so afflicted, the shortness of breath may shorten their lives.

Consider some of the tragedies of just the past few months:

- A massive landslide at the face of a mine in West Virginia crushed three workers to death.
- A major explosion in a Kentucky mine snuffed out the lives of a nine-man crew. The cause: the dangerous practice of hauling dynamite on a drilling machine.
- Miners in West Virginia inadvertently drilled into an abandoned water-filled mine shaft, and four were drowned.

There was nothing inevitable about these disasters. They happened because our coal mine safety laws are inadequate, and because even existing laws are all too frequently ignored.

At the present time, Federal inspectors have too little jurisdiction over the working face of the mines, where nearly half of the fatal accidents occur. They cannot tell a mine owner to shore up a sagging roof in this area. They cannot require the replacement of a potentially hazardous machine. They cannot require a reduction in the level of coal dust in the air to safe limits because the laws do not even touch on the problem of health standards. They have no jurisdiction at all over the nation's 2,250 surface mines, which account for almost 40 percent of our coal production.

Our inspectors are not even backed by effective enforcement penalties where the law does apply. It is a measure of this weakness that last year more than 80 percent of the nation's nearly 6,000 underground coal mines were in violation of one or more federal safety standards.

Today, I urge the Congress to remedy these defects. I recommend the Federal Coal Mine Health and Safety Act of 1968.

It is time that an enlightened and progressive nation give its coal miners a new charter of health and safety as they toil for the comfort of us all.

This Act will, for the first time:

- Extend federal enforcement to the face of mine, the area where so many deaths and injuries occur, as well as correcting 18 other specific safety omissions in the present law.
- Abolish the "grandfather clause" which allows old and unsafe electrical equipment to be used.
- Give the Secretary of the Interior authority to develop and issue safety standards as the need arises.
- Provide a way to reduce the human devastation of coal dust disease by requiring the Secretary of Health, Education and Welfare to develop health criteria, and the Secretary of the Interior, following such criteria, to issue health standards and enforce them.
- Impose meaningful and effective sanctions for failure to comply with the terms of the law: criminal penalties and higher fines for willful violations, civil penalties and injunctions to deter and stop unsafe practices.
- Apply the law's reach to surface coal mines.

—Create simplified and streamlined enforcement procedures to require quick correction of hazardous conditions.

The cost of this measure will be small. Its benefits will be large, not only in terms of the lives it can save and the injuries it can prevent, but in practical terms of dollars and cents. Last year alone, over 1.8 million man-days were lost to the nation and the mine owners as a result of job-related deaths and injuries. Many millions of dollars in workmen's compensation payments were awarded to injured and disabled miners.

The recommendations I make today result from a recently concluded thorough review of the weaknesses of existing coal mine safety legislation. That review was undertaken by the Secretary of the Interior in consultation with the Secretary of Health, Education and Welfare and other interested agencies of the Government.

I realize that it is late in the session. But the health and safety of America's 144,000 coal miners deserve immediate attention.

This proposal complements the comprehensive Occupational Safety and Health Act—designed to protect 75 million American workers in other occupations—which I submitted last January. The need to safeguard men on the job, to spare them and their families the agony of injury and the ravages of illness, whether they labor in the depths of a mine or on a factory workbench, is urgent. I call upon the Congress to enact these important worker protection measures into law before adjournment.

Sincerely,

LYNDON B. JOHNSON.

91ST CONGRESS	}	HOUSE OF REPRESENTATIVES	}	DOCUMENT
1st Session				No. 91-86

LEGISLATION ON SAFETY OF COAL MINE WORKERS

M E S S A G E

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

NOTIFICATIONS OF ACTIONS TAKEN, AND URGING ADOPTION OF
LEGISLATION, RELATIVE TO THE HEALTH AND SAFETY OF COAL
MINE WORKERS

MARCH 4, 1969.—Referred to the Committee on Education and Labor and
ordered to be printed

To the Congress of the United States:

The workers in the coal mining industry and their families have too long endured the constant threat and often sudden reality of disaster, disease, and death. This great industry has strengthened our Nation with the raw material of power. But it has also frequently saddened our Nation with news of crippled men, grieving widows, and fatherless children.

Death in the mines can be as sudden as an explosion or a collapse of a roof and ribs, or it comes insidiously from pneumoconiosis or "black lung" disease. When a miner leaves his home for work, he and his family must live with the unspoken but always present fear that before the working day is over, he may be crushed or burned to death or suffocated. This acceptance of the possibility of death in the mines has become almost as much a part of the job as the tools and the tunnels.

The time has come to replace this fatalism with hope by substituting action for words. Catastrophes in the coal mines are not inevitable. They can be prevented, and they must be prevented.

To these ends, I have ordered the following actions to advance the health and safety of the coal mine workers:

- Increase substantially the number of inspectors, and improve coal mine inspections and the effectiveness of staff performance and requirements.
- Revise the instructions to the mine inspectors so as to reflect more stringent operating standards.
- Initiate an in-depth study to reorganize the agency charged with the primary responsibility for mine safety so that it can meet the new challenges and demands.
- Expand research activities with respect to pneumoconiosis and other mine health and safety hazards.
- Extend the recent advances in human engineering and motivational techniques, and enlarge and intensify education and training functions, for the improvement of health and safety in coal mines to the greatest degree possible.
- Establish cooperative programs between management and labor at the *mine level* which will implement health and safety efforts at the site of the mine hazards.
- Encourage the coordination of Federal and State inspections, in order to secure more effective enforcement of the present safety requirements.
- Initiate grant programs to the States, as authorized but not previously invoked, to assist the States in planning and advancing their respective programs for increased health and safety in the coal mines.

In addition to these immediate efforts under existing law, I am submitting to the Congress legislative proposals for a comprehensive new program to provide a vigorous and multifaceted attack on the health and safety dangers which prevail in the coal mining industry.

These proposals would:

- Modernize a wide range of mandatory health and safety standards, including new provisions for the control of dust, electrical equipment, roof support, ventilation, illumination, fire protection, and other operating practices in underground and surface coal mines engaged in commerce.
- Authorize the Secretary of the Interior to develop and promulgate any additional or revised standards which he deems necessary for the health and safety of the miners.
- Provide strict deterrents and enforcement measures and, at the same time, establish equitable appeal procedures to remedy any arbitrary and unlawful actions.
- Recruit and carefully train a highly motivated corps of coal mine inspectors to investigate the coal mines, and to enforce impartially and vigorously the broad new mandatory standards.
- Improve Federal-State inspection plans.
- Substantially increase, by direct action, grants and contracts, the necessary research, training, and education for the prevention and control of occupational diseases, the improvement of State workmen's compensation systems, and the reduction of mine accidents.

These legislative proposals, together with other steps already taken or to be taken are essential to meet our obligation to the Nation's coal miners, and to accomplish our mission of eliminating the tragedies which have occurred in the mines.

These proposals are not intended to replace the voluntary and enlightened efforts of management and labor to reduce coal mine hazards, which efforts are the touchstone to any successful health and safety program. Rather, these measures would expand and render uniform by enforceable authority the most advanced of the health and safety precautions undertaken and potentially available in the coal mining industry.

I urge the immediate adoption by Congress of this legislation.

RICHARD NIXON.

THE WHITE HOUSE, *March 3, 1969.*

**Part B.— Amendments to S. 1300 by Senator Cooper of
Kentucky**

91ST CONGRESS
1ST SESSION

S. 1300

IN THE SENATE OF THE UNITED STATES

MAY 26, 1969

Referred to the Committee on Labor and Public Welfare and ordered to be
printed

AMENDMENT

Intended to be proposed by Mr. COOPER to S. 1300, a bill to
improve the health and safety conditions of persons working
in the coal mining industry of the United States, viz:

1 On page 43, line 3, strike out all after "form" through
2 "plan" in line 9 and substitute, in lieu thereof, the following:
3 "within sixty days after the effective date of the title. The
4 plan shall show the type and spacing of supports approved
5 by the Secretary and such plan shall be reviewed periodically
6 and at least every six months by the Secretary taking into
7 consideration any accidents from falls of roof or ribs or in-
8 adequacy of support of roof or ribs and such revisions of
9 said plan shall be made to improve the control of roof and
10 rib of said mine. No person shall proceed beyond the last
11 permanent support unless adequate temporary support is

Amdt. No. 23

1 provided. At all times safety posts, jacks, or temporary cross-
2 bars shall be set close to the face before other operations
3 are begun and as needed thereafter, if men go in by the
4 last permanent roof support. Safety posts or jacks shall be
5 used to protect the workmen when roof material is to be
6 taken down, crossbars are being installed, roof boltholes
7 are being drilled, or when roof bolts are being installed.”

91st CONGRESS
1st Session

S. 1300

IN THE SENATE OF THE UNITED STATES

JUNE 5, 1969

Referred to the Committee on Labor and Public Welfare and ordered to be printed

AMENDMENTS

Intended to be proposed by Mr. COOPER to S. 1300, a bill to improve the health and safety conditions of persons working in the coal mining industry of the United States, viz:

1 On page 73, line 15, after "wells" insert the following
2 language: ", either producing or abandoned."

3 On page 75, line 11, beginning with "Each" strike out
4 all through "mines" in line 14 and, in lieu thereof, substitute
5 the following: "Except as permitted by regulations promul-
6 gated by the Secretary, no coal mine shall be operated in
7 any coal seam where the coal has been or is being removed
8 from the said seam within five hundred feet of a known gas
9 or oil well whether producing or abandoned. It shall be the
10 duty of the mine operator to ascertain the exact location of
11 all gas and oil wells on the property proposed to be mined
12 before removing any coal therefrom".

Amdt. No. 36

S. 1300

IN THE SENATE OF THE UNITED STATES

JUNE 5, 1969

Referred to the Committee on Labor and Public Welfare and ordered to be
printed

AMENDMENTS

Intended to be proposed by Mr. COOPER to S. 1300, a bill to improve the health and safety conditions of persons working in the coal mining industry of the United States, viz:

- 1 On page 41, between lines 14 and 15, insert the fol-
2 lowing:
- 3 “(c) No open flame shall be permitted in any under-
4 ground mine except as authorized by this title.”
- 5 On page 41, line 15, strike out “(c)” and insert “(d)”.
- 6 On page 41, line 21, strike out “(d)” and insert “(e)”.
- 7 On page 42, line 7, strike out “(e)” and insert “(f)”.
- 8 On page 42, line 12, strike out “(f)” and insert “(g)”.
- 9 On page 42, line 17, strike out “(g)” and insert “(h)”.
- 10 On page 59, line 9, strike out “coal” and insert in lieu
11 thereof “gassy”.

Amdt. No. 37

1 On page 59, line 21, beginning with "dangerous", strike
2 out all through "methane" and insert in lieu thereof the
3 following: "quantities of methane in amounts in excess of 1
4 per centum".

5 On page 60; line 1, beginning with "dangerous", strike
6 out all through "methane" on line 2 and insert in lieu thereof
7 the following: "quantities of methane in amounts in excess
8 of 1 per centum".

9 On page 60, strike out lines 19 and 20.

10 On page 78, line 21, strike out "and".

11 On page 78, line 22, strike out the period and insert
12 in lieu thereof a semicolon and the word "and".

13 On page 78, between lines 22 and 23, insert the follow-
14 ing:

15 (h) 'gassy mine' means any mine which has been
16 or hereafter is classed in any manner as a gassy or
17 gaseous mine in accordance with the laws of the State
18 in which it is located or any Federal law, or which has
19 (b) been operated as a gassy mine prior to the operative
20 (c) date of this title, or in which methane has been ignited,
21 (1) or in which an authorized representative of the Secretary
22 (2) finds methane in an amount of 0.25 per centum or more
23 (d) in any open workings of such mine when tested at a
24 point not less than twelve inches from the roof, face, or
25 rib."

1 On page 61, the following was changed: "The
2 one all through the paper, and about the year 1860, the
3 following number of persons in each of the
4 four sections."
5 On page 62, the following was changed: "The
6 one all through the paper, and about the year 1860, the
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92 four sections."
93 On page 84, the following was changed: "The
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95 following number of persons in each of the
96 four sections."
97 On page 85, the following was changed: "The
98 one all through the paper, and about the year 1860, the
99 following number of persons in each of the
100 four sections."

Part C—Correspondence From Department of the Interior:

1. Letter of May 22, 1966, Department expressed opposition to research assessment:

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., May 22, 1969.

HON. RALPH YARBOROUGH,
Chairman, Committee on Labor and Public Welfare,
U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: During recent discussions with your staff on S. 1300—the Federal Coal Mine Health and Safety Act of 1969—we were asked to express our views on the need for, and desirability of, a user tax on the production of coal for the purpose of financing the coal mine health and safety research program of this Department.

The Department, through the Bureau of Mines, has been engaged in a program of research and development in connection with this industry since 1910. Many of the health and safety innovations in this industry were developed by the Bureau, such as the introduction of the widespread use of roof bolts. Until recently our annual research and development budget for health and safety has been about \$2 million annually, a good portion of which has been devoted to "testing" rather than research. In fiscal year 1970, however, we have increased this budget substantially to \$3.3 million. We recognize that there is a need for more health and safety research for this industry, but we doubt that a system which taxes the production of coal and earmarks the revenues for health and safety research is the most appropriate method to supply this need.

Experience has shown to us that coal mining, indeed all mining, is a complex system, all parts of which must be considered simultaneously—health, safety, productivity, environmental control, etc. The effect of some improved mining technique on productivity cannot be considered apart from its effect on the health and safety of the miner or on its effect on environmental pollution. Our research program must, therefore, be designed to study the entire mining operation. The proposed user tax, in contrast, would tend to separate the health and safety function into a separate category which would be artificial.

Under the bill, the levy would apply to all coal mining firms without regard for the method of mining or for their past safety record. The question you have asked raises the issue whether such a tax should be established on only one commodity or one industry.

For example, other dangerous industries, such as the nuclear industry which is a competitor of the coal industry, are not required to pay directly for health and safety research. The proposal might tend to confine the entire research and development effort to the Government. The future research and development effort should, in our opinion, not be carried out by the Government alone. Industry should be encouraged to assume, on an industry-wide basis, a greater role in this area.

Further, we believe that tax on the coal industry for health and safety research and development purposes should not be imposed without thorough study of its impact on the industry and the consideration of alternative approaches. To our knowledge, this has not been done to date.

For the above reasons, it is our view at this time that a tax should not be imposed in the coal industry for health and safety research and development purposes.

The Bureau of the Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

RUSSELL E. TRAIN,
Under Secretary of the Interior.

2. Letter of May 23, 1969, Department recommended amendments to S. 1300.



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

May 23, 1969

Dear Mr. Chairman and Senator Javits:

During the last two weeks, members of my staff have been carefully reviewing the provisions of S. 1300, the Federal Coal Mine Health and Safety Act of 1969, as well as other bills on this subject with Mr. Mittleman and Mr. Blackwell of your professional staff with the view to developing the most effective legislation possible in this area. As part of this effort, these gentlemen requested a series of possible amendments for consideration by the Subcommittee on Labor and the full Committee. These amendments are enclosed. In addition, we are taking this opportunity to express our views on them in order to facilitate the early enactment of the Administration's bill S. 1300. Our comments follow:

Amendment No. 1

This amendment would revise section 2(g) of S. 1300 by providing a broader statement of the purpose of the bill to include cooperation with the States and to improve research and development programs. S. 1300 now does cover both of these items. We believe this change is more descriptive of the bill's purpose and therefore desirable.

Amendment No. 2

This amendment is technical.

Amendment No. 3

This amendment would make it clear that the Secretary could hold hearings in the development of mine health or safety standards. We think the bill authorizes such hearings now, but we welcome the clarification.

Amendment Nos. 4 and 5

The first of these would revise section 101(f) of S. 1300 and add a new section 101(g). The second is a technical change to correspond with the first.

Section 101(f) of the bill now would establish the procedure for review of the Secretary's proposed health and safety standards by the Board and for the promulgation of such standards by the Secretary after such review. The new section 101(f) would merely clarify this language. We have no objection to this change.

The new section 101(g) would provide for the appeal by an "aggrieved" person of any standard referred to the Board for review by the Court of Appeals for the District of Columbia. The substantial evidence rule would apply in the case of such appeals. Also, the filing of the appeal does not automatically stay the effective date of the standards, unless the court so orders.

We would prefer that such a provision not be included in the bill because of the possible delays that may occur if the court stays the effective date of the appealed standard. We believe that there is an adequate opportunity for review at the time of enforcement.

Amendment No. 6

This amendment would add a new provision to section 103(c) of the bill authorizing the Secretary, or the inspector, in case of mine accidents, to supervise and direct rescue and recovery operations if necessary. While we have had no difficulty in this area in the past, we would not object to such a provision.

Amendment No. 7

Section 104 of S. 1300 continues the present State plan provisions of the 1952 Act with two exceptions relating to spot inspections and unavailability of a State inspector.

S. 1300 would direct that the Secretary cooperate with the State and that he approve any State plan submitted by a State that meets certain criteria, including one requiring no advance notice of an inspection to operators and one that would assure that the State would promptly assign inspectors to participate in inspections with the Federal inspectors. The Secretary cannot disapprove a State plan without first affording an opportunity for a hearing to the State. If the Secretary finds that the administration of a plan is not being complied with or that there is a failure of cooperation in its administration, he can, after notice, withdraw his approval. The bill provides that no inspection of a mine by a Federal inspector may be made in a State where there is an approved State plan unless the State inspector participates, except where it is found that an inspection is urgently needed to determine an imminent danger and that the accompaniment of a State inspector would cause delay, or

where, after notice, a State inspector is not provided in due time, and except where a spot inspection is deemed essential by the Federal inspector. The last two exceptions are not found in the 1952 Act.

After discussions with the Committee staff on the State plan provisions of the bill, we have reconsidered the need for, and the desirability of, the State plan provisions of the bill as just outlined. It is now our view that these provisions should not be continued in their present form for the following reasons:

First, the requirement that a State inspector participate in an inspection with a Federal inspector is a wasteful use of precious manpower that could be better put to use to insure more inspections of more mines in that particular State. Since our inspection forces and those of the States are limited in numbers, we believe that these forces should be used to accomplish the greatest degree of health and safety possible through the conduct of as many inspections by these joint forces as possible.

Second, our Federal inspectors are well trained employees who have long experience in connection with coal mine operations. History has shown that both the operators and the miners in those mining States where a joint inspection is not required have a high regard for the Federal inspector. While they may disagree in some instances, they generally agree that his efforts are quite good. The single inspector approach has worked well in those States.

The amendment would provide for the approval of State plans to promote Federal-State coordination and cooperation in improving health and safety conditions in coal mines in accordance with certain criteria. It would also provide for the disapproval of such plans and for the withdrawal of approval thereof. In the latter case, provision is made for review by the Court of Appeals of the District of Columbia of the Secretary's decision to withdraw.

These State plans form a basis for making grants to the State to carry out the plan, including the training of State inspectors, to conduct research and planning studies, to carry out programs designed to improve State workmen's compensation laws relating to pneumonocosis and injury and death of miners, and to assist the States in planning and implementing other programs to advance health and safety in coal mines. These grants may not be used to supplant State funds, but only to supplement such funds. The amount of the grant to a State shall not exceed 30 percent of the sum expended by the State for carrying out its enforcement program, and the appropriation authorized for these grants must be distributed to the States on an equitable basis where there is an approved plan.

Finally, this amendment would direct the Secretary to cooperate with the State in carrying out a plan and to develop and finance a program of training Federal and State inspectors jointly. The Secretary would also cooperate with the States in establishing a system of exchanging Federal and State inspection reports for the purposes of improving health and safety conditions in the mines of that State.

We believe that these amendments are highly desirable and an excellent substitute for the existing State plan provisions.

Amendments Nos. 10, 11, and 12

The first of these amendments would revise section 105(g) of S. 1300. It would continue the provision that the inspector may modify or terminate any notice or withdrawal order. In addition it would add a provision which is similar to one found in the 1952 Act providing a procedure by which an operator may request a special inspection upon the expiration of a time fixed or extended in a notice of a violation of a standard or at any other time the operator believes that the conditions causing the issuance of the order or notice have been corrected. The Secretary is authorized to establish procedures by regulation to avoid unnecessary or repetitive inspections.

We believe that this change in the bill is highly desirable because it spells out a procedure which we intended to follow administratively.

Another of these amendments would add a new section 105(h) to the bill. This new section would provide that if an inspector finds that conditions exist in a mine which, while they do not create a

problem of an imminent danger, are of such serious nature that it is reasonable to assume that an imminent danger will result soon, and that such conditions cannot be satisfactorily corrected and the mine or a portion thereof made safe because of a lack of available technology, he must notify the operator of the mine or his agent of these conditions and file a copy thereof, including his findings, with the Secretary and with the representatives of the miners, if any, in that mine. On receipt of this notice, the Secretary must cause a special investigation to be made which could include another inspection and which would include an opportunity for the operator and the miners' representative to present their views on the problem. Once the investigation is completed, the Secretary then would make findings of fact and file a petition with the Board requesting either that the notice issued by the inspector be cancelled, or that a withdrawal order be issued applicable to the entire mine or the appropriate portion thereof and that such withdrawal continue until such time as the Board, after hearings, determines that the conditions have been abated. The Secretary would send a copy of this petition to the Board. This petition would be subject to review in the Court of Appeals as provided later in the bill.

This provision in the bill is new. It is designed to meet situations that may arise in the future where a particular mine or section of a mine is being operated under conditions that are considered dangerous, but not of the type that would require the issuance of an imminent danger order. We recognize that there may be mines or sections thereof where such situations may exist or will exist as mining continues deeper and deeper below the earth's surface. Such deep mining may present considerable hazards for which there is no available technology to overcome them. In such cases or in other situations where special hazards exist, we believe that there should be a procedure established for determining the facts and, where appropriate, closing these mines if we are to insure as safe conditions as possible. We believe the procedure set forth in the amendment is a reasonable one. It provides adequate safeguards to the operators and to the miners. Accordingly, we support this change in the bill.

Another of these amendments would redesignate section 105(h)(1) of the bill as section 105(i) and make some modifications in the language consistent with the changes mentioned above relating to the State plan. As revised, section 105(i) would require that the Federal inspector who issued an order applicable to any mine in which there is an approved State plan shall immediately notify the State agency thereof. Following the issuance of the order, the operator of the mine may request that the State mine inspector inspect the mine. We see no reason for the continuing of this provision, because it provides no remedy once the State inspector acts.

The last of these amendments would delete the remainder of section 105(h) of the bill which relates to the State plan as found in S. 1300 at present. These provisions are no longer necessary.

Amendment No. 13

Section 106 of S. 1300 would provide an optional formal review procedure by the Secretary of withdrawal orders at the request of the operator. The operator, however, need not appeal to the Secretary but may go directly to the Board.

The new section 106 eliminates this optional review to the Secretary, but provides a quick informal mechanism by which any order may be terminated or affirmed administratively without such formal review. Such a procedure is now available under the 1952 Act and, upon reflection, we believe it should be continued in this bill.

Amendment No. 14

The 1952 Act, S. 1300, and incidentally S. 355, provide for the review of withdrawal orders by the Board and authorize the Board to terminate and affirm such orders. S. 1300 also provides a review by the Board of proposed mandatory health and safety standards and expand the membership of the Board for this sole purpose. In addition, under the 1952 Act and S. 1300, where there is an approved State plan, a withdrawal order cannot be terminated by the Federal inspector, but must be brought before the Board for termination. In this latter case the Board's action is largely administrative, for in States where there is no approved State plan, the Director of the Bureau of Mines can now terminate a withdrawal order after a 3-man inspection. Under S. 1300 the inspector, in the case of States where there is no approved State plan, may terminate a withdrawal order. The procedure for termination of a withdrawal order by the Board is quite informal due to the fact that there is some considerable urgency to reopen the mine. There is no formal appeal taken. As a matter of fact, the whole matter is handled by a series of telephone calls from the inspector, who inspects the mine to determine if the withdrawal order should be terminated, to the Director and from the Director to the staff of the Board, and finally to the Board members themselves wherever they may be located. Upon review of this procedure with your staff, we believe that this procedure is more properly one that should be handled by the inspector, as in the case of the States where there is no approved plan.

S. 1300 and S. 355 continue the present provisions of the 1952 Act relative to the representation on the 5-member board by persons representing the viewpoint of the operators and the miners in underground mining operations, according to the size of the mining operation. Except for the chairman, they are not required to divest themselves of any interest--financial or otherwise--with the industry. The chairman cannot have any pecuniary interest,

or be employed by the industry for one year prior to employment, but the 1952 Act and the two bills are silent on such interest and employment during his term. Decisions of the Board involving a particular category of mine can only be made when the mine operators' and workers' representatives for that category of mine participate in the decision-making process. The membership of the Board is appointed by the President and they are part-time employees.

To date the Board has done a creditable job. It is experienced in mining technology and knows the problems of the miners and the operators. But the Board has had few cases over the last 17 years. It is reasonable to expect that this workload will increase under this legislation, particularly when we consider that the Board will be reviewing civil penalties also. We now believe that a part-time Board would not be satisfactory. In addition, it has come to our attention that, since the bill also covers surface mines, the operators and workers of that part of the industry would have a legitimate claim of discrimination unless the operators and workers of that segment of the industry are represented on the Board.

Upon reflection of all of these factors, we believe that it would be better to abandon the present type of a Board and establish a new review procedure.

One alternative would be to establish a hearing procedure within the Department of the Interior, placing the decision-making authority in the Secretary along the lines of the Administrative Procedures Act or establish a Board subordinate to the Secretary with final decision in the Secretary. This approach, however, raises the age-old criticism leveled against many agencies of fusion of the responsibilities in the Secretary of enforcement, prosecutor, judge, and jury.

The second alternative which we believe to be far superior, and which is followed in the enclosed amendments, would be to establish a 5-member full-time Board as an independent agency not subordinate to the Secretary. We note that the Department of Transportation Act (80 Stat. 931, 935), in establishing the National Transportation Safety Board, transferred many functions of the Secretary of Transportation to the Board and gave it final authority. The Board's membership would include 2 people having a background either by training, education, or experience in mining technology, one having a public health background, and the last 2 being drawn from the general public. Board members under this approach would not have any interest in financial or otherwise--or hold any office in, the coal mine industry for at least one year prior to their appointment and during the entire term of their appointment. Like the present Board, membership would be for a term of 5 years. The President would designate one of the members as chairman. In order to avoid hiatus between the time of

the passage of the bill and the appointment of Board members, the present Board would continue in office in accordance with the conditions under which they were appointed until they are replaced or reappointed under the bill.

The remaining provisions of section 107 of S. 1300 are included in the enclosed amendments with few changes except those necessary to carry out the principal changes relative to the Board membership. With the establishment of this full-time Board, we see no further reason for the addition of part-time members solely for the purpose of reviewing proposed mandatory health and safety standards. This function can be carried out by this new Board. The amendments delete this provision in S. 1300.

We recommend the adoption of this approach.

Amendment No. 15

This amendment would revise the present provisions of section 108 of the bill relative to the functions of the Board. In most respects, the changes brought about by this amendment are clarifying in nature.

The amendment would provide for the appeal by the operator or the representative of the miners, if any, of any imminent danger order or other withdrawal order issued under section 105 of the bill directly to the Board. It would also provide for an appeal of decisions made by the Secretary pursuant to section 106 of the bill as amended by the enclosed amendments relating to the continuance or termination of a withdrawal order. Procedures for the filing and considering of such request for appeal are similar to those that are found in section 108 of the bill.

In addition, the amendment would provide for a hearing upon a petition filed by the Secretary pursuant to section 105(h) of the bill, as amended. That new section relates to the filing of a petition by the Secretary to close a mine that is operating under conditions which cannot be corrected because of a lack of available technology. The amendment also provides for a hearing by the Board on petitions filed by the Secretary under section 113 of the bill which relates to the establishment of civil penalties. In the case of either petition the findings of the Secretary as recited therein shall be prima facie evidence of the facts and the burden of rebutting them will be on the operator. Representatives of the miners may intervene in any such proceedings. The remaining provisions of the enclosed amendment are nearly identical to those of section 108, except for a provision that provides for consolidation of hearings in cases where such consolidation would be appropriate, such as in the consideration of an order and the issuance of a penalty involving the same violation.

We believe that these amendments are desirable and we recommend their adoption.

Amendment No. 17

This amendment would revise the provisions of sections 113(a) to 113(c) of the bill which relate to the establishment of civil penalties.

It would authorize the assessment of civil penalties, as in S. 1300, of not more than \$10,000 for each occurrence of a violation of a mandatory health or safety standard in a coal mine or any provision of the Act. This latter change is important, because, on review, we find a number of provisions in title I of the bill requiring the operator to take certain actions, but there is no method of enforcement. It would also authorize the Secretary to compromise the penalty.

Under the amendment after the Secretary is notified by the inspector of a violation of any mandatory health or safety standard in a particular mine, the Secretary shall cause such further investigation as he deems appropriate, including an opportunity for the operator and the representative of the miners to present information relative to the penalty and the amount of the penalty. Upon conclusion of the investigation, the Secretary may make findings of fact. If he finds that a civil penalty should be assessed, he would issue an order assessing the penalty and incorporating his findings therein. If the operator fails to pay the penalty within the time prescribed in the order the Secretary then shall file a petition with the Board requesting that the Board order the payment of the penalty. At that time, as we indicated in the previous amendments, the Board would hold a hearing and make findings of fact regarding the penalty and issue its decision. The Board's decision, of course, would be subject to appeal in the Court of Appeals by the Secretary or by the operator. This appeal would be on the record before the Board.

The amendment also establishes criteria to be considered in determining the amount of the penalty by the Secretary and the Board as in S. 1300. If the Board grants the petition of the Secretary and the operator fails to comply with the Board's order to pay within a specified time, unless an appeal is taken, the United States may seek a judgment in the Federal district court requiring payment thereof. The decision of the Board in granting the petition and the order decision would not be subject to review by the Federal district court in connection with that action.

We believe that this clarifying amendment is desirable.

Amendments 8, 9, 16, 18, and 19 are technical and do not make any substantive changes in the bill. We have no objection to them.

There is also enclosed a number of amendments to title III of S. 1300, most of which are technical amendments. The additional provisions therein relating to roof supports are drawn largely from S. 1907. It was our original intention to include these as part of the roof control plan, but we now believe that specific provisions on roof bolts and roof materials are desirable. All of these changes will strengthen or clarify existing standard provisions in the bill.

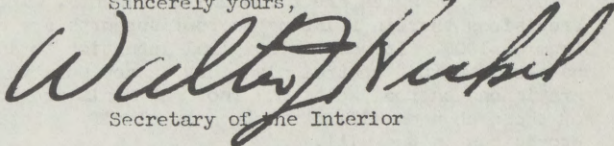
Lastly, your staff asked if we had any changes to make in title II of the bill relating to the health standard. We have not. We continue to view the 4.5 standard established in S. 1300 to be effective 6 months after enactment as being the proper first step in reducing the dust problem in the mines. It is attainable now, given the present state of technology. Based on present technology, the 3.0 standard is not now generally attainable. We do not, however, consider the 4.5 standard as a floor. Our objective is to move to a lower standard of 3.0 or less as soon as possible. We believe that technology will be available to permit the industry to reach the 3.0 standard within 3 years after the 4.5 standard is effective and would not object to including such a schedule in the bill so long as the flexibility is retained in the Secretary to lower the standard later below 3.0.

We strongly urge that your Committee report out S. 1300 with the enclosed amendments as quickly as possible. Every week that passes raises the possibility of more serious accidents that might be prevented if this bill is enacted.

We will continue to work closely with your Committee to develop and enact an effective bill.

The Bureau of the Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,


Secretary of the Interior

Hon. Harrison A. Williams
Chairman, Subcommittee on Labor
Committee on Labor and Public Welfare
United States Senate
Washington, D. C.

Hon. Jacob K. Javits
United States Senate
Washington, D. C.

Enclosures

DRAFT AMENDMENTS
TO S. 1300

1. On page 2, amend lines 19 through 22 to read as follows:

"(g) it is therefore the purpose of this Act (1) to provide for the establishment of mandatory health and safety standards for coal mines; (2) to require that the operators and the miners of such mines comply with such standards in carrying out their responsibilities; (3) to cooperate with, and provide assistance to, the States in the development and enforcement of effective State coal mine health and safety programs; and (4) to improve and expand, in cooperation with the States and the coal mining industry, research and development and training programs aimed at preventing coal mine accidents and controlling the causes of occupational diseases in the industry."

2. On page 5, line 16, change "State" to "States".
3. On page 5, line 19, change the period to a comma and insert the following:

"and he may hold such public hearings as he deems appropriate."

4. On page 7, amend lines 8 through 22 to read as follows:

"(f) Promptly after any matter is referred to the Board by the Secretary under subsection (e) of this section, the Board shall issue notice of, and hold a public hearing for, the purpose of receiving relevant evidence. Within 60 days after the completion of the hearing, the Board shall make proposed findings of fact on such objections and shall file with the Secretary a report incorporating such findings together with its recommendations and with the record on which such findings are based and shall make such report public. Upon receipt thereof, the Secretary, upon consideration of the Board's findings of fact and recommendations, may by decision adopt the Board's recommendations or make new findings of fact, and promulgate the mandatory standards with such modifications as he deems appropriate, or take such other action as he deems appropriate. All such findings shall be made public.

"(e) Any aggrieved person may, within 30 days after promulgation in the Federal Register of any mandatory health or safety standards which were referred to the Board under subsection (e) of this section, file with the United States Court of Appeals for the District of Columbia a petition praying that such standards be modified or set aside in whole or in part. A copy of the petition shall forthwith be sent by registered or certified mail to the Secretary, and thereupon the Secretary shall certify and file in such court the record upon which the Secretary made his decision, as provided in section 2112, title 26, United States Code. The court shall hear such appeal on the record made before the Secretary. The findings of the Secretary, if supported by substantial evidence on the record considered as a whole, shall be conclusive. The court may affirm, vacate, or remand the proceedings to the Secretary for such further action as it directs. The filing of a petition under this subsection shall not stay the application of the standards complained of, unless the court so orders."

5. On page 7, line 23, change "(e)" to "(h)", and on line 24 strike the word "upon" and insert "30 days after".
6. On page 10, line 13, after the period insert a new sentence to read as follows:

"In the event of any accident occurring in a coal mine where rescue and recovery work is necessary, the Secretary or any authorized representative of the Secretary shall take whatever action he deems appropriate to protect the life of any person, and he may, if he deems appropriate, supervise and direct the rescue and recovery activity in such mine."

7. On page 10, amend line 24 through line 10 on page 13 to read as follows:

"SEC. 104. (a) In order to assist the States where coal mining takes place in developing and enforcing effective health and safety laws and regulations applicable to such mines consistent with the provisions of section 405 of this Act and to promote Federal-State coordination and cooperation in improving the health and safety conditions in the Nation's coal mines, the Secretary shall approve any plan submitted under this section by such State, through its official coal mine inspection or safety agency, which--

"(1) designates such State coal mine inspection or safety agency as the sole agency responsible for administering the plan throughout the State and contains satisfactory evidence that such agency will have the authority to carry out the plan;

"(2) gives assurances that such agency has or will employ an adequate and competent staff of trained inspectors qualified under the laws of such State to make mine inspections within such State;

"(3) sets forth the plans, policies, and methods to be followed in carrying out the plan;

"(4) provides for the extension and improvement of the State program for the improvement of coal mine health and safety in the State, and that no advance notice of an inspection will be provided any operator of a coal mine;

"(5) provides such fiscal control and fund accounting procedures as may be appropriate to assure proper disbursement and accounting of grants made to the State under this section;

"(6) provides that the designated agency will make such reports to the Secretary, in such form and containing such information, as the Secretary may from time to time require; and

"(7) meets any additional conditions which the Secretary may prescribe by rule in furtherance of the purposes of this section.

"(b) The Secretary shall approve any State plan or any modification thereof which complies with the provisions of subsection (a) of this section. He shall not finally disapprove any State plan or modification thereof without first affording the State agency reasonable notice and opportunity to present comments.

"(c) Whenever the Secretary, after reasonable notice and opportunity for the State agency to present its comments, finds that in the administration of an approved State plan there is (1) a failure to comply substantially with any provision of the State plan, or (2) a failure to afford reasonable cooperation in administering the provisions of this title, the Secretary shall by decision incorporating his findings therein notify such State agency of his withdrawal of approval of such plan and upon receipt of such notice such plan shall cease to be in effect.

"(d) If any State is dissatisfied with the Secretary's decision under subsection (c) of this section, it may file within 30 days from the date of such decision with the United States Court of Appeals for the District of Columbia a petition

praying that such action be modified or set aside in whole or in part. A copy of the petition shall forthwith be sent by registered or certified mail to the Secretary, and thereupon the Secretary shall certify and file in such court the record upon which the Secretary made his decision, as provided in section 2112, title 28, United States Code. The court shall hear such appeal on the record made before the Secretary. The findings of the Secretary, if supported by substantial evidence on the record considered as a whole, shall be conclusive. The court may affirm, vacate, or remand the proceedings to the Secretary for such further action as it directs. The filing of a petition under this subsection shall not stay the application of the Secretary's decision, unless the court so orders.

"(e) The Secretary is authorized to make grants to any State where there is an approved State plan (1) to carry out the plan, including the cost of training State inspectors; (2) to conduct research and planning studies and to develop and carry out plans designed to improve State workmen's compensation and occupational disease laws and programs, as they relate to compensation for pneumoconiosis and injury and death to miners, except that such grants shall not be available to pay compensation claims in whole or in part; and (3) to assist the States in planning and implementing other programs for the advancement of health and safety in coal mines. Such grants shall be designed to supplement, not supplant, State funds in these areas. The Secretary shall cooperate with such State in carrying out the plan and shall, as appropriate, develop facilities for, and finance a program of, training of Federal and State inspectors jointly. The Secretary shall also cooperate with such State in establishing a system by which State and Federal inspection reports of coal mines located in the State are exchanged for the purpose of improving health and safety conditions in such mines.

"(f) The amount granted to any State for a fiscal year under this section shall not exceed 50 per centum of the sum expended by such State in such year for carrying out the State coal mine health and safety enforcement program.

"(g) There is authorized to be appropriated for fiscal year 1970 and each succeeding fiscal year thereafter such sums as may be necessary to carry out the provisions of this section which shall remain available until expended. The Secretary shall provide for an equitable distribution of sums appropriated to the States where there is an approved plan. The Secretary shall coordinate with the Secretaries of Labor and Health, Education, and Welfare in making grants under this section."

8. On page 15, strike the sentence beginning on line 5 and ending on line 7.

9. On page 15, line 17, change the period to a comma and add "until an authorized representative of the Secretary determines that such violation is abated."

10. On page 17, amend lines 6 through 9 to read as follows:

"(g) A notice or order issued pursuant to this section may be modified or terminated by an authorized representative of the Secretary. For the purpose of determining whether a violation of a mandatory health or safety standard has been abated, or whether an imminent danger no longer exists, an authorized representative of the Secretary shall promptly make a special inspection: (1) upon the expiration of the time originally fixed or as extended pursuant to any notice issued under this section, or (2) upon request of an operator of a mine for which an order or notice has been issued under this section, except that the Secretary may establish procedures to avoid unnecessary or repetitive inspections.

"(h)(1) If, upon any inspection of a coal mine, an authorized representative of the Secretary finds (A) that conditions exist therein which have not yet resulted in an imminent danger, (B) that such conditions cannot be effectively abated through the use of existing technology, and (C) that reasonable assurance cannot be provided that the continuance of mining operations under such conditions will not result in an imminent danger, he shall determine the area throughout which such conditions exist, and thereupon issue a notice to the operator of the mine or his agent of such conditions, and shall file a copy thereof incorporating his findings therein with the Secretary and with the representative of the miners of such mine, if any. Upon receipt of such notice, the Secretary shall cause such further investigation to be made as he deems appropriate, including an opportunity for the operator or a representative of the miners, if any, to present information relating to such notice.

"(2) Upon the conclusion of such investigation, the Secretary shall make findings of fact, and shall file a petition together with such facts with the Board requesting that either the notice issued under this subsection be cancelled or that an order be issued requiring the

operator to cause all persons in the area affected, except those persons referred to in subsection (d) of this section, to be withdrawn from, and be debarred from entering, such area until the Board, after a hearing affording all interested persons an opportunity to present their views, determines that such conditions have been abated. The Secretary shall send a copy of such petition by registered or certified mail to the operator of such mine and to the representative, if any, of the miners of the affected mine."

11. On page 17, amend lines 10 through 16 to read as follows:

"(1) If any order is issued pursuant to this section affecting a mine located in a State where an approved State plan is in effect, the authorized representative of the Secretary who issued the order shall notify the State agency immediately, but not later than twenty-four hours after the issuance of such order, that such order has been issued."

12. On page 18, strike line 1 through line 15 on page 19.

13. On page 19, amend lines 17 through line 20 on page 20 to read as follows:

"SEC. 106. (a) An operator notified of an order issued pursuant to section 105 of this title may apply to the Secretary for the review of the order within 30 days of receipt thereof. The operator shall send a copy of such application to the Secretary and to the representative, if any, of miners in the affected mine. Upon receipt of such application, the Secretary shall cause such investigation to be made as he deems appropriate. If the applicant or a representative, if any, of the miners in such mine so request, such investigation shall afford the applicant and the representative the opportunity to present information relating to the issuance and continuance of such order.

"(b) Upon receipt of a report of such investigation, the Secretary shall make findings of fact and issue a written decision vacating, affirming, modifying, or terminating the order complained of and incorporate his findings therein."

14. On page 21, amend line 12 through line 5 on page 27 to read as follows:

"SEC. 107. (a) There is hereby established a Federal Coal Mine Health and Safety Board of Review which shall be an independent agency. In the exercise of its functions, powers, and duties, the Board shall be independent of the Secretary and the other offices and officers of the Department of the Interior.

"(b) The Board shall consist of five members to be appointed by the President with the advice and consent of the Senate. No more than three members of the Board shall be of the same political party. Members of the Board shall be appointed with due regard to their fitness for the efficient discharge of the functions, powers, and duties invested in, and imposed upon, the Board, and two members shall have a background, either by reason of previous training, education, or experience in coal mining technology, one member shall have a background either by reason of previous training, education, or experience in public health, and two members will be drawn from the public generally. All such members shall not have had any interest in, or hold any office in, or connection with, the coal mining industry for at least one year prior to their appointment and during the term of their appointment. Pending the appointment by the President of members of this Board, the members of the Federal Coal Mine Safety Board of Review, established by the Federal Coal Mine Safety Act, as amended, shall continue as members of the Board in accordance with the provisions of that Act regarding their appointment until they are replaced or reappointed under this section.

"(c) Members of the Board shall be appointed for terms of five years, except that (1) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed only for the remainder of such term and (2) the five members first appointed shall serve for terms, designated by the President at the time of appointment, ending on the last day of the first, second, third, fourth, and fifth calendar years beginning after 1969. Upon the expiration of his term of office, a member shall continue to serve until his successor is appointed and shall have qualified.

"(d) The Chairman of the Board shall be entitled to receive compensation at a rate equal to that provided for in level IV of the Executive Schedule and section 5316 of title

5, United States Code. The other members of the Board shall receive compensation at a rate equal to that provided for in level V of the Executive Schedule.

"(e) The principal office of the Board shall be in the District of Columbia. Whenever the Board deems that the convenience of the public or of the parties may be promoted, or delay or expense may be minimized, it may hold hearings or conduct other proceedings at any other place. At the request of an operator of a mine or a representative of the miners working in the mine, the Board shall hold hearings or conduct other proceedings under this title, at the county seat of the county in which the mine is located or at any place mutually agreed to by the Chairman of the Board and the operator or representative involved in the proceeding. The Board shall have an official seal which shall be judicially noticed and which shall be preserved in the custody of the Secretary of the Board.

"(f) The President shall designate from time to time one of the members of the Board as Chairman. The Board shall, without regard to the civil service laws, appoint such legal counsel and hire consultants as it deems necessary. The chairman shall be the chief executive and administrative officer of the Board and shall, subject to the policies and decisions of the Board, exercise the responsibility of the Board with respect to (1) the appointment and supervision of personnel employed by the Board; (2) the distribution of business among the Board's personnel; and (3) the use and expenditure of funds. Subject to the civil service laws, the Board shall appoint such other employees as it deems necessary in exercising its powers and duties. The compensation of all employees appointed by the Board shall be fixed in accordance with chapter 53 of title 5, United States Code.

"(g) For the purpose of carrying out its functions under this title, three members of the Board shall constitute a quorum, and official action can be taken only on the affirmative vote of at least three members. A special panel composed of one or more members, upon order of the Board, shall conduct any hearing provided for in this title and submit the transcript of such hearing to the entire Board for its action thereon. Such transcript shall be made available to the parties prior to any final action of the Board. An opportunity to appear before the Board shall be afforded the parties prior to any final action and the Board may afford the parties an opportunity to submit additional evidence as may be required for a full and true disclosure of the facts.

"(h) Every official act of the Board shall be entered of record, and its hearings and records thereof shall be open to the public. The Board shall not make or cause to be made any inspection of a coal mine for the purpose of determining any pending application.

"(i) The Board is authorized to make such rules as are necessary for the orderly transaction of its proceedings, which shall provide for adequate notice of hearings to all parties. The existing rules of the Federal Coal Mine Safety Board of Review shall constitute the rules of the Board until superseded or modified by the Board.

"(j) Any member of the Board may sign and issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and administer oaths. Witnesses summoned before the Board shall be paid the same fees and mileage that are paid witnesses in the courts of the United States.

"(k) The Board may order testimony to be taken by deposition in any proceeding pending before it at any stage of such proceeding. Reasonable notice must first be given in writing by the party or his attorney of record, which notice shall state the name of the witness and the time and place of the taking of his deposition. Any person may be compelled to appear and depose, and to produce books, papers, or documents, in the same manner as witnesses may be compelled to appear and testify and produce like documentary evidence before the Board, as provided in subsection (j) of this section. Witnesses whose depositions are taken under this subsection, and the persons taking such depositions, shall be entitled to the same fees as are paid for like services in the courts of the United States.

"(l) In the case of contumacy by, or refusal to obey a subpoena served upon, any person under this section, the Federal district court for any district in which such person is found or resides or transacts business, upon application by the United States, and, after notice to such person and hearing, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the Board or to appear and produce documents before the Board, or both; and any failure to obey such order of the court may be punished by such court as a contempt thereof."

15. On page 27, line 7, amend section 106 to read as follows:

"SEC. 106. (a)(1) Within thirty days after receipt of an order made pursuant to subsection (a), (b), or (c) of section 105 or of a decision made pursuant to section 106 of this title, as the case may be, an operator or the representative, if any, of the miners of the affected mine may apply to the Board for review of such order or decision.

"(2) The operator or the representative, as appropriate, shall be designated as the applicant in such proceeding, and the application filed by him shall recite the order complained of and other facts sufficient to advise the parties of the nature of the proceeding. The Secretary shall be the respondent in such proceeding, and the applicant shall send a copy of such application by registered or certified mail to the respondent and to the operator or the representative, if any, of the miners of the affected mine, as appropriate. Immediately upon the filing of such application, the Board shall fix the time for a prompt hearing thereof.

"(3) The facts found by an authorized representative of the Secretary and recited or set forth in an order issued pursuant to subsections (a), (b), or (c) of section 105 or in a decision issued by the Secretary pursuant to section 106 of this title, as the case may be, shall be prima facie evidence of such facts and the burden of rebutting such prima facie case shall be upon the applicant, but either party may adduce additional evidence.

"(4) Upon conclusion of the hearing, the Board shall make findings of fact, and shall issue a written decision incorporating such findings therein affirming, vacating, modifying, or terminating the order issued under subsections (a), (b), or (c) of section 105 or the decision issued under section 106 of this title, as the case may be.

"(b)(1) Upon receipt of a petition filed by the Secretary pursuant to subsection (h) of section 105 of this title or an order filed by the Secretary pursuant to section 113 of this title the Board shall immediately fix the time for a prompt hearing thereof.

"(2) The facts found by the Secretary and recited or set forth in said order or petition shall be prima facie evidence of such facts and the burden of rebutting such prima facie case shall be upon the operator, but either party may adduce additional evidence.

"(3) Upon conclusion of the hearing, the Board shall make findings of fact, and shall issue a decision incorporating such finding therein and granting with such modifications as it deems appropriate or denying the petition.

"(4) The Board shall permit the representative of the miners, if any, of the affected mine to intervene in such proceedings and such representative shall have the same rights as any other party.

"(c) The Board may permit any interested person to intervene in such proceedings and such person shall have the same rights as any other party.

"(d) Each decision made by the Board shall show the date on which it is made, and shall bear the signatures of the members of the Board who concur therein. Upon issuance of a decision under this section, the Board shall cause a true copy thereof to be sent by registered or certified mail to all parties and their attorneys of record and to the representative, if any, of the miners of the affected mine or other interested person. The Board shall cause each decision to be entered on its official record, together with any written opinion prepared by any members in support of, or dissenting from, any such decision.

"(e) The Board shall establish procedures to provide for the consolidation of hearings under this section whenever appropriate.

"(f) Pending the hearing required by this section for review of said order or decision, the applicant before the Board may file with the Board a written request for the Board grant temporary relief from the order or decision, together with a detailed statement giving reasons for granting such relief. The Board, after a hearing in which all parties and the representative, if any, of the miners of the affected mine are given an opportunity to be heard, shall find whether there is substantial reason to believe that the imminent danger or violation did not exist at the time of issuance of the order of the authorized representative of the Secretary or whether such danger or violation did not exist at the time of filing the application, and that the granting of the stay will not adversely affect the health or safety of the miners of the affected mine, and shall issue a decision incorporating its findings therein granting or denying the petition.

"(g) In view of the urgent need for prompt decision of matters submitted to the Board under this section, all actions which the Board takes under this section shall be taken as promptly as practicable, consistent with adequate consideration of the issues involved.

16. On page 30, line 4, after the word "operator" strike "aggrieved" and insert "or representative of the miners, if any, of the mine affected by the decision."

17. On page 33, amend lines 13 through 2 on page 35 to read as follows:

"SEC. 113. (a)(1) The operator of a coal mine in which a violation occurs of a mandatory health or safety standard promulgated under this title or who violates any other provision of this Act, may be assessed a civil penalty, in accordance with the provisions of this subsection, of not more than \$10,000 for each occurrence of such violation. Each occurrence of a violation of a health or safety standard may constitute a separate offense. The Secretary may compromise any penalty assessed.

"(2) Upon a notification of a violation of any such mandatory health or safety standard in a coal mine from an authorized representative of the Secretary, the Secretary shall cause such further investigation to be made as he deems appropriate, including an opportunity for the operator or representative of the miners, if any, to present information relating to the issuance of such notice and to the amount of such penalty. Upon the conclusion of such investigation the Secretary shall make findings of fact. If he finds that a civil penalty should be assessed, he shall issue an order incorporating such findings therein assessing the penalty. If the operator fails to pay the penalty within the time prescribed in the order, the Secretary shall file a petition together with a copy of such order with the Board requesting that the Board order the payment of such penalty. The Secretary shall send a copy of such petition by registered or certified mail to the operator of such mine and to the representative, if any, of the miners of the affected mine.

"(3) In determining the amount of any penalty under this subsection, the operator's history of previous violations of health or safety standards, whether or not the violation was willful, the size of the business of the

operator charged, the effect on the operator's ability to continue in business, the gravity of the violation of the health or safety standard, and the demonstrated good faith of the operator charged in attempting to achieve rapid compliance after notification of a violation of a health or safety standard.

"(4) In any case where the Board grants the petition filed by the Secretary under this subsection affirming the order of the Secretary as issued or as modified and the operator fails to comply with such order within the time prescribed by the Board therein, unless an appeal is taken under section 109 of this title, the Federal district court for any district in which the operator is found or resides or transacts business, upon application by the United States, and after notice to such operator, shall have jurisdiction to enter a final judgment on such order requiring payment thereon. The decision of the Board granting such petition and the order shall not be reviewable by such court."

18. On page 35, line 3, change "(d)" to "(b)".

19. On page 80, strike line 1 through line 3 on page 82, and renumber sections 404 through 411 as sections 403 through 410.

AMENDMENTS TO TITLE 3
(MANDATORY SAFETY STANDARDS)
OF S. 1300

1. On page 42, line 22, after "SEC. 303." insert "(a)".
2. On page 43, amend lines 6 through 11 to read as follows:

"ing of supports approved by the Secretary and such plan shall be reviewed periodically, taking into consideration any accidents from falls of roof or ribs or inadequacy of support of roof or ribs. No person shall proceed beyond the last permanent support unless adequate temporary support is provided or unless such temporary support is not required under the approved roof control plan. A copy of the plan shall be furnished the Secretary or his authorized representative upon request and shall be available to the miners.

"(b) Roof bolts shall not be used in lieu of conventional timbering unless permitted by an authorized representative of the Secretary. Roof bolts shall not be removed where complete extractions of pillars are attempted, nor shall bolts be removed adjacent to clay veins, nor at the locations of other irregularities that induce abnormal hazards. Where roof bolt recovery is practical, it shall be done only by reasonable methods approved by an authorized representative of the Secretary. Recovery of roof bolts shall not be done except by experienced miners, and shall be done only where adequate temporary support is provided.

"(c) The method of mining followed in any mine shall not expose the miner to unusual dangers caused by excessive widths of rooms and entries or faulty pillar recovery methods.

"(d) The operator shall provide at or near the working face an ample supply of suitable materials of proper size with which to secure all working places in a safe manner. Safety posts or jacks shall be used to protect the workmen when roof material is being taken down or crossbars are being installed. Loose roof and overhanging or loose faces and ribs shall be taken down or supported. Supports knocked out accidentally shall be replaced promptly.

"(c) Miners exposed to danger from falls of roof, face, and ribs shall examine and test the roof, face, and ribs before starting work, or before starting a machine, and as frequently thereafter as may be necessary to insure safety. When dangerous conditions are found, they shall be corrected immediately. Installed roof bolts shall be tested."

3. On page 44, amend lines 13 through 18 to read as follows:

"(c)(1) Substantially constructed line brattice or other suitable devices shall be used from the last open crosscut of an entry or room to provide adequate ventilation for the workmen and to remove gases, dust, and explosive fumes, unless the Secretary or his authorized representative permits an exception to this requirement. When damaged by falls or otherwise, they shall be repaired promptly.

"(2) The space between the line brattice and the rib shall be large enough to permit the flow of a sufficient volume of air to keep the working face clear of flammable and noxious gases.

"(3) Brattice cloth used underground shall be of flame-resistant material."

4. On page 47, line 16, after the period insert the following new sentence:

"Before a mine is reopened after having been abandoned, the Secretary shall be notified and an inspection made of the entire mine."

5. On page 47, line 17, change "certified" to "qualified".
6. On page 48, amend lines 20 and 21 to read as follows:

"air, when tested as outlined above,".

7. On page 49, line 2, after the period insert the following new sentence:

"While such ventilation improvement is underway and until it has been achieved, power to face equipment located in such place shall be cut off, no other work shall be permitted in such place, and due precautions will be carried out under the direction of the agent of the operator so as not to endanger other working places."

8. On page 55, amend lines 19 through 22 to read as follows:

"(b) Where underground mining operations create or raise excessive amounts of dust, water or water with a wetting agent added to it, or other effective methods, shall be used to abate such dust. In face areas, particularly in distances less than 40 feet from the face, water, with or without a wetting agent, shall be applied to coal dust on the mine surface to reduce dispersability and to minimize the explosion hazard."

9. On page 56, amend lines 5 through 14 to read as follows:

"(d) Where rock dust is required to be applied, it shall be distributed upon the top, floor, and sides of all open workings and maintained in such quantities that the incombustible contents of the combined coal dust, rock dust, and other dust shall be not less than 65 per centum, but the incombustible content in the return air courses shall be not less than 80 per centum, both in the top one-eighth inch dust layer of the rib, roof, and roof surfaces, as well as in the thicker one inch deep deposits. Where methane is present in any ventilating current, the percent of incombustible content of such combined dusts shall be increased 0.4 and 1.0 per centum for each 0.1 per centum of methane, where 80 and 65 per centum, respectively, of incombustibles are required."

10. On page 58, line 9, after the word "wires" insert a comma.

11. On page 58, line 12, after the word "cables" insert a comma and the following:

"except trolley wires, trolley feeder wires, and bare signal wires,".

12. On page 58, line 14, change "injury" to "damage".

13. On page 58, amend lines 21 through 23 to read as follows:

"grades exceeding 5 percent. Three phase motors on all electric equipment shall be provided with overload protection that will de-energize all three phases in the event that any phase is overloaded."

14. On page 60, line 13, change "(4)" to "(m)".

15. On page 60, amend line 19 to read as follows:

"(n) All power-connection points, except where permissible power connection units are used, outby the last open crosscut shall be in intake air."

16. On page 61, lines 9 and 10, change the words "eliminate the possibility of" to "assure against".

17. On page 61, line 11, after the word "size" add "circuit".

18. On page 61, line 20, after the period insert a new sentence to read as follows:

"As used in this subsection, the term 'splice' means the mechanical joining of one or more conductors that have been severed."

19. On page 63, line 7, change the period to a comma and insert the following: "Except that rectifiers and transformers may remain energized."

20. On page 63, line 13, delete "and", change the period to a comma and add the following: "ground continuity, short circuit, and under voltage."

21. On page 64, line 19, strike the period and add the following: "or capable of carrying twice the maximum fault current."

22. On page 64, line 21, change "10" to "8".

23. On page 65, line 16, change "equipment" to "neutral".

24. On page 65, lines 21 and 22 insert a comma after "damage" and strike "by derailed trips, trolley equipment, roof falls, and blasts,".

25. On page 66, line 14, strike the period and add the following: "to the high voltage ground."

26. On page 66, line 19, change the heading to read "Underground Low- and Medium-Voltage Circuits".

27. On page 66, amend line 20 to read as follows: "SEC. 310. (a) Low- and medium-voltage power circuits serving three-".

28. On page 67, amend lines 4 and 6 by deleting the word "tripping" and adding after line 7 the following new subsections:

"(b) Medium-voltage circuits shall include a fail-safe monitoring circuit to assure continuity of the grounding conductor.

"(c) Portable (trailing) cable for medium voltage circuits shall include grounding conductors, a ground check conductor, and grounded metallic shields around each power conductor or a grounded metallic shield over the assembly; except that on machines employing cable reels, cables without shields may be used if the insulation is rated 2,000 volts or more."

29. On page 67, line 11, change "one" to "two" and strike "five hundred".

30. On page 67, line 25, after the period add a new sentence to read as follows:

"Lubricating oil and grease kept in face regions or other underground working places in a mine shall be in portable, closed metal containers."

31. On page 68 and 69, amend subsection (e) to read as follows:

"(e) Fire suppression devices meeting specifications prescribed by the Secretary shall be installed on underground equipment in accordance with a schedule to be established by the Secretary, except that, in lieu of such devices, fire resistant hydraulic fluids approved by the Secretary may be used in the hydraulic system of unattendant equipment."

32. On page 69, amend lines 6 through 10 to read as follows:

"(f) Deluge-type water sprays or foam generators automatically actuated by rise in temperature, or other effective means approved by the Secretary of controlling fire shall be installed at main and secondary belt-conveyor drives. Where sprays or foam generators are used they shall supply a sufficient quantity of water or foam to control fires."

33. On page 69, after line 15 insert a new subsection (i) to read as follows:

"(i) Lubricating oil and grease kept in face regions or other underground working places in a mine shall be in portable, closed, metal containers."

34. On page 70, lines 20 through 24 are amended to read as follows:

"(c) Explosives or detonators shall be transported in special closed containers (1) in cars moved by means of a locomotive or rope, (2) on belts, (3) in shuttle cars, or (4) in equipment designed especially to transport such explosives or detonators."

35. On page 72, lines 21 and 22 delete the words "in the shaft".

36. On page 75, on line 2, after "SEC. 316." insert "(a)".

37. On page 75 after line 9, insert two new subsections to read as follows:

"(b) Not more than twenty miners shall be allowed at any one time in any mine until a connection has been made between the two mine openings, and such work shall be prosecuted with reasonable diligence.

"(c) When only one main opening is available, owing to final mining of pillars, not more than twenty miners shall be allowed in such mine at any one time, except that the distance between the mine opening and working shall not exceed 500 feet."

38. On page 75, line 17, change "competent" to "registered".

39. On page 77, after line 3 insert two new subsections to read as follows:

"(f) An authorized representative of the Secretary may require in any coal mine where the height of the coalbed permits and the height of the coalbed presents a hazard from rib and face rolls that the face equipment, including shuttle cars, be provided with substantially constructed canopies or cabs to protect the operators of such equipment.

"(g) An authorized representative of the Secretary may require in any coal mine where the height of the coalbed restricts the movement of men around face equipment that such equipment be provided with devices that will permit the equipment to be de-energized quickly in the event of an emergency."

40. On page 78, lines 1 and 2, after the word "explosives" insert "shot firing units".

41. On page 78, line 6, before the word "and" insert "shot firing units".

42. On page 78, amend line 22 to read as follows:

"(g) 'Low voltage' means up to and including 660 volts; 'medium voltage' means voltages from 661 to 1,000 volts; and 'high voltage' means more than 1,000 volts."

43. On page 58, amend lines 1 through 5 to read as follows:

"(f) Couplers that are used with medium and high voltage power circuits shall be of the three-phase type with a full metallic shell, except that the Secretary may permit, under such guidelines as he may prescribe, couplers constructed on materials other than metal. Couplers shall be adequate for the voltage and current expected. All exposed metal on the metallic couplers shall be grounded to the ground conductor in the cable. The coupler shall be constructed so that the ground continuity conductor shall be broken first and the ground conductors shall be broken last when the coupler is being uncoupled."

3. Letter of June 16, 1969, Department recommended enactment of S. 2405 in lieu of S. 2284.¹



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

June 16, 1969

Dear Mr. Chairman:

You requested this Department's comments on S. 2284, introduced by you to improve the health and safety conditions of persons working in the coal mining industry. The June 13 Committee Print is similar to S. 2284.

Enclosed is a copy of our letter, together with enclosures, to Senator Javits on his bill S. 2405, in which we recommend the enactment of S. 2405.

S. 2405 is based on the Administration's original bill S. 1300 and includes the Department's amendments of May 23, 1969, to S. 1300. S. 2405, as well as the June 13, 1969, Committee Print of S. 2284, includes many other changes which are the product of very intense review and discussion between the staffs of your subcommittee and this Department. In view of these similarities in many of the provisions of S. 2405 and the June 13 Committee Print, we feel sure that an effective bill can be reported very soon, hopefully this month.

In addition to the differences between S. 2405 and the Committee Print mentioned in the enclosure, we take this opportunity to comment briefly on three other major differences.

First, we believe that the State plan approach recommended by this Department last May 23 and contained in title I of S. 2405 is far better than the dual-State plan provisions of title IV of the Committee Print. The first such provision (section 402A) of the Committee Print would appear to result in the adoption of no such plans as there is no incentive to the States to do so. The second provision (section 403) is a less comprehensive version of the one in S. 2405.

Second, we believe that the full-time Board of Review approach recommended by this Department and contained in S. 2405 is superior to the review procedure established in the Committee Print. Under the approach in the Committee Print, we would have to establish a review procedure in the Department, including hearing examiners. The Committee Print, however, explicitly provides that the procedure will not be based on, or be governed by, the Administrative Procedures Act. Thus, it is not akin to the review procedures followed by other agencies. The Board approach, on the other hand, is based on a long-established procedure that has worked well. So long as the Board's composition is revised, as we have recommended, the Board approach should continue to work well.

¹ Enclosures with letter are available in Committee's files.

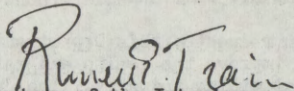
Third, we continue to oppose the establishment of a user tax or charge on coal production for the purpose of health and safety research for the reasons stated in our letter of May 22, 1969, to the Committee (copy enclosed). The research program of the Bureau of Mines has been re-directed to insure that health and safety will be a component of all other aspects of research that benefits the coal industry.

We are sending copies of this letter to other members of your subcommittee.

The Bureau of the Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

~~Noting~~


Secretary of the Interior

Hon. Harrison A. Williams
Chairman, Subcommittee on Labor
Committee on Labor and Public Welfare
United States Senate
Washington, D. C. 20510

Enclosures



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUN 16 1969

Dear Senator Javits:

Your letter of June 13, requested this Department's views on S. 2405 which you introduced on June 12 to improve the health and safety conditions of underground mines.

As you indicated in your introductory statement, S. 2405 is based upon the Administration's bill S. 1300 which you also introduced and incorporated all of the amendments to S. 1300 which this Department recommended in our May 23, 1969, letter to you and Chairman Williams. In addition, it includes the many worthwhile provisions, particularly those involving the interim mandatory safety standards, which have been developed after considerable discussion with the staffs of the Committee and this Department. The need for such a new Administration bill with all these amendments was clearly evident. We are sure that it will assist the Committee in its deliberations. We strongly recommend that S. 2405 be enacted.

Of particular interest to the Department, are the provisions in S. 2405 relative to the establishment of an interim dust standard and the requirement that all electric face equipment be permissible.

S. 2405 would establish an interim dust standard of 3.0 for each active working place, effective six months after enactment. It also authorizes the Secretary, upon application, to permit an operator to maintain the dust concentration at each active working place at such level as existing technology will permit, but not to exceed a 4.5 level, for a maximum period of three years. The Secretary must find that the application of the 3.0 standard is "not feasible from the standpoint of available engineering technology applicable to such mine". Finally, S. 2405 would direct that the Secretary establish a 2.0 or lower standard as soon as possible.

Enclosed is a detailed summary of the present state of knowledge in this country and Great Britain on the coal mine dust problem and the engineering capability to combat the problem effectively. The summary includes the results of a recent survey conducted by the Bureau of Mines which covered 280 sections at 29 mines.

Based on the best data available to us to date, we believe that virtually all of the over 5,000 working sections at U.S. coal mines could reach a 4.5 standard using available technology. This

technology includes better ventilation and improved use of water at the face. In addition, we believe that most faces will be able to meet a 3.0 standard within three years.

Both of these standards, however, must be viewed as interim only, because, based on British data, from a health standpoint neither is satisfactory. The enclosed summary clearly demonstrates that only a 1.0 to 2.0 level will bring the incidences of complicated pneumoconiosis down to near zero. Thus, the ultimate objective, as stated in your bill, is to reach the 2.0 or lower level as soon as technology permits.

Despite the fact that we are certain that a substantial percentage of the working faces in U.S. mines cannot with existing technology meet a 3.0 standard, we believe it is appropriate to establish a 3.0 standard now. Where the 3.0 standard is attainable now, we believe it is in the best interests of the employees of such mines to require such a standard.

We support this approach with clear understanding, however, that the Department will have to grant extensions of up to three years for a substantial percentage, probably a majority, of the working faces. In such cases, we will insist on a 4.5 standard, although there may be a few faces that will not be able to meet this standard. In such cases, other methods will need to be applied to reduce the level.

In granting these extensions, we also want to make it clear to the Committee that it will not be possible, because of a lack of trained personnel and funds, to expect that we will make technical engineering judgements relative to each of the over 5,000 active working sections. The necessary surveys to make these judgements will take trained teams up to two weeks or more to take the samples and evaluate them for each section in a mine. Obviously, it would not be possible to employ and train the necessary survey teams and conduct the surveys within a six month period, even under the best of circumstances. We will, however, conduct these surveys as quickly as possible. All the bills would require that the Secretary must establish methods and approve devices that will be used by industry and this will take some time to implement. In addition, even before the Bureau makes a survey and the samples taken by industry indicate a high level of dust concentration, we will immediately work with the operator to develop engineering plans to reduce his dust levels as quickly as possible.

In summary, we believe the dust standard approach offered by S. 2405 in contrast to that offered by S. 2284 is realistic and permits enough flexibility to carry out a workable program of reducing dust concentrations in United States mines from an average of over 7.0 to an attainable 4.5 in most mines and 3.0 in others immediately. As a matter of fact, we are making every effort to urge industry to act now to lower the dust concentrations in their mines without waiting for the passage of this legislation. Also, we believe that the provisions in your bill on sampling, enforcement of the dust standard, x-rays, and medical examinations are excellent and urge their adoption.

In regard to the issue of requiring that all electric face equipment be permissible, regardless of whether a mine is gassy or non-gassy, we believe that the provision of S. 2405 is also good for it spells out in greater detail the means to accomplish this end. We continue to believe that the distinction between gassy and non-gassy mines is completely unfounded on any scientific basis. This belief has been reinforced by the unfortunate ignition of only last week at a West Virginia mine classed non-gassy since it opened in May of 1966. That ignition burned and hospitalized 5 men out of 25 on a shift. An examination of the mine, since then, shows that conditions--lack of adequate rock-dusting, accumulations of loose coal, and poor ventilation--were such that an even worse disaster could have occurred. The source of the methane ignition was either smoking or permissible electric equipment maintained in non-permissible condition.

S. 2405 and S. 2284 would require that all such equipment be permissible 16 months after enactment. But S. 2405, unlike S. 2284, provides a transition period for equipment of over 25 h.p. at a non-gassy mine. This approach is sound, because: first, it establishes a priority for small equipment which was the source of 12 of 53 ignitions at non-gassy mines and for all equipment at gassy mines that was grandfathered 17 years ago under the 1952 Act; and, second, it recognizes that, even under the best of circumstances, much of this costly equipment cannot be replaced or made permissible within a 16 month period because the suppliers are not geared up to such a demand. Accordingly, we support the transition approach of S. 2405.

Lastly, we want to emphasize the need for the Congress to enact, not only the very detailed interim health and safety standards in the bill, but also provide, as both S. 2405 and S. 2284 do, the necessary flexibility in this Department to change, upgrade and modify these standards as experience and technology develop. Without the interim standards, we will lose valuable time in protecting the health and safety of the miner, since it will require a year or more to promulgate and make final standards under the rule making procedures and appeal procedures established in the bill. Without the rule

making authority, we will remain where we are today--that is, unable to take advantage of experience and technology to cope with new hazards as they develop. These two areas together with our authority to enforce, through civil penalties and closing orders for imminent dangers and unwarrantable failures, form the very basis of an effective coal mine health and safety bill of which everyone can be proud.

We emphasize once again the importance of enacting this legislation early this summer. The recent ignition mentioned above, as well as the 119 mining fatalities since the disaster in West Virginia of last November 20, points up the need to provide the necessary tools to insure better health and safety in all mines. While we all recognize that coal mining is a hazardous occupation, we know that these hazards can be reduced substantially. This legislation will go a long way toward making this a reality. Delay in enactment is not in the interest of those most directly concerned--the miner and his family.

Enclosed is a copy of an analysis and explanation of the interim safety standards in S. 2405 and the Committee print of June 13, 1969.

At your suggestion, we are sending copies of this letter and the enclosures to Chairman Williams and the other members of the Subcommittee.

Time has not permitted us an opportunity to obtain the views of the Bureau of the Budget on this report.

Sincerely yours,

Russell Train
Acting Secretary of the Interior

Hon. Jacob K. Javits
United States Senate
Washington, D. C.

Enclosure



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

MAY 22 1969

Dear Mr. Chairman:

During recent discussions with your staff on S. 1300--the Federal Coal Mine Health and Safety Act of 1969--we were asked to express our views on the need for, and desirability of, a user tax on the production of coal for the purpose of financing the coal mine health and safety research program of this Department.

The Department, through the Bureau of Mines, has been engaged in a program of research and development in connection with this industry since 1910. Many of the health and safety innovations in this industry were developed by the Bureau, such as the introduction of the widespread use of roof bolts. Until recently our annual research and development budget for health and safety has been about \$2 million annually, a good portion of which has been devoted to "testing" rather than research. In fiscal year 1970, however, we have increased this budget substantially to \$3.3 million. We recognize that there is a need for more health and safety research for this industry, but we doubt that a system which taxes the production of coal and earmarks the revenues for health and safety research is the most appropriate method to supply this need.

Experience has shown to us that coal mining, indeed all mining, is a complex system, all parts of which must be considered simultaneously--health, safety, productivity, environmental control, etc. The effect of some improved mining technique on productivity cannot be considered apart from its effect on the health and safety of the miner or on its effect on environmental pollution. Our research program must, therefore, be designed to study the entire mining operation. The proposed user tax, in contrast, would tend to separate the health and safety function into a separate category which would be artificial.

Under the bill, the levy would apply to all coal mining firms without regard for the method of mining or for their past safety record. The question you have asked raises the issue whether such a tax should be established on only one commodity or one industry.

For example, other dangerous industries, such as the nuclear industry which is a competitor of the coal industry, are not required to pay directly for health and safety research. The

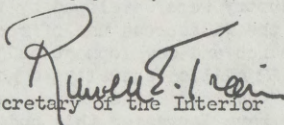
proposal might tend to confine the entire research and development effort to the Government. The future research and development effort should, in our opinion, not be carried out by the Government alone. Industry should be encouraged to assume, on an industry-wide basis, a greater role in this area.

Further, we believe that tax on the coal industry for health and safety research and development purposes should not be imposed without thorough study of its impact on the industry and the consideration of alternative approaches. To our knowledge, this has not been done to date.

For the above reasons, it is our view at this time that a tax should not be imposed in the coal industry for health and safety research and development purposes.

The Bureau of the Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,



Under Secretary of the Interior

Hon. Ralph Yarborough
Chairman, Committee on
Labor and Public Welfare
United States Senate
Washington, D. C.

cc: Senator Jacob Javits

4. Letter of July 17, 1969, Department commented on committee print of July 9, 1969.



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUL 17 1969

Dear Mr. Chairman:

Your Committee, yesterday, requested this Department's comments on the provisions of the July 9, 1969, Committee Print of the coal mine health and safety legislation which give us concern.

We recognize that the provisions of the Committee Print have not yet been approved by your Committee and are still subject to change. For this reason, we have been very reluctant to express our comments for fear of interfering in the Committee's deliberations, but in view of your request and in order to be helpful to the Committee in developing effective and strong legislation, we offer the following comments for your consideration:

1. The Panel and the Board

The addition of the five-member panel with authority to grant permits of noncompliance in meeting the dust standards and permissible equipment requirements is an improvement over S. 2405. The certification required by an operator in seeking a permit of noncompliance in meeting the dust standards improves the procedure for granting a noncompliance permit. However, we wish to make it clear that we also favor retention of the Federal Coal Mine Health and Safety Board of Review as provided by S. 2405.

2. The Dust Standard

The panel proposed in the Print should be allowed to waive the dust standard on a mine-by-mine basis for six months after the effective date of the dust standard where it determines that the procurement, installation, and associated construction of equipment and facilities necessary to attain the dust standard cannot be accomplished in the first six months after enactment.

We continue to favor the provision of S. 2405 establishing no exact date for a 2.0 standard to be reached but requiring that the Secretary establish this standard as soon as possible. With the present state of technology, it is possible to predict with the research already underway that a 3.0 standard could be attainable in three years. The attainment of a 2.0 standard, however, may depend on the outcome of research that has yet to be started and the results of which are unknown and unpredictable. If the research is extremely favorable, the time required to meet the standard could be less than 6 years. If the research fails, it may require more than the 6 years provided in the Print. The Print itself

recognizes that it may not be possible to attain a 2.0 standard within 6 years and authorizes the Secretary to establish a new schedule specifying a later time for compliance with the 2.0 standard and requiring him to notify the Congress of such new schedule. If either House does not object by resolution within 60 legislative days, the new schedule will become effective. If the Committee insists on a 6 year schedule for the 2.0 standard, this additional authority is essential in view of the present state of technology.

The Print provides that the dust concentrations in every active working place "during each shift" must be continuously maintained at or below the established standard. Section 101(f) also provides that, if the inspector finds that the standard is exceeded, he must issue a notice and the operator must take corrective action. While such action is underway, no work may be performed, except "that necessary to obtain a valid sample of the mine atmosphere to determine the atmospheric concentrations of respirable dust," unless the corrective action can be completed within 72 hours.

Strictly construed, if the dust standard is exceeded on a single shift measurement by even less than one-half milligram, there is a violation and the inspector would have to issue a notice, etc. On the other hand, it is also possible to construe the term "during each shift" as clarifying language to avoid the possible interpretation that the standard must be met at any time during the shift. Under this construction, the samples taken by an operator which trigger an inspection and those samples taken by the inspector must be for the entire shift, but a notice would not be issued until the inspector takes a sufficient number of full shift samples to be able to prove in any subsequent review proceeding that the standard has in fact been exceeded. We believe, based on present technology, the latter interpretation is a proper one. The first would make it impossible to enforce the standard in any such review proceeding.

The Bureau of Mines testing experience to date and that in other countries (e.g. England and Germany) shows that about a 60 percent variability is inherent in the results when sampling from one full

shift to another. The reason for this variability is not yet understood. For example, a single 4.5 reading could in actuality be as high as 7.3 or as low as 1.7. However, when a series of full shift samples are taken it is possible to determine more closely the true value with the use of statistical techniques averaging the samples. If the mean value of several such samples falls above a fixed upper limit which is established for the sampling program by these statistically valid methods, the Bureau of Mines would, under the Print, take the enforcement action required and expect that such action would stand the test in any review proceeding initiated by the operator.

As our measuring technology improves and we have a better understanding of the variables, we should be able to reduce the number of shifts necessary to obtain an enforceable sample, possibly to a point where a one or two shift sample may be sufficient.

In addition to the sampling problem, the requirement that "no work other than that necessary to obtain a valid sample" is difficult to understand. It is not possible to obtain a valid sample unless actual coal production is underway, because, once work stops and the continuous miner or cutting machine is no longer operating, the dust concentrations are quickly reduced to well below the standard. The operator and the inspector will not know whether the corrective action is successful, unless operations continue, particularly in those cases where the standard is only slightly exceeded. Clearly, if the corrective action needed involves more than adjustments in ventilation, water, etc., or similar actions which will take considerable time, then it would be appropriate to cease work and withdraw the men until such action can be accomplished.

In short, we believe that the 72 hour period which could include hours and days when no work is normally performed, such as weekends, may be too short from the standpoint of completing the corrective action in a given case. We believe that the Committee may wish to consider a longer period following the pattern used successfully for violations of safety standards where there is no imminent danger. For those safety violations the inspectors issue a notice and prescribe the time for the violation to be totally abated. If on reinspection the condition has not been corrected, the inspector shall issue a withdrawal order.

Incidentally, the present provisions of section 101(f) of the Print do not permit an appeal by the operator on actions taken by the inspector, since only withdrawal orders, not notices, are subject to appeal under Title III of the Print.

3. Surgeon General

The print provides for the promulgation of health standards by the Secretary in accordance with health standards "established" by the Surgeon General. The print fails to set forth what role the Secretary would play in promulgating such standards, except the pro forma role of publication. The print, by its express terms, does not give the Secretary any authority to change the standards, if change is needed, because they are not technically feasible. As a matter of fact, the bill expressly provides that only the Surgeon General consult with various agencies and organizations and consider the scientific data and the technical feasibility of the standards. We believe that the Secretary should develop and promulgate both the health and safety standards for coal mines, that the health standards be based on criteria established by the Surgeon General, and that we consult with him during the consideration of the standards.

4. Coal Mine Health and Safety Research Fund

The Department's views on the assessment of a tax on the production and importation of coal were set forth in our letter of May 22, 1969, to your Committee. Our views have not changed.

5. Time Period for Making Equipment Permissible

The print provides that nonpermissible electric face equipment over 25 horsepower at nongassy mines be made permissible within 16 months after enactment, with provision for the Panel to issue permits of noncompliance to use such nonpermissible equipment for up to an additional 44 months, or a total of 60 months after enactment. We understand that the Committee is considering lowering this period to a total of 48 months.

At the request of your Committee, a statistical sample was taken by our field personnel on the number and condition of existing nonpermissible equipment in use and the cost of their conversion. This sampling which was conducted in a very short time and represented, for example, in the case of nongassy small mines, only 90 out of over 2,700 such mines might suggest that the conversion of all this type equipment would be possible within 3 to 4 years. We believe that the data, because it is so limited, does not justify the selection of a specific time period. In our opinion, the time period should be left open. If the Panel finds that the equipment and parts are available for the conversion in a shorter period, then we are certain the Panel will not grant extensions beyond that period.

6. Penalties

The print establishes a criminal penalty against the miner and operator for violating knowingly a health or safety standard.

In regard to the miner, there is only one standard involving smoking or carrying matches underground which places any obligation on him. In all others, the operator is solely responsible for compliance. We believe that a criminal penalty against the miner for violating the standard is not appropriate, but we would not object to a civil penalty against the miner for violating the smoking standard since this is of serious consequences to other persons underground.

In regard to the operator, we believe that the civil penalty is sufficient, particularly when we consider the difficulty in proving a criminal violation.

The print also provides a penalty against the director, officer, or agent of the corporation. The agent, based on the definition in the bill, would include the foreman, mine superintendent, and other supervisory personnel. We are troubled by the breadth of the provision. The term "authorized," for example, is vague in its meaning when applied to a director who is not normally involved in the every day operation of a mine. Further, there is no test of knowledge as in the case of some of the other penalty provisions. We would have no objection to such a provision if it is limited to corporate officers who order a violation of a standard or a withdrawal order.

7. Compensation

The print provides that, in cases where a mine or portion thereof is idled, by reason of an unwarrantable failure closing order, the miners shall be fully compensated by the operator. Similarly, under Title I of the print, the miner who is moved to another portion of the mine because of developing pneumoconiosis is guaranteed his regular rate of pay. In our opinion, both of these matters should be left for negotiation between management and labor.

8. Miscellaneous

a. The time periods in section 203(p) & (s) of the print should be twelve months instead of the 6 months since this will provide adequate time for an orderly transition to the new requirements of the provisions.

b. Section 205(i) should be amended by adding "except on locomotives operating regularly on grades exceeding 5 percent". This exception should be included since in slope mines the electric power on the locomotives is used for braking, and if for any reason the power should be cut off by these devices, a severe safety hazard could result.

c. Section 213(e) of the Print should be deleted at this time because in many instances it is not physically possible in the limited space underground in some mines to install and operate such automatic brakes. We believe that, as in the case of underground illumination, that the Secretary should be required to prescribe such brakes when they are developed.

d. Sections 103(a) and 218(a), while recognizing that the standards may be modified or superseded by the Secretary, limits him to promulgating standards that are better, from a health or safety standpoint than the ones in the Print. While we agree with this objective, we are concerned that the provision may lead to unnecessary litigation over the question whether a particular standard is, in fact, better. It tends to do what this Department and many others have objected to in the present 1952 Act--that is, take away the flexibility which we believe is essential in any health and safety regulatory program. We may find, after some experience with the standards in the Print, that a particular standard or portion thereof is unworkable. If we change it, someone may contend the change does not meet the above test. Accordingly, we believe this language should be deleted.

e. Section 301(a) provides that a minimum of 4 inspections annually must be made of the entire underground coal mine. S. 2405 established the minimum at 3 inspections annually. We fail to see any real advantage in this requirement, particularly when it is so difficult to obtain qualified inspectors. Experience shows that at many large mines an inspection of the entire mine may run as long as a month. In our opinion, more has been gained since Farmington through the increased frequency of spot inspection, which do not, usually, cover the entire mine. Spot inspections, plus civil penalties, will be our most effective tools. On the other hand, if we find that increased full scale inspections are necessary for safety purposes, the bill provides that additional inspections can be required.

f. Sections 406(a) and (b) relating to the establishment of mandatory advisory committees on coal mine health and safety research are unnecessary, particularly when such committees are given specific functions that are the normal responsibility of the administrator of the program, such as the review of research grants and contracts. In many cases, it will be difficult to convene the committees to consider such grants and contracts with the resultant delays in obtaining needed research. If these sections are retained, however, the non-government members of the committee should not be limited to persons knowledgeable in roof control research alone but in all aspects of mining safety.

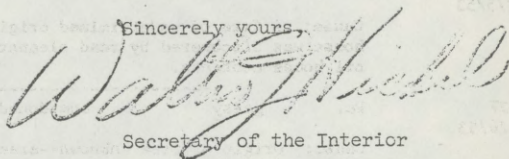
g. Section 401(c) of the Print directs the Surgeon General to conduct research on the working conditions of non-coal miners working with or around coal mine products. While there may be some need for such research, we question whether such persons are adversely affected by the fact that they work with or around coal mine products. Without knowing more about the particular activity or activities at which this provision is aimed, it is difficult to make a judgment on the need for the provision and we believe it should be deleted.

h. Section 407 of the Print is identical to a similar provision in the 1952 Act relative to the effect of the legislation on State laws, but it does not include a disclaimer found in the 1952 Act and S. 2405 to the effect that the legislation does not affect State workmen's compensation laws and related matters. While, it is true, that nothing in the Print affects these laws, we believe it is desirable to continue this disclaimer to allay any fears by the States and avoid unnecessary controversy which could arise over the issue.

i. With respect to the definition of operator, the Committee might well consider the adoption of appropriate language in its report to make certain that it is not intended to include non-controlling stockholders.

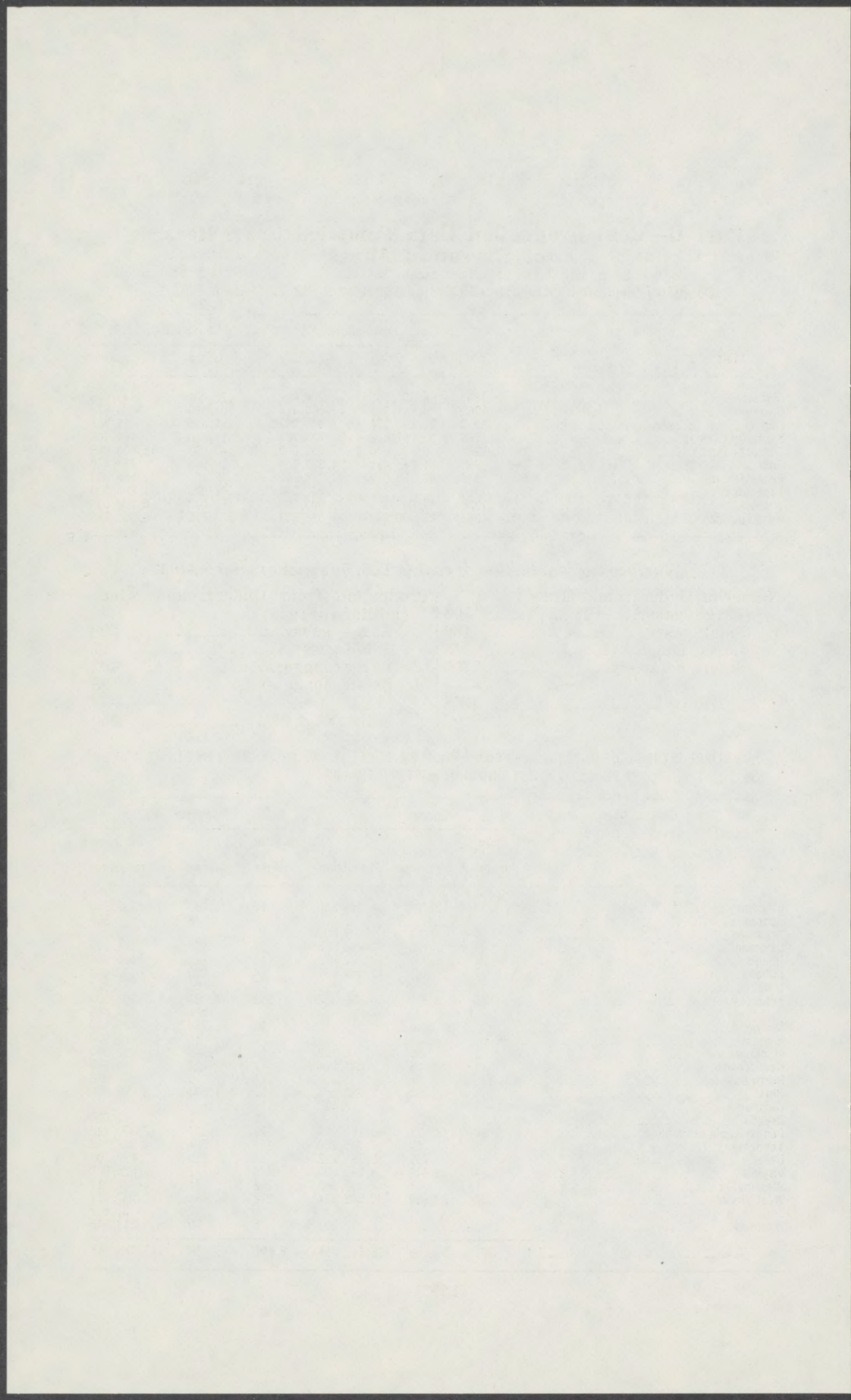
In addition to the above comments, there are a number of technical drafting changes that must be made to clarify the Print. Our respective staffs are working on these.

Sincerely yours,



Secretary of the Interior

Hon. Ralph W. Yarborough
Chairman, Labor and Public
Welfare Committee
United States Senate
Washington, D.C. 20510



Part D—Coal Production Data Compiled From Records of Bureau of Mines

1(a). BITUMINOUS COAL PRODUCTION FROM UNDERGROUND MINES BY CERTAIN STATES

State	Year	Large mines		Small mines	
		Gassy	Nongassy	Gassy	Nongassy
Alabama.....	1968	8,400,000	300,000	120,000	440,000
Colorado.....	1968	3,114,394	64,417	103,669	486,874
Illinois.....	1968	25,090,274	1,395,982	194,835	18,761
Kentucky (west).....	1968	15,082,852	1,707,784	111,410	169,906
Kentucky (east).....	1968	6,100,000	27,000,000	40,000	15,000,000
Ohio.....	1968	11,085,451	4,829,500	10,000	223,450
Pennsylvania.....	1968	46,758,097	7,738,995	59,251	1,556,333
Tennessee.....	1968		2,540,000	135,000	1,800,000
Virginia.....	1968	13,000,000	10,000,000	400,000	6,200,000
West Virginia.....	1968	81,500,000	47,355,302	213,820	6,381,214

1 (b) Number and production of coal in U.S. by types of mines—1967

Numer of Underground Mines: Large gassy..... 300 Small gassy..... 150 Large nongassy..... 573 Small nongassy..... 2755 <hr/> Total..... 3778	Production from Underground Mines (millions of tons): Large gassy..... 208 Small gassy..... 2 Large nongassy..... 101 Small nongassy..... 39 <hr/> Total..... 350
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2.—NUMBER OF BITUMINOUS UNDERGROUND COAL MINES, EMPLOYMENT AND PRODUCTION BY STATES AND BY GASSY AND NONGASSY MINES, 1967

	Gassy			Nongassy		
	Number of mines	Em- ployees	Production	Number of mines	Em- ployees	Production
Alabama.....	17	3,222	8,443,850	85	1,633	739,350
Arizona.....				1	3	969
Arkansas.....	5	61	93,600			
Colorado.....	23	1,026	3,008,995	36	239	569,915
Illinois.....	26	5,271	27,797,978	9	111	525,834
Indiana.....	7	421	1,564,831	4	285	142,483
Iowa.....				5	51	244,917
Kentucky.....	32	3,851	18,996,388	913	10,687	42,000,000
Maryland.....					580	2,287,406
Missouri.....				33	236	409,550
Montana.....		16	6,200	2	14	3,000
New Mexico.....	1	98	625,000	12	41	22,650
North Dakota.....				7	22	4,375
Ohio.....	18	2,115	8,922,588	1	5	976
Oklahoma.....	1	4	2,400	55	1,244	4,496,000
Oregon.....				1	5	1,000
Pennsylvania bituminous.....	68	13,973	46,110,933	279	3,007	8,302,238
Tennessee.....	7	57	135,250	142	1,924	4,364,750
Utah.....	10	799	2,785,122	17	359	1,478,102
Virginia.....	44	3,347	14,265,000	673	4,722	16,625,000
Washington.....	1	7	8,599	3	31	48,017
West Virginia.....	132	20,848	80,348,324	908	20,181	61,037,451
Wyoming.....					32	30,812
				5	60	118,942
Total.....	392	55,116	213,115,058	3,191	45,472	143,453,737

3.—THE 50 BIGGEST BITUMINOUS MINES IN 1968
 [Compiled by Keystone Coal Buyers Manual, a Coal Age affiliate]

Company	Name of mine	State	District No.	1968	1967	1950
1. Peabody Coal Co.	River King (S)	Illinois	10	5,805,794	5,316,368	New 1957
2. Southwestern Illinois Coal Corp.	Captain (S)	do	10	5,691,249	2,871,683	New 1964
3. Clinchfield Division, Pittston Co.	Moss No. 3	Virginia	8	5,251,649	5,966,161	New 1958
4. Peabody Coal Co.	Dynamo No. 10	Illinois	9	5,245,579	5,011,596	New 1952
5. Peabody Coal Co.	River Queen (D and S)	Kentucky, W.	10	5,157,600	4,895,241	New 1957
6. Peabody Coal Co.	Sinclair (S)	do	9	4,451,183	3,823,000	New 1962
7. United States Steel Corp.	Robena (C)	Pennsylvania	9	3,670,000	3,398,053	3,137,552
8. Peabody Coal Co.	Lynnville (S)	Indiana	11	3,520,675	3,533,000	New 1955
9. Consolidation Coal Co., Christopher Coal Co. Division	Humphrey No. 7	West Virginia	3	3,327,755	3,533,000	New 1955
10. Consolidation Coal Co., Hanna Coal Co. Division	Egypt Valley No. 21 (S)	Ohio	4	3,318,259	1,711,152	New 1956
11. Central Ohio Coal Co.	Muskingum (C) (S)	do	4	3,034,201	1,441,400	New 1957
12. Eastern Associated Coal Corp.	Kopperston Nos. 1 and 2	West Virginia	8	2,930,528	3,144,373	1,663,827
13. Gibraltar Coal Corp.	Gibraltar (S)	Kentucky, W.	9	2,854,229	2,987,820	New 1955
14. Freeman Coal Mining Corp.	Orient No. 3	Illinois	9	2,835,112	3,026,857	New 1955
15. Peabody Coal Co.	Sunnyhill No. 9 (D and S)	Ohio	4	2,816,876	1,921,439	New 1960
16. Itmann Coal Co.	Itmann	West Virginia	7	2,779,412	2,958,000	1,033,543
17. Eastern Associated Coal Corp.	Federal No. 1	do	3	2,719,630	3,142,401	1,613,906
18. Consolidation Coal Co., Mountaineer Division	Loveridge	do	3	2,717,610	2,973,000	New 1958
19. Peabody Coal Co.	Ken. (D and S)	Kentucky, W.	3	2,712,833	2,379,106	672,357
20. Old Ben Coal Corp.	Old Ben No. 24	Illinois	10	2,644,331	2,369,830	New 1965
21. Consolidation Coal Co., Truax-Traer Division	Flatt (S)	do	10	2,611,882	1,524,000	1,158,367
22. Peabody Coal Co.	Homesstead (S)	Kentucky, W.	9	2,488,562	2,353,431	New 1963
23. Pittsburgh & Midway Coal Mining Co.	Colonial (S)	do	9	2,388,392	2,022,204	678,058
24. Consolidation Coal Co., Christopher Coal Co. Division	Arkwright No. 1	West Virginia	3	2,316,988	2,213,000	908,111
25. Consolidation Coal Co., Christopher Coal Co. Division	Osage No. 3	do	3	2,312,304	2,489,000	877,807
26. Utah Construction & Mining Co.	Navajo (S)	New Mexico	18	2,303,690	2,435,318	New 1963
27. Peabody Coal Co.	Vogue (S)	Kentucky, W.	9	2,278,427	2,703,107	589,608
28. Mathies Coal Co.	Mathies	Pennsylvania	2	2,239,741	2,031,000	886,811
29. Consolidation Coal Co., Pittsburgh Coal Co., Division	Montour No. 4	do	2	2,156,535	2,317,000	563,707
30. Consolidation Coal Co., Hanna Coal Co., Division	Franklin No. 25	Ohio	4	2,126,918	2,235,522	New 1964
31. Old Ben Coal Corp.	Old Ben No. 21	Illinois	10	2,126,882	2,264,000	New 1960
32. North American Coal Corp.	Powhatan No. 1	do	4	2,108,824	2,039,752	1,045,558
33. Freeman Coal Mining Corp.	Crown	Illinois	10	2,100,000	2,380,150	New 1951
34. Gateway Coal Co.	Gateway (C)	Pennsylvania	4	2,100,000	2,200,000	New 1963
35. Island Creek Coal Co.	Wheelwright	Kentucky, E.	8	2,054,000	2,079,308	1,233,251
36. North American Coal Corp.	Powhatan No. 3	Ohio	2	2,048,409	2,049,071	1,021,197
37. Duquesne Light Co.	Warwick (C)	Pennsylvania	4	2,040,539	2,173,026	1,044,823
38. United States Steel Corp.	Maple Creek (C)	do	2	2,040,000	1,903,933	New 1959
39. United Electric Coal Cos.	Buckheart No. 17 (S)	Illinois	2	2,002,346	2,027,000	1,130,386
40. United States Steel Corp.	Concord (C)	Alabama	13	1,977,000	2,090,545	740,696
41. Pittsburgh & Midway Coal Mining Co.	Paradise (S)	Kentucky, W.	9	1,959,904	2,090,545	New 1953
42. United States Steel Corp.	Gary No. 14 (C)	West Virginia	7	1,957,000	1,823,000	456,080
43. Consolidation Coal Co., Mountaineer Coal Co. Division	Consolidation No. 9	do	3	1,924,049	2,198,000	New 1958

44. United States Steel Corp.....	Gary No. 2 (C).....	7	1,885,000	1,997,000	1,848,910
45. Freeman Coal Mining Corp.....	Orient No. 9.....	10	1,862,020	1,587,883	New 1960
46. United Electric Coal Cos.....	Fidelity No. 11 (S).....	10	1,844,093	2,031,157	1,859,788
47. Pittsburg & Midway Coal Mining Co.....	Dekoven No. 9.....	9	1,838,476	1,390,323	New 1956
48. Consolidation Coal Co., Ohio Valley Division.....	Ireland.....	6	1,831,202	2,225,000	New 1956
49. Eastern Associated Coal Corp.....	Keystone No. 1.....	7	1,830,701	1,945,425	925,700
50. Jones & Laughlin Steel Corp.....	Shannopin No. 2 (C).....	2	1,820,000	1,746,589	835,860

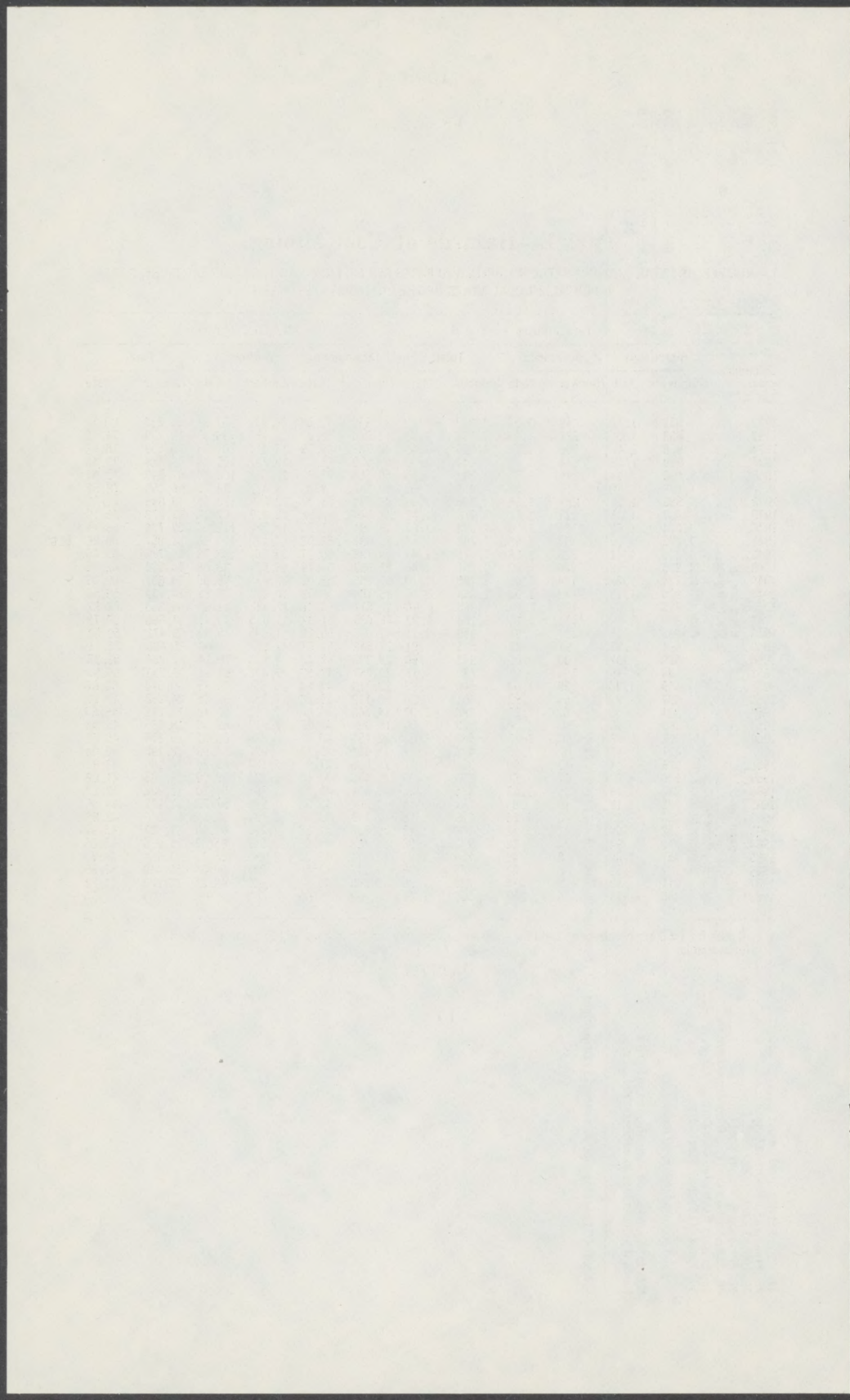
Total production, 50 mines.....	136,465,957	133,635,992	24,796,193
U.S. total production, bituminous and lignite.....	550,550,000	552,626,000	516,311,000
Percent listed mines to national total.....	24.8	24.2	4.8

Note: (C) denotes captive mines; (S) strip mines; (D) deep mines. Tonnage not coded is deep.

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Source: Bureau of Mines, U.S. Department of the Interior, Washington, D.C. 20540.

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Part E—Hazards of Coal Mining

1.—NUMBER OF FATAL AND NONFATAL INJURIES AND RATES PER MILLION MAN-HOURS OF EXPOSURE, PORTAL TO PORTAL, IN COAL MINES OF THE UNITED STATES, 1932-68

Calendar year	Fatal injuries						Nonfatal injuries					
	Bituminous		Anthracite		Total		Bituminous		Anthracite		Total	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1932	958	1.77	249	1.59	1,207	1.73	39,352	72.58	16,931	107.88	56,283	80.50
1933	833	1.31	231	1.49	1,064	1.34	43,946	68.87	15,183	98.13	59,129	74.58
1934	958	1.41	268	1.50	1,226	1.43	46,982	69.39	18,577	104.15	65,559	76.63
1935	968	1.46	274	1.78	1,242	1.52	47,529	71.47	15,897	103.16	63,426	77.43
1936	1,098	1.43	244	1.56	1,342	1.45	50,514	65.62	17,026	108.80	67,540	72.91
1937	1,198	1.54	215	1.58	1,413	1.55	52,847	68.05	13,412	98.72	66,259	72.62
1938	880	1.52	225	1.94	1,105	1.59	36,794	63.47	12,842	110.85	49,636	71.36
1939	867	1.36	211	1.71	1,078	1.42	38,544	60.52	13,229	107.37	51,773	68.12
1940	1,204	1.68	184	1.50	1,388	1.65	43,994	61.28	13,782	112.55	57,776	68.75
1941	1,072	1.35	194	1.49	1,266	1.37	46,637	58.93	14,420	110.83	61,057	66.26
1942	1,245	1.41	226	1.64	1,471	1.44	53,193	60.21	13,581	98.73	66,774	65.40
1943	1,225	1.39	226	1.50	1,451	1.40	51,067	57.79	13,527	89.68	64,594	62.44
1944	1,124	1.23	174	1.06	1,298	1.20	51,253	56.02	12,438	76.05	63,691	59.06
1945	925	1.13	143	1.01	1,068	1.11	46,194	56.52	10,923	77.32	57,117	59.58
1946	795	1.09	173	1.14	968	1.10	42,817	58.31	12,533	82.65	55,350	62.92
1947	985	1.23	173	1.18	1,158	1.22	46,025	57.32	11,635	79.41	57,660	60.72
1948	862	1.15	137	.91	999	1.11	42,078	56.28	11,394	75.69	53,472	59.53
1949	494	.93	91	.83	585	.91	27,548	51.67	7,857	71.88	35,405	55.11
1950	550	.92	93	.80	643	.90	28,390	47.73	8,874	76.14	37,264	52.38
1951	684	1.16	101	.95	785	1.13	28,081	47.56	7,472	69.94	35,553	50.99
1952	449	.90	99	1.03	548	.92	23,719	47.64	6,355	66.35	30,074	50.66
1953	397	.89	64	.92	461	.90	20,112	45.26	4,146	59.85	24,258	47.23
1954	334	.99	62	1.23	396	1.02	14,746	43.66	2,972	59.18	17,718	45.67
1955	360	.96	60	1.30	420	1.00	15,966	42.76	2,919	63.46	18,885	45.03
1956	392	1.02	56	1.12	448	1.03	16,486	42.99	3,330	66.31	19,816	45.69
1957	427	1.17	61	1.15	478	1.17	15,915	43.74	2,877	64.93	18,792	46.04
1958	326	1.14	32	.90	358	1.11	12,036	41.97	2,124	59.88	14,160	43.94
1959	246	.92	47	1.60	293	.99	10,440	39.15	1,723	58.66	12,163	41.09
1960	290	1.13	35	1.43	325	1.15	10,501	40.85	1,401	57.30	11,902	42.28
1961	275	1.18	19	.85	294	1.15	9,902	42.52	1,295	57.75	11,197	43.86
1962	263	1.15	26	1.26	289	1.16	9,783	42.86	1,161	56.14	10,944	43.96
1963	252	1.09	32	1.52	284	1.12	9,838	42.38	1,295	61.53	11,133	43.97
1964	218	.94	24	1.18	242	.96	9,728	41.92	1,342	65.89	11,070	43.86
1965	251	1.08	8	.49	259	1.04	10,071	43.30	1,067	65.16	11,138	44.73
1966	227	.99	6	.44	233	.96	9,617	41.80	829	60.64	10,446	42.85
1967 ¹	211	.90	9	.73	220	.89	9,555	40.81	609	49.27	10,164	41.23
1968 ¹	305	1.33	4	.37	309	1.28	(²)	(²)	(²)	(²)	(²)	(²)

¹ All data for 1968 are preliminary. Data for 1967 are preliminary for bituminous and final for anthracite.

² Not available.

2.—INJURY DATA—ALL MINES, 1966 AND 1967

	Bituminous coal			Rate	Total rate
	Fatal	Rate	Nonfatal		
1966					
Underground:					
Large mines.....	129	1.06	6,311	51.63	52.69
Small mines.....	60	2.20	1,159	42.57	44.78
Surface at underground.....	8	.34	747	31.73	32.07
Strip.....	22	.57	917	23.89	24.46
Auger.....	3	1.04	90	31.26	32.30
Mechanical cleaning plants.....	5	.32	393	24.83	25.15
Total.....	227	.99	9,617	41.80	42.78
Anthracite:					
Underground:					
Large mines.....	2	.71	408	144.72	145.43
Small mines.....	3	1.73	87	50.25	51.99
Surface at underground.....	0	0	54	24.95	24.95
Strip.....	1	.30	126	37.80	38.10
Culm banks.....	0	0	8	16.08	16.08
Dredges.....	0	0	2	11.74	11.74
Mechanical cleaning plants.....	0	0	144	48.72	48.72
Total.....	6	.44	829	60.64	61.07
Grand total.....	233	.96	10,446	42.85	43.81
1967					
Underground:					
Large mines.....	132	1.04	6,502	51.00	52.03
Small mines.....	34	1.52	916	40.92	42.44
Surface at underground.....	12	.55	655	30.27	30.83
Strip.....	21	.54	831	21.24	21.77
Auger.....	2	.73	94	34.37	35.10
Mechanical cleaning plants.....	12	.75	508	31.69	32.44
Total.....	213	.93	9,506	41.44	42.36
Anthracite:					
Underground:					
Large mines.....	5	2.37	247	117.07	119.44
Small mines.....	3	2.07	65	44.96	47.03
Surface at underground.....	0	0	32	17.19	17.19
Strip.....	1	.31	118	37.12	37.43
Culm banks.....	0	0	13	21.11	21.11
Dredges.....	0	0	1	6.79	6.79
Mechanical cleaning plants.....	0	0	133	44.33	44.33
Total.....	9	.73	609	49.27	50.00
Grand total.....	222	.92	10,115	41.84	42.75

3. Number of injuries by percentage distribution, injury rates, and average severity of coal mines in the United States—1967

State	Number of injuries				Distri- bution of all inju- ries, per- cent	Frequency rates				Severity rates				Average severity		
	Fatal	Nonfatal				Per million man-hours	Fatal	Non- fatal	Per million tons	Fatal	Non- fatal	Per million man-hours	Fatal	Non- fatal	Perma- nent partial	Temp- orary total
		Permanent Total	Temp- orary total	Total												
Underground mines:																
Underground (including sheet and slope):																
Alabama	4		89	93	1.3	0.68	15.92	0.43	9.94	4,108	1,060	2,566	662	194	61	311
Alaska																
Arizona			5	5	.1		85.56		(1/)		975		(1/)		11	11
California																
Colorado	2	2	53	55	.8	1.15	31.67	.55	15.39	6,910	1,409	3,958	695	150	41	27
Illinois	11	8	478	486	6.6	1.38	61.16	3.39	17.41	8,396	3,377	7,215	963	838	167	167
Indiana	2		45	45	.6	3.23	72.61	1.22	27.37	19,364	3,397	7,299	1,280		47	300
Iowa			3	3	(3/)		30.72		10.15		584		193		19	19
Kansas																
Kentucky	45	16	1,294	1,310	17.9	1.75	51.07	.77	22.38	10,565	2,018	4,612	884	764	30	237
Maryland	1		5	6	.1	4.10	24.57	2.59	15.55	24,575	6,009	15,953	3,803	1,300	33	1,067
Missouri																
Montana			5	5	.1		131.20		(1/)		4,513		(1/)		34	34
New Mexico			14	14	.2		78.05		21.45		1,667		458		21	21
Ohio			5	5	.1											
North Dakota	3		290	293	3.9	.53	52.08	.20	19.58	3,176	1,921	1,194	572	140	27	89
Oklahoma			1	1	(3/)		116.28		361.93		8,165		26,782		74	74
Oregon																
Pennsylvania (bituminous)	20	21	656	679	9.2	.75	25.32	.35	12.03	4,475	2,517	2,126	1,195	894	56	268
South Dakota																
Tennessee	3		90	90	1.2	1.49	44.67	.73	22.05	8,995	1,725	4,410	852		39	231
Texas																
Utah			85	87	1.1		59.96		20.69		4,102		1,445		34	68
Virginia	24	15	698	713	9.7	1.69	50.13	.81	24.01	10,124	2,794	4,850	1,415	1,525	34	249
Washington			9	9	.1		247.33		(1/)		7,338		(1/)		30	30
West Virginia	51	3	3,428	3,518	47.1	.89	61.52	.38	26.06	5,351	3,123	2,267	1,323	472	35	136
Wyoming			4	4	(3/)		69.03		34.14		1,605		794		23	23
Total or average,																
bituminous	166	5	7,252	7,418	7.584	1.11	49.49	.48	21.37	6,645	2,640	2,869	1,140	627	37	184
Pennsylvania (anthracite)	8	1	311	312	3.20	2.25	87.75	2.46	95.79	13,500	1,721	14,738	1,879	75	19	169
Total or average,																
Underground (including shaft and slope)	374	5	7,563	7,730	7.904	1.13	50.36	.50	22.06	6,804	2,619	2,990	1,147	623	36	183

4. Coal-mine injuries and worktime, December and Annual Summary 1968

The safety record of the coal mining industry during 1968 worsened appreciably in fatality experience but improved slightly in nonfatal injury experience, according to the Bureau of Mines, United States Department of the Interior.

Work fatalities in 1968 totaled 311 and occurred at a frequency rate of 1.33 per million man-hours of worktime. The fatality total was 89 higher and the frequency rate was 45 percent higher than the corresponding figures of 222 fatal injuries with a frequency rate of 0.92 in 1967. The unfavorable comparison of fatality experience in 1968 resulted primarily from two major disasters which killed 87 men--9 in one and 78 in the second. There were no major disasters in coal mines during 1967.

The current number of fatal injuries for 1968 is two higher than first reported by the Bureau several months ago owing to the recent deaths of two employees from injuries received in work accidents during December 1968. Both "charge-back" fatalities were from accidents at bituminous-coal strip mines--one in Pennsylvania and one in Ohio.

For nonfatal work injuries, the 1968 estimated total of 9,495 was 620 less than in 1967 and was the lowest annual figure in complete records back to 1930 when nearly 100,000 nonfatal injuries occurred at work in coal mines. Similarly, the frequency rate of 40.62 nonfatal injuries per million man-hours was 3 percent lower than in 1967 and was the lowest annual rate of occurrence back to 1930 when the corresponding rate was 90.65.

Total worktime of 233.8 million man-hours in 1968 was 3 percent lower than in 1967. This lessened activity resulted principally from a work stoppage in the bituminous-coal industry and the continued decline in the anthracite industry. Output of coal totaled 556.6 million short tons compared with 560.8 million tons in 1967.

Prepared by Forrest T. Moyer, Chief, Branch of Accident Analysis, Bureau of Mines, May 14, 1969.

Final 1967 data and revised estimates for
December 1967-November 1968

The injury and worktime data for calendar year 1967 on all coal mines are final figures presented in this report for the first time.

With assessment of the final data for 1967, the preliminary monthly estimates of injuries and worktime have been revised for the December 1967-November 1968 period. The estimated area in the monthly figures primarily covers small mines and the revisions reflect the closing of a substantial number of small mines during 1967. Statistical procedures have been modified slightly and the injury rates have been calculated on the unrounded basic data.

Bituminous-Coal and Lignite Mines

The 307 fatalities reported for the bituminous-coal and lignite industry for 1968 resulted in a frequency rate of 1.37 per million man-hours worked, compared with 213 fatalities at a frequency rate of 0.93 in 1967. The rate of occurrence of fatal injuries in 1968 was higher than in any year since 1943 when the fatality frequency rate was 1.39. However, in 1943, the total number of fatalities was 1,225.

An estimated 8,955 nonfatal injuries occurred in 1968 at a frequency rate of 40.09 per million man-hours worked. This total was 551 less than in 1967 and was lower than in any year of complete records back to 1930. The frequency rate was 3 percent lower than in 1967 and was the second lowest rate in statistical history, bettered only by that of 39.15 in 1959.

Aggregate worktime during 1968 was 223.4 million man-hours or 3 percent lower than the 229.4 million man-hours worked in 1967. Coal production was 545 million tons compared with nearly 549 million tons in 1967.

Anthracite

The fatality experience at Pennsylvania anthracite mines in 1968 was better than in any other year of statistical history. The four work deaths reported for the year occurred at a frequency rate of 0.39 per million man-hours worked. Compared with 1967, deaths dropped 5 in number and 47 percent in frequency rate. A total of 540 nonfatal injuries estimated for 1968 was 11 percent lower than during 1967. However, the frequency rate of 52.06 was 6 percent higher than that of 49.27 for 1967 owing to a larger proportional decline in the number of man-hours worked.

Worktime and production continued to decline in 1968. The number of man-hours worked, 10.4 million, was 16 percent lower than in 1967 and production decreased 5 percent to 11.6 million tons in 1968.

Source and Definitions of Data

The data in this publication represent projected preliminary totals for the coal-mining industry except for fatalities in which only reported cases are compiled. The projections of nonfatal injuries, men working, and worktime data are based on trends shown by compilations of monthly reports submitted to the Bureau of Mines from operators producing approximately 80 percent of the Nation's anthracite, bituminous coal, and lignite. The injury and work experience cover all production, development, maintenance, supervision, and technical personnel. Data on officeworkers, coke workers, and employees in stores or affiliated industries are excluded.

Production data, furnished by the Divisions of Environmental Activities and Mineral Studies, Bureau of Mines, are estimates based on carloadings and river shipments with an allowance for truck shipments and coal used at mines. As the worktime and the production statistics in this publication are derived from different sources, the estimated totals should not be used for productivity calculations.

Preliminary data are revised from time to time as additional final statistics on the industry are compiled.

For the bituminous-coal industry, the States comprising each of the five groups listed in the tables are:

Alabama Group:	Ala., Ga., and Tenn.
Maryland Group:	Md., and Va.
Arkansas Group:	Ark., Kans., Mo., Okla., and Texas
Indiana Group:	Ind., and Iowa
Western Group:	Alaska, Ariz., Calif., Colo., Mont., N. Mex., N. Dak., Oreg., S. Dak., Utah, Wash., and Wyo.

TABLE 1. - Salient statistics: Injury experience and employment at bituminous-coal and anthracite mines in the United States during December and January-December 1968 and 1967 ^{1/}

	December		January-December	
	1968	1967	1968	1967
BITUMINOUS COAL				
Number of injuries:				
Fatal	20	15	307	213
Nonfatal	700	635	8,955	9,506
Total	720	650	9,262	9,719
Injury rates: ^{2/}				
Per million man-hours:				
Fatal	1.05	0.80	1.37	0.93
Nonfatal	36.69	33.83	40.09	41.44
Total	37.74	34.62	41.46	42.36
Per million tons:				
Fatal44	.35	.56	.39
Nonfatal	15.52	14.71	16.43	17.33
Total	15.96	15.06	16.99	17.72
Men working	129,100	131,100	129,900	131,562
Man-hours worked	19,020,000	18,830,000	223,370,000	229,415,141
Production, short tons ^{3/}	44,285,000	43,302,000	545,000,000	548,502,581
ANTHRACITE				
Number of injuries:				
Fatal	1	1	4	9
Nonfatal	35	30	540	609
Total	36	31	544	618
Injury rates: ^{2/}				
Per million man-hours:				
Fatal	1.30	1.11	.39	.73
Nonfatal	45.44	33.35	52.06	49.27
Total	46.74	34.46	52.44	50.00
Per million tons:				
Fatal	1.01	1.00	.34	.73
Nonfatal	35.43	30.12	46.43	49.67
Total	36.44	31.12	46.77	50.40
Men working	6,000	6,900	6,400	7,750
Man-hours worked	770,000	900,000	10,370,000	12,359,293
Production, short tons ^{3/}	285,000	990,000	11,631,000	12,261,791
ALL COAL				
Number of injuries:				
Fatal	21	16	311	222
Nonfatal	735	665	9,495	10,115
Total	756	681	9,806	10,337
Injury rates: ^{2/}				
Per million man-hours:				
Fatal	1.06	.81	1.33	.92
Nonfatal	37.03	33.80	40.62	41.84
Total	38.09	34.61	41.95	42.75
Per million tons:				
Fatal46	.36	.56	.40
Nonfatal	15.94	15.06	17.06	18.04
Total	16.40	15.42	17.62	18.43
Men working	135,000	139,000	136,300	136,312
Man-hours worked	19,790,000	19,730,000	233,750,000	241,774,434
Production, short tons ^{3/}	49,973,000	44,298,000	556,31,000	560,764,372

^{1/} All data for 1968 are preliminary and annual data for 1967 are final. Monthly data for December 1967 through November 1968 have been revised. Data may not add to totals shown because of independent rounding.

^{2/} All injury rates are calculated separately and total rates may differ slightly from the sums of the fatal and nonfatal rates.

^{3/} Production figures compiled from reports of the Divisions of Environmental Activities and Mineral Studies.

TABLE 2. - Fatal and nonfatal injuries and injury-frequency rates per million man-hours and per million tons at bituminous-coal and anthracite mines in the United States during December 1968, by State or State group ^{1/}

	Number of injuries		Injury rates			
	Fatal	Nonfatal	Per million man-hours		Per million short tons ^{2/}	
			Fatal	Nonfatal	Fatal	Nonfatal
Bituminous coal:						
Eastern States:						
West Virginia	7	280	1.10	43.55	0.59	23.42
Pennsylvania	3	70	.92	21.66	.48	11.27
Kentucky	4	125	1.36	41.91	.46	14.00
Ohio	3	35	2.21	27.21	.71	8.74
Alabama Group ^{3/}	2	20	1.98	19.81	1.02	10.18
Maryland Group ^{3/}	-	85	-	50.70	-	26.03
Total Eastern	19	615	1.14	36.88	.52	16.85
Central States:						
Illinois	-	55	-	44.20	-	12.94
Indiana Group ^{3/}	-	10	-	20.75	-	4.73
Arkansas Group ^{3/}	-	4/	-	15.82	-	10.98
Total Central	-	65	-	35.67	-	10.36
Western States ^{3/}	1	20	1.73	34.50	.43	8.57
Totals, December 1968:						
Bituminous coal	20	700	1.05	36.69	.44	15.52
Anthracite	1	35	1.30	45.44	1.01	35.43
All coal	21	735	1.06	37.03	.46	15.94
Totals, December 1967:						
Bituminous coal	15	635	.80	33.83	.35	14.71
Anthracite	1	30	1.11	33.35	1.00	30.12
All coal	16	665	.81	33.80	.36	15.06

^{1/} All data for December 1968 are preliminary. Data for December 1967 have been revised.

^{2/} Preliminary estimates of bituminous-coal production by States for December 1968 are not available. An estimated December production figure based on weekly and monthly data reported by the Divisions of Environmental Activities and Mineral Studies was used to calculate rates by States.

^{3/} See "Definitions of Data" in text for the list of States in each group.

^{4/} Fewer than 5 injuries.

TABLE 3. - Fatal and nonfatal injuries and injury-frequency rates per million man-hours and per million tons at bituminous-coal and anthracite mines in the United States during January-December 1968, by State or State group ^{1/}

	Number of injuries		Injury rates			
	Fatal	Nonfatal	Per million man-hours		Per million short tons ^{2/}	
			Fatal	Nonfatal	Fatal	Nonfatal
Bituminous coal:						
Eastern States:						
West Virginia	150	3,875	2.06	53.19	1.03	26.58
Pennsylvania	30	880	.75	22.12	.39	11.53
Kentucky	58	1,475	1.66	42.26	.60	15.15
Ohio	13	435	.87	29.09	.27	9.07
Alabama Group ^{3/}	15	205	1.29	17.62	.65	8.85
Maryland Group ^{3/}	12	865	.62	44.25	.30	21.46
Total Eastern	278	7,735	1.44	39.94	.64	17.95
Central States:						
Illinois	15	750	.93	46.24	.24	12.13
Indiana Group ^{3/}	4	165	.80	32.82	.21	8.46
Arkansas Group ^{3/}	-	45	-	21.09	-	9.62
Total Central	19	960	.81	41.05	.22	11.16
Western States ^{3/}	10	260	1.58	41.16	.44	11.40
Totals, Jan.-Dec. 1968:						
Bituminous coal	307	8,955	1.37	40.09	.56	16.43
Anthracite	4	540	.39	52.06	.34	46.43
All coal	311	9,495	1.33	40.62	.56	17.06
Totals, Jan.-Dec. 1967:						
Bituminous coal	213	9,506	.93	41.44	.39	17.33
Anthracite	9	609	.73	49.27	.73	49.67
All coal	222	10,115	.92	41.84	.40	18.04

^{1/} All data for 1968 are preliminary and annual data for 1967 are final. Data for January-November 1968 have been revised.

^{2/} Preliminary estimates of bituminous-coal production by States for 1968 are not available. An estimated production figure based on weekly and monthly data reported by the Divisions of Environmental Activities and Mineral Studies was used to calculate rates by States.

^{3/} See "Definitions of Data" in text for the list of States in each group.

TABLE 4. - Average number of men, days active, man-days, man-hours, and production at bituminous-coal and anthracite mines in the United States during December 1968, by State or State group ^{1/}

	Average number of men at work ^{2/}	Average number of days worked	Man-days worked	Man-hours worked	Production (short tons) ^{3/}
Bituminous coal:					
Eastern States:					
West Virginia	43,600	18.5	805,000	6,380,000	NA
Pennsylvania	20,500	19.9	408,000	3,280,000	NA
Kentucky	22,300	16.6	372,000	2,930,000	NA
Ohio	8,000	21.3	171,000	1,360,000	NA
Alabama Group ^{4/}	7,000	18.0	126,000	1,010,000	NA
Maryland Group ^{4/}	12,500	16.6	208,000	1,660,000	NA
Total Eastern	114,000	18.3	2,089,000	16,620,000	NA
Central States:					
Illinois	7,700	20.4	156,000	1,200,000	NA
Indiana Group ^{4/}	2,500	21.7	53,000	430,000	NA
Arkansas Group ^{4/}	1,200	20.1	25,000	190,000	NA
Total Central	11,400	20.6	234,000	1,820,000	NA
Western States ^{4/}					
	3,700	20.2	75,000	580,000	NA
Totals, December 1968:					
Bituminous coal	129,100	18.6	2,399,000	19,020,000	44,985,000
Anthracite	6,000	17.8	106,000	770,000	988,000
All coal	135,000	18.6	2,505,000	19,790,000	45,973,000
Totals, December 1967:					
Bituminous coal	131,100	18.1	2,374,000	18,830,000	43,302,000
Anthracite	6,900	18.2	125,000	900,000	996,000
All coal	138,000	18.1	2,500,000	19,730,000	44,298,000

^{1/} All data for December 1968 are preliminary. Data for December 1967 have been revised. Data may not add to totals shown because of independent rounding.

^{2/} The average number of men shown here is lower than the number available for work as measured by a count of names on the payroll because of absenteeism and labor turnover.

^{3/} Production figures compiled from reports of the Divisions of Environmental Activities and Mineral Studies.

^{4/} Preliminary estimates of bituminous-coal production by States for December are not available. See "Definitions of Data" in text for the list of States in each group.

TABLE 5. - Average number of men, days active, man-days, man-hours, and production at bituminous-coal and anthracite mines in the United States during January-December 1968, by State or State group ^{1/}

	Average number of men at work ^{2/}	Average number of days worked	Man-days worked	Man-hours worked	Production (short tons) ^{3/}
Bituminous coal:					
Eastern States:					
West Virginia	43,100	212.5	9,157,000	72,890,000	NA
Pennsylvania	21,500	229.1	4,933,000	39,740,000	NA
Kentucky	23,000	192.3	4,444,000	34,900,000	NA
Ohio	7,700	244.0	1,887,000	15,020,000	NA
Alabama Group ^{4/}	6,900	212.3	1,469,000	11,630,000	NA
Maryland Group ^{4/}	12,500	195.3	2,434,000	19,500,000	NA
Total Eastern	114,700	211.8	24,294,000	193,700,000	NA
Central States:					
Illinois	7,900	265.7	2,092,000	16,200,000	NA
Indiana Group ^{4/}	2,500	249.3	621,000	5,030,000	NA
Arkansas Group ^{4/}	1,200	231.4	278,000	2,130,000	NA
Total Central	11,600	258.6	2,991,000	23,360,000	NA
Western States ^{4/}					
Totals, Jan.-Dec. 1968:					
Bituminous coal	129,900	216.3	28,091,000	223,370,000	545,000,000
Anthracite	6,400	220.9	1,424,000	10,370,000	11,631,000
All coal	136,300	216.5	29,515,000	233,750,000	556,631,000
Totals, Jan.-Dec. 1967:					
Bituminous coal	131,562	219.7	28,909,971	229,415,141	548,502,581
Anthracite	7,750	219.4	1,700,700	12,359,293	12,261,791
All coal	139,312	219.7	30,610,671	241,774,434	560,764,372

^{1/} All data for 1968 are preliminary and annual data for 1967 are final. Data for January-November 1968 have been revised. Data may not add to totals shown because of independent rounding.

^{2/} The average number of men shown here is lower than the number available for work as measured by a count of names on the payroll because of absenteeism and labor turnover.

^{3/} Production figures compiled from reports of the Divisions of Environmental Activities and Mineral Studies.

^{4/} Preliminary estimates of bituminous-coal production by States for 1968 are not available.

^{5/} See "Definitions of Data" in text for the list of States in each group.

TABLE 6. - Fatal and nonfatal injuries and injury-frequency rates per million man-hours and per million tons at bituminous-coal and anthracite mines in the United States during January-December 1968, by months ^{1/}

	Number of injuries		Injury rates			
	Fatal	Nonfatal	Per million man-hours		Per million short tons	
			Fatal	Nonfatal	Fatal	Nonfatal
Bituminous coal:						
January	23	790	1.16	39.92	0.51	17.49
February	9	775	.48	41.44	.21	17.70
March	14	815	.70	41.03	.29	17.15
April	16	835	.81	42.31	.34	17.45
May	26	815	1.30	40.71	.53	16.73
June	19	650	1.17	40.14	.47	16.00
July	18	675	1.04	39.11	.43	15.96
August	30	875	1.46	42.55	.61	17.62
September	25	745	1.31	39.24	.53	15.79
October	16	590	1.07	39.62	.43	15.74
November	91	690	4.98	37.73	2.05	15.53
December	20	700	1.05	36.69	.44	15.52
Total, Jan.-Dec. 1968 .	307	8,955	1.37	40.09	.56	16.43
Total, Jan.-Dec. 1967 .	213	9,506	.93	41.44	.39	17.33
Anthracite:						
January	-	65	-	68.17	-	72.46
February	1	40	1.09	43.46	1.12	44.74
March	-	55	-	55.97	-	55.33
April	-	40	-	44.54	-	34.36
May	1	50	1.09	54.67	1.09	54.47
June	-	40	-	52.92	-	43.20
July	-	35	-	44.54	-	41.03
August	-	40	-	45.63	-	39.37
September	-	45	-	56.26	-	44.07
October	-	45	-	49.89	-	45.00
November	1	50	1.23	61.45	1.04	52.08
December	1	35	1.30	45.44	1.01	35.43
Total, Jan.-Dec. 1968 .	4	540	.39	52.06	.34	46.43
Total, Jan.-Dec. 1967 .	9	609	.73	49.27	.73	49.67
All coal:						
January	23	855	1.11	41.22	.50	18.56
February	10	815	.51	41.54	.22	18.25
March	14	870	.67	41.73	.29	17.94
April	16	875	.78	42.41	.33	17.85
May	27	865	1.29	41.31	.54	17.43
June	19	690	1.12	40.70	.46	16.60
July	18	710	1.00	39.35	.42	16.45
August	30	915	1.40	42.68	.59	18.06
September	25	790	1.26	39.93	.52	16.39
October	16	635	1.01	40.20	.42	16.50
November	92	740	4.82	38.74	2.03	16.30
December	21	735	1.06	37.03	.46	15.94
Total, Jan.-Dec. 1968 .	311	9,495	1.33	40.62	.56	17.06
Total, Jan.-Dec. 1967 .	222	10,115	.92	41.84	.40	18.04

^{1/} All data for 1968 are preliminary and annual data for 1967 are final. Monthly data for January-November 1968 have been revised.

TABLE 7. - Average number of men, days active, man-days, man-hours, and production at bituminous-coal and anthracite mines in the United States during January-December 1968, by months ^{1/}

	Average number of men at work ^{2/}	Average number of days worked	Man-days worked	Man-hours worked	Production (short tons) ^{3/}
Bituminous coal:					
January	130,100	19.2	2,494,000	19,790,000	45,180,000
February	130,600	18.1	2,359,000	18,720,000	43,830,000
March	130,500	19.2	2,505,000	19,860,000	47,510,000
April	130,400	19.0	2,478,000	19,690,000	47,730,000
May	129,500	19.5	2,522,000	20,070,000	48,830,000
June	130,400	15.6	2,040,000	16,220,000	40,690,000
July	130,400	16.6	2,170,000	17,260,000	42,300,000
August	129,600	19.9	2,579,000	20,520,000	49,540,000
September	129,800	18.4	2,392,000	19,040,000	47,300,000
October	128,100	14.5	1,857,000	14,920,000	37,540,000
November	130,400	17.6	2,297,000	18,260,000	44,380,000
December	129,100	18.6	2,399,000	19,020,000	44,985,000
Total, Jan.-Dec. 1968	129,900	216.3	28,091,000	223,370,000	545,000,000
Total, Jan.-Dec. 1967	131,562	219.7	28,909,971	229,415,141	548,502,581
Anthracite:					
January	6,800	19.3	130,000	950,000	897,000
February	6,700	18.8	126,000	920,000	894,000
March	7,000	19.0	134,000	980,000	994,000
April	6,800	18.0	123,000	900,000	1,164,000
May	6,500	19.2	125,000	910,000	918,000
June	6,600	15.6	103,000	760,000	926,000
July	6,300	17.3	109,000	790,000	853,000
August	6,300	19.5	122,000	880,000	1,016,000
September	6,200	17.8	111,000	800,000	1,021,000
October	6,200	20.1	124,000	900,000	1,000,000
November	6,000	18.5	111,000	810,000	960,000
December	6,000	17.8	106,000	770,000	988,000
Total, Jan.-Dec. 1968	6,400	220.9	1,424,000	10,370,000	11,631,000
Total, Jan.-Dec. 1967	7,750	219.4	1,700,700	12,359,293	12,261,791
All coal:					
January	136,900	19.2	2,624,000	20,740,000	46,077,000
February	137,300	18.1	2,485,000	19,640,000	44,724,000
March	137,500	19.2	2,639,000	20,850,000	48,504,000
April	137,200	19.0	2,601,000	20,590,000	48,894,000
May	136,000	19.5	2,646,000	20,990,000	49,748,000
June	137,000	15.6	2,143,000	16,980,000	41,616,000
July	136,600	16.7	2,278,000	18,050,000	43,153,000
August	135,900	19.9	2,701,000	21,390,000	50,556,000
September	136,000	18.4	2,503,000	19,840,000	48,321,000
October	134,300	14.8	1,981,000	15,820,000	38,540,000
November	136,400	17.7	2,408,000	19,080,000	45,340,000
December	135,000	18.6	2,505,000	19,790,000	45,973,000
Total, Jan.-Dec. 1968	136,300	216.5	29,515,000	233,750,000	556,631,000
Total, Jan.-Dec. 1967	139,312	219.7	30,610,671	241,774,434	560,764,372

^{1/} All data for 1968 are preliminary and annual data for 1967 are final. Monthly data for January-November 1968 have been revised. Data may not add to totals shown because of independent rounding.

^{2/} The average number of men shown here is lower than the number available for work as measured by a count of names on the payroll because of absenteeism and labor turnover.

^{3/} Production figures compiled from reports of Divisions of Environmental Activities and Mineral Studies. Estimate for the year 1968 for bituminous coal is not the total of monthly figures, but instead represents over-all year-end adjustments which are not distributed by months.

5.—INJURY RATES, 1964-67, BY MAJOR COAL-PRODUCING STATES, UNDERGROUND BITUMINOUS COAL MINES

State	Fatal injury rate	Nonfatal injury rate
Kentucky.....	1.39	49.33
Pennsylvania.....	.73	23.55
Virginia.....	1.52	50.77
West Virginia.....	1.14	60.92
U.S. total.....	1.12	47.16

DEATH RATES PER 100,000 MANSHIFTS WORKED UNDERGROUND AT HARD COAL MINES IN SELECTED COUNTRIES, 1946-65

Year	Belgium	France	Great Britain	Netherlands	United States		Western Germany
					Anthracite mines	Bituminous coal mines	
1946.....	0.52	0.45	0.37	0.53	1.09	1.14
1947.....	.39	.42	.44	.44	1.13	1.22	0.76
1948.....	.41	.48	.32	.23	.87	1.08	.77
1949.....	.41	.35	.30	.18	.84	.85	.63
1950.....	.55	.46	.34	.23	.75	.85	.70
1951.....	.45	.36	.34	.26	.96	1.11	.68
1952.....	.54	.42	.28	.17	1.03	.84	.67
1953.....	.66	.41	.25	.20	1.07	.85	.64
1954.....	.48	.40	.24	.20	1.30	.96	.61
1955.....	.32	.34	.27	.15	1.34	.91	.61
1956.....	1.41	.33	.22	.16	1.27	1.01	.51
1957.....	.36	.45	.28	.12	1.50	1.17	.49
1958.....	.34	.46	.23	.29	1.07	1.18	.53
1959.....	.33	.43	.28	.20	2.13	.94	.54
1960.....	.43	.28	.27	.09	1.87	1.15	.48
1961.....	.44	.32	.21	.20	1.08	1.26	.50
1962.....	.46	.29	.24	.13	1.51	1.21	1.06
1963.....	.52	.25	.24	.15	2.28	1.16	.51
1964.....	.38	.29	.20	.21	1.89	.98	.44
1965.....	.44	.36	.25	.19	.88	1.22	.45

7.—MULTIPLE ROOF-FALL ACCIDENT DATA (BITUMINOUS MINES)

Year	Number of fatal roof falls	Number of deaths	Number of deaths per accident	Number of multiple fatal roof-fall accidents	Number of deaths in multiple roof-fall accidents
1956.....	193	208	1.08	13	28
1957.....	180	197	1.09	13	30
1958.....	135	157	1.16	13	35
1959.....	127	135	1.06	7	15
1960.....	135	145	1.07	8	18
1961.....	119	135	1.13	11	27
1962.....	99	105	1.06	6	12
1963.....	117	123	1.05	6	12
1964.....	106	114	1.08	7	15
1965.....	118	126	1.07	7	15
1966.....	101	110	1.09	6	15
1967.....	84	94	1.12	8	18
1968.....	91	98	1.08	4	11
Total.....	1,605	1,747	1.09	109	251

1 Average.

8.—DISTRIBUTION BY STATE AND MINE CATEGORY OF FATALITIES CAUSED BY FALLS OF ROCK AND COAL—
ACTIVE UNDERGROUND BITUMINOUS-COAL MINES¹

	1967					1968				
	Small mines		Large mines			Small mines		Large mines		
	Number of mines	Number of fatalities	Number of mines	Number of fatalities	Total fatalities	Number of mines	Number of fatalities	Number of mines	Number of fatalities	Total fatalities
Alabama.....	93	0	23	3	3	73	1	16	2	3
Alaska.....	0	0	0	0	0	0	0	0	0	0
Arizona.....	1	0	0	0	0	1	0	0	0	0
Arkansas.....	3	0	2	0	0	0	0	2	0	0
Colorado.....	49	0	12	0	0	49	0	11	6	6
Georgia.....	0	0	0	0	0	0	0	0	0	0
Illinois.....	11	0	24	4	4	7	0	29	5	5
Indiana.....	7	2	5	0	2	5	0	4	0	0
Iowa.....	3	0	2	0	0	1	0	2	0	0
Kansas.....	0	0	0	0	0	0	0	0	0	0
Kentucky.....	1,410	9	179	16	25	800	12	173	12	24
Maryland.....	40	0	3	1	1	30	0	1	0	0
Missouri.....	2	0	0	0	0	2	0	0	0	0
Montana.....	12	0	0	0	0	9	0	0	0	0
New Mexico.....	8	0	1	0	0	8	0	1	0	0
North Dakota.....	2	0	0	0	0	1	0	0	0	0
Ohio.....	55	1	18	2	3	40	0	18	3	3
Oklahoma.....	1	0	0	0	0	1	0	1	0	0
Oregon.....	1	0	0	0	0	1	0	0	0	0
Pennsylvania.....	258	1	115	11	12	201	2	116	12	14
South Dakota.....	0	0	0	0	0	0	0	0	0	0
Tennessee.....	162	2	26	0	2	106	2	23	3	5
Utah.....	13	0	14	0	0	12	1	12	1	2
Virginia.....	912	9	68	5	14	538	4	70	2	6
Washington.....	3	0	1	0	0	3	0	1	0	0
West Virginia.....	1,161	5	403	23	28	766	7	380	23	30
Wyoming.....	4	0	1	0	0	4	0	1	0	0
Total.....	4,211	29	897	65	94	2,658	29	861	69	98

¹ Total underground bituminous coal mines 3,519.

9.—IGNITIONS, EXPLOSIONS, AND FIRES FROM TEMPORARY SPLICES IN TRAILING CABLES

Year	Number of ignitions	Injuries	
		Fatal	Nonfatal
Ignitions-explosions:			
1959.....	1	0	0
1963.....	2	0	0
1964.....	2	0	3
Total.....	5	0	3
Fires:			
1959.....	9	0	4
1960.....	7	1	0
1961.....	3	0	1
1962.....	5	0	0
1963.....	2	0	0
1964.....	5	0	0
1965.....	4	0	0
1966.....	5	0	0
1967.....	5	0	1
1968.....	5	0	0
Total.....	50	1	6

10. FATALITIES FROM ELECTROCUTIONS IN UNDERGROUND WORKINGS IN COAL MINES

Causes	1964	1965	1966	1967	1968
1. Contact with trolley wire.....	1	1	0	2	3
2. Contact with locomotive or shuttle car.....	1	1	0	0	2
3. Contact with switch or junction box.....	1	0	0	0	1
4. Contact with cable and mobile or portable equipment.....	1	0	0	4	3
5. Contact with power or lighting circuit (except trolley).....	0	1	0	1	2
6. Contact with mining machine, continuous miner, loading machine.....	0	0	0	0	3
7. Contact with transformer, generator, motor.....	0	0	0	1	0
8. Miscellaneous.....	1	1	2	2	3
Total.....	5	4	2	10	17

11. Misuse of Flame Safety Lamps*

Although numerous accidents and disasters have been caused by flame safety lamps, generally they can be traced to the fact that miners, firebosses, shot firers, safety engineers, or mine foremen have attempted to use lamps that were defective, dirty, or not properly assembled or have taken them apart and attempted to relight them in an explosive atmosphere. Safety lamps are safe only when properly cleaned, assembled, locked, and in the hands of competent persons who have good eyesight and realize the limitations of the lamp.

Several serious mine disasters have been caused by persons who opened their flame safety lamps and tried to relight them inside the mine. The man who opens a safety lamp inside a gassy mine deliberately endangers himself and his fellow workmen, and the man who strikes a match inside a mine to relight a lamp should be classed as a criminal. The stories of some of these disasters follow:^{82 83}

1. In 1917 an explosion in a Colorado coal mine caused the death of 121 men. The firebosses of this mine were accustomed to report the mine free of gas if not more than a $\frac{5}{8}$ -inch cap showed in their lamps. This criterion in itself was unsafe, because a cap of this height means that there is at least 3 percent—already a dangerous percentage—of gas present, and a slight change or derangement in ventilation could easily increase the proportion of gas to an explosive mixture. The safety inspector, a trusted man who also acted as safety instructor, carried a key-locked lamp. After the explosion this lamp was found taken apart near his body, and there were 22 matches in his clothing. Undoubtedly the flame on his lamp had been extinguished while he was testing for gas, and instead of leaving the mine entirely or proceeding to a lamp station he had retreated a short distance from the supposed location of the gas, taken the lamp apart, and tried to relight it with a match, thus igniting the gas and causing a terrific explosion which killed every man in the mine. There had been a methane explosion in this mine about 5 years before, and the cause of ignition was an incorrectly assembled flame safety lamp.

2. In 1919 an explosion in a West Virginia coal mine killed the mine foreman and six others. A fireboss had reported gas in one of the rooms, and the mine foreman went to that section of the mine to put up a brattice to remove the gas. After the explosion the foreman's lamp was found disassembled, and matches were discovered in his clothes. Evidently the flame of his lamp had been extinguished, and he was unable to relight it with the igniter, so he had opened the lamp and attempted to relight it with a match.

3. In 1925 an explosion in a coal mine in Wyoming killed a shot firer and 98 other men. After the explosion, a burned match was found near the shot firer's disassembled lamp, which apparently had been taken apart for relighting. The shot firer evidently had tested for gas, and the flame of his lamp was extinguished; thinking that he was on the fresh-air side of a brattice, he had taken his lamp apart and tried

*Bureau of Mines Cir. 33, 1954

⁸² Hsley, L. C., Misuse of Flame Safety Lamps and Dangers of Mixed Lights: Bureau of Mines Miners' Circ. 29, 1925, 12 pp.

⁸³ Tomlinson, W. H., Use and Misuse of Flame Safety Lamps: Bureau of Mines Inf. Circ. 7271, 1944, 14 pp.

to relight it. The flame of the burning match ignited gas which probably had accumulated when a rock fall tore down a line brattice.

4. In 1926 an explosion in an Illinois coal mine killed a bratticeman and four others. After the explosion the bratticeman's flame safety lamp was found on his coat, and about 2 feet from the lamp there was a burned match. The coroner reported that matches also were found in his clothing. The bratticeman had been sent by a faceboss to remove an accumulation of gas in the face of an entry. Undoubtedly an effort had been made to remove the gas by brushing it out with coats and jackets, as the coats of the bratticeman and one of the entrymen were found about 20 feet from the face of the entry. Evidently during brushing out or testing for gas the bratticeman's flame safety lamp became extinguished, and he took it apart and attempted to light it with a match, thereby igniting the gas. The explosion was propagated by coal dust, but because there was water near the face and along the entry and because the entry had been rock-dusted to within about 200 feet of the face it soon died out.

5. In 1943 an explosion in a Kentucky coal mine killed an assistant foreman and 11 other men. After the explosion the assistant foreman's disassembled lamp was found near a burned match and a match box containing several unburned wooden matches. The assistant foreman's lamp apparently had been extinguished when he was testing for gas; and, taking the workers with him, he had moved to a point about 50 feet out by the crosscut and tried to relight the lamp with the match.

6. In 1943 an explosion in a Tennessee coal mine killed a gasboss, the only person in the mine. After the explosion, parts of his disassembled, key-lock lamp were found on the bar of the cutting machine and on the floor near it. Apparently his lamp was extinguished while he was testing for gas, and he disassembled it to adjust the igniter. He then evidently tried to relight the lamp without first reassembling it.

7. In 1944 an explosion in an Alabama coal mine burned a mine foreman and three miners. After the explosion, investigation revealed that the mine foreman disassembled his safety lamp 8 feet from the face. A burned match was found 18 inches from the safety lamp. The locking device was missing from the lamp, and paper was found to have been used in place of asbestos gaskets. Evidently, after his flame safety lamp was extinguished, the mine foreman had removed the locking device, disassembled the lamp, and attempted to light it with a match, igniting the gas.

Numerous other disasters probably have been caused in the same way.

In addition, since 1952 there have been 17 ignitions caused by permissible flame safety lamps at gassy and non-gassy mines. These have resulted in the death of 5 miners and the injury of 24 which emphasizes the need to maintain these lamps properly each day as required under the definition of the term "permissible" in section 219(4) of S. 2917.

12. Totals - Number of non-methane ignitions and explosions at non-gassy mines - 18

No. of Large Non-gassy mines - 9

No. of Small Non-gassy mines - 9

No. of Large Non-gassy Drift mines - 6

No. of Small Non-gassy Drift mines - 5

No. Killed - 16

No. Injured - 17

Prepared by U. S. Bureau of Mines - September 8, 1969

Other Coal Mine Ignitions and Explosions in Nongassy Mines

<u>File No. & Date</u>	<u>Mine</u>	<u>No. of Employees</u>	<u>Company</u>	<u>State</u>	<u>Killed</u>	<u>Injured</u>	<u>Drift</u>	<u>Shaft</u>	<u>Slope</u>	<u>Cause</u>
No. 2/20/53	A Mine Coal Mine	1	Fry Form Co.	Pa.	0	1	1	0	0	Open flame lamp ignited gasoline.
No. 3612 2/25/53	Ellena Mine	16	Pleasant Valley Coal Company	Pa.	0	2	4	0	0	Arc from wheels of cutting machine ignited gasoline vapors.
No. 3563 3/30/53	O'Brien	15	O'Brien Coal Co.	Iowa	5	0	0	1	1	black powder
No. 12902 3/30/53	No. 4	7	Elkfoot Coal Co.	Ky.	0	0	several	0	0	explosives
No. 4761 2/14/56	Alexander No. 2	4	Wilson Coal Co.	Ohio	0	2	3	0	0	open carbide light ignited carbide gas and black powder
No. 1882 2/20/56	Pikeview	13	Pikeview Coal Co.	Colo.	0	0	0	2	1	Combustible gases of rekindled mine fire ignited.
No. 17358 10/23/56	DeKoven	66	DeKoven Coal Co.	Ky.	0	0	0	0	2	non-perm explosives
No. 20121 12/26/56	Trail Mountain No. 2	1	Ted O. Robertson operator	Utah	1 plus 2 victims boys	0	1	0	0	explosives ignited coal dust

Other Coal Mine Ignitions and Explosions in Nongassy Mines

<u>File No. and Date</u>	<u>Mine</u>	<u>No. of Employees</u>	<u>Company</u>	<u>State</u>	<u>Killed</u>	<u>Injured</u>	<u>Drift</u>	<u>Shaft</u>	<u>Slope</u>	<u>Cause</u>
No. 9713 10/2/58	No. 3	4	Lester Broom Coal Co.	Tenn.	0	1	3	0	0	Coal dust ignited by open flame lamp
No. 14411 3/2/59	No. 5	30	Pitfair Coal Co.	W. Va.	0	1	5	0	0	Perm explosives ignited coal dust
No. 25040 11/1/60	No. 3	7	Clells Mining Co.	Va.	0	1	several	0	0	Arc from storage battery cable ignited hydrogen gas.
No. 17695 12/22/60	Wharton No. 3 Day Mine	86	Eastern Gas & Fuel Assoc.	W. Va.	0	6	3	0	0	Arc ignited oil vapors
No. 5811 5/8/61	No. 5811 Day Mine	8	Day Coal Co.	Ind.	1	1	0	1	1	Match gasoline vapor from gas-line powered pump.
No. 32873 1/11/62	No. 6 Mine	4	Frank Kite Coal Co.	Va.	0	0	2	0	0	Blown-out
No. 1150 9/7/62	Wattis No. 2	45	Lion Coal Co.	Utah	0	0	4	2	0	Cutting machine bits
No. 1733 3/27/63	Geneva Mine	126	Columbia Geneva Steel Div. of U.S. Steel	Utah	0	0	11	0	0	Explosives ignited coal dust.

Other Coal Mine Ignitions and Explosions in Nongassy Mines

<u>File No. and Date</u>	<u>Mine</u>	<u>No. of Employees</u>	<u>Company</u>	<u>State</u>	<u>Killed</u>	<u>Injured</u>	<u>Drift</u>	<u>Shaft</u>	<u>Slope</u>	<u>Cause</u>
No. 36679 3/19/64	7 South Main Mine	191	U. S. Steel	Ky.	0	0	several	0	0	Continuous miner bits ignited coal dust
No. 42566 8/7/68	River Queen	124	Peabody Coal Co.	Ky.	9	2	3	0	0	Explosives on drill truck ignited by blasting coal face

**13. Record of underground coal mine fires in the United States since July 1952
investigated by the Bureau of Mines**

UNDERGROUND COAL MINE FIRES - 1952

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
5257 7/8/52	Pa.	gassy	conveyor belt	0	0
Cause: Excessive heating of a non operating roller of a belt conveyor ignited oil and fine coal spillage under the fouled roller.					
9722 8/1/52	Ky.	nongassy	power cables	0	0
Cause: A caterpillar-mounted supply truck ruptured the insulation of the positive and negative feeder cables lying in an exposed position on the mine floor. Fire resulted in burning of 450 feet of conveyor belt.					
434 8/5/52	Ky.	nongassy	cutting machine cable	0	0
Cause: Fire was kindled by heat and arcs of a poor connection where the return wire of a cutting-machine cable was fastened to the negative side of the feeder circuit.					
157-A 8/6/52	Pa.	gassy	shuttle car	0	0
Cause: A shuttle car ran onto the trailing cable of a loading machine causing a short-circuit at a temporary splice.					
123 9/3/52	Utah	gassy	spontaneous	0	0
Cause: Spontaneous ignition of coal in a caved pillar area.					
3673 9/7/52	W. Va.	gassy	conveyor belt	0	0
Cause: While extending belt, pan line touched a bare power wire igniting dust and set the rubber belt afire.					
4169 9/12/52	W. Va.	nongassy	oxygen-acetylene	1	6
Cause: Defective cable splice in the trailing cable of a loading machine burned a hole in an oxygen tank releasing oxygen into the arc with ignition of accumulation of oil and grease on the loading machine. This heat melted the Roses metal plug in the acetylene tank, releasing acetylene into the already flaming area.					
1303 10/23/52	Utah	gassy	spontaneous	0	0
Cause: Spontaneous heating of coal in a worked-out pillar section.					

UNDERGROUND COAL MINE FIRES - 1952 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
10235 10/25/52	Ky.	nongassy	conveyor belt	0	0
Cause: A failure in an emergency cord extending the length of the conveyor belt and used to start and stop the conveyor allowed the drive to start with no tension of the belt and heat from friction started the fire.					
62 10/28/52	Tenn.	nongassy	portal timbers	0	0
Cause: Portal timbers and coal were set afire by an adjacent forest fire.					
2422 11/9/52	W. Va.	gassy	conveyor belt	0	0
Cause: An overheated roller or rollers started a conveyor belt afire.					
7740 11/17/52	Tenn.	nongassy	conveyor belt	0	0
Cause: Several rollers, timbers, and 224 feet of 32-inch wide rubber belt destroyed by a fire of indeterminate origin. Mine was idle.					
775 11/24/52	W. Va.	gassy	coal outcrop	0	0
Cause: Dry leaves and brush near the fan duct caught fire and ignited outcropping coal near the fan installation.					
8994 12/13/52	Ky.	gassy	conveyor belt	4	0
Cause: Assume that the fire was started by friction created by a drive pulley running against the stalled belt conveyor.					

UNDERGROUND COAL MINE FIRES - 1953

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
3703 1/5/53	Ky.	nongassy	conveyor belt	0	0
Cause: Arc from short-circuited power cable ignited belt conveyor and coal.					
3063 1/11/53	W. Va.	nongassy	belt conveyor or power cable	0	0
Cause: Owing to heavy falls the exact cause could not be determined but presumably an overheated conveyor or elevator motor or an electric arc ignited combustibles.					
1789 1/14/53	Tenn.	gassy	timber	0	0
Cause: Fire started by one or more of the prisoners assigned to work in the mine.					
342 1/27/53	W. Va.	gassy	locomotive	0	0
Cause: Undetermined--presumably energized trolley wire touched locomotive frame and arc ignited combustibles in the area.					
414 2/5/53	Pa.	gassy	oil house	0	0
Cause: A fire of undetermined origin at an underground oil house was discovered by road cleaners. Damage confined to oil house contents.					
527 2/16/53	Pa.	gassy	abandoned area	0	0
Cause: Origin of fire unknown--area sealed.					
2735 2/10/53	Alaska	nongassy	abandoned area	0	0
Cause: Undetermined--either spontaneous combustion or from a previously sealed area.					
1565 3/16/53	Wash.	nongassy	abandoned area	0	0
Cause: Spontaneous combustion.					
2103 3/17/53	Tenn.	nongassy	black powder	0	0
Cause: An underburdened charge of black powder ignited coal.					

UNDERGROUND COAL MINE FIRES - 1953 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
402 4/2/53	Ind.	nongassy	power cables	0	0
Cause: Roof fall caused short circuit of insulated power wires and resulting arc ignited coal under the roof fall.					
366 4/3/53	Pa.	gassy	explosives	0	1
Cause: Improperly confined charge of explosives used to break fallen roof rock ignited coal and combustible materials.					
7902 4/7/53	Ky.	nongassy	power wire	0	0
Cause: Presumably roof fall short circuited power wires and resulting arc ignited coal under the fall.					
2336 4/15/53	Pa.	gassy	compressor	0	0
Cause: Overheated ground wire ignited oil around base of compressor.					
130 4/18/53	Pa.	gassy	timber	0	0
Cause: Electric light bulb ignited a wooden timber leg with which it was in contact.					
647 4/22/53	Ind.	gassy	loading machine	0	0
Cause: Arc from defective splice ignited insulation of trailing cable on the machine.					
1140 4/27/53	Va.	gassy	locomotive	0	0
Cause: Arc from short circuit in trailing cable on reel ignited cable, oil and grease on locomotive.					
1597 7/15/53	Va.	gassy	man station	0	0
Cause: Undetermined owing to heavy roof falls but presumably electrical origin.					
1107 7/21/53	Utah	gassy	air compressor	0	0
Cause: Arc from short circuit at splice in trailing cable ignited the cable and subsequently oil, grease, a wooden floor, and the coal ribs.					

UNDERGROUND COAL MINE FIRES - 1953 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
123 7/24/53	Utah	gassy	caved area	0	0
Cause: Presumably spontaneous combustion of top coal in an abandoned caved area.					
166 7/27/53	Pa.	gassy	sealed area	0	0
Cause: Carbon monoxide leaking from a partly sealed area resulted in flooding to extinguish smouldering fire.					
11719 7/29/53	Utah	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on machine ignited the cable insulation.					
641 8/18/53	Ill.	gassy	cutting machine	0	0
Cause: Overheated trailing cable on reel of machine ignited the cable insulation.					
1828 8/26/53	Pa.	nongassy	belt conveyor	0	0
Cause: Metal conveyor pans being transported on belt short circuited feeder wire to belt roller and the arc ignited the belt.					
747 8/27/53	Pa.	gassy	trolley locomotive	0	0
Cause: Cable from trolley to controller overheated and ignited the cable.					
918 8/31/53	Ill.	--	trolley wire	0	0
Cause: Trolley wire dislodged by end gate of mine car, fell on wooden car and arcing ignited the car.					
2595 9/12/53	Utah	nongassy	abandoned area	0	0
Cause: Presumably a fire of spontaneous origin occurred while mine was idle.					
2461 9/25/53	Ind.	gassy	tipple	0	0
Cause: Fire in tipple presumably started by a discarded burning cigarette spread to the mine.					

UNDERGROUND COAL MINE FIRES - 1953 (Continued)

BOM File No. <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
7378 10/20/53	Ky.	nongassy	power cable	0	0
			Cause: An overheated cable between feeder cable and "nipping" station ignited cable insulation.		
3327 10/20/53	Pa.	gassy	power cable	0	2
			Cause: Arc from short circuit in trailing cable from feeder to junction box ignited cable insulation.		
1320 11/27/53	W. Va.	nongassy	belt conveyor	0	0
			Cause: Possibly an arc from poorly insulated splices in a power cable on mine floor paralleling the belt ignited belt.		
1065 12/1/53	W. Va.	gassy	old opening	0	0
			Cause: Forest fire ignited coal at old opening and fire spread into mine.		
552 12/2/53	W. Va.	gassy	belt conveyor	0	0
			Cause: Arc from short circuit in a pump cable close to the belt ignited the belt and a wood frame airlock in belt entry.		
7091 12/4/53	Ky.	nongassy	shuttle car	0	0
			Cause: Arc from short circuit in trailing cable on car ignited oil, hydraulic hose and a tire on car.		

UNDERGROUND COAL MINE FIRES - 1954

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1927 1/9/54	Pa.	gassy	shuttle car	0	0
		Cause: Shuttle-car cable short circuit.			
527 1/11/54	Pa.	gassy	unknown	0	0
		Cause: Unknown--fire area was completely inundated.			
495 1/18/54	Ohio	gassy	electrical	0	0
		Cause: Definite cause not determined. Electrical fire in a pump room.			
8837 1/18/54	Ohio	nongassy	trolley wire	0	0
		Cause: The cause of the fire was not determined definitely. Mine idle two days before fire discovered. Mine was sealed. Believe fire probably started by energized trolley wire.			
1717 1/30/54	W. Va.	gassy	probable cable short-circuit	0	0
		Cause: Fire discovered on idle day. Exact cause not known. Presumed that a cable had short-circuited and ignited coal and other combustible material.			
404 2/5/54	Ohio	gassy	high voltage power line	0	0
		Cause: Short circuit in a high-voltage power line leading from the switchboard to a motor-generator set underground.			
1687 3/10/54	W. Va.	nongassy	conveyor belt	0	0
		Cause: The fire started from friction when a piece of belting, torn loose by a defective roller near a splice, stuck between the main drive rollers of a belt conveyor.			
1152 4/6/54	Ind.	gassy	lightning	0	1
		Cause: The fire, initiated by lightning which produced a surge on the system, was attributed to lack of adequate overcurrent protection in the underground 2,300-volt alternating-current circuits.			

UNDERGROUND COAL MINE FIRES - 1954 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
241 4/20/54	Ohio	gassy	fan house and shaft	0	0
Cause: Sparks from an acetylene torch ignited oil spillage in an abandoned fan house and fire spread to wood lining of shaft. Only one man in the mine which was being abandoned escaped through opening to adjacent active mine, and men in the active mine also escaped unharmed.					
12571 4/27/54	W. Va.	gassy	conveyor belt	0	1
Cause: A conveyor pan became fouled between a chain conveyor' discharge head and the frame of a belt conveyor and raised the head into a positive power conductor causing an electrical short-circuit.					
1800 5/5/54	Pa.	gassy	shuttle car	0	0
Cause: Short-circuit between a power cable and the left rear steering linkage. Fire confined to the shuttle car.					
169 5/6/54	W. Va.	gassy	trolley, wire	0	10
Cause: Top coal fell pulling down the energized trolley wire onto the mine track creating arc and fire. Necessary to seal fire area.					
8498 5/6/54	Ky.	nongassy	belt drive	0	0
Cause: The exact cause of the fire not determined; however it is known that the fire started at a belt drive, probably from friction or from an electrical source. Necessary to seal fire area.					
12400 5/9/54	Ky.	gassy	cutting machine	0	0
Cause: Fire started when a rubber-tire-mounted cutting machine ran over the trailing cable, causing a short-circuit.					
2318 5/13/54	Tenn.	nongassy	black powder	0	0
Cause: Black powder ignited a cut of coal at a room face.					

UNDERGROUND COAL MINE FIRES - 1954 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
284 5/19/54	Ind.	gassy	power wires	0	0
				Cause: Wrecked trip of mine cars buckled and contacted 2,300-volt power cable and trolley wire installed overhead.	
12400 5/30/54	Ky.	gassy	power line	0	0
				Cause: A fall of roof rock short-circuited a power line and resultant arc ignited fallen cross bars.	
552 6/1/54	W. Va.	gassy	trolley wire	0	0
				Cause: Roof fall dislodged the trolley wire which came in contact with the mine track and arcing resulted in the fire.	
13346 6/3/54	Ky.	nongassy	cutting machine	0	0
				Cause: Fire resulted from the overheating of a poorly-made splice in a trailing cable of a cutting machine. About 100 feet of insulation was burned.	
1303 6/4/54	Utah	gassy	spontaneous ignition	0	0
				Cause: Spontaneous heating in a caved area.	
20 6/21/54	Ind.	gassy	spontaneous	0	0
				Cause: Spontaneous combustion in a gob area.	
7834 6/22/54	W. Va.	nongassy	conveyor belt	0	0
				Cause: A piece of rock wedged in the tail piece and stopped the belt while the drive pulley continued to rotate until sufficient friction heat developed to ignite the belt.	
4276 6/30/54	Colo.	gassy	old fire in adjoining mine	0	0
				Cause: Old fire in abandoned adjoining mine penetrated small pillar at the face of an active room.	
767-A 7/2/54	W. Va.	nongassy	spontaneous	0	0
				Cause: Spontaneous heating of coal in caved abandoned area.	
6108 7/8/54	Pa.	nongassy	hoisting shaft	0	0
				Cause: Fire in wooden tippie over the coal-hoisting shaft set fire to coal at the bottom of the shaft. Origin not determined.	

UNDERGROUND COAL MINE FIRES - 1954 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1550 7/13/54	Pa.	gassy	electrical switch	0	0
Cause: Fire resulted from loose terminal connections and arcing at an electrical switch at the bottom of a borehole.					
11470 8/16/54	W. Va.	gassy	cutting machine	0	0
Cause: Short-circuit occurred at a temporary splice in the trailing cable on the reel of a cutting machine. Machine destroyed and area was sealed.					
3796-A 8/16/54	Wash.	gassy	spontaneous	0	0
Cause: Spontaneous ignition in a slope and adjoining abandoned area.					
3703 8/20/54	Ky.	nongassy	conveyor belt drive	0	0
Cause: Defective roller was pulled under the tail pulley and fouled the belt creating sufficient friction slippage at the belt drive to start the fire.					
6072 9/3/54	W. Va.	gassy	conveyor belt	0	0
Cause: A piece of hot metal, cut from a brace on the belt head by an acetylene torch, became wedged against the rubber ply and ignited a small portion of the conveyor belt.					
5041 9/17/54	Ill.	gassy	power cable	0	0
Cause: Insulated power cable in a borehole was short-circuited to the metal borehole casing at the bottom of the borehole and arcing ignited combustible material.					
2379 9/23/54	W. Va.	gassy	conveyor belt	0	0
Cause: Loose roof rock fell and struck the power wires leading to the belt motor-drive unit creating an arc which ignited the belt. About 50 feet of belt was burned.					
2539 9/25/54	Utah	nongassy	spontaneous combustion	0	0
Cause: Spontaneous fire in a coal pillar between the main intake and return airway.					

UNDERGROUND COAL MINE FIRES - 1954 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
931 9/27/54	W. Va.	gassy	belt conveyor	0	0
			Cause: Overheating of the tail pulley pedestal box ignited fine coal spilled from the return side of the belt. The belt was not damaged.		
598 10/7/54	Pa.	gassy	trolley wire	0	0
			Cause: Coal fell onto the energized trolley wire and ignited a dry timber set.		
2422 10/10/54	W. Va.	gassy	power cable	0	0
			Cause: A poorly insulated splice in a power cable lying on the floor overheated and ignited fine coal and timbers at the chain-conveyor discharge point.		
14650 10/18/54	Ohio	nongassy	loading machine	0	0
			Cause: Short circuit at a temporary splice in the trailing cable on the reel of a track-mounted loading machine. About 25 feet of cable was burned.		
10877 11/9/54	W. Va.	gassy	cutting machine	0	0
			Cause: Short circuit in a cable, or cables, leading from a junction box to the pump motor on a cutting machine ignited accumulated oil and grease-soaked coal dust on the machine.		
2985 11/17/54	Pa.	gassy	trolley wire	0	0
			Cause: A fall of roof dislodged the trolley wire, which fell on the unbanded side of the track creating arcing that ignited roof coal in the fallen material.		
11851 11/19/54	W. Va.	nongassy	conveyor belt	0	0
			Cause: Roof fall created a short circuit in an energized control cable. About 100 feet of belt destroyed.		
9458 12/6/54	Ala.	nongassy	power conductors	0	0
			Cause: Falling roof material crushed three power conductors together causing a short-circuit, heating, and burning.		

UNDERGROUND COAL MINE FIRES - 1954 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
133 12/9/54	W. Va.	gassy	trolley wire	0	0
Cause: A short circuit occurred when a steel crossbar was dis- lodged and came in contact with the trolley wire and a steel mine car being rerailed.					

2735 12/10/54	Alaska	nongassy	spontaneous	0	0
Cause: Spontaneous ignition in gob area. Sealed the fire area.					

94 12/21/54	W. Va.	gassy	loading machine	0	0
Cause: The boom of a loading machine contacted an energized trolley wire and sparks ignited waste material in a mine car under the boom.					

6707 12/29/54	Utah	gassy	conveyor belt	0	0
Cause: A stuck roller became overheated and set fire to the conveyor belt after the belt was stopped at the end of the day.					

738 12/29/54	Pa.	gassy	fire in adjoining bed	0	0
Cause: Fire in this mine resulted from old fire in coal bed above ignited in May 1949.					

UNDERGROUND COAL MINE FIRES - 1955

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
347 1/4/55	Ill.	gassy	spontaneous combustion	0	0
Cause: The fire of spontaneous origin caused the mine to be sealed and abandoned.					
708 1/5/55	W. Va.	nongassy	shuttle car	0	0
Cause: Arc from short circuit at splice in trailing cable.					
742 1/7/55	Ill.	nongassy	power cables	0	0
Cause: Arc from short circuit in power cables to fan ignited insulation and other combustibles near the cable.					
4794 1/8/55	Wash.	--	spontaneous combustion	0	0
Cause: Fire presumably of spontaneous origin.					
225 1/13/55	Utah	nongassy	spontaneous combustion	0	0
Cause: Fire of spontaneous origin in a worked out area--flooded.					
662 1/19/55	Pa.	gassy	belt conveyor	0	0
Cause: Heat created by friction of the rotating pulleys against stopped belt ignited the belt.					
3642 2/14/55	Ky.	gassy	light socket	0	0
Cause: Arc from short circuit in an electric light socket installed in wooden supply car ignited the wooden car.					
2408 3/8/55	W. Va.	gassy	belt conveyor	0	0
Cause: Undetermined but assumed to be either heat from electric light bulbs in contact with wood or friction heated coal that ignited belt					
3639 3/29/55	Ky.	gassy	loading machine	0	0
Cause: Arc from splice in trailing cable of machine ignited combustibles on machine.					
143 4/16/55	Ind.	gassy	rotary-converter station	0	0
Cause: Arc from short circuit in the converter ignited oil vapors and insulation.					

UNDERGROUND COAL MINE FIRES - 1955 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2221 5/1/55	Pa.	gassy	undetermined	0	0
Cause: Combustible materials were discarded in an old shaft with a wooden cover below the surface and ignitions occurred from an unknown source.					
287 5/9/55	Pa.	gassy	undetermined	0	7
Cause: Rubbish dumped in an abandoned partly filled shaft of adjoining mine and was ignited by an unknown source. Fumes from fire entered active mine.					
-- 5/12/55	Pa.	nongassy	gob fire	0	0
Cause: Fire of unknown origin discovered while attempting to reclaim a previously mined area.					
12008 5/23/55	Ky.	gassy	power wires	0	0
Cause: Fall of roof short-circuited feeder wires and resulting arc ignited loose coal.					
10 5/24/55	Ohio	nongassy	loading machine	0	0
Cause: Arc from short circuit in resistor grids ignited oil and coal on machine.					
1049-A 5/31/55	Ky.	nongassy	belt conveyor	0	0
Cause: Heat caused by rotation of driving pulleys while belt was fouled ignited the belt.					
965 6/1/55	Pa.	gassy	trolley wire	0	0
Cause: Fall of roof dislodged trolley wire and roof support beam causing short circuit and resulting arc ignited roof coal and wooden lagging.					
296 6/3/55	W. Va.	gassy	belt conveyor	0	0
Cause: Heat from friction or an arc from an electrical short circuit ignited the belt.					
1740 6/6/55	Pa.	gassy	outcrop fire	0	0
Cause: Fire gases entered the airstream of an active mine through connections with an abandoned mine which caused sealing or isolating of the abandoned mine.					

UNDERGROUND COAL MINE FIRES - 1955 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
620 6/20/55	Utah	gassy	shuttle car	0	0
				Cause: Arc from short circuit in trailing cable of machine ignited oil on mine floor.	
11951 7/4/55	Ky.	nongassy	power cable	0	0
				Cause: Fall of roof on a power cable caused short circuit and resulting arc ignited coal rib.	
2532 7/5/55	W. Va.	gassy	belt conveyor	0	0
				Cause: Heat generated by head pulley rotating with belt stopped ignited the belt.	
10988 7/9/55	Iowa	nongassy	spontaneous combustion	0	0
				Cause: Smoke issuing from an abandoned area warned that a spontaneous fire had occurred.	
1752 7/11/55	Va.	gassy	shuttle car	0	3
				Cause: Arc from short circuit at faulty splice on reel in trailing cable of car ignited the cable insulation.	
2961 7/19/55	W. Va.	gassy	cutting machine	0	0
				Cause: Arc from short circuit in trailing cable ignited grease and coal dust on machine.	
11164 8/3/55	Ill.	gassy	gob fire	0	0
				Cause: A fire of spontaneous origin indicated by smoke issuing from abandoned area.	
615 8/4/55	Pa.	gassy	locomotive	0	2
				Cause: Owing to damage exact cause indeterminate but believed to be result of short circuit in electric wiring of locomotive.	
643 8/17/55	Ohio	gassy	oxy-acetylene torch	0	0
				Cause: Acetylene leaking from defective hose was ignited by the torch.	

UNDERGROUND COAL MINE FIRES - 1955 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2 8/29/55	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on reel of machine ignited insulation, oil and grease. -----					
922 8/31/55	Pa.	gassy	shuttle car	0	0
Cause: Arc from short circuit of fouled cable of loading machine ignited combustibles on a nearby shuttle car. -----					
1315 9/5/55	Utah	gassy	air compressor	0	0
Cause: Broken fan severed the oil cleaner and oil was ignited by the heated machine. -----					
12264 9/19/55	W. Va.	gassy	roof bolting machine	0	0
Cause: Overheated cables on machine ignited the cable insulation, oil, and grease on machine. -----					
4243 9/26/55	Ky.	nongassy	cloth check curtain	0	0
Cause: Curtain ignited either by spark from trolley of locomotive or operator's open flame lamp. -----					
157 9/29/55	Pa.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on machine ignited grease and coal dust on machine. -----					
1800 10/6/55	Pa.	gassy	belt conveyor	0	0
Cause: Heat caused by head pulley rotating against stalled belt ignited the belt. -----					
8239 10/11/55	Ill.	gassy	shuttle car	0	0
Cause: Arc from short circuit when shuttle car ran over continuous miner cable ignited car and eventually coal surfaces requiring sealing of area. -----					
1690 10/11/55	Pa.	gassy	cutting machine	0	0
Cause: Arc from short circuit in leads to cutting motor ignited insulation on wires. -----					

UNDERGROUND COAL MINE FIRES - 1955 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
11148 10/27/55	W. Va.	nongassy	shuttle car	0	0
			Cause: Arc from short circuit caused by car being run over its own cable ignited a tire then oil, grease and coal dust on car.		
287 10/31/55	Pa.	gassy	underground shop	0	0
			Cause: A spark from welding operation ignited oil and grease in the repair pit.		
573 11/1/55	Pa.	gassy	shuttle car	0	1
			Cause: Shuttle car damaged a section of feeder cable to distribution box for continuous miner and arc from short circuit ignited cable and hydraulic hose on car.		
6152 11/4/55	Okla.	gassy	black blasting powder	0	0
			Cause: Underburden shots of black blasting powder ignited coal and caused mine to be sealed.		
18054 11/5/55	Okla.	--	black blasting powder	0	0
			Cause: Coal ignited by shots of black powder.		
14936 11/12/55	Ohio	gassy	continuous miner	0	1
			Cause: Arc from short circuit in trailing cable of miner ignited cable insulation.		
-- 11/16/55	Tenn.	nongassy	undetermined	0	0
			Cause: Fire under fall of roof and origin could have been faulty blasting, open lights or smoking.		
2350 11/17/55	Okla.	gassy	belt conveyor or electric cable	0	0
			Cause: Fire well established when discovered and heavy roof falls made cause difficult to determine possibly belt friction or electric arc.		
1676 12/5/55	Utah	gassy	abandoned area	0	0
			Cause: Spontaneous ignition of coal in an abandoned area which required sealing to extinguish.		

UNDERGROUND COAL MINE FIRES - 1955 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
14650 12/6/55	Ohio	nongassy	loading machine	0	0

Cause: Arc from short circuit at spot where insulation was defective on trailing cable ignited cable.

UNDERGROUND COAL MINE FIRES - 1956

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
450 1/3/56	Pa.	gassy	cutting machine	0	0
Cause: Short circuit in trailing cable of the cutting machine when the left rear tire ran over the cable. -----					
4955 1/12/56	W. Va.	gassy	belt conveyer	0	0
Cause: Fire resulted from friction of drive pulley rotating against the conveyer belt which was stationary. -----					
12050 1/23/56	Ill.	gassy	conveyor belt	0	0
Cause: Short circuit in 250-volt power wires used for lighting purposes or by a piece of molten metal from cutting torch ignited the belt. -----					
225 2/7/56	Utah	nongassy	spontaneous	0	0
Cause: Spontaneous combustion of coal. -----					
5027 2/9/56	Ill.	gassy	conveyor belt	0	0
Cause: Friction of drive unit against stalled belt. -----					
235 2/10/56	Ala.	gassy	shuttle car	0	0
Cause: Raised the discharge boom of the shuttle car into contact with improperly insulated and unguarded 250-volt direct current power cable. -----					
1604 2/11/56	Pa.	gassy	conveyor belt	0	0
Cause: About 56 feet of belt conveyer destroyed. Probably started by overheated roller, but actual cause not determined. -----					
5027 2/13/56	Ill.	gassy	cutting machine	0	0
Cause: Short circuit in power wires leading to cutting chain drive motor of cutting machine resulted in damage to electrical wiring, hydraulic system and left rear tire. -----					

UNDERGROUND COAL MINE FIRES - 1956 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
57 2/22/56	Pa.	gassy	trolley wire	0	0
			Cause: Fall of roof on trolley wire. -----		
1604 2/28/56	Pa.	gassy	cutting machine	0	0
			Cause: Short circuit in cutting motor cable of a cutting machine burned hydraulic hoses and ignited hydraulic oil escaping from the hoses. -----		
11182 4/5/56	Colo.	gassy	shuttle car	0	0
			Cause: Defective trailing cable splice and defective circuit breaker resulted in shuttle car fire. -----		
4197 4/5/56	Ala.	gassy	cutting machine	1	1
			Cause: Fire resulted from a short-circuit in the trailing cable on the reel of a cutting machine. -----		
133 4/19/56	W. Va.	gassy	cutting machine	0	0
			Cause: Cutting machine fire resulted from resistance becoming overheated as a result of repeated efforts to free the cutter chain apparently lodged in the kerf. -----		
1240 5/1/56	Va.	nongassy	shortwall cutting machine	0	0
			Cause: Short circuit in the hand cable of a shortwall mining machine ignited insulation and combustible material in the motor casing. -----		
17146 5/19/56	Ky.	nongassy	shortwall cutting machine	1	0
			Cause: Short circuit of a temporary splice in a trailing cable on a shortwall mining machine ignited a brattice cloth stopping. -----		
11182 5/22/56	Colo.	gassy	acetylene torch	0	0
			Cause: An acetylene torch was used to burn an opening in a steel tunnel lining ignited combustible tunnel lining. -----		
2532 5/22/56	W. Va.	gassy	shuttle car	0	0
			Cause: Short circuit in a shuttle car trailing-cable splice resulted in loss of 100 feet of cable, two rubber tires and damage to one side of the machine. -----		

UNDERGROUND COAL MINE FIRES - 1956 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
8239 5/24/56	Ill.	gassy	spontaneous	0	0
Cause: Spontaneous ignition of coal under fallen roof material. -----					
7925 6/23/56	Ohio	gassy	shuttle car and feeder cable	0	0
Cause: A dislodged steel crossbar caused a short-circuit between a bare feeder cable and the shuttle car. Fire confined to shuttle car cable, reel, and equipment. -----					
11719 6/27/56	Utah	gassy	spontaneous	0	0
Cause: Spontaneous ignition in a gob area. -----					
437 7/10/56	W. Va.	--	cutting machine trailing cable	0	0
Cause: Short circuit in non-fire-resistant cutting machine trailing cable was coiled in a pile and ignited the cable. -----					
282 7/12/56	Pa.	nongassy	conveyor belt	0	0
Cause: Roof fall dislodged a positive power cable and cable came in contact with the belt conveyor frame. Resultant arcing ignited the conveyor belt. -----					
1663 8/6/56	Va.	gassy	power wire	0	0
Cause: Roof fall on power wire ignited timbers. -----					
1049-A 8/15/56	Ky.	nongassy	shuttle car	0	0
Cause: Short-circuit in a splice of the shuttle car trailing cable that had not been removed from source of power at the end of the shift.. Property damage confined to the shuttle car and cable. -----					
130 8/22/56	Pa.	gassy	cutting machine	0	0
Cause: Flash of fire, probably a short-circuit, at the cable- reel junction block of a cutting machine ignited oil accumulations and combustible material on the machine. -----					
12400 9/16/56	Ky.	gassy	power wires	0	0
Cause: Roof fall on power wires caused short circuit and small fire. -----					

UNDERGROUND COAL MINE FIRES - 1956 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
604 9/19/56	Pa.	gassy	loading machine	0	3
Cause: A short circuit at a temporary splice in a loading machine trailing cable ignited insulation of the cable. -----					
152 10/11/56	Ind.	gassy	spontaneous	0	0
Cause: Spontaneous ignition of coal under fallen roof material. -----					
20600 10/12/56	W. Va.	nongassy	cutting machine	0	0
Cause: About 2 feet of the cutting machine trailing cable burned when short-circuit occurred at a water soaked splice. -----					
14936 10/15/56	Ohio	gassy	belt conveyor	0	0
Cause: The fire was initiated by friction heat created by rotation of the drive pulley after the conveyor belt was stopped by a large piece of rock wedged between the belt and the roof. -----					
296 10/20/56	W. Va.	gassy	trolley wire	0	0
Cause: A roof-fall dislodged the energized trolley wire and arcing when it contacted a track bond ignited the fallen roof coal. -----					
78 10/29/56	W. Va.	gassy	unknown	0	0
Cause: Unknown, Carbon monoxide was detected coming from inaccessible gob area. -----					
5257 10/30/56	Pa.	gassy	shuttle car	0	1
Cause: A shuttle-car fire was initiated by a short circuit on the cable reel and in the circuit interrupter. Fire confined to the shuttle car and two crossbars. -----					
14936 10/31/56	Ohio	gassy	conveyor-drive motor	0	0
Cause: Short-circuit occurred at the open-type motor connection bar for the conveyor-drive motor of a belt conveyor. Damage confined to the motor unit. -----					
440 11/3/56	W. Va.	gassy	conveyor belt	0	0
Cause: Initiated by heat from friction caused by an overheated or "frozen" belt roller. Confined to loss of 500 feet of belt and its accessories. -----					

UNDERGROUND COAL MINE FIRES - 1956 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
10082 11/7/56	Ill.	gassy	power conductors	0	0
Cause: A roof fall dislodged two insulated direct-current power conductors and set up a high-resistance fault, which started a fire in the fallen roof material and the conductor insulation.					
249 11/8/56	Pa.	gassy	cutting machine	0	0
Cause: Arc produced by a cutting machine running over a trailing cable ignited small portion of cable insulation, hydraulic oil spilled on the machine, and some of the rubber covering of the hydraulic hoses. (Hoses did not rupture).					
136 11/9/56	Pa.	gassy	acetylene torch	0	0
Cause: Hot metal from a cutting torch fell down the shaft and ignited oil on cross members and shaft guides.					
1791 11/9/56	W. Va.	gassy	cutting machine	0	0
Cause: Short circuit in a cable or cables leading from the control panel to the cutting motor ignited oil-soaked coal dust and about 50 gallons of flammable hydraulic oil.					
6272 11/20/56	Wash.	nongassy	spontaneous	0	0
Cause: Spontaneous fire in old caved workings.					
12968 11/27/56	Mo.	nongassy	fan house and portal	0	0
Cause: A fire which was started possibly by friction from the drive belt slipping, an electrical arc, or a cigarette destroyed the mine fan enclosure and spread to timbers and lagging in the drift mouth.					
13459 12/18/56	Ohio	nongassy	spontaneous	0	0
Cause: Spontaneous origin--after water was drained from an abandoned gob area.					
3504 12/20/56	Ill.	gassy	cutting machine	0	0
Cause: An arc between the power wires leading to the bit motor near the controls of a cutting machine ignited hydraulic hoses and accumulations of oil and dust on the machine. Loss confined to hose insulation, tires on the machine, and electrical damage.					

UNDERGROUND COAL MINE FIRES - 1957

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17350 1/11/57	Ohio	nongassy	continuous miner	0	0
Cause: Shuttle car squeezed continuous miner cable between car and machine causing short circuit and resulting arc ignited combustibles on the miner.					
145 1/14/57	Tenn.	gassy	power wires	0	0
Cause: A runaway trip dislodged power wires and steel supporting beams and resulting arc ignited coal and wooden lagging.					
11538 1/14/57	W. Va.	gassy	loading machine	0	0
Cause: Shuttle car ran over and caused short circuit of loading machine cable with result that arc ignited combustibles and area was sealed.					
562 1/17/57	Ky.	gassy	cutting machine	0	0
Cause: Arc from short circuit in distribution box on machine ignited hose and oil.					
2221-A 1/30/57	Pa.	gassy	power wires	0	0
Cause: Roof fall caused short circuit of power wires and resulting arc ignited timbers in area.					
1542 1/30/57	W. Va.	gassy	shuttle car carrier	0	0
Cause: A derailed shuttle-car carrier dislodged timbers which caused short circuit of power wires and resulting arc ignited wooden lagging.					
924 2/4/57	Pa.	gassy	continuous miner	0	0
Cause: Shuttle car squeezed miner cable causing short circuit and resulting arc ignited insulations then hydraulic hoses and the flammable fluid intensified fire.					
1272 2/7/57	Colo.	gassy	belt conveyor	0	0
Cause: Heat caused by friction between belt and heaved floor or a defective roller ignited the belt.					

UNDERGROUND COAL MINE FIRES - 1957 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
20923 2/14/57	W. Va.	nongassy	locomotive	1	0
Cause: Arc from short circuit in trailing cable of locomotive ignited cable insulation. -----					
92 2/21/57	Pa.	gassy	explosives	0	0
Cause: Unconfined shots ignited timbers and loose coal. -----					
4893 2/26/57	Ohio	nongassy	spontaneous combustion	0	0
Cause: Fire of spontaneous origin occurred abandoned area of the mine. -----					
12571 3/1/57	W. Va.	gassy	belt conveyor	0	0
Cause: Heat from friction of belt moving over fouled roller ignited belt. -----					
6072 3/5/57	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in leads to bit motor of machine ignited oil leaking from hydraulic system. -----					
931 3/11/57	W. Va.	gassy	power line	0	0
Cause: A roof fall forced 250-volt power wire to contact a pipe line and the resulting arc ignited coal under the fall. -----					
1556 3/19/57	Ky.	nongassy	feeder cable	0	0
Cause: Roof fall dislodged feeder cable and arc resulting from short circuit in cable ignited coal. -----					
44 3/21/57	W. Va.	nongassy	trolley wire	0	0
Cause: Roof fall dislodged trolley wire causing short circuit between wire and mine floor and resultant arcing ignited coal. -----					
551 3/22/57	Pa.	gassy	electric motor	0	0
Cause: A short circuit in winding of a motor at coal dump caused arc which ignited hydraulic oil on wooden flooring. -----					

UNDERGROUND COAL MINE FIRES - 1957 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
432 3/28/57	W. Va.	gassy	storage battery locomotive	0	0
Cause: A short circuit in the batteries of locomotive caused heating which ignited combustibles on locomotive.					
2641 3/28/57	Utah	nongassy	spontaneous combustion	0	0
Cause: Carbon monoxide and smoke emanating from an inaccessible gob area indicated fire and area was sealed.					
15231 3/28/57	Pa.	gassy	gob fire	0	0
Cause: Smoke from gob fire on undetermined origin in an adjacent abandoned mine entered this active mine.					
1437 4/8/57	Pa.	gassy	power cable	0	0
Cause: Fall of roof caused short circuit in power cable and resulting arc ignited insulation on cable.					
404 4/9/57	Ohio	gassy	loading machine	0	0
Cause: Arc created when machine was run over its own cable ignited combustibles on the machine.					
506 4/10/57	Pa.	gassy	electric coal drill	0	0
Cause: Arc from short circuit in trailing cable of drill ignited combustibles on drill.					
1084 4/12/57	W. Va.	gassy	roof-bolting machine	0	0
Cause: Arc from short circuit in trailing cable of machine ignited oil in the hydraulic system.					
450 4/15/57	Pa.	gassy	roof-bolting machine	0	0
Cause: Arc from short circuit in trailing cable of the machine caused by machine being run over its own cable ignited drive belts and dust hose on machine.					
124 4/18/57	Ala.	gassy	refuse	0	0
Cause: A small fire in an aircourse possibly caused by either spontaneous combustion or smoking.					

UNDERGROUND COAL MINE FIRES - 1957 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2101 4/22/57	Pa.	gassy	undetermined	0	0
		Cause: Area flooded to control fire. -----			
858 4/28/57	Colo.	gassy	sealed fire area	0	0
		Cause: A deteriorated fire seal permitted fire gases to escape into active mine workings. Area was resealed. -----			
2918 5/3/57	W. Va.	gassy	cutting machine	0	0
		Cause: Overheating at a wet defective splice in trailing cable ignited insulation. -----			
2022 5/5/57	Pa.	gassy	power wires	0	0
		Cause: Heating caused by short circuited power cable ignited combustibles touching the cables. -----			
14605 5/13/57	W. Va.	gassy	continuous miner	0	1
		Cause: Presumably either hydraulic oil fumes or methane ignited by an electric arc of unknown origin. -----			
14936 6/11/57	Ohio	gassy	storage-battery jitney	0	0
		Cause: Electrolyte leaking from cells caused short circuit in batteries and arc ignited combustibles. -----			
1315 6/24/57	Utah	gassy	spontaneous combustion	0	0
		Cause: A fire of spontaneous origin in an abandoned pillar area was sealed. -----			
136 6/24/57	Pa.	gassy	cutting machine	1	0
		Cause: Arc resulting from short circuit because of deteriorated insulation on trailing cable of machine ignited the insulation. -----			
672 6/26/57	W. Va.	gassy	cutting machine	0	0
		Cause: Arc from short circuit in splice of trailing cable on reel of machine ignited oil and coal dust on machine. -----			

UNDERGROUND COAL MINE FIRES - 1957 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
15421 7/8/57	W. Va.	nongassy	trolley wire	0	0
Cause: High resistance short circuit caused by roof fall forcing trolley wire in contact with return ignited coal 800 feet from the short circuit.					
1152 7/15/57	Ind.	gassy	spontaneous ignition	0	0
Cause: Smouldering fire of spontaneous origin found in abandoned area.					
4061 7/15/57	Ind.	gassy	cutting machine	0	0
Cause: Arc from short circuit in lead cable to cutting motor ignited wiring, hydraulic hoses and a tire on machine.					
1069 7/15/57	W. Va.	gassy	belt conveyor	0	1
Cause: Heat as a result of friction between belt and drive pulley ignited the belt.					
942 7/15/57	Pa.	gassy	power cable	0	0
Cause: A lead sheathed power cable above the roof of pump room short circuited and ignited a thin coal bed and wooden lagging.					
3701 7/15/57	Ky.	nongassy	trolley wire	0	0
Cause: A trip of supply cars being pushed wrecked and caused a short circuit of trolley wire and resulting arc ignited a wooden explosive car.					
12050 7/25/57	Ill.	gassy	belt conveyor	0	0
Cause: Arc from short circuit in drive motor ignited the belt.					
1301 8/3/57	W. Va.	gassy	power wire	0	0
Cause: Arc from short circuit in power cable ignited refuse through which the cable extended.					
18233 8/12/57	Pa.	nongassy	unknown	0	0
Cause: A fire of unknown origin destroyed timbers in a shaft and fired coal at bottom of shaft.					

UNDERGROUND COAL MINE FIRES - 1957 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1361 8/12/57	Pa.	gassy	unknown	0	0
Cause: It is assumed that an unconfined charge of explosives ignited the coal bed.					
44 8/18/57	W. Va.	nongassy	power wire	0	0
Cause: A roof fall forced energized feeder cable against wet mine floor and heat generated by arcing ignited coal.					
22974 8/29/57	Ky.	--	explosives	0	0
Cause: Fire caused by an overburdened blown-out shot.					
296 9/12/57	W. Va.	gassy	continuous miner	0	0
Cause: Roof fall ruptured trailing cable of miner and resulting arc from short circuit ignited oil, grease and coal dust on miner.					
195 9/19/57	Ill.	gassy	power cable	0	0
Cause: Fall of roof short-circuited a power cable and resulting arc ignited cable insulation.					
858 9/29/57	Colo.	gassy	spontaneous combustion	0	0
Cause: A fire of spontaneous origin or smoldering coal from a previous fire found near a fire seal.					
3074 10/5/57	Ky.	gassy	electric light wire	0	3
Cause: Fall of roof caused short circuit in lighting wires and resulting arc ignited combustibles.					
4003 10/7/57	Ky.	nongassy	belt conveyor	0	0
Cause: Conveyor chain lodged between feeder cable and belt frame caused short circuit and resulting arc ignited the belt.					
11538 10/10/57	W. Va.	gassy	belt conveyor	0	0
Cause: Heat induced by friction between belt and drive pulley of one belt or between belt and tail pulley of another ignited belt and mine was sealed to extinguish the fire.					

UNDERGROUND COAL MINE FIRES - 1957 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2747 10/14/57	Ky.	nongassy	trolley wire	0	0
Cause: Roof fall dislodged trolley wire which fell on track rail and resulting arc ignited combustibles.					
282 11/1/57	Pa.	nongassy	power cable	0	2
Cause: Arc from short circuit at poorly insulated splice ignited cable insulation.					
575 11/24/57	Ky.	nongassy	belt conveyer	0	0
Cause: Fire resulted from overlooked hot metal particles from cutting operation or discarded cigarette which ignited belt.					
4298 12/7/57	Wyo.	nongassy	transformer station	0	0
Cause: Exact cause not determined but presumably the result of an arc when power cables entering substation were short circuited by roof fall.					
5257 12/13/57	Pa.	gassy	cutting machine	0	2
Cause: Arc from short circuit in trailing cable on machine ignited insulation.					
12571 12/27/57	W. Va.	gassy	belt conveyer	0	1
Cause: Friction from rotating drive pulleys against slipping or stalled belt induced sufficient heat to ignite the belt.					

UNDERGROUND COAL MINE FIRES - 1958

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
10963 1/9/58	Ohio	nongassy	cutting machine truck	0	0
			Cause: Arc from short circuit in temporary cable splice ignited the cable insulation.		
4003 1/12/58	Ky.	nongassy	undetermined	0	0
			Cause: Presumed to have originated as a result of unauthorized persons searching for materials when mine was unattended.		
20 1/27/58	Ind.	gassy	power cable	0	0
			Cause: Arc from short circuit in 2300-volt power cable ignited coal and timbers.		
1764 1/28/58	Pa.	nongassy	cutting machine	0	6
			Cause: Arc from short circuit in trailing cable of machine ignited combustibles.		
81 2/12/58	Pa.	gassy	cutting machine	0	0
			Cause: Arc from short circuit in trailing cable on machine ignited oil, grease and coal dust on machine.		
1594 2/14/58	W. Va.	gassy	cutting machine	1	0
			Cause: Arc from short circuit at defective splice in trailing cable ignited cable insulation.		
2735 2/17/58	Alaska	nongassy	spontaneous combustion	0	0
			Cause: Fire of spontaneous origin caused portion of mine to be sealed.		
965 2/24/58	Pa.	gassy	smouldering residue	0	0
			Cause: Presumably smouldering debris overlooked after thawing a water line with a resistance welder started an active fire.		
1258 2/25/58	Pa.	gassy	belt conveyor	0	0
			Cause: Heat induced by friction between stalled belt and moving drive pulley ignited belt.		

UNDERGROUND COAL MINE FIRES - 1958 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
3673 2/27/58	W. Va.	gassy	cutting machine	0	0
			Cause: Arc from short circuit in trailing cable ignited cable insulation.		
550 3/4/58	Ohio	nongassy	roof bolting machine	0	1
			Cause: Arc from short circuit in trailing cable coiled on mine floor ignited insulation.		
1152 3/11/58	Ind.	gassy	shuttle car	0	1
			Cause: Overheated cable on reel of car ignited cable insulation.		
12050 4/3/58	Ill.	gassy	belt conveyor	0	0
			Cause: Indefinite but presumably heat induced by fouled roller ignited belt.		
12208 4/8/58	Pa.	nongassy	shuttle car	0	0
			Cause: Arc from short circuit in trailing cable of car ignited grease and coal dust on car.		
495 4/8/58	Ohio	gassy	track bonds	0	0
			Cause: Heat induced by broken bonds touching rail ignited coal along the track.		
520 4/9/58	W. Va.	gassy	loading machine	0	0
			Cause: Arc caused by short circuit resulting from shuttle car running over loader cable ignited spilled oil on the shuttle car.		
1165 4/9/58	W. Va.	gassy	cutting machine	0	0
			Cause: Arc from short circuit in trailing cable of machine ignited oil and grease on machine.		
1885 4/14/58	W. Va.	gassy	cutting machine.	0	0
			Cause: Overheated trailing cable on machine ignited combustibles on machine and subsequently coal surfaces causing the area to be sealed.		

UNDERGROUND COAL MINE FIRES - 1958 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
6851 4/14/58	Ky.	nongassy	electric arc or lighted cigarette	0	0
			Cause: Arc from dislodged energized wire or discarded cigarette ignited combustibles while mine was idle.		
16711 4/14/58	W. Va.	nongassy	feeder cable	0	0
			Cause: Arc from short circuit in feeder cable touching steel belt support beam ignited coal and subsequently the belt.		
2158 4/24/58	Tenn.	gassy	belt conveyor	0	1
			Cause: Heat induced by friction of moving pulley on stalled belt ignited the belt.		
4955 4/25/58	W. Va.	gassy	belt conveyor	0	0
			Cause: Overheated roller ignited coal near the belt.		
554 4/29/58	W. Va.	nongassy	shuttle car	0	0
			Cause: Arc from short circuit in trailing cable ignited cable insulation on reel of car.		
924 5/5/58	Pa.	gassy	continuous miner	0	0
			Cause: Arc from short circuit of exposed conductor to machine frame ignited cable insulation, hose and oil on machine.		
1152 5/14/58	Ind.	gassy	roof-bolting machine	0	0
			Cause: Arc from short circuit as result of "pinched" cable ignited insulation, oil and tires on machine.		
731 5/19/58	Ky.	gassy	spontaneous combustion	0	0
			Cause: Smouldering fire of spontaneous origin was discovered by carbon monoxide emanating from gob area.		
1687 6/1/58	W. Va.	nongassy	belt conveyor	0	0
			Cause: Cause not determined presumed to be fouled roller or electric arc which ignited the belt.		
195 6/5/58	Ill.	gassy	feeder cable	0	0
			Cause: Roof fall dislodged feeder cable which caused short circuit and resulting arc ignited cable insulation.		

UNDERGROUND COAL MINE FIRES - 1958 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1227 6/8/58	New Mex.	gassy	undetermined	0	0
Cause: Possibly short circuit in temporary feeder cable between rectifier and trolley wire or fall of roof which dislodged and short-circuited trolley wire.					
507 6/9/58	Pa.	nongassy	feeder cable	0	0
Cause: Arc from short circuit in feeder wire near combustible lagging ignited the lagging.					
922 6/9/58	Pa.	gassy	continuous miner	0	0
Cause: Arc between conductors of machine cable ignited insulation of cable.					
14900 6/25/58	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in series lead of machine ignited insulation, hoses grease and coal dust on machine.					
1579 6/26/58	W. Va.	gassy	air compressor	0	0
Cause: Splicing belts created sufficient heat to ignite the belts, and oil and coal on compressor.					
2094 7/6/58	Colo.	gassy	spontaneous combustion	0	0
Cause: Loose coal in a poorly ventilated abandoned area ignited spontaneously.					
17400 7/7/58	W. Va.	nongassy	cutting machine	0	0
Cause: Arc created when defective splice touched machine frame ignited oil, grease, coal dust and hoses on machine. Flammable hydraulic fluid intensified the fire.					
672 7/14/58	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable ignited coal dust, oil and grease and eventually the flammable hydraulic oil in machine.					
10551 7/30/58	W. Va.	nongassy	shuttle car	0	0
Cause: Arc from short circuit at temporary splice in trailing cable ignited cable insulation and rubber tires on car.					

UNDERGROUND COAL MINE FIRES - 1958 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
965 7/31/58	Pa.	gassy	shuttle car or loading machine	0	0
Cause: Arc from defective or ruptured trailing cable was the suspected cause which was never definitely determined owing to extensive damage to equipment.					

280 8/1/58	Ky.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in power wire to a headlight on machine ignited oil and grease on machine.					

495 8/2/58	Ohio	gassy	substation	0	0
Cause: Arc from short circuit in circuit breaker ignited combustibles in station.					

12461 8/19/58	Ky.	nongassy	cutting machine	0	6
Cause: Arc from short circuit at temporary splice in trailing cable ignited cable insulation.					

643 8/22/58	Ohio	gassy	cutting machine	0	0
Cause: Arc from short circuit at temporary splice in trailing cable ignited cable insulation and outer jackets of hydraulic hoses.					

1080 8/27/58	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable ignited grease and oil on machine and finally the flammable oil in the hydraulic system of the machine which intensified the fire.					

4562 9/2/58	Tenn.	nongassy	arson	0	0
Cause: Presumably fire was intentionally started by the mine workers--correctional institution inmates.					

12846 9/3/58	Tenn.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable ignited coal near the main conveyor drive.					

4955 9/5/58	W. Va.	gassy	locomotive	0	0
Cause: Arc from short circuit in tree of leads connecting two locomotives in tandem ignited insulation.					

UNDERGROUND COAL MINE FIRES - 1958 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
10082 9/9/58	Ill.	gassy	spontaneous combustion	0	0
			Cause: Coal under a heavy roof fall ignited spontaneously.		
278 10/2/58	Pa.	nongassy	power cable	0	0
			Cause: Power cable became detached from hanger and arc resulting from wire touching conveyor roller ignited belt.		
2494 10/13/58	W. Va.	gassy	belt conveyor	0	0
			Cause: A heated roller ignited belt after crew left the mine at end of shift.		
4793 10/14/58	Va.	nongassy	roof bolting machine	0	0
			Cause: Arc from short circuit when machine ran over its own cable ignited flammable hydraulic fluid in system.		
61 10/14/58	W. Va.	gassy	cutting machine	0	0
			Cause: Arc from short circuit in trailing cable of machine ignited oil, coal dust, wiring insulation and outer jackets of hydraulic hoses.		
1751-A 10/14/58	Ky.	nongassy	locomotive	1	0
			Cause: Arc from short circuit in defective splices in trailing cable ignited cable insulation.		
1893 10/27/58	Pa.	gassy	cutting machine	0	0
			Cause: Presumably arc from ruptured trailing cable left at end of shift ignited cable insulation.		
130 11/4/58	Pa.	gassy	undetermined	0	2
			Cause: Possibly sparks from trolley slide ignited paper in supply car and heat caused safety plugs in acetylene cylinder to rupture and acetylene intensified the fire in supply car.		
12104 11/5/58	W. Va.	nongassy	roof bolt drill	1	0
			Cause: Arc from short-circuit in trailing cable of drill ignited cable insulation.		

UNDERGROUND COAL MINE FIRES - 1958 (Continued)

BCM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
697 11/7/58	Pa.	gassy	belt conveyor	0	0
169 11/26/58	W. Va.	gassy	belt conveyor	0	0
106 11/28/58	W. Va.	gassy	power cables	0	0
12050 12/5/58	Ill.	gassy	conveyor belt	0	0
19904 12/17/58	Va.	nongassy	electric wire	0	1
4955 12/18/58	W. Va.	gassy	electrical connector	0	0
965 12/24/58	Pa.	gassy	roof bolting machine	0	0

UNDERGROUND COAL MINE FIRES - 1959 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1434 3/9/59	W. Va.	nongassy	undetermined	0	0
				Cause: Possibly arc from broken return power circuit ignited coal dust.	
391 3/15/59	W. Va.	nongassy	power cable	0	0
				Cause: Fall of rib caused short circuit in power cables which ignited cable insulation.	
11166 3/23/59	W. Va.	nongassy	supply or service car	0	0
				Cause: Arc from short circuit in trailing cable at temporary splice ignited oil on car and a shuttle car nearby.	
2459 3/26/59	W. Va.	gassy	loading machine	0	0
				Cause: Arc from short circuit caused by defectively insulated conductor touching flange of reel ignited the insulation on the cable.	
25019 3/26/59	Va.	nongassy	cutting machine	0	0
				Cause: The cable became overheated on the reel and ignited cable insulation and hydraulic hoses.	
1152 3/31/59	Ind.	gassy	cutting machine	0	2
				Cause: Arc from short circuit in trailing cable ignited the cable insulation only.	
965 4/8/59	Pa.	gassy	trolley wire	0	0
				Cause: Roof fall caused trolley wire to touch track rail and resulting arc ignited fallen coal.	
1027 4/14/59	W. Va.	gassy	roof bolting machine	0	0
				Cause: Arc from short circuit in trailing cable ignited oil and grease on machine and subsequently flammable hydraulic fluid which intensified the fire.	
21951 4/23/59	Va.	nongassy	cutting machine	0	0
				Cause: Arc resulting when machine ran over its own cable ignited tires and oil on machine.	

UNDERGROUND COAL MINE FIRES - 1959 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2397 4/28/59	Pa.	gassy	pump motor	0	0
Cause: Short circuit in wiring of electric motor or its starter ignited insulation in motor.					
166 4/29/59	Pa.	gassy	electric cable	0	0
Cause: Broken lagging caused short-circuit in power cable to a conveyor and resulting arc ignited the wooden lagging.					
157-A 5/7/59	Pa.	gassy	power cable	0	0
Cause: Arc from short circuit at a connector in the 7-conductor power-control cable for the conveyor ignited cable insulation.					
6240 5/12/59	W. Va.	gassy	cutting machine	0	0
Cause: Rib fall on cable caused short circuit and resulting arc ignited combustibles on machine.					
1944-B 5/18/59	Ky.	gassy	power cable	0	0
Cause: Arc from short circuit at a bad splice in a jumper cable between the feeder and trip-relay for the continuous miner ignited cable insulation.					
10082 6/1/59	Ill.	gassy	spontaneous combustion	0	2
Cause: A smoldering fire of spontaneous origin was found in an abandoned area.					
8008 6/2/59	Ohio	gassy	belt conveyor	0	0
Cause: Friction between stalled belt and moving roller ignited the flammable belt.					
250 7/31/59	Ky.	gassy	locomotive	0	0
Cause: Arc from short circuit in power cable on locomotive ignited insulation, hydraulic brake hoses and oil on the locomotive.					
5257 8/3/59	Pa.	gassy	cutting machine	0	1
Cause: Sandrock on the machine pinched a cable causing short circuit and resulting arc ignited oil and hoses on machine.					

UNDERGROUND COAL MINE FIRES - 1959 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
123 8/5/59	Utah	gassy	spontaneous combustion	0	0
Cause: Haze issuing from an abandoned area indicated a smouldering fire which instrument tests confirmed and the area was sealed. -----					
440 8/12/59	W. Va.	gassy	pump motor	0	0
Cause: Breakdown of insulation caused short circuit and resulting arc ignited the cable. -----					
5935 8/14/59	W. Va.	nongassy	belt conveyor	0	0
Cause: Heat generated by friction between a fouled roller and the moving belt ignited the flammable belt. -----					
4195-A 8/24/59	W. Va.	gassy	continuous miner	0	0
Cause: Arc from short circuit in cable of machine ignited oil, grease, insulation and hydraulic hoses on machine. -----					
1315 8/26/59	Utah	gassy	spontaneous combustion	0	0
Cause: Spontaneous fire occurred in an abandoned section of mine. -----					
3573 8/31/59	Ill.	gassy	shuttle car	0	0
Cause: Arc from short circuit in trailing cable ignited cable insulation, then a belt and coal rib. -----					
931 9/6/59	W. Va.	gassy	belt conveyor	0	0
Cause: Overheated bearing on tail piece pulley ignited combustibles nearby. -----					
11514 9/17/59	Ky.	nongassy	power cable	0	0
Cause: Arc from short circuit in trailing cable ignited combustibles in area. -----					
566 9/18/59	Pa.	gassy	unknown	0	0
Cause: Origin of fire not determined owing to intensity which required sealing the mine. -----					

UNDERGROUND COAL MINE FIRES 1959 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
11309 10/1/59	Ala.	gassy	cutting machine	0	0
		Cause: Trailing cable overheated during cutting and ignited insulation.			
1209 10/9/59	Ky.	gassy	undetermined	0	0
		Cause: Possibly smoking or an arc from a fallen short circuited cable ignited old timbers.			
17539 10/9/59	W. Va.	nongassy	cutting machine	0	0
		Cause: Cable overheated on reel during cutting and ignited the insulation.			
2806 10/30/59	W. Va.	gassy	power cable	0	0
		Cause: Power cable parted at loose splice and contacted return cable; resulting arc ignited combustibles in the area.			
12029 11/4/59	W. Va.	nongassy	transformer	0	0
		Cause: Short circuit in primary winding of transformer ignited oil on the transformer.			
432 11/4/59	W. Va.	gassy	locomotive	0	0
		Cause: Arc from trolley ignited coal dust.			
1542 11/9/59	W. Va.	gassy	electric cable	0	0
		Cause: Arc at temporary splice in jumper cable feeder to connection box ignited insulation on cable.			
16024-B 11/17/59	Tenn.	nongassy	shuttle car	0	0
		Cause: Arc from short circuit in trailing cable of car ignited spilled oil on the car and eventually a cutting machine.			
3703 11/18/59	Ky.	gassy	cutting machine	0	0
		Cause: Arc from short circuit in wiring of machine ignited combustibles on machine.			

UNDERGROUND COAL MINE FIRES - 1959 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
643 11/19/59	Ohio	gassy	power cable	0	0
Cause: Inoperative circuit breaker caused cable to be overloaded and arc ignited brattice cloth through which cable passed. -----					
17633 12/2/59	W. Va.	nongassy	cutting machine	0	0
Cause: Overheated trailing cable on reel of machine ignited cable, two tires and hydraulic hose. -----					
27598 12/9/59	Wash.	nongassy	spontaneous combustion	0	0
Cause: While cleaning up an old area, the increased ventilation activated a smoldering fire and mine was sealed and abandoned. -----					
858 12/21/59	Colo.	gassy	power wire	0	0
Cause: Presumably a roof fall forced trolley wire against track rail and ignited loose coal. -----					
106 12/23/59	W. Va.	gassy	mine jitney	0	0
Cause: Overheated resistance on jitney ignited grease, coal dust, insulation and rubber belting on the jitney. -----					
1752 12/31/59	W. Va.	gassy	shuttle car	0	2
Cause: Arc from short circuit in trailing cable ignited hydraulic oil fumes and oil escaping from a ruptured hydraulic hose. -----					

UNDERGROUND COAL MINE FIRES - 1960

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
9000 1/8/60	W. Va.	nongassy	cutting machine	0	0
Cause: Fall of roof short-circuited the trailing cable on cutting machine and ignited loose coal and timbers.					
599 1/13/60	W. Va.	gassy	cutting machine	0	0
Cause: Fall of roof short circuited trailing cable and ignited oil and coal dust on the machine.					
2735 1/22/60	Alaska	nongassy	spontaneous combustion	0	0
Cause: Believed spontaneous combustion occurred near the surface and fire rolled down to lower end of rooms.					
4659 2/5/60	Ill.	gassy	belt conveyor	0	0
Cause: Presumably, heat from defective belt roller ignited belt and burning belt rolled down the slope.					
17353 2/22/60	Pa.	gassy	explosives	0	0
Cause: Incomplete defonation of explosives in long hole blast.					
550 2/24/60	Ohio	nongassy	electric drill	0	0
Cause: Shuttle car ran over trailing cable on drill and resultant arc ignited insulation on cable.					
242 2/29/60	Ky.	nongassy	roof bolt machine	0	0
Cause: Roof bolt machine ran over its own cable and ensuing arc ignited machine. Flammable hydraulic fluid contributed to the fire.					
2158 3/4/60	Tenn.	gassy	cutting machine	0	0
Cause: Short circuit at splice in trailing cable of mining machine ignited an accumulation of coal.					
2957 3/7/60	Ky.	nongassy	abandoned area	0	0
Cause: Fire believed to have been started by trespassers in abandoned area.					

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
106 3/8/60	W. Va.	gassy	trolley shoe	18	0
Cause: Arc from trolley shoe ignited wooden crossbars and timbers along haulageway.					
12975 3/8/60	Ky.	nongassy	conveyor belt	0	0
Cause: Belt conveyor frame bolt lodged between belt and tailpiece and slippage created sufficient heat to ignite belt.					
1565 3/8/60	Wash.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in an abandoned opening.					
4569 3/12/60	Ill.	gassy	belt conveyor	0	0
Cause: Belt contactors stuck, resultant coal spillage stalled belt and heat produced between rotating belt head and belt ignited belt.					
620 3/18/60	Utah	gassy	explosives	0	0
Cause: An underburdened shot ignited coal dust thrown into suspension.					
17353 3/21/60	Pa.	gassy	gob	0	0
Cause: Fire pulled down from worked out areas above active workings.					
4955 3/22/60	W. Va.	gassy	trolley harp	0	0
Cause: Dislodged trolley harp impressed power on water line causing arcing that ignited wooden crib supporting line.					
3703 3/24/60	Ky.	gassy	conveyor belt	0	0
Cause: Belt slippage caused sufficient friction to ignite belt.					
103-A 4/5/60	Ky.	gassy	shuttle car	0	0
Cause: Electrical arc from a short circuit at a splice in shuttle car trailing cable ignited cable insulation.					

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
132 4/7/60	W. Va.	gassy	cutting machine	0	0
Cause: Trailing cable burned on reel of cutting machine, cause not determined.					
11142 4/12/60	W. Va.	gassy	conveyor belt	0	0
Cause: Heat from friction caused by an overheated or frozen belt roller and broken bearing ignited belt.					
13399 4/18/60	Ky.	nongassy	loading machine	0	0
Cause: Arc from short circuit in splice on loading machine cable ignited oil and grease on machine.					
2625 4/22/60	W. Va.	nongassy	air compressor	0	0
Cause: Overheated air storage tank on compressor ruptured igniting drive belts, oil and wooden ties supporting tank.					
17544 4/25/60	W. Va.	nongassy	cutting machine	0	0
Cause: A short circuit in the electrical wiring ignited the wiring insulation, oil and grease on the cutting machine.					
6072 4/25/60	W. Va.	gassy	shuttle car	0	0
Cause: Short circuit in shuttle car trailing cable ignited oil in the hose of the hydraulic reel motor.					
132 4/27/60	W. Va.	gassy	trolley wire	0	0
Cause: Roof fall dislodged trolley wire causing short circuit which ignited loose coal and track ties.					
17539 5/2/60	W. Va.	nongassy	shuttle car	0	1
Cause: Short circuit in loading machine trailing cable when cable was run over by and caught on bumper of shuttle car ignited shuttle car. Flammable hydraulic oil increased the intensity of fire.					
2540 5/3/60	W. Va.	gassy	cutting machine	0	0
Cause: Arcing from a short circuit in the lead cable on the cutting machine ignited oil and grease on machine. Flammable hydraulic oil increased the intensity of the fire.					

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1080 5/5/60	W. Va.	gassy	feeder cable	0	1
Cause: Roof fall dislodged feeder line onto cutting machine bar being transported in mine car and other end of bar contacted oxygen cylinder in car. Hole burned in cylinder and escaping oxygen ignited.					
249 5/5/60	Pa.	gassy	cutting torch	0	2
Cause: Sparks from cutting torch used in dismantling fan over shaft ignited wooden shaft lining.					
1943 5/17/60	Ky.	nongassy	cutting machine	0	0
Cause: Short circuit in trailing cable on cutting machine ignited a tire and oil and grease around hydraulic controls.					
1047 5/17/60	W. Va.	gassy	shuttle car	0	0
Cause: Trailing cable on a shuttle car short-circuited and ignited on the reel.					
2066-A 5/19/60	Va.	gassy	trolley wire	0	0
Cause: Roof fall dislodged trolley wire and arcing between trolley wire and rail ignited timbers and coal spillage.					
17594 5/20/60	Va.	gassy	roof bolting machine	0	0
Cause: Roof bolting machine ran over loading machine trailing cable and arcing from short-circuit ignited grease and oil on underside of machine.					
17484 5/25/60	W. Va.	nongassy	cutting machine	0	0
Cause: A short circuit in the electrical wiring ignited the insulation, hydraulic hoses, oil and coal dust on the machine.					
17593 5/26/60	Va.	gassy	roof bolting machine	0	0
Cause: Overheated splice on cable reel on roof bolting machine ignited trailing cable and hoses on machine.					
14021 6/2/60	W. Va.	gassy	feeder cable	0	0
Cause: Roof fall dislodged and forced bare negative feeder cable in contact with energized positive feeder cable and resultant arc ignited fallen top coal and wooden crossbars.					

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
1437 6/10/60	Pa.	gassy	undetermined	0	0
		Cause: Undetermined as fire area was sealed. -----			
242 6/17/60	Ky.	gassy	roof bolting machine	0	0
		Cause: Roof bolting machine ran over trailing cable of cutting machine and resultant short-circuit ignited machine. The use of flammable hydraulic fluid was a contributing factor. -----			
11719 6/20/60	Utah	gassy	electric cable connection	0	0
		Cause: Cable connection of inadequate capacity overheated and ignited the connection and cable. -----			
1488 6/23/60	Pa.	gassy	abandoned area	0	0
		Cause: Fire progressed underground from burning spoil bank material used as backfill along highwall. -----			
1690 7/21/60	Pa.	gassy	cutting machine	0	0
		Cause: Short circuit in trailing cable on reel of cutting machine ignited cable insulation. -----			
151 7/25/60	W. Va.	gassy	trolley wire	0	0
		Cause: Steel cross bar became dislodged and contacted trolley wire causing short-circuit which ignited conveyor belt. -----			
20015 7/26/60	Colo.	gassy	shuttle car	0	0
		Cause: Trailing cable on reel of shuttle car overheated and ignited insulation. -----			
40 7/29/60	Va.	gassy	conveyor belt	0	0
		Cause: Overheated twin disc hydraulic coupling ruptured igniting oil and conveyor belt. -----			
15477 7/30/60	Colo.	gassy	abandoned area	0	0
		Cause: Fire in abandoned area broke into active area. -----			

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
767-A 7/31/60	W. Va.	nongassy	trolley wire	0	0
Cause: Roof fall dislodged trolley wire and arcing between trolley wire and rail ignited combustibles in area. -----					
3314 8/1/60	W. Va.	gassy	cutting machine	0	0
Cause: Arcing from a short-circuit in the lead cables on the cutting machine ignited cable insulation, outer jackets of hydraulic hose and oil and coal dust on the machine. -----					
948 8/29/60	Ky.	nongassy	trolley wire	0	0
Cause: Arc from trolley locomotive ignited curtain. -----					
13399 9/7/60	Ky.	nongassy	loading machine	0	0
Cause: Loading machine trailing cable caught under corner of shuttle car and pulled apart at splice, resultant arc ignited loose coal. -----					
17435 9/15/60	W. Va.	gassy	trolley and feeder wires	0	0
Cause: Roof fall dislodged trolley and feeder wires and resultant arcing of the power wires and rail ignited combustibles. -----					
26729 9/21/60	Va.	nongassy	cutting machine	0	0
Cause: Arcing from short circuit at defective splice in cutting machine trailing cable ignited insulation on cable. -----					
4061 9/23/60	Ind.	gassy	cutting machine	0	0
Cause: Electric arc from short-circuit in controller on cutting ignited oil and coal dust on machine. Flammable hydraulic oil increased the intensity of the fire. -----					
9139 9/23/60	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short-circuit in electrical wiring ignited combustibles on cutting machine. Flammable hydraulic oil increased the intensity of the fire. -----					
3455-A 10/4/60	Ind.	gassy	feeder cable	0	0
Cause: Feeder cable placed on top of timber for clearance and heaving bottom caused cable to be pinched between timber and angle iron bolted to roof. Heat from short-circuit ignited coal rib. -----					

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
11166 10/5/60	W. Va.	nongassy	cutting machine	0	0
Cause: Arcing from short-circuit in tree of leads between the contactors and the cutting motor ignited oil and coal dust on machine. Flammable hydraulic oil increased the intensity of the fire.					
1583 10/11/60	W. Va.	nongassy	roof bolting machine	0	0
Cause: Roof bolting machine ran over its trailing cable and resultant short-circuit ignited oil and coal dust on machine.					
23625 10/27/60	Ohio	nongassy	roof bolting machine	0	0
Cause: Arcing from short-circuit in trailing cable on reel of roof bolting machine ignited oil and coal dust on machine.					
495 11/8/60	Ohio	gassy	trolley wire	0	0
Cause: Derailed mine car dislodged trolley wire which came in contact with three steel-reinforced wooden mine cars igniting wood frames.					
9151 11/18/60	Va.	gassy	abandoned area	0	0
Cause: Not determined, fire could have been started by spontaneous ignition or by trespassers.					
747 11/23/60	Pa.	gassy	loading machine	0	0
Cause: Roof fall on loading machine cable and resulting short-circuit ignited combustible under fall.					
8239 11/26/60	Ill.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in abandoned area, area sealed.					
620 12/6/60	Utah	gassy	explosives	0	0
Cause: Underburdened charge of explosives in multiple blasting ignited gas and coal dust in blasted coal.					
8239 12/12/60	Ill.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in caved area, area sealed.					

UNDERGROUND COAL MINE FIRES - 1960 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
17677 12/22/60	W. Va.	nongassy	conveyor belt	0	0
			Cause: Overheated belt roller ignited conveyor belt when belt was stopped.		
924 12/27/60	Pa.	gassy	loading machine	1	0
			Cause: Short-circuit in an improperly fused loading machine cable (200' in a pile) ignited cable insulation.		
3219 12/28/60	Va.	nongassy	not determined	0	0
			Cause: Indefinite, but believed loose coal ignited by a discarded lighted cigarette or an arc from the nip of a cutting machine.		

UNDERGROUND COAL MINE FIRES - 1961

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17633 1/17/61	W. Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in lead cable of machine ignited oil grease, a tire and hydraulic hoses on machine. -----					
3098 1/24/61	Pa.	gassy	belt conveyor	0	0
Cause: Torn belt fouled a roller and resulting friction heat ignited belt and drive pulley lagging. -----					
1437 2/2/61	Pa.	gassy	continuous miner	0	0
Cause: Arc from short circuit caused by miner cable being squeezed between the miner and a shuttle car ignited cable insulation, oil and grease. -----					
2929 2/4/61	W. Va.	gassy	belt conveyor	0	0
Cause: Presumably heat which ignited oil, grease belt and coal was generated by gears rubbing against a metal guard. -----					
8239 2/5/61	Ill.	gassy	spontaneous combustion	0	0
Cause: Smouldering fire in an abandoned gob area emitted smoke and carbon monoxide which resulted in sealing a portion of the gob area. -----					
4073 2/8/61	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in leads to cutting motor ignited oil, grease and hydraulic hoses which ruptured and flammable hydraulic fluid intensified the fire. -----					
3954 2/15/61	Ky.	gassy	locomotive	0	0
Cause: Arc produced by energized cable short-circuiting to a gear on locomotive ignited oil, grease and insulation on locomotive. -----					
12615 2/18/61	W. Va.	gassy	electric-light wires	0	0
Cause: Fall of roof caused short circuit of energized wires and resulting arc ignited coal. -----					
132 2/20/61	W. Va.	gassy	loading machine	0	0
Cause: Arc from short circuit caused by shuttle car running over loading machine cable ignited oil, grease, coal, hydraulic hose and tires on shuttle car. -----					

UNDERGROUND COAL MINE FIRES - 1961 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
643 2/24/61	Ohio	gassy	locomotive	0	0
				Cause: Arc from short circuit in trolley-pole cable ignited cable insulation and wooden trolley pole.	
1147 2/27/61	W. Va.	gassy	locomotive	1	0
				Cause: Overheated resistance caused by the controller being advanced with hydraulic brake sets tightly ignited oil grease, and insulation on locomotive.	
1464 3/20/61	W. Va.	gassy	shuttle car	0	0
				Cause: Arc from short circuit in temporary splice in cable on reel of car ignited cable insulation, hydraulic hose and wiring on car.	
3455A 3/25/61	Ind.	gassy	belt conveyor	0	0
				Cause: Presumably the fire was caused by a lighted cigarette being discarded near the belts since belt not operating and power wires deenergized.	
4358 4/3/61	Pa.	gassy	shuttle car	0	1
				Cause: Arc from short circuit at temporary splice in trailing cable of loading machine close to shuttle car ignited oil on the car.	
17609 4/6/61	W. Va.	gassy	cutting machine	0	0
				Cause: Arc from short circuit in leads from contactor compartment to cutting motor ignited insulation, hydraulic hose, oil and grease on machine.	
28598 4/10/61	Pa.	nongassy	undetermined	0	0
				Cause: A fire of undetermined origin was found by officials after mine had been idle for a week.	
12571 4/12/61	W. Va.	gassy	shuttle car	0	0
				Cause: Arc from short circuit in trailing cable on car ignited cable insulation, oil, grease, coal and a tire on the car.	
4197 4/12/61	Ala.	gassy	air compressor	0	0
				Cause: A fire of undetermined origin destroyed a mobile air compressor and tools connected with it.	

UNDERGROUND COAL MINE FIRES - 1961 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
771 4/17/61	Ky.	nongassy	cutting machine	0	0
Cause: Arc from short circuit at temporary splice in trailing cable ignited insulation on cable. -----					
29983 4/26/61	W. Va.	nongassy	loading machine	0	0
Cause: Arc from short circuit in trailing cable ignited spilled flammable hydraulic oil and coal dust on machine. -----					
2961 5/5/61	W. Va.	gassy	belt conveyor	0	0
Cause: Heat generated by the friction between stalled belt and moving drive pulleys ignited the belt. -----					
108 5/8/61	Ala.	nongassy	undetermined	0	0
Cause: Fire occurred while mine was idle and cause not determined. -----					
2539 5/20/61	Utah	nongassy	spontaneous combustion	0	0
Cause: Mine was idle and it is assumed that fire resulted from spontaneous combustion. Mine sealed and abandoned. -----					
1315 5/26/61	Utah	gassy	gases from sealed fire area	0	0
Cause: Presumably old fire seals ruptured permitting gases from sealed area to enter an active section and the affected area was subsequently sealed. -----					
17633 5/29/61	W. Va.	nongassy	roof bolting machine	0	0
Cause: Arc from short circuit in trailing cable on reel ignited cable insulation. -----					
2422 7/19/61	W. Va.	gassy	belt conveyor	0	0
Cause: Cause of fire not determined owing to extensive damage to conveyor. -----					
3477 7/20/61	W. Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in cable leading to pump motor on machine ignited wiring, hose jackets, tires, coal dust and oil on machine. -----					

UNDERGROUND COAL MINE FIRES - 1961 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
12548 7/24/61	Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in cable on reel of machine ignited coal dust, oil and hydraulic fluid. -----					
2459 7/25/61	W. Va.	gassy	electric cable	0	0
Cause: Heat produced by current from electric light wire flowing through wet brattice cloth to rail ignited the brattice cloth. -----					
6077 7/30/61	Ky.	gassy	power cable	0	0
Cause: Roof fall forced bare energized feeder cable against bare return wire and the resulting arc ignited the coal rib. -----					
1065 7/31/61	W. Va.	gassy	shuttle car	0	0
Cause: Arc from short circuit in trailing cable ignited wooden loading ramp and coal rib. -----					
10968 8/2/61	Pa.	nongassy	belt conveyor	0	0
Cause: Heat generated by friction between fouled belt and moving drive pulley ignited belt and coal. -----					
6240 8/3/61	W. Va.	gassy	loading machine	0	0
Cause: Arc from short circuit produced when cutting machine ran over loading machine power cable ignited tires and other combustibles on cutting machine. -----					
1949B 8/5/61	Ky.	nongassy	sealed area	3	0
Cause: Exploring a sealed fire area without proper gas detecting devices or respiratory protection. -----					
12323 8/6/61	W. Va.	gassy	belt conveyor	0	0
Cause: Undetermined owing to extensive damage. However, heat from fouled roller is presumed to be the cause. -----					
1009 8/12/61	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in electric wiring of machine ignited oil, grease and coal dust on machine. -----					

UNDERGROUND COAL MINE FIRES - 1961 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2422 9/5/61	W. Va.	gassy	belt conveyor	0	0
Cause: Undetermined because of extensive damage to conveyor belt but presumed to be heat caused by friction between belt and guard or belt and fouled roller.					
22873 9/8/61	Ky.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in cable presumably ignited oil and grease on machine.					
8994 9/13/61	Ky.	gassy	power cable	0	0
Cause: Roof fall caused energized trolley and feeder wires to touch track rail and resulting arc ignited coal.					
12615 9/16/61	W. Va.	gassy	belt conveyor	0	0
Cause: Roof fall fouled the belt and heat created between fouled belt and moving drive pulley ignited belt.					
10082 9/20/61	Ill.	gassy	belt conveyor	0	0
Cause: Undetermined but presumed to have been hot roller on which idle belt was resting.					
2540 9/27/61	W. Va.	gassy	belt conveyor	0	0
Cause: Presumably an overheated speed reducer as a result of low oil supply ignited coal nearby.					
151 10/10/61	W. Va.	gassy	circuit breaker	0	0
Cause: Arc from short circuit in breaker enclosure ignited a wooden post.					
697 10/12/61	Pa.	gassy	belt conveyor	0	0
Cause: It is assumed that a defective roller became overheated and ignited the belt during an idle period between shifts.					
30660 10/13/61	Ky.	nongassy	locomotive	0	0
Cause: Arc from bare splice in trailing cable ignited oil and subsequently wiring in the locomotive.					

UNDERGROUND COAL MINE FIRES - 1961 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
19500 10/17/61	W. Va.	nongassy	cutting machine	0	1
Cause: Arc from short-circuit in cable upon which a leaky acetylene tank had been placed ignited escaping acetylene and subsequently the cable insulation and loose coal.					
30 10/18/61	W. Va.	nongassy	power cables	0	0
Cause: Roof fall caused short circuit of feeder cable to wet rib with heating but no active fire.					
8008 10/26/61	Ohio	gassy	loading machine	0	0
Cause: Arc from short circuit when machine ran over its own cable ignited jackets of hydraulic hoses but not the oil.					
1877 11/7/61	Ky.	gassy	refuse bank	0	0
Cause: Burning material from surface refuse bank fell through uncapped borehole and ignited coal rib.					
17435 11/10/61	W. Va.	gassy	power wire	0	0
Cause: Heat from short circuit of dislodged trolley wire through fallen roof material caused smouldering of combustibles.					
25622 11/13/61	Colo.	nongassy	spontaneous combustion	0	0
Cause: Smouldering fire in gob area presumably of spontaneous origin.					
3348 11/13/61	W. Va.	gassy	belt conveyor	0	0
Cause: Heat from an overheated belt roller ignited the belt and other combustibles in the area.					
129 11/19/61	Ohio	gassy	trolley wire	0	0
Cause: Short circuit in the return side of an energized circuit ignited wooden track tie.					
17403 11/20/61	W. Va.	nongassy	unknown	0	0
Cause: Fire was found near a belt conveyor drive but no definite cause could be ascertained.					

UNDERGROUND COAL MINE FIRES - 1961 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
2333 11/21/61	Pa.	gassy	cutting machine	0	0
Cause: Overheating of cable on reel caused by short circuit ignited cable insulation.					

4358 11/27/61	Pa.	gassy	belt conveyor	1	0
Cause: An overheated belt roller ignited coal.					

15091 12/4/61	Ky.	nongassy	unknown	0	0
Cause: Fire started in abandoned part of idle mine and mine was sealed and abandoned.					

10707 12/5/61	Pa.	gassy	roof drill	0	0
Cause: Arc from short circuit in trailing cable coiled on machine ignited cable, oil and coal dust.					

764 12/5/61	Ky.	gassy	cutting machine	1	1
Cause: Arc from short circuit on cable between machine and its truck ignited cable insulation.					

17440 12/6/61	W. Va.	nongassy	conveyor belt	0	0
Cause: Overheated belt roller ignited coal under the belt.					

157A 12/12/61	Pa.	gassy	locomotive	0	0
Cause: Arc from short circuit in locomotive wiring ignited combustibles on the locomotive.					

UNDERGROUND COAL MINE FIRES - 1962

BCM File No. and date	State	Classification	Type of Fire	Injuries	
				Fatal	Nonfatal
21746 1/12/62	Ky.	nongassy	battery powered rubber-tired locomotive	0	0
Cause: Fire in trunk-line cables of a battery powered rubber-tired locomotive. (Cause unknown)					

17651 1/16/62	Ohio	gassy	shuttle car	0	0
Cause: Trailing cable short-circuited at defective splice on cable reel.					

17365 1/23/62	W. Va.	nongassy	trolley wire guard	0	0
Cause: Trolley wire contacted rail and heating ignited trolley guard.					

287 1/23/62	Pa.	gassy	cleaning solvent	0	0
Cause: Spilled cleaning solvent ignited by hot piece of metal during oxyacetylene burning operations.					

2422 1/26/62	W. Va.	gassy	trailing cable	0	0
Cause: Short circuit in trailing cable ignited trailing cables to loading machine and cutting machine.					

1395 3/5/62	W. Va.	gassy	acetylene gas	0	0
Cause: Escaping acetylene gas was ignited while cutting a 40-pound rail into short lengths with a Purox Type E torch.					

17797 3/15/62	W. Va.	nongassy	cutting machine	0	0
Cause: A short circuit in the series of leads connecting the cutting motor with the contact compartment ignited the insulation, hydraulic hose, oil, and coal dust on the cutting machine.					

UNDERGROUND COAL MINES FIRES - 1962 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
12615 4/13/62	W. Va.	gassy	conveyor belt roller	0	0
Cause: Belt running over a stuck return roller created friction which generated sufficient heat to ignite the belt.					

6240 4/17/62	W. Va.	gassy	cutting machine	0	0
Cause: An arc from a short-circuit in the lead cables on the cutting machine ignited the wiring of the electrical circuits and the outer jackets of the hydraulic hose.					

58 5/9/62	Ky.	gassy	cutting machine	0	0
Cause: An arc from a short-circuit caused by the cutting machine running over its trailing cable ignited grease and oil on the underside of the machine.					

13664 5/10/62	Ohio	gassy	trailing cable	0	1
Cause: The positive conductor in a damaged trailing cable short-circuited to the skid handle of a portable circuit breaker and the resulting arc ignited a rubber "V" belt that was tied to the handle to facilitate moving.					

2540 5/14/62	W. Va.	gassy	conveyor belt motor	0	0
Cause: Fire was caused by an overheated motor on a belt conveyor drive.					

643 6/1/62	Ohio	gassy	trailing cable	0	0
Cause: Defective splice in the trailing cable to a machine truck short circuited and caused the fire.					

UNDERGROUND COAL MINE FIRES - 1962 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17491 6/12/62	W. Va.	gassy	trolley pole harp	0	0
Cause: Loop of the shunt connected to the trolley pole harp contracted the metal frame of a man car causing an arc of sufficient heat to ignite the head coal.					

1583 6/14/62	W. Va.	nongassy	shuttle car	0	0
Cause: Shuttle car ran over trailing cable and resultant arc ignited mixture of oil and coal dust on the surface of the shuttle car.					

17650 6/15/62	Pa.	nongassy	loading machine	0	0
Cause: Arc from insulation failure in an inferior splice ignited insulation on trailing cable of an idle loading machine.					

17467 6/21/62	Pa.	gassy	trolley wire	0	0
Cause: Roof fall caused trolley wire to touch rail and resultant arc ignited fallen roof coal and wooden roof supports.					

550 7/16/62	Ohio	nongassy	shuttle car	0	0
Cause: Frame of shuttle car contacted bare spot in insulated feeder cable and overheating of grounding conductor in cable on reel ignited trailing cable insulation and tire.					

UNDERGROUND COAL MINE FIRES - 1962 (Continued)

BOM File No. and date	State	Classification	Type of Fire	Injuries	
				Fatal	Nonfatal
10169 7/20/62	W. Va.	gassy	cutting machine	0	0
Cause: Presumably, molten copper from a grounded power conductor ignited oil soaked coal dust accumulations on the machine.					

25019 7/22/62	Va.	gassy	trailing cable	0	0
Cause: Short circuit at splice in a trailing cable ignited cable insulation.					

8239 8/1/62	Ill.	gassy	cutting torch	0	0
Cause: Sparks from falling foreign material being burned off guides and buntions with a torch ignited rags and storage-loccomotive battery casings at the elevator-man-shaft bottom.					

907 8/5/62	Pa.	gassy	return feeder cable	0	0
Cause: Loose splice in feeder cable caused prolonged electrical burning which ignited surrounding combustible material.					
981 8/13/62	Pa.	gassy	cutting machine	0	0
Cause: Arcing from short circuit in the cable to the cutting motor ignited the combustible conduit enclosing the cable. Combustible hydraulic oil contributed to the fire.					

UNDERGROUND COAL MINE FIRES - 1962 (Continued)

BOM File No. and date	State	Classification	Type of Fire	Injuries	
				Fatal	Nonfatal
282 8/15/62	Pa.	nongassy	burning brush	0	0
Cause: Burning of brush and trees on the surface ignited timbers in a drift entry.					

8239 8/21/62	Ill.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in an abandoned area indicated by smoke caused the area to be sealed.					

17914 8/26/62	Ky.	nongassy	fall of coal	0	0
Cause: Fire believed to have been started by trespassers.					

2642 9/3/62	Utah	nongassy	conveyor belt	0	0
Cause: Believed fire started in surface building and spread underground via the conveyor belt.					

14411 9/26/62	W. Va.	nongassy	pillared area	0	0
Cause: Fire area under high pillar fall, cause unknown.					

747 9/28/62	Pa.	gassy	cutting machine	0	0
Cause: Short circuit in an ungrounded power conductor ignited grease and coal dust on the cutting machine.					

UNDERGROUND COAL MINE FIRES - 1962 (Continued)

<u>BOB</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
5257 10/1/62	Pa.	gassy	shuttle car	0	1
Cause: Trailing cable on shuttle car reel ignited from some unknown cause.					

3701 10/4/62	Ky.	nongassy	cutting machine	0	0
Cause: Short circuit in trailing cable on reel of shuttle car ignited insulation and the hydraulic oil.					

103A 10/16/62	Ky.	gassy	cutting machine	0	0
Cause: Arc resulting from short circuit in power cables entering the cutting motor casing ignited oil and grease on machine.					

17484 11/7/62	W. Va.	nongassy	trolley wire	0	0
Cause: Arcing and heat from a faulted trolley circuit, caused by a rock fall, ignited surrounding combustible material.					

1540 11/12/62	Montana	nongassy	cutting torch	0	0
Cause: Pieces of hot metal cut from a man cage dropped into shaft and ignited timber lining.					

33086 11/14/62	W. Va.	nongassy	shuttle car	0	0
Cause: A shuttle-car trailing cable and/or a sagging power conductor was pinched between the shuttle car frame and rib and the ensuing arc ignited the coal rib.					

UNDERGROUND COAL MINE FIRES - 1962 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2532 12/11/62	W. Va.	gassy	belt conveyor roller	0	0
Cause: An overheated belt roller ignited belt and loose coal on conveyor framework.					

32434 12/23/62	W. Va.	nongassy	overheated resistance or belt conveyor roller	0	1
Cause: An overheated belt roller or an overheated resistance at the belt controller ignited belt and coal dust in area.					

1395 12/24/62	W. Va.	gassy	unknown	0	0
Cause: Undetermined.					

17620 12/28/62	Indiana	gassy	GoB	0	0
Cause: Undetermined.					

17940 12/29/62	Ky.	nongassy	cutting machine	0	0
Cause: Short-circuit in electrical wiring ignited insulation on wiring and outer jackets on hydraulic hoses.					

UNDERGROUND COAL MINE FIRES - 1963

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
10169 1/8/63	W. Va.	gassy	belt conveyor	0	0
Cause: Inoperative sequence control permitted coal to pile up fouling belt and friction of moving drive pulley produced heat which ignited coal. -----					
4 1/10/63	Pa.	gassy	power conductor	0	0
Cause: Arc from short circuit in the input cable connector to a circuit breaker ignited cable insulation. -----					
8008 1/11/63	Ohio	gassy	belt conveyor	0	0
Cause: Sparks from a loose brush in the drive motor of the conveyor ignited coal dust and grease. -----					
2459 1/15/63	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in connection box for power cable to cutting motor ignited hoses, valves, and cable insulation. -----					
495 1/17/63	Ohio	gassy	trolley wire	0	0
Cause: A steel-reinforced mine car came in contact with energized trolley wire during a rerailing operation and the arc ignited wood part of car. -----					
643 1/18/63	Ohio	gassy	cutting machine truck	0	0
Cause: Arc from short circuit at a splice or damaged portion of cable on the truck ignited combustible material. -----					
157 1/21/63	Pa.	gassy	locomotive	0	0
Cause: Electrical fault resulting frame failure of a contactor initiated the fire of insulation. -----					
6077 1/22/63	Ky.	gassy	cutting machine	0	0
Cause: Arc resulting from frame of machine contacting trolley wire ignited hydraulic hoses, tires, and cables on machine. -----					
17731 1/29/63	Ill.	gassy	undetermined	3	4
Cause: A wooden airlock at belt conveyor drive ignited by either friction of belt rubbing against wood, an overheated belt roller or an electric arc from feeder or trolley wire passing through the wooden airlock. -----					

UNDERGROUND COAL MINE FIRES - 1963 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
400 2/19/63	Pa.	gassy	shuttle car	0	3
Cause: Arc from short circuit in temporary splice in trailing cable of car burned cable insulation. -----					
7056 2/20/63	Ky.	gassy	roof bolting machine	0	0
Cause: Arc from short circuit caused by machine running over its own cable ignited oil and tires. -----					
157 3/13/63	Pa.	gassy	locomotive	0	0
Cause: Damage prevented determining exact cause but it is presumed that an arc resulting from fault in either contactor or contactor supply cable ignited insulation on cable. -----					
13048 3/18/63	Pa.	gassy	distribution box	0	2
Cause: Arc from short circuit in distribution box burned input cable. -----					
267 4/4/63	Ky.	gassy	power wire	0	0
Cause: Roof fall caused short circuit in power wire to pump and arc ignited wooden track ties and coal on floor. -----					
747 4/17/63	Pa.	gassy	belt conveyor	0	0
Cause: Heat created by belt rubbing against a rib fall ignited coal near the belt. -----					
29299 4/24/63	Wash.	nongassy	spontaneous combustion	0	0
Cause: Presumably spontaneous while mine was idle. -----					
18752 4/24/63	W. Va.	gassy	locomotive	0	0
Cause: Arc from short circuit in trolley pole cable near controller ignited combustibles on locomotive. -----					
4195 5/2/63	W. Va.	gassy	cutting machine	0	0
Cause: Cutting machine ran over loading machine cable and arc from short circuit ignited oil, grease, and coal dust on machine. -----					

UNDERGROUND COAL MINE FIRES - 1963 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
106 5/11/63	W. Va.	gassy	loading machine	0	0
Cause: Presumably an arc from a short circuit in trailing cable ignited cable and hose. No one near machine when fire started but cable left energized.					
931 5/14/63	W. Va.	gassy	belt conveyor motor	0	0
Cause: Cooling fan blades striking a loose guard on motor created sparks which ignited oil and coal dust.					
2581 5/16/63	Pa.	gassy	acetylene torch	0	0
Cause: Sparks or hot metal from cutting operation in head frame dropped into shaft and ignited timbers.					
124 5/20/63	Ala.	gassy	starting compensator	0	0
Cause: Arc from short circuit in the starting compensator for large pump motor ignited combustibles within the compensator.					
24420 5/24/63	Colo.	nongassy	spontaneous combustion	0	0
Cause: Fire-area sealed--only known origin was spontaneous combustion.					
9139 5/29/63	W. Va.	gassy	cutting machine	0	0
Cause: Arc from blown cable between connection box and bit motor ignited oil, grease, and coal dust on machine.					
323 5/31/63	Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in reel or cable on reel ignited oil, grease, and coal dust on machine.					
17539 6/5/63	W. Va.	nongassy	loading machine	0	0
Cause: Arc from short circuit in trailing cable as result of cable becoming entangled in treads of machine ignited oil and a rubber guard on machine.					
732 6/5/63	Pa.	gassy	shuttle car	0	0
Cause: Arc from short circuit in trailing cable ignited hydraulic hoses. The hoses ruptured and flammable fluid intensified the fire.					

UNDERGROUND COAL MINE FIRES - 1963 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
12554 6/10/63	Ky.	nongassy	arson suspected	0	0
Cause: Eight fires presumably started by an arsonist while mine was idle and part of the mine was sealed.					
3642 6/11/63	Ky.	gassy	cutting machine	0	0
Cause: Arc from short circuit in cable to headlight burned hole in hydraulic hose and flammable fluid intensified fire.					
4895 7/9/63	Ky.	gassy	cutting machine	0	0
Cause: Arc from short circuit in wiring ignited insulation, oil, grease and tires on machine.					
17957 7/14/63	Ky.	nongassy	power cable	0	0
Cause: Arc from short circuit in power cable to battery charging station ignited combustibles.					
225 7/15/63	Utah	nongassy	spontaneous	0	0
Cause: Spontaneous heating.					
17435 7/19/63	W. Va.	gassy	continuous miner	0	0
Cause: Spontaneous ignition of coal dust, oil, and wood chips that had accumulated on a continuous miner that had been operated at unusually high temperature.					
17513 7/25/63	Ky.	gassy	cutting machine cable	0	0
Cause: Shooting truck ran over trailing cable of a cutting machine and short circuit set fire to cable and loose coal along the mine track.					
3074 8/1/63	Ky.	gassy	shuttle car	0	0
Cause: Shuttle car ran over the trailing cables of the cutting and roof-bolting machines causing short circuit in both cables which ignited tire, electric wiring, and damaged hydraulic hoses. Flammable oil confined to the system and did not intensify the fire.					
10968 8/8/63	Pa.	nongassy	shuttle car	0	3
Cause: Short circuit in the trailing cable of a parked shuttle car resulted in the burning of about 8 feet of cable.					

UNDERGROUND COAL MINE FIRES - 1963 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17695 8/9/63	W. Va.	nongassy	loading machine	1	3
Cause: Short circuit in the trailing cable of a loading machine.					
13399 8/10/63	Ky.	nongassy	power cables	0	0
Cause: Roof rock fell on three insulated power cables causing short-circuit in one cable and resulted in the burning of a section of the cables.					
7056 8/15/63	Ky.	gassy	shuttle car and loading machine	0	0
Cause: Short circuit caused by a shuttle car running over a loading machine trailing cable ignited hydraulic systems of both machines and flammable oil contributed to the intensity of the fire.					
165 8/22/63	W. Va.	gassy	cutting machine	0	0
Cause: Short circuit in power leads connecting the controller compartment with the main motor ignited dust and oil on the machine and some of the flammable hydraulic oil in the system.					
8994 8/24/63	Ky.	gassy	belt conveyor	0	0
Cause: Unknown--probably belt friction--fire discovered on idle day and fire area sealed.					
225 8/26/63	Utah	nongassy	spontaneous	0	0
Cause: Spontaneous heating and ignition of coal in caved area.					
12576 8/26/63	Pa.	gassy	explosives	0	0
Cause: Coal ignited by multiple blasting of a series of long holes in solid coal. (mine flooded to extinguish fire).					
157 9/5/63	Pa.	gassy	locomotive	0	0
Cause: Undetermined, but believe that fire started by electrical fault resulting from cable insulation failure or conductive material blown into fuse box during cleaning of the locomotive with compressed air.					

UNDERGROUND COAL MINE FIRES - 1963 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
10082 9/22/63	Ill.	gassy	spontaneous	0	0
		Cause: Spontaneous ignition of coal under gob materials. -----			
3456 9/23/63	Utah	gassy	spontaneous	0	0
		Cause: Spontaneous ignition in abandoned partially caved area. -----			
25465 9/30/63	Pa.	nongassy	undetermined	0	0
		Cause: Undetermined--occurred in idle area. -----			
4608 10/5/63	W. Va.	gassy	conveyor belt	0	0
		Cause: Exact cause not determined because of extensive damage to the belt conveyor, but believe fire was initiated by friction of belt rubbing against wood or an overheated roller. -----			
134 10/11/63	Pa.	gassy	conveyor belt	0	0
		Cause: Fire started from slippage friction when main belt was started after feeder belt had piled up coal on it. -----			
1625 10/12/63	W. Va.	gassy	power wires	0	0
		Cause: Fire started when one phase of energized 440-volt 3 phase circuit came in contact with a grounded metal structure at dumping point near shaft bottom. -----			
4195 10/20/63	W. Va.	gassy	conveyor belt	0	0
		Cause: Friction or stalled roller or rollers ignited fine coal under and along the belt conveyor. -----			
17543 10/27/63	W. Va.	nongassy	conveyor belt	0	0
		Cause: Friction caused by a stalled roller or rollers ignited fine coal or coal dust along the belt conveyor. -----			
4955 10/28/63	W. Va.	gassy	conveyor belt	0	0
		Cause: Piece of rock fell on feeder cables creating a fault and resultant arcing ignited fine coal at conveyor unit. -----			
17684 11/13/63	Ala.	gassy	cutting machine	0	0
		Cause: Short circuit in trailing cable on the reel of the cutting machine ignited insulation, oil, and dust on the machine. -----			

UNDERGROUND COAL MINE FIRES - 1963 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17572 11/27/63	Va.	gassy	explosives	0	0
Cause: Part of a charge of permissible explosives in a borehole failed to detonate then caught fire and burned some gas being liberated in the freshly shot cut of coal. -----					
1238 11/27/63	Va.	nongassy	continuous miner	0	0
Cause: A small rock fell on a continuous miner trailing cable caused a short-circuit and portion of cable burned. -----					
225 12/2/63	Utah	nongassy	power cable	0	0
Cause: Door rubbing 4,160-volt alternating power cable created short and ignited brattice cloth and the door. -----					
1249 12/3/63	W. Va.	nongassy	cutting machine	0	0
Cause: Short circuit in the power conductors inside the controller compartment ignited hydraulic oil, hose, and coal dust on the cutting machine. Flammable hydraulic fluid tank did not rupture. -----					
136 12/20/63	Pa.	gassy	continuous miner	0	0
Cause: The trailing cable to the continuous mining machine ruptured where it entered the machine frame and the arcing ignited flammable hydraulic oil in back of the shield protecting the hydraulic hoses. Damaged six hydraulic hoses, but flammable oil did not intensify fire which was extinguished in about 5 minutes. -----					

UNDERGROUND COAL MINE FIRES - 1964

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17989 1/1/64	Ky.	nongassy	explosives	0	0
				Cause: Deteriorated stick of explosives burned instead of detonating and ignited the coal.	
747 1/2/64	Pa.	gassy	continuous miner	0	0
				Cause: Short circuit occurred between positive power lead and the frame of the continuous miner and the electrical arc ignited combustible material on the machine. Hydraulic hoses ruptured releasing flammable hydraulic fluid intensifying the fire.	
12576 1/15/64	Pa.	gassy	explosives	0	0
				Cause: Multiple blasting of a series of improperly charged long holes in coal caused the fire.	
136 1/15/64	Pa.	gassy	shuttle car	0	0
				Cause: Short circuit in trailing cable of 105C-JPE/PE shuttle car, igniting oil and grease on shuttle car.	
267 1/15/64	Ky.	gassy	cutting machine	0	0
				Cause: Short circuit in the electrical wiring near the pump motor ignited insulation. Some spilled hydraulic oil, and outer jackets of the hydraulic hoses.	
17997 1/27/64	Va.	nongassy	conveyor belt	0	0
				Cause: Poorly anchored bare positive feeder line fell on negative and caused arc which ignited conveyor belt.	
444 2/10/64	Pa.	gassy	roof-bolting machine	0	0
				Cause: Short circuit at a temporary splice in the trailing cable of the roof-bolting machine ignited electric wiring, front tires, drive belts and 75 feet of the trailing cable looped on the machine.	
1583 2/12/64	W. Va.	nongassy	cutting machine	0	0
				Cause: Fire started from grounded power lead in the tree of leads in the conduit hose for the bit meter. Fire was confined to the cutting machine.	
25465 2/15/64	Pa.	nongassy	undetermined	0	0
				Cause: Undetermined, may have resulted from smouldering material left from fire in same worked-out area first discovered September 30, 1963.	

UNDERGROUND COAL MINE FIRES - 1964 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1944 3/11/64	Ky.	gassy	burning explosives	0	0
			Cause: Fire was the result of burning explosives in a blasted cut of coal. (Extinguished in about 2 hours).		
22138 3/24/64	Pa.	nongassy	continuous miner	0	0
			Cause: Fault in the terminal block in the bumper on a continuous-mining machine ignited oil, grease, and fine coal on the machine.		
10082 3/29/64	Ill.	gassy	power cable	0	2
			Cause: Electrical origin. Probably caused by fault in 4,160-volt cable in a belt entry. (Sealed the fire area).		
1344 4/2/64	W. Va.	gassy	trolley switch	0	0
			Cause: Trolley-wire cut-out switch fell and came in contact with bare return power conductor. Arc ignited wooden post, track tie and coal.		
4743 4/14/64	Ill.	gassy	locomotive	1	0
			Cause: Overheating and shorting-out of the resistance on a locomotive when the controller was left-in an "on" position while the trolley pole assembly was in contact with the trolley wire.		
16867 4/15/64	W. Va.	gassy	cutting machine	0	0
			Cause: Short circuit in a series of leads connecting the cutter motor with the contactor compartment ignited insulation, hydraulic hose, oil, and coal dust on the machine.		
12548 4/15/64	Va.	nongassy	roof-bolting machine	0	0
			Cause: Roof-bolting machine ran over its own cable causing short circuit and resulting arc and flame ignited fire and oil spillage on the machine.		
1944 4/22/64	Ky.	gassy	roof-bolting machine	0	0
			Cause: Splice in the trailing cable on the reel of a roof-bolting machine short-circuited and the arc ignited grease, oil, hydraulic, and electrical system of the machine.		

UNDERGROUND COAL MINE FIRES - 1964 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
922 5/3/64	Pa.	gassy	roof fall on power wires	0	0
			Cause: Roof fall dislodged energized trolley and feeder wires which fell onto the track, arcing ignited a wooden cap piece and coal.		
495 5/5/64	Ohio	gassy	trolley feeder cable	0	0
			Cause: Derailed runaway mine cars short-circuited trolley feeder cable and one corner of a mine car was slightly damaged by fire.		
747 5/11/64	Pa.	gassy	oxy-acetylene torch	0	0
			Cause: Sparks or molten metal, produced by cutting steel beams with an oxy-acetylene torch, contacted combustible material.		
22873 5/13/64	Ky.	nongassy	cutting machine	0	0
			Cause: Control cable of a cutting machine caught fire. Fire extinguished promptly and damage slight. Cause unknown.		
133 5/25/64	W. Va.	gassy	power cables	0	0
			Cause: Roof fall on a pair of 500 mcm cables. Arcing of cables under the fall ignited fallen material. Extinguished promptly.		
8239 6/8/64	Ill.	gassy	rekindling of spon- taneous fire	0	0
			Cause: Partial mining of barrier pillar to protect previously sealed fire area permitted oxygen to enter sealed area and fire rekindled.		
2115 6/8/64	Va.	nongassy	cutting machine	0	0
			Cause: Short circuit in either an overheated splice in the trailing-cable reel or collector rings ignited oil, grease, and coal dust on the cutting machine.		
31884 6/9/64	Ky.	nongassy	cutting machine	0	0
			Cause: Faulty splice in cutting machine cable. Sustained arc caused 30 feet of cable to burn.		
17594 6/17/64	Va.	gassy	belt head roller	0	0
			Cause: overheated bearing on head roller ignited curtain cloth enclosure around the exchange point.		

UNDERGROUND COAL MINE FIRES - 1964 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1690 6/20/64	Pa.	gassy	shuttle car	0	0
Cause: Fire occurred in cable reel of a parked shuttle car, but was confined to the trailing cable, cable reel, six hydraulic hoses, and a rubber tire. Hydraulic hoses did not rupture.					
859 6/20/64	W. Va.	nongassy	trolley wire	0	0
Cause: Roof fall dislodged the trolley wire which came in contact with the wet mine floor. Resultant heat generated by the short circuit ignited fallen combustible material.					
495 8/3/64	Ohio	gassy	power cable	0	0
Cause: Fall of roof struck transmission cable resulting in contact with one of the steel rails supporting the metal roof of a switch house. Resultant heat ignited small portion of the coal rib.					
17530 8/4/64	Tenn.	nongassy	cutting machine	0	0
Cause: Cable short-circuit on the reel of a cutting machine igniting the insulation, hydraulic hose, oil, and coal dust on the machine. Hydraulic oil tank ruptured spilling oil and added to intensity of fire.					
1120 8/11/64	Ky.	gassy	power wire	0	0
Cause: moving mine cars dislodged a crossbar and roof fall caused bare energized feeder wire to contact a steel mine car. Resulting arc ignited coal in car, timbers, and lagging.					
17435 8/13/64	W. Va.	gassy	power wire	0	0
Cause: short-circuit in cable coupler in circuit-breaker house ignited urethane foam that was used to cover the ribs of the enclosure.					
732 8/17/64	Pa.	gassy	cutting machine	0	0
Cause: The fire occurred as a result of a fault in an electric cable leading from the control panel to the cutting motor. Extensive damage to the cutting machine.					

UNDERGROUND COAL MINE FIRES - 1964 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
37143 8/21/64	Ky.	nongassy	conveyor belt	0	0
Cause: Short circuit in the belt drive motor ignited insulation, oil that had spilled around the speed reducer, and about 20 feet of the fire-resistant belt.					
3701 8/27/64	Ky.	nongassy	cutting machine	0	0
Cause: Short circuit in tree of leads to the cutting motor against frame of the machine and arc ignited grease and oil on the top side of the machine.					
1944 8/31/64	Ky.	gassy	shuttle car	0	0
Cause: Discharge boom of the shuttle car contacted mine car resulting in spark or arc which ignited oil from broken oil line, Hydraulic system and 2 tires of shuttle car destroyed.					
37200 9/9/64	Ky.	nongassy	cutting machine	0	0
Cause: Short circuit between cable on the reel and grounded frame of the cutting machine.					
31831 9/10/64	Pa.	nongassy	undetermined	0	0
Cause: Undetermined--Smoke detected in return airway by employees. (State inspector ordered the 2 openings be sealed--mine was abandoned).					
34783 10/6/64	Tenn.	nongassy	cutting machine	0	0
Cause: Short circuit occurred when wheel of the cutting machine ran over the trailing cable ignited tire, oil leakage, fine coal deposits on machine and fallen coal from roof.					
16867 10/16/64	W. Va.	gassy	conveyor belt	0	0
Cause: Frictional heat and fire developed when fire-resistant belt and roller were in contact with loose coal and coal dust.					
4256 10/17/64	W. Va.	nongassy	locomotive	0	0
Cause: Short circuit because of breakdown of insulation in power lead to controller compartment while the locomotive was parked.					

UNDERGROUND COAL MINE FIRES - 1964 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
389 10/18/64	Ky.	gassy	belt conveyor	0	0
Cause: Overheated bearing in tail piece of the conveyor belt ignited the flame-resistant belt and some coal dust. Damaged 50 feet of belt.					
17925 10/29/64	Tenn.	nongassy	conveyor belt	0	0
Cause: Frictional heat from slippage drive rollers ignited conveyor belt, coal, coal dust, oil, and grease that had accumulated on the unit.					
36722 11/5/64	W. Va.	gassy	cutting machine	0	0
Cause: Arc of short circuit in power circuit leading to the bit motor ignited oil, grease, and coal dust on the cutting machine. Hydraulic hoses burst and released flammable oil which intensified fire.					
1625 11/19/64	W. Va.	gassy	cutting machine	0	0
Cause: Fault in leads from cutter motor to the contactor compartment on a cutting machine resulted in ignition of insulation, hydraulic of conduit hose, oil, and coal dust on the machine.					
4 11/21/64	Pa.	gassy	borehole cable	0	0
Cause: Electrical short circuit caused by failure of cable insulation within borehole.					
747 12/5/64	Pa.	gassy	shuttle car	0	0
Cause: Shuttle car ran over trailing cables of a continuous miner and another shuttle car causing a short circuit in these cables resulting in the burning of a shuttle-car tire and grease on the car wheel.					
35015 12/6/64	Pa.	nongassy	chain conveyor power cables	0	0
Cause: Roof fall crushed power cables of a chain conveyor and resulting arc ignited cable insulation, and loose coal along the conveyor. (Power was not cut off during an idle period).					
13072 12/10/64	Ala.	gassy	shortwall cutting machine	0	0
Cause: The trailing cable on a shortwall cutting machine, of which 200 feet was in a coil, was ignited from an arc due to a short-circuit in the cable.					

UNDERGROUND COAL MINE FIRES - 1964 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
1367 12/14/64	Pa.	gassy	shuttle car	0	0
Cause: Short circuit at a temporary splice in the trailing cable on the reel of a shuttle car resulted in fire which was confined to the cable reel, about 200 feet of cable on the reel, and hydraulic hoses.					

36381 12/21/64	W. Va.	nongassy	conveyor belt	0	0
Cause: Belt drive motor grounded and caused arcing which ignited combustible material in area. (Fire discovered by preshift examiner during idle period).					

17594 12/29/64	Va.	gassy	locomotive	0	0
Cause: Fire started when a short-circuit occurred in electric wiring to a locomotive resistance and burned a hole in the bottom of a charged tank of acetylene being transported on the locomotive.					

UNDERGROUND COAL MINE FIRES - 1965

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2422 1/8/65	W. Va.	gassy	air compressor	0	1
Cause: Excessive heat caused by a faulty unloading valve ignited oil, coal dust, conduit hoses, and insulation.					
732 1/29/65	Pa.	gassy	cutting machine	0	0
Cause: Arc created when cutting motor cable was damaged during repair ignited coal dust and oil.					
731 2/10/65	Ky.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on reel of machine ignited combustibles on machine.					
17997 2/23/65	Va.	nongassy	conveyor belt	0	0
Cause: Roof fall caused bare power cable to contact belt frame and resulting arc ignited the rubber belt, loose coal and wooden roof supports.					
14893 2/24/65	Va.	gassy	trolley wire	0	0
Cause: End of trolley wire touched steel cars and resultant heating of wire ignited a brattice cloth stopping through which the trolley wire passed.					
13399 2/25/65	Ky.	nongassy	shuttle car	0	0
Cause: Arcing from short circuit at temporary splice in trailing cable on reel of car ignited cable insulation.					
28 3/10/65	Pa.	nongassy	continuous miner	0	0
Cause: Arc created when power cable short circuited in connection box on machine ignited coal and oil on machine. Flammable hydraulic fluid intensified fire.					
38445 3/12/65	Ky.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in loader cable caused when cutting machine ran over loader cable ignited tires on cutting machine.					
4955 3/15/65	W. Va.	gassy	power cables	0	0
Cause: Arc created when roof fall caused short circuit of power cables ignited insulations, timbers and loose coal.					

UNDERGROUND COAL MINE FIRES - 1965 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
3143 3/18/65	Pa.	nongassy	cutting machine	0	0
Cause: Arc from fault in trailing cable on reel of machine ignited insulation and combustibles on machine. -----					
992 3/25/65	Pa.	gassy	trolley cable and feeder	0	0
Cause: Arc from trolley and feeder cables contacting track rail as result of roof fall ignited coal rib. -----					
1611 3/31/65	Pa.	gassy	shuttle car	0	1
Cause: Arc resulting from shuttle car pinching continuous miner cable against rib ignited loose coal. -----					
695 4/20/65	Pa.	gassy	feeder cables	0	0
Cause: Derailed mine cars dislodged roof support and power cables and arc resulting from power cables touching steel cars ignited wooden logging and coal in the cars. -----					
296 4/27/65	W. Va.	gassy	borehole cables	0	0
Cause: Power surges caused movement of the cables in borehole and ruptured insulation resulting in short circuit to borehole casing and subsequent arcing which burned cables apart and set fire to coal at bottom of hole. -----					
2142 4/29/65	W. Va.	nongassy	shuttle car	0	0
Cause: Arc resulting when shuttle car ran over and caused short circuit in cutting machine cable ignited a tire, coal, and hydraulic hose on shuttle car. -----					
17508 4/30/65	Pa.	nongassy	cutting machine	0	0
Cause: Arc resulting from short circuit in power cable to cutting motor of machine ignited electric wiring, hydraulic hoses and coal dust. -----					
16867 5/4/65	W. Va.	gassy	roof bolting machine	0	0
Cause: Arc from short circuit at defective splice on reel of machine ignited oil and coal dust on machine. -----					

UNDERGROUND COAL MINE FIRES - 1965 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
2207 5/12/65	Colo.	gassy	spontaneous combustion	0	0
Cause: Spontaneous heating in an unsealed gob area. -----					
33585 5/14/65	W. Va.	nongassy	continuous miner	0	0
Cause: Arc created when damaged portion of miner trailing cable contacted a conveyor ignited oil and coal dust. -----					
495 5/15/65	Ohio	gassy	acetylene torch	0	0
Cause: Sparks or molten metal from cutting operation with torch ignited grease on a wooden shaft guide. -----					
12571 5/25/65	W. Va.	gassy	belt conveyor	0	0
Cause: Heat from a defective belt roller ignited the belt. -----					
672 5/29/65	W. Va.	gassy	shuttle car	0	0
Cause: Arc from short circuit in trailing cable on reel of car ignited combustibles on car. -----					
2961 6/5/65	W. Va.	gassy	power conductor	0	0
Cause: Roof fall dislodged bare power conductors resulting in short circuit which caused arcing sufficient to ignite coal dust and loose coal. -----					
2298 6/17/65	Pa.	nongassy	discarded cigarette	0	0
Cause: Presumably a lighted cigarette was tossed against a wooden stopping and eventually ignited the stopping. -----					
17539 6/21/65	W. Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in power tree to cutting motor ignited hydraulic hoses which ruptured and flammable oil intensified the fire. -----					
2995 7/13/65	Pa.	nongassy	undetermined	0	0
Cause: Possibly caused by a discarded cigarette which started a smoldering fire in an abandoned area which was subsequently sealed. -----					

UNDERGROUND COAL MINE FIRES - 1965 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17979 7/21/65	W. Va.	gassy	belt conveyor starter	0	0
			Cause: Defective relay coil caused contactors to heat and ignite insulation.		
17508 7/22/65	Pa.	nongassy	power feeder cables	0	0
			Cause: Fault in power wires between feeder cables and circuit breaker caused arcing which ignited coal at each spot where the negative conductor contacted the belt frame.		
2 7/24/65	W. Va.	gassy	rectifier room	2	0
			Cause: Squeeze conditions caused the 4160 a. c. disconnecting switches to contact metal roof of room and resulting arc ignited combustibles in the room. Victims went in by fire and suffocated.		
12591 8/13/65	W. Va.	gassy	cutting machine	0	0
			Cause: Arc resulting from short circuit in trailing cable when machine ran over cable ignited rubber tires, insulation, hydraulic hoses, coal and oil on machine.		
13664 9/3/65	Ohio	gassy	belt conveyor	0	0
			Cause: Fault in belt conveyor drive motor caused heating which ignited oil and other combustibles in area.		
38631 9/23/65	W. Va.	nongassy	cutting machine	0	0
			Cause: Arc from short circuit at temporary splice in trailing cable of machine ignited combustibles in area and fire was eventually sealed.		
615 9/24/65	Pa.	gassy	electric arc	0	0
			Cause: Arc created when sheet metal between metal roof beams contacted trolley wire ignited wooden logging over the beams.		
39732 9/29/65	Ky.	nongassy	roof drill	0	0
			Cause: Arc from trailing cable being short circuited by entanglement in chain drive mechanism of drill ignited tires insulation, hose, oil and coal dust. Flammable hydraulic fluid intensified the fire.		

UNDERGROUND COAL MINE FIRES -1965 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
907 9/29/65	Pa.	gassy	power cable	0	0
Cause: Roof fall forced bare power wire against bare return wire and resulting are ignited wooden roof supports.					
38143 10/2/65	Ill.	gassy	rigid foam	0	0
Cause: Heat liberated by chemical action where an excessive thickness of foam had been applied to an overcast burned the foam.					
747 10/4/65	Pa.	gassy	power cable	0	0
Cause: Roof fall forced bare power cables together and resultant arcing ignited coal.					
33582 10/16/65	W. Va.	gassy	continuous miner	7	0
Cause: Arc from frame of machine being pulled touching trolley wire ignited belt covering machine and subsequently hoses and flammable hydraulic fluid and finally coal ribs. Main fan was shut down for a time and in interim gases distilled from coal which exploded when fan restarted and atmosphere enriched with oxygen. This disaster not listed as an explosion.					
26805 10/18/65	Pa.	nongassy	conveyor belt	0	0
Cause: Heat caused by friction between stalled belt and moving drive pulley ignited the belting.					
2957 10/19/65	Ky	nongassy	undetermined	0	0
Cause: Fire of undetermined origin in an abandoned area traversed by an active haulageway discovered by a supply crew.					
3074 10/19/65	Ky.	gassy	shuttle car	0	0
Cause: Arc from short circuit in cable between reel and controller ignited insulation, oil, grease, coal dust, and tires on machine.					
169 10/22/65	W. Va.	gassy	belt conveyor	0	0
Cause: A fire of undetermined origin occurred at the head of a belt conveyor and spread to extent that mine was sealed.					

UNDERGROUND COAL MINE FIRES - 1965 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
34595 10/25/65	Pa.	nongassy	belt conveyor	0	0
Cause: A fire of undetermined origin started while mine was idle destroyed some belting and damaged the drive mechanisms.					
1344 11/1/65	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on reel of machine ignited coal dust, oil and grease on machine.					
267 11/2/65	Ky.	gassy	shuttle car	0	0
Cause: Arc from cable damaged by spooling mechanism on reel ignited cable insulation and hydraulic hoses.					
965 11/4/65	Pa.	gassy	locomotive	0	0
Cause: Arc resulting from fault in wiring of locomotive ignited insulation and fire was extinguished quickly.					
1885 11/16/65	W. Va.	gassy	shuttle car	0	0
Cause: Arcing produced by short circuit when cable squeezed between car wheel and rail.					
17594 11/18/65	Va.	gassy	shuttle car	0	0
Cause: Arc from short circuit at defective splice in trailing cable ignited cable insulation.					
25465 11/18/65	Pa.	nongassy	undetermined	0	0
Cause: Possibly resulted from old fire in another bed breaking through. Mine flooded.					
29866 11/22/65	Ohio	nongassy	spontaneous combustion	0	0
Cause: Fire of undetermined origin was found in idle mine by a State inspector and a mine employer. Mine was sealed.					
61 11/29/65	W. Va.	gassy	substation	0	0
Cause: Fault in compensator caused short circuit and resulting arc ignited insulation. Fire confined to station.					

UNDERGROUND COAL MINE FIRES - 1965 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
26287 11/30/65	Tenn.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on reel of machine ignited hose which ruptured and flammable hydraulic fluid intensified fire.					
38897 12/3/65	W. Va.	nongassy	belt conveyor	0	0
Cause: Overheated drive roller ignited non fire-resistant belt.					
38897 12/13/65	W. Va.	nongassy	belt conveyor	0	3
Cause: Not determined, presumed to be electric arc or smoking. Rubber belt and drive unit damaged.					
2023 12/17/65	Va.	nongassy	cutting machine	0	0
Cause: Arc produced when machine ran over and damaged own cable ignited oil on machine.					
136 12/28/65	Pa.	gassy	locomotive	1	0
Cause: Fault in current collector caused arc which ignited operator's clothing and severe burns resulted.					

UNDERGROUND COAL MINE FIRES - 1966

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
17435 1/11/66	W. Va.	gassy	locomotive	0	0
Cause: Cables from trolley shoe to connection box on locomotive frame short circuited and the resulting are ignited insulation.					
35906 1/28/66	W. Va.	nongassy	belt conveyor drive	0	0
Cause: Defective slippage control permitted pulley movement when belt was fouled by coal spillage and heat induced by friction ignited coal.					
495 2/14/66	Ohio	gassy	shuttle car	0	0
Cause: Arc from short circuit at defectively insulated spot in trailing cable ignited insulation of cable and hydraulic hoses.					
697 2/17/66	Pa.	gassy	conveyor belt roller	0	0
Cause: An overheated belt roller ignited flammable belt and wooden roof supports between working shifts.					
1885 2/23/66	W. Va.	gassy	belt conveyor drive	0	0
Cause: Heat induced by belt and drive pulley rubbing against belt frame ignited oil and grease.					
17822 2/25/66	W. Va.	gassy	conveyor belt	0	0
Cause: Heat from friction of conveyor belt rubbing a wooden deflector ignited combustible material.					
7836 2/26/66	W. Va.	gassy	shuttle car	0	0
Cause: Metal cover over shuttle car reel came in contact with trolley wire while car was being moved by locomotives and resulting arc ignited a belting cover on car and hydraulic hoses.					
697 3/1/66	Pa.	gassy	borehole cable	0	0
Cause: Arc caused by short-circuit of cable near bottom of borehole ignited cable insulation.					
2957 3/10/66	Ky.	nongassy	cutting machine	0	0
Cause: Arc caused by short circuit in trailing cable on reel of machine ignited oil, coal dust, hydraulic hoses and wiring on machine.					

UNDERGROUND COAL MINE FIRES - 1966 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
33582 3/17/66	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on reel of machine ignited cable insulation.					
36819 3/24/66	Ky.	nongassy	power feeder cable	0	0
Cause: Roof fall dislodged energized feeder cable which fell on bare return cable and resulting arc ignited loose coal and coal rib.					
615 3/30/66	Pa.	gassy	circuit breaker	0	0
Cause: Fall of roof causing short circuit between feeder cable and reel resulted in severe arcing at circuit breaker which ignited cables leading to the breaker.					
25019 4/5/66	Va.	gassy	belt conveyor drive	0	0
Cause: Heat generated by friction between moving head pulley and stalled belt (fouled by spilled coal) ignited coal dust in area.					
165 5/2/66	W. Va.	gassy	power cables	0	2
Cause: A high resistance short circuit in power cables to a pump caused cables to smoulder and produce smoke which affected men downwind.					
1885 5/4/66	W. Va.	gassy	belt conveyor roller	0	0
Cause: A defective bearing in belt conveyor roller caused sufficient heat to ignite the belt.					
1690 5/20/66	Pa.	gassy	shuttle car	0	0
Cause: Arc caused by short circuit in trailing cable on reel of machine ignited cable insulation, hydraulic hoses and tires.					
136 6/24/66	Pa.	gassy	feeder cable switch	0	0
Cause: Presumed that switch not completely engaged and arcing between blade and jaw caused fire.					
279 6/28/66	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in trailing cable on machine ignited coal and oil on machine and subsequently hydraulic hoses. Flammable hydraulic fluid intensified fire.					

UNDERGROUND COAL MINE FIRES - 1966 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
5761 7/19/66	W. Va.	gassy	shuttle car	0	0
Cause: Arc from short circuit at temporary splice in cable on reel of car ignited cable, a tire and hydraulic hoses. -----					
17627 7/21/66	Pa.	gassy	oxy-acetylene torch	0	3
Cause: Presumably sparks from cutting operation ignited shaft and slope timbers and spread to adjacent airway timbers although fire searches had been made. -----					
8239 7/24/66	Ill.	gassy	spontaneous combustion	0	1
Cause: Spontaneous combustion in an unsealed gob area. No active fire observed only carbon monoxide and smoke. -----					
44 7/28/66	W. Va.	nongassy	shuttle car	0	0
Cause: Arc produced by short circuit when shuttle car ran over continuous miner cable ignited combustible materials. -----					
151 8/1/66	W. Va.	gassy	shuttle car	0	0
Cause: Arc from short circuit at wet splice in cable on reel of car ignited the cable insulation. -----					
10082 8/9/66	Ill.	gassy	spontaneous combustion	0	0
Cause: Spontaneous heating in a caved area indicated by smoke caused the area to be sealed. -----					
133 8/10/66	W. Va.	gassy	cutting machine	0	0
Cause: Arc created when machine ran over its own trailing cable causing short circuit ignited hydraulic hoses. -----					
78 8/15/66	W. Va.	gassy	continuous miner	0	0
Cause: Arc resulting from short circuit in cable near contactor box ignited combustibles on machine. -----					
10707 8/21/66	Pa.	gassy	trolley wire	0	0
Cause: Roof fall caused trolley wire to touch return cable and ensuing arc ignited timber and coal. -----					

UNDERGROUND COAL MINE FIRES - 1966 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
40000 8/23/66	Ky.	nongassy	cutting machine	0	0
Cause: Arc resulting from short circuit in power leads to cutting motor ignited oil, grease, coal dust and hydraulic hoses. Flammable hydraulic fluid intensified the fire.					
33963 9/2/66	Ky.	nongassy	explosives	0	0
Cause: Presumably burning explosives ignited coal and fire area was sealed.					
40709 9/14/66	Ohio	nongassy	cutting machine	3	0
Cause: Arc resulting from short circuit caused by machine running over its own cable ignited coal. Areas sealed to extinguish fire.					
41093 9/20/66	W. Va.	nongassy	cutting machine	0	0
Cause: Arc created by short circuit in power tree to contactor compartment ignited combustibles.					
33561 9/20/66	W. Va.	nongassy	shuttle car	0	0
Cause: Arc resulting from short circuit caused by cable being fouled under wheels of car ignited tires, wiring and hydraulic hoses.					
1344-A 9/23/66	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit at splice in trailing cable near packing gland ignited coal and oil in area.					
16867 9/30/66	W. Va.	gassy	shuttle car	0	0
Cause: Arc from short circuit in cable on reel of car ignited oil and coal dust on car.					
41093 10/3/66	W. Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit in cable on reel of machine ignited oil, coal dust and hydraulic hoses. Flammable hydraulic fluid intensified fire.					
573 10/13/66	Pa.	gassy	continuous miner	0	1
Cause: Arc resulting from fault in trailing cable ignited plastic brattice-cloth, boards and timbers.					

UNDERGROUND COAL MINE FIRES - 1966 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
834 10/19/66	Pa.	gassy	fire in connected mine	0	0
Cause: Surface fire spread to abandoned mine connected to active mine and carbon monoxide caused closure of active mine. -----					
14893 10/26/66	Va.	gassy	locomotive	0	0
Cause: Defective insulation permitted power wire to touch metal and arc ignited insulation. -----					
3243-A 11/15/66	W. Va.	nongassy	cutting machine	0	0
Cause: Arcing from a defective splice in trailing cable on reel of machine ignited oil, grease, coal dust and hoses. Flammable hydraulic fluid intensified fire. -----					
35989 12/2/66	W. Va.	nongassy	loading machine	1	0
Cause: While maneuvering loading machine, operator was squeezed against rib causing his death. Machine continued to run, tramming motors overheated, a short circuit and coal and oil on machine were ignited. -----					
643 12/28/66	Ohio	gassy	rectifier	0	0
Cause: Violent arcing at the breaker caused by a short circuit of power and feeder wire to track near the breaker as result of roof fall ignited insulation in rectifier enclosure. -----					

UNDERGROUND COAL MINE FIRES - 1967

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
13339 1/3/67	Ky.	nongassy	loading machine	0	0
Cause: Short circuit in leads to tram motor ignited rubber belting covering tram motor. -----					
34174 1/4/67	Ohio	nongassy	loading machine	0	0
Cause: Arcing between conductors of trailing cable crushed between machine and rib ignited hydraulic hoses, insulation and belting over tram motor. -----					
7403 1/11/67	Ky.	gassy	cutting machine	0	0
Cause: Arc from short circuit at a splice in cable on reel of machine ignited cable then other combustible on machine. -----					
29997 1/14/67	Va.	nongassy	cutting machine	0	0
Cause: Fall of roof on energized machine cable caused arc which ignited coal-mine idle. -----					
3954 1/20/67	Ky.	gassy	feeder cable in borehole	0	0
Cause: Short circuit in feeder cables at entrance to borehole casing started cable fire and cables dropped into mine. -----					
7128 1/23/67	Ill.	gassy	cutting machine	0	0
Cause: Cable on reel of machine burst into flame and ignited combustibles on machine. -----					
42012 2/7/67	W. Va.	nongassy	cutting machine	0	0
Cause: Arc resulting from short-circuit in power leads between the reel and contactor compartment ignited combustibles on machine. -----					
4608 2/8/67	W. Va.	gassy	conveyor belting	0	1
Cause: Conveyor belt in mine cars and belt at discharge end of belt conveyor burned. Cause of fire unknown. -----					
213 2/8/67	Pa.	gassy	borehole cables	0	0
Cause: Arc resulting from short circuit ignited cables in a borehole. -----					

UNDERGROUND COAL MINE FIRES - 1967 (Continued)

<u>BOM</u> <u>File No.</u> <u>and date</u>	<u>State</u>	<u>Classification</u>	<u>Type of fire</u>	<u>Injuries</u>	
				<u>Fatal</u>	<u>Nonfatal</u>
40368 2/10/67	Ky.	nongassy	cutting machine	0	0
Cause: Arc from short circuit at splice in cable on reel ignited cable. -----					
39784 2/15/67	W. Va.	nongassy	cutting machine	0	0
Cause: Arc from short circuit at defective splice in cable on reel ignited oil, grease, hydraulic hoses and machine tires. Flammable hydraulic fluid intensified fire. -----					
404 2/26/67	Ohio	gassy	trolley wire	0	0
Cause: Fall of roof forced trolley wire against track rail and resulting arc ignited coal on mine floor. -----					
29965 2/26/67	Ky.	gassy	hot metal from oxy-acetylene cutting	0	0
Cause: Presumably while making repairs to a belt conveyor drive hot metal particles from cutting with oxy-acetylene torch ignites coal after repairmen left mine. -----					
1160 2/28/67	Colo.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in a partly sealed area. -----					
39950 3/9/67	W. Va.	nongassy	cutting machine	0	1
Cause: Arcing at a temporary splice in cable leading to motor armature ignited grease and coal dust on machine. -----					
1160 4/5/67	Colo.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in a gob area. -----					
594 4/6/67	Ill.	gassy	spontaneous combustion	0	0
Cause: Spontaneous combustion in gob area. -----					
643 4/7/67	Ohio	gassy	locomotive	0	0
Cause: Arc from short circuit in contactor compartment ignited cable insulation and wooden contactor bases. -----					

UNDERGROUND COAL MINE FIRES - 1967 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
7925 4/8/67	Ohio	gassy	belt-conveyor drive	0	0
Cause: Roof face caused feeder cable to contact belt frame and ensuing arc ignited wooden timber and coal.					
4792 4/23/67	Ky.	nongassy	feeder wire	0	0
Cause: Roof face forced energized feeder wire against return feeder and ensuing arc ignited combustible material on mine floor.					
40961 5/10/67	Ky.	nongassy	cutting machine	0	0
Cause: Fire in cutting motor ignited oil and coal dust on machine and eventually hydraulic hoses. Flammable hydraulic fluid intensified fire.					
39648 5/16/67	Ky.	nongassy	belt conveyor roller	0	0
Cause: Fouled bottom belt roller became heated and ignited coal nearby.					
1733 5/17/67	Utah	gassy	battery-charging station	0	0
Cause: Arc resulting from short circuit in a breaker box in the d. c. lighting circuit ignited a wooden door in the station.					
39884 6/8/67	Ky.	nongassy	abandoned auger hole	0	0
Cause: Cutter bar of cutting machine cut through to fire in an uncharted abandoned auger hole.					
40863 6/15/67	Ky.	nongassy	cutting machine	0	0
Cause: Fire presumably started in power lead near pump motor and spread to wiring and hydraulic hoses and extinguished itself.					
136 6/26/67	Pa.	gassy	trolley and feeder wires	0	0
Cause: Fall of roof dislodged trolley and feeder wires which fell on track rails and ensuing arc ignited wooden lagging and coal on mine floor.					

UNDERGROUND COAL MINE FIRES - 1967 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
40776 6/30/67	Ohio	nongassy	conveyor-belt drive	0	0
Cause: Belt drive pulleys continued to rotate when belt was stalled by coal and resulting friction created sufficient heat to ignite belting and coal.					
3923 7/5/67	Ky.	nongassy	power cable	0	0
Cause: Face of roof caused short circuit in power cable to pump and ensuing arc ignited cable.					
3159 7/21/67	Ill.	gassy	conveyor-belt drive	0	0
Cause: Belt suspension failure permitted coal spillage which fouled belt but drive pulley continued to run and heat produced by friction ignited the belt and coal.					
12519 7/24/67	Ill.	gassy	power feeder cable	0	0
Cause: Roof face forced bare feeder cable against compressed-air line and ensuing arc ignited coal on mine floor.					
42235 7/27/67	W. Va.	nongassy	power feeder cable	0	2
Cause: Arcing at a loose splice caused hot metal to drop on and ignite insulation of cable lying on mine floor beneath.					
14893 8/2/67	Va.	gassy	conveyor-belt feeder	0	1
Cause: Overheated hydraulic pump shaft on the belt feeder ignited coal in which the shaft was engulfed.					
17539 8/19/67	W. Va.	nongassy	power conductors	0	0
Cause: Roof fall caused short circuit at a splice and resulting arcing ignited timbers and the conveyor belt.					
697 8/21/67	Pa.	gassy	feed-line hangers	0	0
Cause: Failure of insulated feed-line hangers energized steel roof supports and current transmitted to rail through out-of-car monitor control. Arcing at car wheels ignited spilled oil and subsequently hydraulic hoses of car spotter. Flammable hydraulic fluid intensified fire.					

UNDERGROUND COAL MINE FIRES - 1967 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
8154 10/18/67	W. Va.	gassy	cutting machine	0	0
Cause: Arc resulting from short circuit in cable on reel of machine ignited coal and oil on machine. -----					
133 10/19/67	W. Va.	gassy	cutting machine	0	0
Cause: Arc resulting from short circuit between exposed power conductor and uninsulated part of reel on machine ignited cable insulations and hoses. -----					
4955 10/25/67	W. Va.	gassy	cutting machine	0	0
Cause: Arc from short circuit in power tree leads to cutting motor, ignited oil and coal dust on machine. -----					
136 10/30/67	Pa.	gassy	trolley and feeder switch	0	0
Cause: Locomotive ran into fall making contact with dislodged trolley and feeder wires. When switch was opened under this load the resulting arc ignited wooden logging near switch. -----					
535 11/5/67	Pa.	gassy	conveyor belt	0	0
Cause: Presumably an overheated belt roller ignited coal dust and subsequently the belt. Fire smouldering when found but had been intense since roller ends were melted. -----					
23743 11/10/67	Pa.	nongassy	cutting machine	0	0
Cause: Arc which resulted when a damaged motor lead short-circuited to frame of machine ignited wiring, hydraulic hoses and tires. -----					
157 12/19/67	Pa.	gassy	power cable	0	0
Cause: A negative power cable lying on mine floor and reduced in size by corrosion became overheated and melted. About six feet of cable destroyed. -----					

UNDERGROUND COAL MINE FIRES - 1967 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
318 9/6/67	W. Va.	gassy	shuttle car	0	0
Cause: Arcing at temporary splice in cable on reel ignited insulation and subsequently oil and coal dust on the car.					
14893 9/13/67	Va.	gassy	belt-feeder	0	0
Cause: Indeterminate owing to removal of burned materials and repairs made before investigation; possibly blown cable, methane ignitions, coal dust ignitions or overheated belt rollers or bearings.					
157 9/23/67	Pa.	gassy	acetylene cylinder	0	0
Cause: Presumably acetylene escaping from a cylinder was ignited by airborne sparks from a cutting operation downwind from the leaking tank.					
17512 9/24/67	Ky.	nongassy	power conductor	0	0
Cause: Face of roof forced bare power conductor against bare return wire and ensuing arc ignited combustible material on mine floor.					
767A 9/28/67	W. Va.	nongassy	trolley and feeder wires	0	0
Cause: Roof face forced bare power conductors against track rail and ensuing arc ignited fallen coal on mine floor					
41006 9/29/67	W. Va.	nongassy	cutting machine	0	0
Cause: Arc resulting from short circuit in power tree for cutting motor ignited hydraulic hoses which ruptured releasing flammable fluid which intensified fire.					
1625A 10/5/67	W. Va.	gassy	power conductors	0	0
Cause: Rubber-tired steel mine car contacted positive and negative power conductors and ensuing arc ignited two cases of explosives in the car.					

UNDERGROUND COAL MINE FIRES - 1968 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
28297 2/15/68	Ky.	nongassy	cutting machine	0	0
Cause: Short circuit in trailing cable on the reel of a cutting machine ignited cable insulation, coal dust, and oil on the machine.					

3159 3/1/68	Ill.	gassy	undetermined		
Cause: Probably spontaneous combustion. Ceased production 2/14/68. Fire in vicinity of rotary dump discovered during recovery of material.					

38610 3/4/68	Ky.	nongassy	cutting machine	0	0
Cause: Excessive heat generated by the large amount of trailing cable on the reel of a cutting machine resulted in a high resistance short circuit and ignition of the cable insulation, oil, and coal dust on the machine.					

43436 3/5/68	W. Va.	nongassy	continuous miner	0	1
Cause: Short circuit in trailing cable of a continuous miner ignited fallen roof coal on the floor and adjacent coal ribs.					

8239 3/6/68	Ill.	gassy	spontaneous	0	0
Cause: Spontaneous fire in mined-out caved area.					

37385 3/21/68	Pa.	gassy	mining machine	0	0
Cause: Short circuit between adjoining wraps of cable on the reel or a mining machine ignited cable insulation and other combustible material in the reel compartment and spread to other parts of the machine.					

43737 4/4/68	W. Va.	nongassy	conveyor belt	0	0
Cause: Fire occurred when a short circuit in a sequence control switch made it inoperative, resulting in coal piling at the conveyor drive pulley and subsequent ignition by frictional heat.					

UNDERGROUND COAL MINE FIRES - 1968

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
41462 1/18/68	Va.	nongassy	shuttle car	0	1
Cause: Maintenance employee used a compressed oxygen jet to blow dust from the contactor case of a shuttle car and flame erupted. Only minor damage to the shuttle car, but employee received first degree burns about the face.					
33551 1/24/68	Va.	nongassy	oxygen-acetylene	2	1
Cause: Oxygen-acetylene fire was caused by an explosion inside the oxygen regulator. Probably caused by oil inside the regulator. Apparently, flying objects severed the coiled hose which released acetylene to participate in the ensuing fire.					
17804 1/26/68	Ky.	nongassy	cutting machine	0	0
Cause: Short circuit in trailing cable of a cutting machine ignited insulation on the cable.					
296 1/27/68	W. Va.	gassy	shuttle car	0	0
Cause: Probably fire occurred in the cable reel of an unattended shuttle car. Exact cause not determined. (Fire area sealed).					
- 2/5/68	W. Va.	new slope not classified as a mine	spontaneous heating	0	0
Cause: Fire kindled spontaneously in a wooden bar encased in recently applied urethane foam.					
4195 2/7/68	W. Va.	gassy	roof-bolting machine	0	0
Cause: Short circuit in the trailing cable of a roof-bolting machine resulted from cable being run over by the machine and this ignited a rubber tire, coal dust, and spilled oil on the machine.					
17435 2/12/68	W. Va.	gassy	overheated air compressor	0	0
Cause: A fire occurred because of overheating of the air compressor as a result of an excessive accumulation of dirt on the intercooler and cooling fins of the compression cylinders.					

UNDERGROUND COAL MINE FIRES - 1968 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
40961 4/8/68	Ky.	nongassy	mining machine	0	0
Cause: Short circuit occurred when the mining machine ran over the trailing cable of the loading machine igniting the rubber tires of the mining machine.					
42811 4/16/68	W. Va.	nongassy	mining machine	0	0
Cause: Short circuit in temporary splice in the trailing cable on the cable reel of a mining machine ignited cable insulation, oil, a tire, and other combustible materials.					
594 4/21/68	Ill.	gassy	spontaneous	0	0
Cause: Spontaneous fire in abandoned sealed area resulting from ineffective seals.					
8874 5/4/68	W. Va.	gassy	conveyor belt	0	0
Cause: Conveyor belt drive speed reducer became overheated and ignited combustible materials.					
38069 5/12/68	Ky.	nongassy	electrical power conductors	0	0
Cause: Falling roof caused short circuit in the 440-volt alternating-current power-feeder cable on the mine floor igniting combustible material on the floor and the coal rib.					
1583 5/24/68	W. Va.	nongassy	locomotive	0	0
Cause: Power wires to a pump-motor contactor short circuited, causing arcing which ignited combustible materials on an unattended locomotive.					
7403 6/11/68	Ky.	gassy	cutting machine	0	0
Cause: Short-circuit at splices in the trailing cables of a cutting machine ignited the unreel portion of the cables and hydraulic hoses on the machine were scorched.					

UNDERGROUND COAL MINE FIRES - 1968 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
1899 6/12/68	W. Va.	gassy	cutting machine	0	0
Cause: Short-circuit in the trailing cable on the reel of a cutting machine ignited combustible materials on the machine. -----					
1618 6/17/68	Pa.	gassy	power wire	0	0
Cause: Fall of roof grounded positive feeder wire against rope belt anchor jacks and arc ignited combustible material in the area. Fire extinguished in 20 minutes. -----					
78 6/24/68	W. Va.	gassy	air compressor	0	0
Cause: Air compressor became overheated because of excessive accumulations of coal dust and oil on the intercooler and cooling fins and resulted in ignition of the combustible materials in the compressor. -----					
267 7/16/68	Ky.	gassy	battery tractor	0	0
Cause: Short circuit occurred between the insulated battery cable and battery post of opposite polarity on a storage battery permissible-type rubber-tired tractor being charged. Only minor damage and extinguished immediately upon removal of the power from the battery charger. -----					
38141 7/20/68	Ky.	gassy	shuttle car	0	0
Cause: Short circuit at a temporary splice on the reel of a shuttle car ignited cable insulation. -----					
17652 7/24/68	Ill.	gassy	spontaneous	0	0
Cause: Spontaneous ignition in an abandoned coal area. -----					
4 7/25/68	Pa.	gassy	power borehole switch	0	0
Cause: Fall of rock dislodged and smashed a wood-cased feed line switch at the bottom of a power borehole, and heating or arcing of the switch ignited the wood case and rubber belt insulating mat. -----					

UNDERGROUND COAL MINE FIRES - 1968 (Continued)

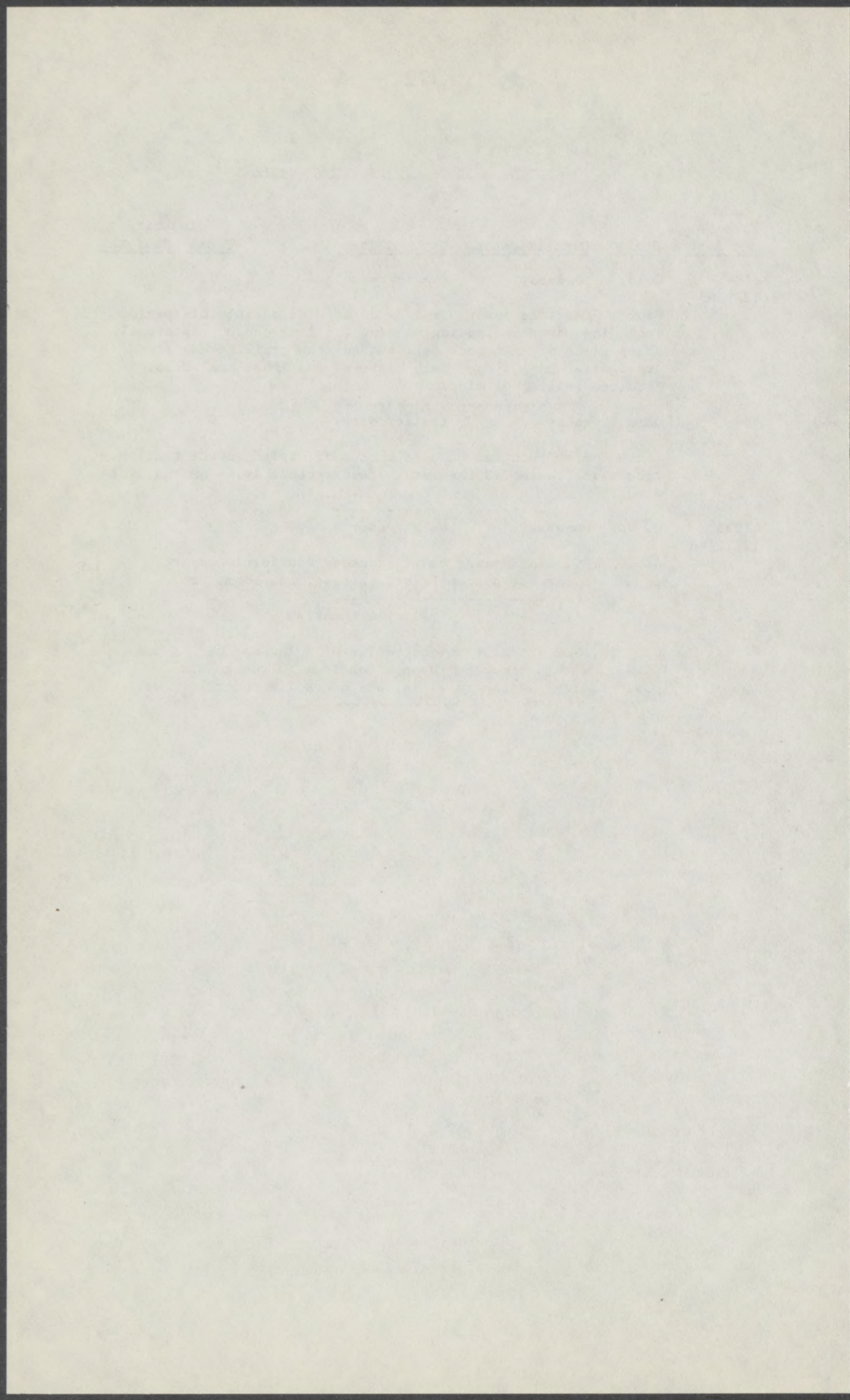
BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
643 8/19/68	Ohio	gassy	shuttle car	0	2
Cause: Short-circuit in the trailing cable of a shuttle car ignited cable insulation and outer jackets of hydraulic oil and grease hoses.					
136 8/20/68	Pa.	gassy	power feeder cables	0	0
Cause: A dislodged steel-beam roof support contacted the power feeder cables and a 6-inch water pipe. Arcing burned the beam, pipe, and wooden lagging over the beam.					
40568 8/25/68	Pa.	nongassy	undetermined	0	0
Cause: Fire confined to several posts, pieces of cribbing, and 4 feet of cable on mine floor along main belt entry. Possible sources of ignition were short-circuit in power cable or smoldering pieces of burned belt thrown off when the conveyor belt parted the previous day.					
1160 9/3/68	Colo.	gassy	spontaneous	0	0
Cause: Spontaneous fire occurred in an abandoned inadequately ventilated area. Fire fought direct and extinguished.					
17979 9/3/68	W. Va.	gassy	cutting machine	0	0
Cause: The fire was initiated when a fault occurred at a temporary splice in the trailing cable on the cable-reel of a cutting machine. Arcing ignited insulation, hydraulic hoses, rubber tires, and accumulations of oil and coal dust on the machine.					
43258 9-19-68	Ky.	nongassy	cutting machine	0	0
Cause: The tree of leads became short circuited against the frame of the machine. The resultant arc ignited grease and oil on the top side of the machine.					
329 9/25/68	Ky.	nongassy	shuttle car	0	0
Cause: Short circuit in the trailing cable on the cable-reel of a shuttle car ignited about 25 feet of cable insulation and coal dust behind the control panel under the cable-reel.					

UNDERGROUND COAL MINE FIRES - 1968 (Continued)

BOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
42296 9/26/68	W. Va.	nongassy	undetermined	0	0
Cause: Fire of undetermined origin discovered near belt conveyor tailpiece during idle period of mine. Mine sealed at portals.					
732 10/16/68	Pa.	gassy	power cables	0	0
Cause: Fire started when a fault of high resistance occurred between negative and positive feeder cables as a result of heaving conditions which raised the mine floor against the power conductors.					
44012 10/22/68	Ky.	nongassy	cutting machine	0	0
Cause: Fire started when fault occurred between conductors of trailing cable wound on reel. Resultant arcing ignited cable insulation, coal dust, and oil accumulations on the machine.					
42444 11/4/68	W. Va.	nongassy	conveyor belt	0	2
Cause: Power wire dislodged by coal rib fall, allowing power wire to fall and contact unused metal shuttle car sideboards that were contacting return conductor lying on mine floor.					
17358 11/5/68	Ky.	gassy	conveyor belt	0	0
Cause: Undetermined - mine sealed.					
3280 11/5/68	Ind.	gassy	shaft fire	0	0
Cause: Hot metal fell on the wooden curtain wall while repairs were being made with an oxyacetylene torch.					
615 11/26/68	Pa.	gassy	trolley wire	0	0
Cause: The fire occurred when an energized trolley wire was dislodged by a fall of roof and contacted a track rail.					
40251 12/4/68	W. Va.	nongassy	cutting machine	0	0
Cause: The fire was initiated by a short circuit at a temporary splice in the trailing cable on a 11-RU Joy cutting machine. The trailing cable short-circuit protection, a 500-ampere fuse nip, did not open when the short circuit occurred.					

UNDERGROUND COAL MINE FIRES - 1968

DOM File No. and date	State	Classification	Type of fire	Injuries	
				Fatal	Nonfatal
6784 12/9/68	Colo.	nongassy	loading machine	0	0
Cause: Electric power was left on in mine during idle period including power on loading machine trailing cable. Apparently sharp piece of roof rock fell and cut the trailing cable and arc ignited coal along chain conveyer and loose coal ribs. Required sealing of mine.					
404 12/11/68	Ohio	gassy	trolley wires	0	0
Cause: Fire resulted when fall of roof dislodged the trolley wire which contacted the return feeder cable lying on the mine floor.					
41925 12/12/68	W. Va.	nongassy	belt feeder	3	0
Cause: Splice in power cable grounded and resultant arc ignited flammable hydraulic oil, grease, and loose coal.					
8786 12/15/68	Va.	gassy	trolley locomotive	0	1
Cause: Short-circuit in controller of a locomotive. Extinguished within minutes. Damage confined to the controller, power cables, hydraulic lines, and hydraulic control valves.					



Part F—Hazards of Methane

1. Sources, Characteristics, and Physiological Effects of Methane (CH_4).¹

Methane, also known as marsh gas, is one of the chief constituents of firedamp. It is colorless, odorless, tasteless, nonpoisonous, and flammable. As stated, methane is odorless; but, because it may be accompanied by other gases that are odorous, the mixture may have a distinct odor. Its common occurrence in the old workings of mines, where the air may be musty from decaying timbers and other impurities, has caused many mining men to believe that methane has an odor. The specific gravity of methane is 0.5545,³¹ and its weight per cubic foot at sea-level pressure and 70° F. is 0.042 pound. Methane is found in almost all coal mines and occasionally in metal and other types of mines and in tunneling operations. In coal mines it may issue from the cleats or cracks of the coal, from "blowers" or "feeders," or from overlying or underlying strata and often is released in large amounts from the coal when irregularities, such as clay veins, "horsebacks," or faults, are encountered. In metal mines and in tunnel driving, methane frequently is found when carbonaceous shales are penetrated and occasionally is present by infiltration into metal mines at contacts or near carbonaceous rocks. Methane may be generated by the action of certain bacteria on organic matter, such as mine timber, and explosions have been caused by accumulated methane from this source while flooded mines were being unwatered. The liberation of methane from the strata in mines may be a steady flow or a sudden outburst. When present, it is usually found near the mine roof or in high places; but, after becoming thoroughly mixed with air, it will be found uniformly distributed across any cross section of a moving air current and will not separate or stratify from still air. Methane may be detected with a flame safety lamp (preferably of the permissible type) and by various other approved detecting devices. Methane has no specific physiological effect upon man, but enough may accumulate in mine workings to dilute the oxygen of the air and produce atmospheres deficient in oxygen. Deaths from asphyxiation have resulted from men unknowingly entering high concentrations of methane.

The common occurrence of methane and its explosibility when mixed with air are directly responsible for numerous mine disasters. Air that contains 5 to 15 percent of the methane³² and 12.1 percent or more oxygen will explode if ignited.³³

¹ Miners' Cir. 33, Bureau of Mines.

³¹ Burrell, G. A., and Seibert, F. M. (revised by G. W. Jones). Sampling and Examination of Mine Gases and Natural Gas: Bureau of Mines Bull. 197, 1926, 108 pp.

³² Values such as these (5 to 15 percent in the case of methane) are said to represent the explosive or flammable limits of a combustible gas in air, and percentages between these limits are said to be within the explosive or flammable range of the particular gas in question. Gas-air mixtures containing the combustible gas in concentrations below or above the explosive limits will not propagate an explosion. Temperature, pressure, and the presence of inert diluents, such as carbon dioxide or nitrogen, affect the explosive limit of any combustible gas, and a limiting value exists for oxygen content of the mixture below which an explosion is impossible, regardless of the percentage of combustible gas present.

³³ Coward, H. F., and Jones, G. W., Limits of Flammability of Gases and Vapors: Bureau of Mines Bull. 503, 1952, 144 pp.

Methane is not the only cause of mine explosions. Dry coal dust, except anthracite, suspended in air is explosive, but coal-dust explosions are propagated more rapidly and more readily when methane is present, even in percentages much below the lower explosive limit. Tests conducted in the Experimental mine of the Bureau of Mines show that, under the most favorable conditions as to diffusion of gas, point of ignition, and placement of coal dust, a uniform gas-air mixture of 146 cubic feet, containing approximately 13 cubic feet of methane (about 9 percent of the mixture), if ignited, is sufficient to initiate a general explosion.³⁴ Although the conditions under which these tests were conducted are rarely found in commercial coal mines, these experiments clearly indicate the danger of igniting even a small quantity of methane in the presence of coal dust.

Bureau of Mines engineers believe that 200 cubic feet, or possibly less, of an explosive methane-air mixture can precipitate a general explosion under conditions usually found in mines, if the mixture is ignited in the presence of coal dust. The concentration of methane, therefore, should be kept as low as possible by proper ventilation. It has been recommended that the safest practice is to prevent the accumulation of explosive mixtures and to keep the methane content of every air current below 0.5 percent at all times.³⁵

Classification of Coal Mines In Respect to Methane Liberation

The Bureau of Mines believes that all coal mines are potentially gassy, but for purposes of administration in respect to prevention of explosions and fires the Federal Mine Safety Code (article V, sec. 10a) contains the following:

If and when a mine, subject to Title II of the Federal Coal Mine Safety Act, is classified as a gassy mine under the provisions of Title II of the Act, such mine shall be deemed to be a gassy mine under this Code. A mine not subject to Title II of the Federal Coal Mine Safety Act shall be deemed to be a gassy mine under this Code if any one of the following conditions exist:

1. Methane has been ignited in the mine.
2. Methane has been found after the effective date of Title II of the Federal Coal Mine Safety Act by use of a permissible flame safety lamp or by air analysis in an amount of 0.25 per centum or more in any open workings of such mine when tested at a point not less than 12 inches from the roof, face, or rib.

The provisions of the Federal Coal Mine Safety Act (effective July 16, 1952), as stated in section 203(d), require that a mine shall be classed as gassy if it is found that methane has been ignited in the mine or if methane is found, by using a permissible flame safety lamp or by air analysis, in an amount of 0.25 percent or more in any open workings of the mine when tested at a point not less than 12 inches from the roof, face, or rib. Section 209(b) of this act also defines a gassy mine as one which has been so classified in accordance with the laws of the State in which it is situated.

State mining laws generally require that a mine that liberates methane in concentrations that can be detected by a flame safety lamp shall be classified as a gassy mine and that certain precautions shall be observed in operating a gassy mine that are not required in a nongassy mine. As a flame safety lamp will not indicate low per-

³⁴ Rice, G. S., Greenwald, H. P., and Howarth, H. C., *Explosion Tests of Pittsburgh Coal Dust in the Experimental Mine*: Bureau of Mines Bull. 369, 1933, 44 pp.

³⁵ Rice, G. S., *Safety in Coal Mining*: Bureau of Mines Bull. 277, 1928, 141 pp.

centages of methane, its use as a basis for classifications permits liberation of considerable methane before a mine can be classed as gassy. Liberation of gas, in many instances, as in case of interrupted ventilation, may be sufficient to allow an explosive mixture to accumulate in a mine that has been classed as nongassy under the requirements of laws that use only flame-safety-lamp observations as a basis for classifying mines.

It is reasonable to believe that any mine in which methane has been found, by any means, method, or device, regardless of the concentration, should be classified as gassy. Moreover, the interests of safety would be well served if there was but one classification for all coal mines and all were operated on the basis that they are gassy or likely to become so at any time. A mine can be classified only on conditions found at the time of examination; even though no gas may be found during an examination, this is no indication or assurance that the mine will not become gassy within the next day or even the next hour. It is well known that liberations of gas can and do occur suddenly, often in mines where no gas has been found before, and that many gas ignitions and disastrous explosions have occurred in so-called nongassy mines. If uniform safety standards were adopted for all mines with respect to equipment and materials approved as adequate to protect against the ignition of gas, when and if encountered, the cause of safety in mining would be notably advanced.

2. Summary of ignitions and explosions in gassy and nongassy mines, January 1941-June 10, 1969

Prepared by the U. S. Bureau of Mines - September 10, 1969

Number of ignitions and explosions	GASSY MINES			NONGASSY MINES		
	No.	No. Killed	No. Injured	No.	No. Killed	No. Injured
(a) 1941 - 1952	201	680	419	32	57	52
(b) 1952 - June 10, 1969	399	374	439	55	27	62
Ignition Source <u>1/</u>						
(a) Flame Safety Lamp	16	5	23	1	0	2
(b) Smoking or open flame	21	6	24	34	7	22
(c) Cutting bits	153	3	137	2	0	4
(d) Trailing cables	21	9	18	0	0	0
(e) Nonpermissible equipment						
Large mines	10	1	13	1	0	2
Small mines	15	0	19	10	0	17
(f) Permissible equipment in nonpermissible condition	14	31	32	2	11	5
(g) Explosives	42	44	61	1	0	2
(h) No data available	1	0	4	0	0	0
(i) Not determined	15	83	14	0	0	0
(j) More than one source	10	126	13	3	9	6
(k) Locomotive	21	10	16	1	0	2
(l) Miscellaneous	55	60	58	0	0	0

3. Methane ignitions and explosions in nongassy underground coal mines, January 1, 1941 to July 16, 1952

Prepared by the U. S. Bureau of Mines - September 10, 1969

COAL MINE IGNITIONS AND EXPLOSIONS OF METHANE IN NONGASSY MINES 1/

Date	Mine	Company	January 1, 1941 - July 16, 1952			Employees Underground	OPENINGS		Cause	
			Killed	Injured	Drift		Shaft	Slope		
6/19/41	Drifton No. 1	Jeddo-Highland	Pa. (anth)	1	3	-	0	0	2	Gas at face ignited by open (carbide) light.
6/30/41	Kent No. 2	Rochester & Pgh.	Pa. (bit)	7	16	654	2	3	0	While repairing a cutting machine at face, arc from test lights used to test armature of machine ignited gas.
5/29/41	Harry E. Colliery	Harry E.	Pa. (anth)	1	1	-	0	2	0	Arc from open-type electric coal drill at face.
12/8/41	Stephens	Stephens Elkhorn Fuel Corp.	Ky.	1	0	150	2	plus other openings to surface		Arc caused by nipping locomotive on haulage-way.
5/29/42	Little Creek	Bell	Ky.	0	3	-	No data			Arc from open-type drill ✓
10/3/42	Dixie Star	Black Star	Ky.	4	0	442	Several drifts			Pumper claimed he ignited gas 100' cut by face but investigation disclosed no evidence of gas ignition.
11/22/42	Central Elkhorn No. 5	Central Elkhorn	Ky.	0	0	-	Drifts			Gas near face ignited by open (carbide) light.
12/28/42	McFarlin No. 1	Byesville	Ohio	3	0	31	0	1 (100') (20')	1	Arc from loading machine cable
2/12/43	Poplar Ridge	West Ky. Coal Co.	Ky.	0	5	112	0	1	1	Gas ignited by open light.
4/12/43	Petros No. 3	Tenn. State Prison	Tenn.	0	0	-	2	0	0	Gas in pillar split ignited by open (carbide) light.
4/43	Diamond No. 2	Imperial	Pa. (bit)	0	0	-	2	0	0	

OPENINGS										
Date	Mine	Company	State	Killed	Injured	Employees Underground	Drift	Shaft	Slope	Cause
9/16/43	Three Point	Three Point	Ky.	12	0	114	4	plus other opening to surface		Gas accumulation outby face ignited by match.
12/43	Rock Hill No. 5	Rock Hill	Pa. (bit)	0	1	-	1	1	1	Gas at face of rock tunnel ignited by open light.
3/25/44	Katherine No. 4	Katherine	W. Va.	16	0	115	3	0	0	Active mine fires 200' from face ignited gas from fires and emerging from vein.
8/44	Victor	Victor	Va.	0	1	-	2	0	0	Lighting fuse with match.
9/5/44	Barton	The Youghiogheny and Ohio	Ohio	0	3	285	2	1 (280')	0	Cutting machine stopped to adjust cutting height when started arc from controller ignited gas released from abandoned area previously pierced by machine.
2/1/45	Mammoth Blue Gem	Mammoth Blue Gem	Ky	0	0	-	No data			Arc from trailing cable.
12/14/45	No. 1	Champion	Wash.	0	1	-	No report			Open light ignited gas in chute.
5/13/46	No. 1	Johnson	Wash.	0	1	-	No report			Open light ignited gas in chute.
10/27/46	Anderson Run	Campbell	Ohio	0	2	-	No report			No data.
5/31/47	No. 5	Panther	W. Va.	0	2	-	No report			Lighting cigarette at face.

Date	Mine	Company	State	Killed	Injured	Employees Underground	OPENINGS			Cause
							Drift	Shaft	Slope	
11/18/47	Fred Launder	Launder & Co.	Ohio	0	1	3	2	0	0	Gas which entered mine from leaky surface pipeline ignited by open (carbide) lamp.
4/28/48	Marion	Black Diamond	Tenn.	0	0	135	2	plus 3 other openings to surface.	Gas at face ignited by match.	
8/14/48	No. 5	Georges Creek	Md.	3	0	104	6	0	0	Gas in working section ignited by open-type locomotive or smoking.
12/15/48	Coyer No. 2	Coyer	Pa. (bit)	0	3	-	No data			Bits of permissible cutting machine severed casing of gas well and sparks ignited escaping gas.
6/2/49	Reed	Reed	Ind.	0	0	-	No data			No data.
12/6/50	Kolen	Kolen	Pa. (bit)	1	0	7	0	1 (95')	1	Gas accumulated behind dam and ignited by open (carbide) light.
9/13/51	No. 4	Long & Long	Va.	0	0	5	2	0	0	Gas in roof cavity near face ignited by open (carbide) light.
12/10/51	Kessler-Angelo Hole	Francis Kessler & Richard Angelo, Operators	Pa. (anth)	2	0	3	0	0	1 (70°)	Gas accumulated near Slope bottom ignited by open type switch or motor of pump. (Present or proposed law would not require permissible equipment at this location.)

<u>Date</u>	<u>Mine</u>	<u>Company</u>	<u>State</u>	<u>Killed</u>	<u>Injured</u>	<u>OPENINGS</u>			<u>Cause</u>	
						<u>Employees</u> <u>Underground</u>	<u>Drift</u>	<u>Shaft</u>		<u>Slope</u>
2/ 2/32	Carpentertown	Carpentertown	Pa.(bit)	6	4	288	5	2 (290')	0	Arc or spark from trolley locomotive ignited gas along haulage.
3/24/32	No. 3	Acosta-Gray	Pa.(bit)	0	4	140	0	2 (300')	1	Oiling chain of cutting machine moved controller and arc ignited gas issuing from adjacent caved room.
5/25/32	Barr No. 1	Clearfield Bit.	Pa.(bit)	0	1	3	2	3	0	Arc from open type switch or motor of pump ignited methane liberated from caved area. (Present or proposed law would not require permissible type equipment at this location).

4. Record of all coal mine ignitions and explosions at nongassy underground mines, July 1952-July 1969

Prepared by the U.S. Bureau of Mines

September 8, 1969

Totals - No. of Methane Ignitions & Explosions Non-gassy Mines - 55

No. Large Non-gassy Mines - 12

No. Small Non-gassy Mines - 42

Data not available on size of mine - 1

No. Large Non-gassy Drift Mines - 10

No. Small Non-gassy Drift Mines - 22

No. Killed - 28

No. Injured - 62

Coal Mine Ignitions & Explosions of Methane in Nongassy Mines

File No. & Date	Mine	Men Employed Underground	Company	State	Killed	Injured	Drafts	Openings Shafts	Slopes	Cause
No. 14612 1-3-53	R. T. Slope	3	Reed & Thomas Coal (A)	Pa.	0	1	0	1	0	Methane ignited by match while worker attempting to ignite blasting fuse.
No. 11595 5-5-53	#3	7	Tom Richardson Coal	Ky.	0	0	2	0	0	Meth. in roof cavity ignited by open flame lamp.
No. - 9-9-53	#1 Slope	3	Zalons & Farnick (A)	Pa.	0	2	0	0	2	Meth. ignited by open flame lamp.
No. - 4-9-54	William Slope	2	Elmer Williams, Operator (A)	Pa.	0	1	0	0	1	Meth. ignited by an open flame light.
No. 2158 5-10-54	Reeds Cove #2	180	Tenn. Products & Chemical Corp.	Tenn.	0	0	4	0	0	Gas issuing from face boreholes ignited with match.
No. 9439 5-17-54	#1	16	Hall Coal	Ky.	0	0	2	0	0	Open flame lamp.

No. 14076 5-28-54	Rock Slope	3	Cherika Bros. (a)	Pa.	0	3	0	0	0	1	Smoking or arc from signal station
No. 13941 11-30-54	Yocum Darby	19	Yocum Darby Coal	Ky.	0	2	2	0	0	0	Explosives
No. 1896 6-18-55	#2 Lykens Valley Slope	3	Dietrick & Ebert Coal (A)	Pa.	0	1	0	0	0	1	Nonpermissible electric drill
No. 14535 7-23-55	#2 Slope	10	Kehler Coal (A)	Pa.	0	2	0	0	0	1	Nonpermissible electric drill
No. 12569 12-19-55	#3	23	W. W Coal	Md.	0	1	4	0	0	0	Smoking
No. 9412 2-23-56	Cedar Grove	3	Cedar Grove Mining	Ala.	0	0	0	0	2	1	Open flame lamp.
No. 11010 3-21-56	Thompson Creek #1	31	Thompson Creek Coal & Coke	Colo.	0	2	4	0	0	0	Nonpermissible electric drill.
No. 19050 7-17-56	Darby No. 1	7	Barrett Coal	Ky.	0	0	3	0	0	0	Cutting machine bits.
No. 6342 11-28-56	Buck Mt. Slope	6	Marlin Zimmerman Coal (A)	Pa.	0	0	0	0	1	1	Open flame lamp.
No. 3936 1-17-57	North Point	22	St. Marys Sewer Pipe	Pa.	0	0	4	0	0	0	Open flame lamp ignited methane from old gas well.
No. 3936 2-5-57	North Point	22	St. Marys Sewer Pipe	Pa.	0	0	4	0	0	0	Open flame lamp ignited methane from old gas well.

No.	No. 4C Main Opening	Black Star Coal	Ky.	0	0	2	0	0	0	0	Match
No. 2621 2-26-57											
No. 965 5-1-57	Phillys No. 4 Slope	Feister Coal (A)	Pa.	0	2	0	0	0	1	0	Open Flame lamp.
No. 2766 9-25-57	No. 7	Sahara Coal	Ill.	0	3	0	0	0	2	0	Continuous miner bits.
No. 20058 1-10-58	No. 5	Thunder Knot Coal	Va.	0	0	3	0	0	0	0	Open Flame lamp.
No. 13296 1-31-58	No. 2	Tarry Coal	Tenn.	0	0	2	0	0	0	0	Open Flame lamp.
No. 25618 12-11-58	No. 1 Slope	Mintrose Coal (A)	Pa.	0	3	0	0	0	2	0	Non. perm. elec. drill
No. 6866 3-23-59	No. 1	Phillys & West Coal	Tenn.	9	0	3	0	0	0	0	Locomotive or smoking.
No. 20918 10-8-59	No. 64 Slope	S & M Coal (A)	Pa.	0	2	0	0	0	1	0	Flame safety lamp.

No. 17639 11-4-59	No. 2	45	Prestin Mining	Va.	0	0	0	0	0	0	Cigarette lighter
No. 10347 8-16-60	No. 7	7	Dorothy Mae Coal	Va.	0	0	2	0	0	0	Carbide lamp
No. 19195 8-23-60	"A" No. 1	N.A.	Cornett Coal	Ky.	0	0	2	0	0	0	Carbide lamp
No. 15888 12-7-60	No. 1 Slope	7	Mason Herb & Co. (A)	Pa.	0	1	0	0	2	0	Non. perm. elec. blower fan
No. 25032 12-28-60	Phillys No. 1	3	Parson Coal	W. Va.	2	0	2	0	0	0	Lighted match
No. 25484 4-13-61	Burnwell No. 1	2	Wm. H. Hunt, Operator	Colo.	0	1	2	0	0	0	Smoking
No. 20057 5-9-61	No. 16	13	O'Quin Coal Co.	Va.	0	0	2	0	0	0	Open Flame lamp.
No. 28918 5-30-61	No. 2	15	C. B. & H	W. Va.	0	1	4	0	0	0	Smoking
No. 26555 8-3-61	Lynn Camp. No. 1	8	Peerless Goodman	Va.	0	0	2	0	0	0	Open flame lamp.
No. 29631 8-28-61	Holmes Slope	3	B & B (A)	Pa.	0	3	0	2	0	2	Non. perm blower fan.
No. 23453 10-7-61	No. 2 Lykens Slope	8	C. K. & S.	Pa.	0	1	0	0	0	2	Non. perm elec. drill.
No. 25498 11-28-61	No. 3	11	Castle Coal	Va.	0	0	0	1	0	0	Open Flame lamp.

No. 17849 1-10-62	No. 2	24	Blue Blaze	Ill.	11	0	0	1	0	Elec. arc from open panel in perm shuttle car being repaired and in non-perm. condition
No. 30386 4-9-62	Middle Split Slope	3	Waniski	Pa.	0	1	0	0	2	Match
No. 25666 11-12-62	Skidmore	3	K. P. & M	Pa.	0	1	0	1	1	Non. perm. elec. drill
No. 24171 11-21-62	No. 5	11	Bridge	Va.	0	4	2	0	0	Match
No. 31472 7-17-63	No. 3	14	Osborne Fuel	Ky.	0	0	2	0	0	Open flame lamp.
No. 33525 1-15-64	Westwood Slope	8	Westwood Coal (A)	Pa.	0	3	0	0	2	Frictional sparks ignited methane.
No. 20970 6-11-64	Diamond Slope	3	Mickey Coal Partnership (A)	Pa.	0	3	0	0	3	Open flame or fuse.
No. 35858 7-17-64	No. 2	8	Kimmel Bros. Coal (A)	Pa.	0	2	0	0	2	Cont. miner bits.

No. 28112 10-14-64	No. 9A	8	Roberts Coal	Va.	0	0	3	0	0	0	0	Open flame lamp.
No. 32829 12-16-64	No. 116 Slope	3	D. K. & M. Co. (A)	Pa.	0	1	0	several	1	1	1	Non-perm. elec. drill.
No. 15075 1-25-65	Middle Split Slope	9	M. A. C. C. Coal (A)	Pa.	0	3	0	0	1	1	1	Non-perm. elec. drill.
No. 27335 3-24-65	No. 2 - A	9	C. L. Kline Coal	Tenn.	5	0	2	0	0	0	0	Cigarette lighter.
No. 36458 8-6-65	No. 5	13	Ward & Honaker Coal	Va.	0	1	2	0	0	0	0	Smoking.
No. 17221 11-23-65	No. 11	5	Turner Coal Co.	Va.	0	2	0	0	2	2	2	Cable & trolley locomotive
No. 38800 6-20-66	No. 1	10	Davis Coal	W. Va.	0	2	0	1	1	1	1	Smoking.
No. 39378 11-7-66	No. 5	13	Wade Coal	Va.	0	1	3	0	0	0	0	Non-perm. elec. drill.
No. 38613 8-2-68	No. 8	5	Allen Fork Coal	Ky.	0	3	3	0	0	0	0	Match
No. 6-10-69	Keystone 3-B	64	Eastern Assoc. Coal	W. Va.	0	5	3	0	0	0	0	Electric arc from head motor of permissible-type loading machine while being repaired.

5. Methane ignitions and explosions in gassy underground coal mines, January 1, 1941-July 1952

Prepared by the U. S. Bureau of Mines - September 10, 1969

Date	Name of Mine	State	Cause	Killed	Injured	Underground Employees	Openings		Company
							Shaft	Slope Drift	
1/5/41	Primrose	Pa.	Arc from blower fan	1	0	155	2	1	M and S. Coal Co.
1/22/41	Carswell	W. Va.	Arcs from nips of cutting machine cable	6	13	600	5	1	Koppers Coal Co.
3/13/41	Revloc	Pa.	Arc from trolley locomotive	4	0	150	2	0	Monroe Coal Mining
5/9/41	Panhandle No. 2.	Ind.	Arc from cutting machine	2	1	155	2	0	Blackell Coal Co.
5/22/41	Panhandle No. 2	Ind.	Electric arc or smoking	14	0	168	2	0	Blackell Coal Co.
6/4/41	Docena	Ala.	Arc from coal drill	5	11	927	2	7	Tenn. Coal, Iron and Railroad Co.
6/9/41	Black Shale No. 3	Ala.	Carbide lamp	0	1	580	1	1	Hatfield Campbells Creek Coal Co.
6/14/41	Point Lick No. 4	W. Va.	Arc from cutting machine	2	1	0	0	0	No report
6/20/41	Rex	Ill.	Arc from electric drill	0	2	4	0	2	No report
7/5/41	Blue Flame	Colo.	Arc from blower fan	1	2	0	0	0	Cannon Blue Flame Coal Co.
7/10/41	Acmar No. 6	Ala.	Arc from hoist switch	11	0	228	0	2	Ala. Fuel and Iron Co
7/22/41	Pagnotti No. 9	Pa.	Smoking	1	4	No data available	No data available	0	
8/28/41	New River	W. Va.	Arc from electric machine	1	1	No data available	No data available	0	
8/29/41	No. 9	Wash.	Arc from conveyor motor	0	5	180	0	2	Northwestern Improvement Co.
10/9/41	Greenwood	Ark.	Blown-out shot	2	1	115	1	1	Quality Excelsior Coal
10/11/41	Hetherington	Okla.	Defective safety lamp	1	0	No data available	No data available	0	
10/27/41	Deniel Boone	Ky.	Match	15	0	124	2	1	Stirling Coal Co.
10/30/41	Hazelton shaft	Pa.	Smoking	2	0	0	0	0	Lehigh Valley Coal Co
11/10/41	Davis No. 23	Pa.	Opened flame safety lamp	3	1	65	0	0	Davis Coal and Coke Co
12/28/41	No. 47	Ill.	Arc from trolley of locomotive	8	0	373	2	0	Peabody Coal Co.
1/27/42	Wedge	Colo.	Undetermined	34	0	80	0	3	Victor-American FuelCo
2/11/42	Eddy Creek Colliery	Pa.	Arc from electric circuit	1	2	No data available	No data available	0	Hudson Coal Co.
6/29/42	Volpe No. 6	Pa.	Arc from electric circuit	0	5	125	1	1	Peerless Coal Co.
5/11/42	Peerless No. 2	Ark.	Arc from mining machine or smoking	6	1	0	0	0	Peerless Coal Co.
5/12/42	Christopher No. 3	W. Va.	Arc from cutting machine	56	0	338	2	0	Christopher Coal Co.
6/1/42	Piedmont	Ala.	Open light	1	2	No data available	No data available	1	
6/7/42	Buck Creek No. 1	Okla.	Open flame	4	0	40	1	1	Buck Creek Coal Mng. Co
7/7/42	Exeter	Pa.	Electric arc or smoking	0	7	No data available	No data available	0	
7/9/42	Purssglove No. 2	W. Va.	Electric arc	20	0	297	1	0	Purssglove Coal Mng. Co
8/26/42	Helisley No. 3	Pa.	Arc from machine-cable nip	1	0	904	4	3	Helisley Coal Co.
9/10/42	Packer No. 5	Pa.	Flame safety lamp	0	8	507	1	0	West Bear Ridge Colliery Co.

Date	Name of Mine	State	Cause	Killed	Injured	Underground Employees	Openings		Company
							Slope	Drift	
9/29/42	Dixie No. 2	Ark.	Gas; open light	2	4	86	1	0	Dixie Two Coal Co.
11/5/42	New River No. 11	W. Va.	Arc from trolley wire	0	2		No data available		
11/23/42	Alamo No. 2	Colo.	Arc from electric drill	3	0	79	0	2	Butte Valley Coal Co.
11/30/42	West Ky. No. 10	Ky.	Arc from locomotive or smoking	6	1	354	1	1	West Kentucky Coal Co.
12/6/42	Black Shale No. 3	Ala.	Open light	0	3		No data available		
12/17/42	Grant No. 3	Ala.	Open light	0	4		No data available		
12/21/42	Richland	W. Va.	Gas and dust; electric arc	1	0	400	1	1	Warner Coal Corp.
1/10/43	Belle Valley No. 1	Ohio	Arc from power wires	3	0	96	2	0	Belle Valley Coal Co.
1/18/43	Little Creek	Ky.	Arc from electric motor	0	5		No data available		
1/31/43	Messina	Okla.	Match	0	1		No data available		
2/22/43	Futt Creek	Ill.	Open light	0	2	23	2	0	Futt Creek Coal Co.
2/27/43	Smith	Mont.	Open light	74	0	162	0	4	Mont. Coal and Iron Co.
3/4/43	No. 34	W. Va.	Electric arc	0	4		1	0	Foshontas Corp.
4/8/43	Starr No. 3	Okla.	Open light	4	10	140	0	2	Starr Coal Co.
4/25/43	Keener No. 1	Okla.	Open light; smoking or defective safety lamp	3	0	50	2	3	Keener Coal Corp.
4/27/43	Reeves	Ark.	Arc from mining machine	0	1		No data available		
5/5/43	Nukex	Tenn.	Arc from cutting machine	10	2	95	0	2	Etna Coal and Coke Co.
5/9/43	Superfuel	Ark.	Open light	3	0	70	1	1	Superfuel Coal Co.
5/11/43	Fraco No. 10	Ala.	Arc from car hoist switch	12	3	210	0	3	Alabama By-Products Corp.
5/22/43	Sayraton No. 2	Ala.	Arc from electric drill	0	2	235	1	2	Republic Steel Corp.
5/29/43	Wolf Run	Ohio	Short circuit in machine cable	1	1		No data available		
6/9/43	Furglove No. 15	W. Va.	Electric welding	1	0	438	3	2	Christopher Coal Co.
6/16/43	Deering No. 2	Ill.	Arc from electric drill	1	2	300	2	0	Deering Coal Co.
6/19/43	Revlac No. 1	Pa.	Arc from mining machine	0	1	150	4	0	Monroe Coal Mng. Co.
7/4/43	Pearless No. 2	Ark.	Smoking	2	2	75	1	1	Pearless Coal Co.
7/16/43	Powhatan No. 1	Ala.	Arc from trolley locomotive	1	6	115	3	2	Franklin Coal Mng. Co.
7/21/43	Industrial No. 53	Pa.	Arc from trolley locomotive	1	2	524	5	0	Industrial Collieries Corp.
7/28/43	Craig Valley No. 2	Okla.	Match	0	3		No data available		
8/28-29/43	Sayraton No. 2	Ala.	Arc from cable-reel locomotive	28	18	235	1	2	Republic Steel Corp.

Date	Name of Mine	State	Cause	Killed	Injured	Underground Employees	Openings			Company
							Shaft	Stops	Drift	
9/24/43	Primrose Colliery	Pa.	Arc from conveyor motor or starter	14	8	155	2	1	0	M and S Coal Co.
10/18/43	Nu-Bex	Tenn.	Relighting opened flame safety lamp	1	0	95	0	2	0	Erna Coal Co.
10/24/43	Dixie No. 2	Ark.	Open light	1	0	83	1	1	0	Dixie Two Coal
11/1/43	Daisy	Colo.	Gasoline engine driving fan after shutdown	0	0					no data available
11/6/43	Mellis No. 3	W. Va.	Arc from locomotive or cutting machine	11	0	221	0	1	8	American Rolling Mill Co.
11/23/43	Butte Valley No. 2	Colo.	Arc from electric drill	3	0	79	0	2	0	Butte Valley Coal Co.
11/25/43	Sayreton No. 2	Ala.	Arc from trolley locomotive	0	2	235	1	2	0	Republic Steel Corp.
1/7/44	Nottingham	Pa.	Smoking	1	0	457	5	1	0	Glen Alden Coal Co.
1/30/44	Buffalo	Alaska	Arc from powerline	0	0	25	0	1	1	Buffalo Coal Mng. Co.
5/15/44	Coal Basin	Pa.	Arc from electric drill	0	4					no data available
5/27/44	Affinity slope	W. Va.	Arc from trolley locomotive	1	0	193	1	2	0	Lillybrook Coal Co.
6/23/44	Barr	Ark.	Arc from mining machine or smoking	2	2	35	1	1	0	Excelsior Thin Vein Coal Co.
6/26/44	Julian	Ind.	Smoking	0	2	---	2	1	0	Standard Coal Co.
7/12/44	Continental	Pa.	Smoking	0	4	267	1	0	0	Hazle Brook Coal Co.
7/26/44	Brilliant No. 2	N. Mex.	Arc from battery locomotive	6	0	135	1	0	4	St. Louis, Rocky Mt. and Pacific Co.
8/7/44	Keener No. 3	Okla.	Electric switch for auxiliary fan	1	0	---	0	2	0	Keener Mining Co.
8/21/44	Cranberry	Pa.	Open shots	1	0					no data available
8/30/44	Jernyn Green	Pa.	Smoking	0	2					do
9/18/44	Loomis	Pa.	Arc from trolley locomotive	0	5	large	4	0	0	Glen Alden Co. Co.
9/27/44	Templeton No. 4	Ind.	Arc from electric drill	1	2	large	2	0	0	Linton-Summitt Coal/
10/11/44	Elmore No. 1	Ala.	Opened flame safety lamp	0	4	10	0	2	0	Cosaba Coal Mng. Co.
10/17/44	McGregor No. 2	W. Va.	Arc from mining machine	0	4	100	1	0	several	Logan County Coal Corf
10/19/44	Hazleton	Pa.	Smoking	1	0	---	2	0	0	Lehigh Valley Coal Co
11/7/44	McKay	Wash.	Flame from fuse in firing shots	0	0	70	1	2	0	Northwestern Improvement Co.
11/18/44	Sixth Vein	Ky.	Smoking	2	0					no data available
12/11/44	Horton No. 11	Va.	Arc from mining machine	2	0	135	0	2	0	Newton Coal Co.
12/18/44	Mether	Pa.	Defective flame safety lamp	0	3	540	3	0	0	Richards Mather Co.
1/10/45	Prospect	Pa.	Opened flame safety lamp	0	1	large	2	0	0	Lehigh Valley Coal Co.
1/13/45	Continental	Pa.	Arc from booster-fan motor	0	0	large				no data available
2/1/45	Monmouth Elue Gem	Ky.	Arc from trailing cable	0	0					do

Date	Name of Mine	State	Cause	Killed	Injured	Underground		Openings		Company
						Employees		Shaft	Slope	
2/7/45	Cochran	Pa.	Arc from trolley locomotive	2	0	101	1	1	4	Cochran Coal
3/13/45	Victor	Pa.	Arc from mining machine	0	2	8	0	0	sev.	Victor Coal
3/17/45	No. 10 tunnel	Pa.	Arc from cable nip of electric drill	1	0		No data available			
3/27/45	Huber	Pa.	Smoking	0	1		No data available			Utah Fuel
5/9/45	Sunnyside No. 1	Utah	Undetermined	23	7	165	0	4	0	Ala. Ey Products Corp.
5/14/45	Bradford No. 6	Ala.	Smoking	3	3	405	0	4	0	
6/8/45	Glen Rogers No. 2	W. Va.	Bump; arc from trolley	0	3		No data available			
6/28/45	St. Paul No. 2	W. Va.	Locom. ran over trail. cable	1	9	large	0	4	0	Raleigh Wyoming Mng.
7/23/45	Gary No. 2	W. Va.	Arc from trolley locomotive	0	0	7	1	0	1	St. Paul Coal
8/2/45	Henry colliery	Pa.	Blow-out shot	0	1	large	sev.	0	0	U. S. Steel Corp.
8/2/45	Potts colliery	Pa.	Blasting or electricity?	3	3	532	6	1	0	Lehigh Valley Coal
10/2/45	Royalton No. 7	Pa.	Blasting	1	0	634	0	3	0	Phila&ReadingCoal&Iron
11/20/45	Lonesome Branch	Va.	Arc from mining machine	0	6		No data available			
11/27/45	Prospect colliery	Va.	Arc from cable-reel locomotive	1	1	28	0	1	sev.	Bartlick Mng. Corp.
11/30/45	Eddy Creek colliery	Pa.	Arc from trolley locomotive	0	4		2	0	0	Hudson Coal
12/17/45		Pa.	Smoking	0	4					
12/26/45	Belva No. 1	Ky.	Undetermined	23	7	80	0	0	3	Ky. Straight Creek Coal
2/28/46	Washington	Colo.	Arc from cable nips	0	0	158	2	0	0	Clayton Coal
4/18/46	Great Valley	Va.	Battery locomotive	12	0	99	0	3	0	GreatValley Auth.Coal
5/27/46	Richmond No. 1	Va.	Open light	0	0		No data available			
6/12/46	Guyan Eagle	W. Va.	Arc from mining machine	0	3	269	0	0	sev.	Guyan Eagle Coal
6/30/46	Gary No. 3	W. Va.	Smoking	0	2		No data available			U. S. Steel Corp.
7/25/46	Peabody No. 59	Ill.	Smoking	0	2	327	4	0	0	Peabody Coal
7/25/46	Saxton	Ind.	Arc from trolley locomotive	0	3		No data available			
9/14/46	No. 34	W. Va.	Arc from nipping on haulageway	0	2		1	0	sev.	Pocahontas Corp.
9/19/46	Great Valley	Va.	Arc from battery locomotive	1	4	98	0	2	0	Great Valley Auth. Corp.
10/30/46	Elk-Big	Wash.	Arc from electric drill	0	1	small	0	1	0	Big 4 Coal
11/14/46	Elmore No. 3	Ala.	Fuse blasting	2	0	16	0	2	0	Cahaba Coal Mng.
12/20/46	No. 8 colliery	Pa.	Blasting	1	3	large	1	1	0	Lehigh Navigation Coal
12/20/46	Knicterbocker colliery	Pa.	Blasting	1	3	large	2	0	0	Phila&Reading Coal&Iron
1/2/47	Panhandle No. 2	Ind.	Open light	2	0	150+	2	0	0	Bicknell Coal
1/15/47	Pottingham	Pa.	Undetermined	15	3	457	5	1	0	Glen Alden Coal
2/10/47	No. 34	W. Va.	Arc from nipping	1	1	930	1	0	sev.	Pocahontas Corp.

Date	Name of Mine	State	Cause	Killed	Injured	Underground			Openings			Company
						Employees	Shaft	Slope	Drift	Shaft	Slope	
4/10/47	Schooley	Pa.	Arc from hoist or smoking	10	7	423	1	1	0	0	0	Knox Coal
7/24/47	Old Ben No. 8	Ill.	Arc from locomotive or smoking	27	3	382	3	0	0	0	0	Old Ben Coal Corp. Chicago, Wilmington & Franklin Coal
8/14/47	New Orient	Ill.	Arc from mining machine	3	2	930	4	0	0	0	0	New Castle Coal Susquehanna Coal
10/1/47	New Castle No. 2	Ala.	Arc from mining machine	0	4	4	4					
10/13/47	Underwood Colliery	Pa.	Smoking	2	0	large						
11/18/47	Boncarbo	Colo.	Smoking	0	2							
11/27/47	Christopher No. 6	W. Va.	Arc from cable cut with ax	0	4							
12/2/47	Lance Colliery	Pa.	Smoking or false safety lamp	0	7	794						
12/11/47	Franklin	Pa.	Electric arc	8	0	270	1	3	0	0	0	Glen Alden Coal Lenigh Valley Coal
1/24/48	Eccles No. 5	W. Va.	Arc from lighting circuit	0	0	large						
1/31/48	Maple Hill Colliery	Pa.	Mad-cap shot dynamite	2	5	1190	7	1	0	0	0	New River Mfg. PhilaReading Coal&Iron E. H. Noel Coal
2/8/48	Sun Excelsior	Ark.	Electric arc or smoking	8	0	80	2	1	0	0	0	No. 9 Coal
4/28/48	No. 9 Colliery	Pa.	Smoking	2	5	650	8	0	0	0	0	Princeton Mfg.
7/27/48	King	Ind.	Arc from electric drill	13	3	540	3	0	0	0	0	TennCoal, Iron&Railroad
7/30/48	Edgewater	Ala.	Arc from electric lamp	11	4	677	3	6	0	0	0	Glen Alden Coal
8/2/48	Bliss Colliery	Pa.	Arc from trolley locomotive	0	2	large						
8/4/48	Browder	Pa.	Arc from trolley locomotive	0	0	271	1	0	2	0	0	Sterling Coal
8/20/48	Sterling No. 1	Ky.	Arc from pump motor or trolley	0	0	811	8	1	0	0	0	Consumers Mfg. Glen Alden Coal
8/24/48	Harmer	Pa.	Arc from trolley locomotive	2	1	large						
10/2/48	Lance Colliery	Pa.	Smoking or blasting	0	2	228	3	0	0	0	0	Walter Blades & Co.
10/11/48	Dresser	Ind.	Smoking	0	6	274	2	0	0	0	0	Dering Coal
10/20/48	Derring No. 2	Ill.	Smoking	0	0	540	3	0	0	0	0	Princeton Mfg.
11/15/48	Kings	Ind.	Blasting	0	0	80	2	1	0	0	0	E. H. Noel Coal
11/17/48	Sun Excelsior	Ark.	Smoking or arc from pump switch	2	3	365	2	2	0	0	0	Eastern Gas&Fuel Assoc.
12/6/48	Stotesbury No. 8	W. Va.	Arc from defective permissible mining machine	1	0							
12/8/48	Springdale	Pa.	Flame safety lamp	0	4	490	3	1	0	0	0	Allegheny-Pittsburgh Coal MorickWestern R.R. Co.
12/13/48	Fond Creek	Ky.	Smoking	1	4	300	2	2	sev.	0	0	
12/21/48	Head No. 3	W. Va.	Arc from mining machine	2	0	267	1	1	0	0	0	C.H. Head Coal

Date	Name of Mine	State	Cause	Killed	Injured	Underground Employees	Openings			Company
							Shaft	Slope	Drift	
1/5/49	South Wilkes-Barre Colliery	Pa.	Arc from hoist control	2	2	745	3	0	0	Glen Alden Coal Co.
1/7/49	Vanover	Ky.	Open light	0	2	17	3	0	0	H. R. Vanover Coal Co.
2/15/49	Boyd Excelsior	Ark.	Arc from mining machine	0	2	90	1	1	0	Boyd-Excelsior Fuel Co.
4/26/49	Nesquehoning Colliery	Pa.	Open shots	0	5	Large				Lehigh Navigation Coal Co.
5/2/49	Huber Colliery	Pa.	Arc from hoist control or smoking	1	0	1,195	1	2	0	Glen Alden Coal Co.
5/18/49	Coaldale Colliery No. 8	Pa.	Open shot	0	2	Large				Lehigh Navigation Coal Co.
5/21/49	Germentown Colliery	Pa.	Defective flame safety lamp	0	2	165	0	2	0	Reven Run Coal Co.
11/21/49	Nesquehoning Colliery	Pa.	Misuse of flame safety lamp	2	0	Large	1	1	0	Lehigh Navigation Coal Co.
4/22/50	Acme	W. Va.	Arc from rock-dusting machine	0	5	51	0	1	1	Acme Coal Co.
5/5/50	Staunton No. 2	Ill.	Open light or smoking	0	0		No data available			
8/9/50	Continental shaft	Pa.	Arc from substation	1	3	362	2	Several	0	Hazelbrook Coal Co.
8/27/50	Julian	Ind.	Arc from trolley	0	2	289	2	1	0	Standard Coal Co.
9/9/50	Arkwright No. 1	W. Va.	Arc from trolley locomotive	0	3	379	3	0	2	Christopher Coal Co.
9/27/50	Lansford Colliery No. 6	Pa.	Open shot	0	3	985	2	0	0	Lehigh Navigation Coal Co.
9/27/50	Lansford Colliery No. 6	Pa.	Smoking	0	1	985	2	0	0	do.
9/27/50	Tamaqua Colliery	Pa.	Open shot	0	4	261	6	0	0	do.
10/3/50	No. 6 Colliery	Pa.	Smoking	0	1	563	6	0	1	No. 9 Coal Co.
10/6/50	Coaldale Colliery No. 8	Pa.	Arc from trolley locomotive	0	1	Large	1	1	0	Lehigh Navigation Coal Co.
10/20/50	Jonay	Ind.	Smoking	0	2		No data available			
10/30/50	Avondale Colliery	Pa.	Arc from cable-reel locomotive	4	0	231	2	Several	0	Glen Alden Coal Co.
11/15/50	Docena	Ala.	Arc from trolley shoe	0	2	Large	2	7	0	Tennessee Coal, Iron and Railroad Co.

Date	Name of Mine	State	Cause	Killed	Injured	Underground Employees	Openings			Company
							Shaft	Slope	Drift	
1/10/51	Stotesbury No. 8	W. Va.	Arc from mining machine at face	0	3	373	2	2	0	Eastern Gas & Fuel Associates
1/18/51	Burning Springs	W. Va.	Arc from loading machine cable	11	2	68	0	0	2	Burning Springs Collieries Co.
3/26/51	No. 34	W. Va.	Arc from cable reel locomotive	1	2	953	1	0	Several	Pocohontas Corp.
3/29/51	Buttonwood	Pa.	Flame safety lamp	5	3	816	5	2	1	Glen Alden Coal Co.
5/7/51	Enoco	Ind.	Smoking	0	2	Large	2	0	0	Enoco Collieries Co.
5/17/51	Green Valley	Ind.	Smoking	0	5	241	2	0	0	Snow Hill Coal Corp.
6/5/51	Coaldale Colliery	Pa.	Open shots in battery	1	1	894	2	0	0	Lehigh Navigation Coal Co.
6/21/51	Red Ash shaft	Pa.	Smoking	0	2	158	2	0	0	Panzrita Coal Co.
6/24/51	Boyd Excelsior	Ark.	Smoking	0	3	114	1	1	0	Boyd Excelsior Fuel Co.
6/25/51	Valley Camp No. 5	W. Va.	Arc from trolley-wire hanger	0	2	Large	0	0	Several	Valley Camp Coal Co.
7/26/51	Midland No. 1	Ark.	Smoking	0	6	20	1	1	0	Smokeless Coal Co.
8/13/51	Weston Colliery	Pa.	Heavy blasting in breast	1	1	309	1	2	0	Locust Coal Co.
10/15/51	Bunker	W. Va.	Undetermined	10	0	273	2	1	0	Trotter Coal Co.
11/14/51	Bethlehem No. 101	W. Va.	Smoking	0	0	225	2	0	2	Bethlehem Mines Corp.
11/22/51	Boyd-Excelsior	Ark.	Arc from mining machine	0	1	90	1	1	0	Boyd Excelsior Fuel Co.
12/21/51	Orient No. 2	Ill.	Electric arc	119	3	869	4	0	0	Chicago, Wilmington and Franklin Coal Co.
12/26/51	Crucible	Pa.	Arc from locomotive cable nips	0	4	565	4	1	0	Crucible Steel Co.
1/5/52	Glendora No. 28	Ind.	Cutting torch	0	2	6	3	0	0	Glendora Coal Co.
3/21/52	Joanne	W. Va.	Defective flame safety lamp	0	0	236	3	0	0	Joanne Coal Co.
4/15/52	Dresser	Ind.	Arc from electric drill	0	1	200	3	0	0	Walter Bledsoe & Co.
4/18/52	Sunnyside No. 1	Utah	Arc from trolley shoe	0	2	155	2	5	1	Kaiser Steel Corp.
5/9/52	Sunnyside No. 1	Utah	Arc from trolley shoe	0	0	155	2	5	1	Kaiser Steel Corp.
5/12/52	Alaska No. 1	W. Va.	Smoking or arc from cable splice	1	0	83	0	0	3	Alaska Coal Co.
5/23/52	Purslove No. 15	W. Va.	Arc from light wire	0	5	5	0	Several	0	Christopher Coal Co.
6/17/52	Perbody No. 43	Ill.	Defective flame safety lamp	0	1	Large	0	Several	0	Perbody Coal Co.
6/23/52	Fies	Ky.	Undetermined (friction, arc, or smoking?)	0	0	90	0	Several	0	Miners Coal Co.
6/26/52	Oiga No. 2	W. Va.	Arc from light wires	4	1	14	4	0	0	Oiga Coal Company
6/27/52	Lansford Colliery	Pa.	Open shots	4	1	489	2	0	0	Lehigh Navigation Coal Co.
6/27/52	Continental shaft	Pa.	Open shot	0	3	267	1	0	0	Hazle Brook Coal Co.

6. Methane ignitions and explosions in gassy underground coal mines, July 1952 to July 1969

Prepared by the U. S. Bureau of Mines - September 10, 1969

Mine	Date	Mine	Town	State	Company	Killed	Injured	Und. Emp.	Open Sh.	Sl.	Dr.	Cause
	7/1/52	Stankiewicz Slope	Shamokin	Pa.	Frank Stankiewicz, Oper.	0	2	3	0	2	0	undetermined
	9/15/52	Diamond No. 2	Charles	Pa.	Imperial Coal Corp.	0	1	260	1	2	0	arc from trolley locomotive
	10/17/52	No. 53	Cokeburg	Pa.	Beulah Mines Corp.	0	2	650	4	0	0	arc from trailing cable
	10/21/52	Potts Colliery	Locustdale	Pa.	Philadelphia & Reading Coal & Iron	0	4	430	0	2	0	unconfined charge perm. expl.
	10/23/52	Lance Colliery	Larksville	Pa.	Glen Alden Coal	0	2	712	4	1	0	undetermined
	11/12/52	No. 34	Bishop	W. Va.	Pocahontas Fuel	0	1	540	1	0	sev.	arc from cable-reel locomotive
	12/9/52	Maple Hill Colliery	Shenandoah	Pa.	Philadelphia & Reading Coal & Iron	0	2	907	6	1	0	flame safety lamp or smoking
	1/16/53	Loemis Colliery	Ranticoke	Pa.	Glen Alden Coal	1	2	710	4	0	0	flame safety lamp
	1/29/53	Recker No. 5 Colliery	Girardville	Pa.	Gilbertson Coal	0	3	237	1	(six compt)	undetermined	60
	3/6/53	Johnson No. 22	Rainview	W. Va.	Jamison Coal & Coke	3	0	14	1	0	0	arc from light socket
	3/12/53	Chafetain No. 2	Dola	W. Va.	Purglove Coal Service	0	0	92	1	0	4	arc from cutting machin
	4/28/53	Lancashire No. 15	Rakerton	Pa.	Barnes & Tucker	0	2	286	4	0	3	bits of continuous mine
	8/12/53	No. 2 Shaft-Storrs Coll.	Dickson City	Pa.	Moffat Coal	0	1	800	3	2	0	match
	2/14/53	Tracy Slope	Fort Carbon	Pa.	Cano & Martin Coal	0	7	19	0	2	0	blasting
	2/26/53	No. 1 Slope	Minersville	Pa.	Frank Russian, Operator	0	1	2	0	2	0	match
	10/3/53	Tri-K	Terre Haute	Ind.	Tri-K Mining	0	0	30	2	0	0	arc from cutting machin
	10/30/53	No. 14	Duquoin	Ill.	Perbody Coal	0	2	319	3	0	0	arc from trolley locomotive

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Emp.</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>
11/4/53	Pursglove No. 15	Pursglove	W. Va.	Christopher Coal	0	1	301	6	3	0	Excessive heating of feeder cable
11/20/53	No. 2	Tire Hill	Pa.	Bird Coal	0	0	448	4	0	2	arc from trolley tap
5/1/53	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	0	1,505	3	1	7	underburdened shot
5/12/53	No. 58 Slope	Nanticoke	Pa.	Biscontini & Sons Coal	2	0	38	0	2	0	Blasting
5/23/53	No. 6 Dodson Colliery	Lansford	Pa.	Weston-Dodson	2	2	726	2	0	0	delayed shot
6/3/53	No. 33	near Bishop, Va.	W. Va.	Pocahontas Fuel	1	0	130	0	0	sev.	arc from cable-reel locomotive
6/4/53	Peach Mountain Slope	Schuylkill	Pa.	Bassiminsky, Carl & Wenner	0	4					no data available
6/12/53	Potts Colliery	Locustdale	Pa.	Philadelphia & Reading Coal & Iron	0	2	411	3	1	0	unconfined shot
6/22/53	Pursglove No. 15	Pursglove	W. Va.	Christopher Coal	0	3	340	6	3	0	arc from trailing cable splice
12/13/53	No. 10	Wilcoe	W. Va.	U. S. Steel Corp., Oper. Div.	0	2	591	2	0	sev.	arc from trolley locomotive
1/7/54	Ortolo	Madisonville	Ky.	Bell & Zoller Coal	0	1	255	1	2	0	undetermined
1/13/54	No. 11	Capels	W. Va.	New River & Pocahontas Consolidated Coal	0	0	205	3	1	0	bits of cutting machine
2/9/54	I H No. 3	Rifle	Colo.	Haas Coal	0	2	5	0	2	0	arc from drill
2/17/54	Bunker	Cassville	W. Va.	Trotter Coal	0	1	180	3	1	0	improperly confined explosives
2/18/54	Joanne	Rachel	W. Va.	Joanne Coal	0	0	196	3	0	0	arc when machines touched
4/6/54	Havaco No. 9	Havaco	W. Va.	New River & Pocahontas Consolidated Coal	0	3	234	3	3	0	arc from nipping a loading machine
4/24/54	No. 8 Condale Coll.	Condale	Pa.	Lehigh Navigation Coal	0	2	546	2	2	2	unconfined shot

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Emp.</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>
4/17/54	New Castle	New Castle	Colo.	New Castle Coal	0	0	3	0	0	1	mine fire
4/27/54	Springdale	Logan's Ferry	Pa.	Allegheny-Pittsburgh Coal	0	0	399	4	1	0	arc from trolley locomotive smoking
4/28/54	No. 2 Shaft Storrs Coll.	Dickson City	Pa.	Moffat Coal	0	4	586	3	2	0	
5/4/54	Enoco Collieries	Bruceville	Ind.	Enoco Collieries Inc.	0	4	266	2	0	0	bits of continuous miner
5/6/54	Enoco Collieries	Bruceville	Ind.	Enoco Collieries Inc.	0	1	266	2	0	0	bits of continuous miner
5/12/54	Gaston No. 2	Wyoming	W. Va.	Gaston Coal	1	6	43	2	1	0	power wire touched locomotive frame
5/25/54	No. 10	Franklin	Kash.	Palmer Coking Coal	0	2	9	0	2	0	arc from electric drill
6/8/54	Carbon No. 5	Carbon	Okla.	Lone Star Steel	0	0	214	0	4	0	arc from severed trailing cable
7/16/54	Fias	Madisonville	Ky.	Miners Coal	0	0	312	1	1	0	bits of cutting machine
8/24/54	Germanatown Colliery	Centralla	Pa.	Raven Run Coal	1	0	207	5	0	0	unconfined shot
8/27/54	Lucerne No. 3	Lucerne mines	Pa.	Rochester & Pittsburgh Coal	1	0	210	5	0	2	arc from trolley locomotive
9/28/54	Bottonwood	Wilkes-Barre	Pa.	Glen Alden Coal	0	8	345	6	2	1	blasting
11/3/54	No. 32	Reyloc	Pa.	Bethlehem Mines Corp.	0	0	649	4	0	0	Short-circuited trailin cable
11/13/54	No. 9	Farrington	W. Va.	Jamison Coal & Coke	16	0	355	4	1	0	firing explosives in nonpermissible manner
11/17/54	Bird No. 3	Johnstown	Pa.	Bird Coal Co.	0	0	130	2	1	3	Underburdened shot
12/13/54	No. 1 Slope	Buck Run	Pa.	Katchmar & Machita Partners	0	3	3	0	2	0	match
1/18/55	Mathies	Courtney	Pa.	Mathies Coal	0	0	804	4	0	1	undetermined

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Cause
1/23/55	Wyoming	Wyoming	W. Va.	Red Jacket Coal Corp.	2	5	176	0	1	6	arc from permissible machine in nonpermissible underburdened shot
2/25/55	No. 2	Wilcox	W. Va.	U.S. Steel Corp.	0	0	593	6	0	7	underburdened shot
3/14/55	Loomis Colliery	Manticoke	Pa.	Glen Alden Coal	0	0	443	4	0	0	bits of cutting machine
3/18/55	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	0	1,046	4	1	7	improperly confined shot
4/25/55	No. 2 Lykens Vein Slope	Shamokin	Pa.	Allen Shoffler Coal Hole	1	1	2	0	2	0	match
4/25/55	No. 9 Vein	Trevorton	Pa.	Fair Deal Coal	0	2	6	0	2	0	underburdened shot
4/25/55	Coiltown	Nebo	Ky.	Coiltown Mining	0	2	118	1	2	0	cigarette lighter
6/9/55	South Wilkes-Barre Colliery	Wilkes-Barre	Pa.	Glen Alden Corp.	0	0	257	3	0	0	undetermined
6/17/55	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	0	1,062	5	1	7	bits of cutting machine
6/18/55	South Wilkes-Barre Colliery	Wilkes-Barre	Pa.	Glen Alden Corp.	0	0	257	3	0	0	faulty blasting
8/23/55	Ten Mile	Dola	W. Va.	Haywood Coal	0	0	24	1	2	0	arc from grounded cutting machine
8/29/55	Saginaw No. 1	St. Clairsville	Ohio	Saginaw Dock & Terminal	0	2	294	4	0	2	arc from trailing cable cutting machine
10/22/55	Hickory Drift No. 12	Pine Grove	Pa.	Knorr-Schwalm Dunleavy Coal	0	2	8	1	2	1	arc from open type drill
11/8/55	Belms	Cadiz	Ohio	Youghiogheny & Ohio Coal	0	0	436	3	0	0	bits of cutting machine
11/30/55	Pursglove No. 15	Pursglove	W. Va.	Christopher Coal	0	5	340	6	3	2	arc from permissible cutting machine in nonpermissible condition
12/9/55	Maysville No. 1 Slope Glen Burn Col.	Kulpmont	Pa.	Susquehanna Col. Div. The M. A. Hanna Co.	1	1	178	1	2	0	underburdened shot
1/4/56	Peach Mountain Slope	Pottsville	Pa.	Lengle Coal	0	2	3	0	2	0	arc from open-type electric drill

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Emp.</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>
2/3/56	McCurtain	McCurtain	Okl.	Lone Star Coal	0	0	190	1	1	0	mine fire
2/20/56	Pikeview	Pikeview	Colo.	Pikes Peak Fuel, Div. of the Golden Cycle Corp.	0	0	13	2	1	0	undetermined
2/24/56	Clyde	Fredricktown	Pa.	Republic Steel Corp.	0	0	698	6	1	2	blasting
3/2/56	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	0	1,010	5	1	7	bits of cutting machin
3/14/56	S and J	Minersville	Pa.	S and J Coal	0	2	3	0	1	1	arc from open-type electric drill match or caps of cutting machin
3/20/56	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	0	1,033	5	1	7	bits of continuous min
3/22/56	Osage No. 3	Cassville	W. Va.	Christopher Coal	0	0	323	4	0	2	bits of continuous min
4/3-4/56	Green Valley	Terre Haute	Ind.	Show Hill Coal Corp.	0	0	271	2	0	0	arc from grounded cutting machine
4/6/56	Compass No. 3	Dola	W. Va.	Compass Coal	0	0	97	1	2	0	arc from short circuit in trailing cable loadin;
4/12/56	Ebensburg No. 1	Colver	Pa.	Ebensburg Coal	0	0	487	8	2	1	arc from shuttle car trailing cable
4/13/56	Valley Camp No. 3	Triadelphia	W. Va.	Valley Camp Coal	0	1	192	4	1	0	flame safety lamp
4/24/56	Compass No. 3	Dola	W. Va.	Compass Coal	0	0	97	1	2	0	bits of cutting machin-
5/21/56	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	1	1,005	5	1	7	arc from trolley nip o locomotive
5/31/56	Praco	Praco	Ala.	Alabama By-Products Corp.	2	0	275	4	5	0	arc from trolley locomotive
6/3/56	Hos. 4 and 6 Mansford Col.	Mansford	Pa.	Penther Valley Coal	0	5	366	4	0	1	unconfined shot
7/12/56	Rond Creek	Williamson	Ky.	Osborne Mining Corp.	1	1	120	2	0	4	nipping a mine jitney

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Cause
7/19/56	V. C. No. 3	Triadelphia	W. Va.	Valley Camp Coal	0	0	175	4	0	0	bits of cutting machine
8/31/56	Allen	Stonewall	Colo.	Colorado Fuel & Iron Corp.	0	0	425	1	2	1	blown-out shot
9/18/56	Bunker	Cassville	W. Va.	Trotter Coal	0	0	176	5	1	0	arc from nip of trafilin cable of loading machine
10/8/56	Compass No. 3	Dola	W. Va.	Compass Coal	0	0	116	1	2	0	arc from grounded roof-bolt machine
10/20/56	Lancashire No. 15	Bakerton	Pa.	Barnes & Tucker	0	1	235	5	0	3	arc from trolley locomotive
10/25/56	Green Valley	Terre Haute	Ind.	Snow Hill Coal Corp.	0	0	295	2	0	0	arc from nip of loading machine
11/2/56	Bunker	Cassville	W. Va.	Trotter Coal	0	1	195	5	1	0	unconfined shot
11/7/56	Truesdale Colliery	Manticoke	Pa.	Glen Alden Corp.	4	0	20	1	1	0	molten metal dropped down shaft
12/5/56	Marianna No. 58	Marianna	Pa.	Bathlehem Mines Corp.	0	0	580	7	0	0	underburdened shot
12/14/56	Shannopin	Bobtown	Pa.	Jones & Laughlin Steel Corp.	0	0	310	2	0	10	friction sparks cable nip rubbing roof bolt
12/20/56	Baltimore Colliery	Wilkes-Barre	Pa.	The Hudson Coal	0	2	187	3	2	0	arc from open-type signal button
12/20/56	Peerfield	Itrani	W. Va.	American Coal	1	0	188	0	1	3	arc from trolley locomotive
12/21/56	New Castle Vulcan No. 3	New Castle	Colo.	New Castle Coal	0	2	8	0	0	2	arc from drill
1/3/57	Loveridge	Fairview	W. Va.	Jamison Coal & Coke	0	0	22	2	0	0	arc from bare cables
1/11/57	No. 2	Morganfield	Ky.	Syers Coal	0	1	19	1	1	0	smoking
1/17/57	Blackwood Drift	Zerbe	Pa.	Denton & Donfried Coal	0	1	4	1	0	0	sev match
1/18/57	Iwan Jones	Jonenville	Alaska	Evan Jones Coal	5	0	12	1	1	0	firing explosives in nonpermissible manner

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Cause
1/23/57	South Dip Slope	Trevorton	Pa.	B and P Coal	0	2	4	0	2	0	arc from drill
2/4/57	No. 34	McDonell County W. Va.	(near Stages, Va.)	Peachbottom Fuel	37	0	675	2	0	7	arc from electric equi or power conductor
2/19/57	Sird No. 3	Johnstown	Pa.	Bird Coal	0	4	124	3	2	0	arc between shuttle car continuous miner
2/26/57	No. 4 (C main opening)	Alva	Ky.	Black Star Coal Corp.	0	0	275	0	0	sev. match	
3/10/57	No. 93	Jordon	W. Va.	Consolidation Coal (W. Va.)	0	2	332	3	0	0	arc from trolley of jitney
5/1/57	Clyde	Fredricktown	Pa.	Republic Steel Corp.	0	0	622	6	1	2	unconfined shot
5/10/57	Vesta No. 5	Vestaburg	Pa.	Jones & Laughlin Steel Corp.	0	0	981	5	1	7	defective splice in trailing cable of loading machine
5/27/57	Dakoven	Union	Ky.	Pittsburg & Midway Coal Mining	0	0	176	0	3	0	bits of continuous mine
6/6/57	Jonsie	E. Springfield	Ohio	Warner Collieries	0	0	236	1	1	0	bits of cutting machine
6/14/57	Loomis Col.	Lanticoke	Pa.	Glen Alden Corp.	3	2	487	5	0	0	unsafe use of flame safety lamp
8/2/57	Jensie	E. Springfield	Ohio	Warner Collieries Co.	0	0	162	1	1	0	bits of cutting machine
8/6/57	No. 93	Jordon	W. Va.	Consolidation Coal (W. Va.)	0	0	326	3	0	0	bits of cutting machine
9/23/57	Marianna No. 58	Marianna	Pa.	Bethlehem Mines Corp.	6	5	572	8	0	0	arc from trolley of jitney or a power switch
10/9/57	Germanatown Colliery	Centrella	Pa.	Raven Run Coal	0	2	290	5	2	0	arc from trolley locomotive
11/16/57	Mayton Slope	Coal Run	Pa.	Mayton Brothers	0	3	6	0	2	0	arc from open-type blower fan or match
11/20/57	Wyoming No. 8 Slope Henry Coll.	Plains	Pa.	Lehigh Valley Coal	0	1	68	2	2	0	undetermined
12/11/57	Peerless No. 3	Greenwood	Ark.	Peerless Coal	4	0	150	1	1	0	match or cigarette lighter

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Openings	Cause
12/27/57	No. 31	Amonate	W. Va.	Pocahontas Fuel	11	0	636	2'	0	sev.		arc from face equip. or power conductor
1/17/58	Pohatan No. 3	Dilles Bottom	Ohio	The Pohatan Mining	0	1	390	5	3	0		arc from trolley of jitney
1/17/58	Spring Canyon No. 4	Spring Canyon	Utah	Spring Canyon Coal	4	0	117	5	1	0		arc from trolley wire forced down by "bump"
2/5/58	O'Donnell	Four States	W. Va.	Rochester & Pittsburgh Coal	0	2	317	4	0	0		bits of continuous mine undetermined
4/8/58	Moss No. 2	Dola	Va.	Clinchfield Coal Corp.	2	4	420	3	1	0		undetermined
5/1/58	No. 9 Coaldale Coll.	Coaldale	Pa.	Coaldale Mining	0	3	572	4	1	1		unconfined shot
6/11/58	Wildwood	Wildwood	Pa.	Butler Consolidated Coal	0	4	191	1	1	0		arc from nip of mining machine
6/19/58	Maysville No. 1 Slope Glen Burn Colliery	Kulpmont	Pa.	Susquehanna Collieries Div. The M. A. Hanna Co.	1	4	161	1	2	0		unconfined shot
6/27/58	Orange No. 3	Cassville	W. Va.	Christopher Coal	0	1	251	5	0	2		arc between trolley wire and locomotive
7/9/58	Slab Fork No. 1	Slabfork	W. Va.	Slab Fork Coal	3	0	168	1	0	sev.		arc from open-type pump motor
8/22/58	No. 6	Bradshaw	W. Va.	Island Creek Coal	0	2	268	0	0	sev.		defective flame safety lamp
9/5/58	Ernest No. 3	Ernest	Pa.	Fochester & Pittsburgh Coal	0	1	294	6	0	2		arc from trolley locomotive
9/18/58 9/19/58	Conemaugh	Smokeless	Pa.	Conemaugh Mining	0	3	124	3	1	0		bits of continuous mine
9/26/58	No. 34	McDowell County W. Va.	(near Bishop, Va.)	Pocahontas Fuel (Div. of Consolidation Coal)	0	0	555	2	0	sev.		bits of cutting machine
9/29/58	No. 11	Capels	W. Va.	The New River & Pocahontas Consolidated Coal	0	0	220	3	1	0		underburdened shots
10/17/58	No. 2	Robbins	Tenn.	Terry Coal	0	0	4	0	0	3		open light
10/27/58	Potks Colliery	Locustdale	Pa.	Locust Dale Mining & Contracting	0	1	110	0	3	0		relighting flame safety lamp

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10/27/58	Bishop (No. 34)	Bishop	W. Va.	Pocharians Fuel (Div. of Consolidation Coal)	22	0	544	2	0	8	underburdened shot
10/28/58	Burton	Craigsville	W. Va.	Oglebay Morton	14	3	89	0	0	4	arc from power conductq
12/5/58	Avondale Colliery	Plymouth	Pa.	Aven Mining	0	1	116	4	2	0	unconfined shots
12/19/58	Landsburg	Franklin	Wash.	Palmer Coking Coal	0	2	39	0	4	0	arc from drill
1/29/59	Loweridge	Fairview	W. Va.	Mountaineer Coal Co., Div. of Consolidation Coal	1	0	70	2	1	0	flame safety lamp
2/5/59	Loweridge	Fairview	W. Va.	Mountaineer Coal Co., Div. of Consolidation Coal	0	0	70	2	1	0	bits of continuous mine
2/6/59	No. 7	Vivian	W. Va.	Peerless Coal & Coke	0	0	117	0	0	3	grounded resistor on cutting machine
3/18/59	Melms	Cadiz	Ohio	Youghiogheny & Ohio Coal	0	0	425	3	0	0	arc from defector/split loading machine cable
4/16/59	Robena No. 3	Greensboro	Pa.	U.S. Steel Corp.	0	1	1,560	9	1	0	bits of cutting machine
4/22/59	Peca Shaft	Mahanoy City	Pa.	Peca Coal	0	1	175	1	1	0	improperly assembled flame safety lamp
5/5/59	Duck Mountain Slope	Ravine	Pa.	Guy Zimmerman & Partners	0	2	3	0	sev.	0	arc from open-type blower fan
6/1/59	Lake Superior No. 3	Superior	W. Va.	Lake Superior Coal	0	0	180	4	1	0	arc from trolley of jitney
6/4/59	Colver	Colver	Pa.	Eastern Gas & Fuel Assoc., Coal Division	0	0	440	9	2	1	bits of continuous mine
6/11/59	No. 27	Scarlet	W. Va.	Island Creek Coal	0	1	337	1	1	0	electric arc from switch box
6/22/59	Compass No. 2	Dola	W. Va.	Clinchfield Coal, Div. of Pittston Co., Compass Operations	0	0	193	5	0	3	bits of cutting machine
6/23/59	Moss No. 3	Duby	Va.	Clinchfield Coal, Div. of Pittston Co., Compass Operations	0	0	157	0	0	sev.	improperly assembled flame safety lamp
8/15/59	Ditch Creek	Redstone	Colo.	Mid-Continent Coal & Coke	0	3	40	0	4	0	oxy-acetylene torch

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Cause
8/20/59	Lancashire No. 15	Eakerton	Pa.	Barnes and Tucker	0	1	234	5	0	3	bits of continuous mine
8/31/59	Compass No. 2	Dola	W. Va.	Clinchfield Coal (Div. of Bittston Compass Operations)	0	0	193	6	0	3	bits of cutting machine
10/9/59	Helms	Cadiz	Ohio	The Youghiogheny and Ohio Coal	0	0	403	3	0	0	bits of cutting machine
10/20/59	Buckhorn No. 2	Johnston City	Ill.	Pall and Zoller Coal	0	3	Data not avail.	2	1	0	arc from controller of improperly maintained permissible cont. miner bits of continuous mine
12/11/59	Stamopin	Robtorn	Pa.	Jones and Laughlin Steel Corp.	0	0	572	5	0	3	bits of continuous mine
12/21/59	Wildwood	Wildwood	Pa.	Batler Consolidated Coal	0	0	199	1	1	0	overheated drill bit
1/30/60	Colver	Colver	Pa.	Eastern Gas and Fuel Associates, Coal Div.	0	0	249	9	2	1	arc from trolley locomotive
2/22/60	Helms No. 1	Cadiz	Ohio	The Youghiogheny and Ohio Coal	0	0	423	3	0	0	arc from electric coal drill
3/1/60	Jensie	East Spring- field	Ohio	The North American Coal Corp., Poshatan Division	0	0	189	1	1	0	bits of cutting machine
5/17/60	Marianna No. 58	Marianna	Pa.	Bethlehem Mines Corp.	0	0	486	8	0	0	bits of cutting machine
7/1/60	Nos. 4 and 6 Slopes	Zerbe	Pa.	Rickett Brothers Coal	0	2	18	0	4	1	arc from open-type blower fan
7/12/60	Helms No. 2	Hopedale	Ohio	The Youghiogheny and Ohio Coal	0	0	20	1	1	0	bits of continuous mine
7/20/60	Bessie	Maben	Ala.	U. S. Pipe and Foundry	0	2	147	2	2	2	defective flame safety lamp
8/26/60	Compass No. 2	Dola	W. Va.	Clinchfield Coal	0	0	105	6	0	3	acetylene torch used to borehole casing
9/11/60	Olga No. 1	Coalwood	W. Va.	Olga Coal	1	0	278	6	0	0	arc from trolley of portabul
10/27/60	Dutch Creek	Redstone	Colo.	Mid-Continent Coal and Coke	0	0	29	0	6	0	arc from open compart- ment of permissible contin-

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	SL	Dr.	Cause
11/4/60	Enoco Collieries	Bruceville	Ind.	Enoco Collieries, Inc.	0	1	188	2	0	0	bits of continuous mine
11/5/60	No. 3 Rock Slope	Rock Run	Pa.	David J. Dando Mining	0	2	7	0	2	0	arc from coal drill
11/8/60	Lacarne No. 3	Lacarne Mines	Pa.	Rochester and Pittsburgh Coal	0	0	357	5	0	8	undeterned
1/16/61	Enoco Collieries	Bruceville	Ind.	Enoco Collieries, Inc.	0	3	94	2	0	0	bits of continuous miner
1/21/61	No. 32 Slope No. 18 Mine Wanamie Colliery	Wanamie	Pa.	Glen Alden	0	3	243	2	3	1	mishandling flame safety lamp
1/17/61	O'Donnell No. 2	Sand Fork	W. Va.	Rochester and Pittsburgh Coal	0	0	134	0	0	3	spark when cutter bar contacted roof bolt
1/4/61	Sovern and Salter Slope Mine	Gowen City	Pa.	Gowen Coal	0	1	7	0	2	0	arc from open-type drill
1/13/61	Dutch Creek	Redstone	Colo.	Mid-Continent Coal and Coke	0	0	29	0	6	0	broken shaft cut power wires producing arc
2/16/61	Marianna No. 58	Marianna	Pa.	Bethlehem Mines Corp.	0	0	333	7	0	0	bits of continuous mine
3/2/61	Viking Mine	Terra Haute	Ind.	Viking Coal	22	0	166	2	1	0	arc from electric equip or open flames
4/18/61	Osage No. 3	Cassville	W. Va.	Christopher Coal	1	5	338	8	0	0	bits of continuous mine
4/17/61	Uemann No. 1	Uemann	W. Va.	Pocahontas Fuel (Div. of Consolidation Coal)	0	2	325	0	0	3	bits of continuous mine
5/16/61	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	1	465	3	1	0	arc from electric welder
5/29/61	No. 5	Clear	W. Va.	Clear Mining	2	1	235	3	1	0	arc from trolley locomotive
7/20/61	No. 5	Trammel	Va.	Phillips Coal	1	2	14	0	0	2	carbide lamp
10/20/61	Malms No. 1	Cadiz	Ohio	The Youngblood and Ohio Coal	0	0	376	3	0	0	bits of cutting machine

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Openings	Cause
10/25/61	Lanenshite No. 15	Eskerton	Pa.	Raines and Tucker	0	4	224	5	0	3		bits of continuous mine
11/24/61	Marianna No. 58	Marianna	Pa.	Bohlohen Mines Corp.	0	0	333	7	0	0		bits of continuous mine
12/12/61	Federal No. 1	Grant Town	W. Va.	Encke n Gas and Fuel Associates	0	4	290	7	0	0		bits of continuous mine
12/14/61	Nos. 2 and 3 Slopes	Rick Run	Pa.	Estrick and Ebert Coal	0	1	5	1	2	0		open-type electric drill
2/2/62	Nalms No. 2	Hopedale	Ohio	Youghiogheny and Ohio	0	2	66	1	1	0		bits of continuous mine
2/5/62	Glen Burn Colliery	Shamokin	Pa.	Cap-Anthracite	0	1	188	0	3	1		blown-out shot
2/11/62	Glen Burn Colliery	Shamokin	Pa.	Cap-Anthracite	0	2	188	0	3	1		unconfined shot
5/24/62	Shannon	Bobtown	Pa.	Jones and Laughlin Steel	0	0	448	3	0	10		undetermined
6/6/62	Loyal	Loyalhanna, Twp.	Pa.	Seanor	0	5	215	1	2	3		arc from permissible type shuttle car or loading machine
6/12/62	No. 3	Manitowide	W. Va.	Fields Creek	1	0	59	0	0	0		sev. arc from no. 3 storage battery tractor
8/11/62	Zanning No. 3	West Newton	Pa.	Republic Steel	0	0	181	6	3	0		arc from open-type pump motor
8/9/62	No. 1	Grimsleyville	Va.	S. and S.	0	1	12	0	0	2		match
9/23/62	Moss No. 3	Duty	Va.	Clinchfield Coal	0	1	210	0	0	0		arc between belt frame and shuttle car
10/2/62	Robena (Nos. 1, 2, and 3)	Greensboro	Pa.	U. S. Steel	2	2	1010	9	1	0		frictional sparks from roof fall
10/23/62	D-Koven	D-Koven	Ky.	The Pittsburg and Midway	1	0	216	0	3	0		arc from storage-battery jitney
10/25/62	Kearlworth	Kearlworth	Utah	Independent Coal & Coke	0	0	108	1	0	3		bits of cutting machine
11/15/62	Marianna No. 58	Marianna	Pa.	Bohlohen Mines Corp.	0	0	368	8	0	0		bits of continuous mine
11/29/62	Top Split Hancock Slope	Cockspring	Pa.	Bush Coal	0	2	38	0	2	0		blasting from power circuit

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12/5/62	Robena No. 3	Greensboro	Pa.	U. S. Steel	37	0	947	9	1	0	arc from electric equip or bits of continuous sparks from roof fall
12/14/62	Leucashire No. 15	Exerton	Pa.	Raines and Tucker	0	0	248	4	0	3	
12/24/62	Emerald	Clarksville	Pa.	Hillman Coal and Coke	0	0	347	3	2	0	bits of continuous mine
1/4/63	Maple Creek	New Eagle	Pa.	U. S. Steel Corp.	0	1	264	3	1	3	bits of cutting machine
1/4/63	Emerald	Clarksville	Pa.	Hillman Coal & Coke	0	0	350	3	2	0	bits of continuous mine
1/8/63	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	343	3	1	0	bits of continuous mine
1/14/63	No. 40 Slope	Wanamie	Pa.	Clarofoini Coal	0	2	11	1	1	0	match
1/29/63	Glen Burn	Shamokin	Pa.	Cap-Anthracite Coal	1	3	227	0	2	2	unconfined explosives
1/29/63	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	343	3	1	0	arc from trolley of jitney
2/4/63	Sidmore Slope	Valley View	Pa.	Williamson Coal	0	2	14	0	2	0	defective flame safety lamp
3/20/63	Bird No. 3	Johnstown	Pa.	Bird Coal	0	0	151	2	2	0	bits of continuous mine
3/63	Thesann No. 3	Thesann	W. Va.	Thesann Coal	0	0	174	1	0	3	undetermined
4/8/63	No. 4 Acton	Helena	Ala.	Pavemount Coal	0	2	12	0	3	0	arc from controller of cutting machine
4/12/63	Moss No. 3	Clinchfield	Va.	Clinchfield Coal	0	0	170	0	0	sev.	spark from digging arms arc from digging arms arc from spark from open- circuiting
4/16/63	Forge Slope	Texport Twp.	Pa.	Glen Men Coal Corp.	4	8	200	1	2	0	type hoist motor or controller
4/17/63	Bird No. 3	Johnstown	Pa.	Bird Coal	0	2	167	2	2	0	bits of continuous mine
4/25/63	Compass No. 2	Dora	W. Va.	Clinchfield Coal	22	0	173	8	0	3	arc from improperly maintained permissible type loading machine

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	SL	Dr.	Cause
5/14/63	Moss No. 3	Clinchfield	Va.	Clinchfield Coal	0	1	170	0	0	sev.	arc from grounded frame of shuttle car
7/18/63	Mathies	Courtnay	Pa.	Mathies Coal	0	0	332	7	0	1	short-circuited trail line cable on loading
7/23/63	Belms No. 2	Hopetown	Ohio	The Youngblood & Ohio Coal	0	0	148	1	1	0	bits of continuous miner
8/7/63	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	351	3	1	0	bits of cutting machine
8/8/63	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	351	3	1	0	arc from trolley of jitney
8/13/63	Kenilworth	Kenilworth	Utah	Independent Coal & Coke	0	0	97	8	1	0	arc from electric welder while bonding
8/17/63	Itmann No. 3	Itmann	W. Va.	Itmann Coal	0	2	192	1	0	4	arc from frame of continuous miner
8/21/63	Maple Creek	New Eagle	Pa.	U.S. Steel Corp.	0	0	334	3	1	3	bits of cutting machine
8/26/63	Lancashire No. 15	Berkerton	Pa.	Barnes & Tucker	0	1	247	5	0	3	bits of continuous miner
9/16/63	Mathies	Courtnay	Pa.	Mathies Coal	0	0	332	7	0	1	short circuit in trailing cable of derrick machine safety lamp
9/21/63	Drifton No. 1	Drifton	Pa.	J. F. Lee	0	2	14	0	2	0	
10/22/63	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	365	3	1	0	arc between trailing cable and trolley in bits from continuous miner
10/15/63	Compass No. 2	Dola	W. Va.	Clinchfield Coal	0	1	148	sev.	0	3	arc from derrick machine
10/15/63	Robena No. 1, 2, 3, 4	Greensboro	Pa.	U.S. Steel Corp.	0	0	1181	10	1	0	bits of continuous miner
10/20/63	Robena No. 1, 2, 3, 4	Greensboro	Pa.	U.S. Steel Corp.	0	0	1181	10	1	0	bits of continuous miner
10/31/63	Ernest No. 3	Ernest	Pa.	Rochester & Pittsburgh Coal	0	0	275	7	0	2	smouldering explosives
11/4/63	Gateway	Clarksville	Pa.	Gateway Coal	0	0	441	4	2	0	bits of cutting machine
11/6/63	Gateway	Clarksville	Pa.	Gateway Coal	0	0	441	4	2	0	bits of continuous miner
11/11/63	Dutch Creek	Belvidere	Colo.	Mid Continent Coal & Coke	0	9	49	0	7	0	bits of continuous miner

Date	Mine	Town	State	Company	Killed	Injured	Emp.	Sh.	Sl.	Dr.	Cause
12/18/63	No. 2	Helper	Utah	Carbon Fuel	9	1	24	1	1	0	bits of continuous miner or equipment in nonpermissible condition cut at splice in trailing cable of loader underburdened shot
2/3/64	Dutch Creek	R-dstone	Colo.	Mid-Continent Coal & Coke	0	0	49	0	7	0	
2/3/64	Sednarezyk Nos. 2 & 3 Slopes	Goswin City	Pa.	Behnarezyk Coal	3	1	7	0	2	0	
2/24/64	Noss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	354	3	1	0	bits of cutting machine
2/25/64	Ireland	Roundsville	W. Va.	Hanna Coal	0	0	242	4	2	0	bits of continuous miner
2/28/64	Ireland	Roundsville	W. Va.	Hanna Coal	0	0	242	4	2	0	bits of continuous miner
2/28/64	Crescent	Central City	Ky.	Nashville Coal, Inc.	0	0	219	2	1	0	bits of cutting machine
3/1/64	Marion	Tunnelton	Pa.	Tunnelton Mining	0	0	30	1	1	0	acetylene torch
3/11/64	Concord No. 1	Concord	Ala.	U. S. Steel Corp.	0	0	703	8	2	0	bits of cutting machine
5/7/64	Bird No. 3	Johnstown	Pa.	Bird Coal	0	2	147	2	2	0	bits of continuous miner
5/8/64	Noss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	362	3	1	0	bits of continuous miner
5/25/64	Dutch Creek	Redstone	Colo.	Mid-Continent Coal & Coke	0	0	60	0	7	0	arc from damaged trailing cable
5/16/64	Compass No. 3	Dola	W. Va.	Clinchfield Coal	0	0	188	2	2	0	bit of roof-bolt machine
6/24/64	O'Donnell No. 1	Four States	W. Va.	Rechester & Pittsburgh Coal	0	4	215	7	0	0	bits of continuous miner
7/15/64	Huber	Ashley	Pa.	Glun Alden Coal	0	2	576	4	2	0	smoking
7/20/64	Robana No. 4	Greensboro	Pa.	U. S. Steel Corp.	0	0	1133	9	1	0	bits of continuous miner
7/27/64	Concord No. 1	Concord	Ala.	U. S. Steel Corp.	0	0	762	8	2	0	bits of cutting machine

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>
7/30/64	No. 2	Acton	Ala.	Ala. Red Ash Coal	0	2	0	2	0	arc from cutting machine
8/3/64	Robena No. 3	Greensboro	Pa.	U. S. Steel Corp	0	0	1133	9	1	bits of continuous miner
8/18/64	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	367	3	1	bits of continuous miner
8/19/64	No. 9 Vein South Dip Slope	Trevorton	Pa.	Fair Deal Coal	0	2	8	0	3	unconfined shot
9/3/64	DeKoven No. 6	Union	Ky.	The Pittsburgh & Midway Coal Mining Co.	0	1	103	0	3	bits of continuous miner
9/15/64	Gateway	Clarksville	Pa.	Gateway Coal	0	0	478	5	2	bits of continuous miner
9/28/64	No. 6	Bradshaw	W. Va.	Island Creek Coal	3	0	124	1	0	arc from nip of mine jitney
10/3/64	Nelms No. 2	Hopdale	Ohio	The Youghiogheny & Ohio Coal Co.	0	2	157	1	1	bits of continuous miner
10/5/64	Dutch Creek	Redstone	Colo.	Mid-Continent Coal & Coke	0	0	60	0	7	arc from damaged trailing cable
10/7/64	Lady Dunn No. 105	Cannelton	W. Va.	Cannelton Coal	0	3	266	3	1	permissible battery truck in nonpermissible zone
10/17/64	Westland	Westland	Pa.	Pittsburgh Coal	0	0	106	1	0	arc from nip of portabuss
11/2/64	Lancashire No. 15	Bakerton	Pa.	Barnes & Tucker	0	2	270	5	0	bits of continuous miner
11/7/64	Colver	Colver	Pa.	Eastern Associated Coal Corp.	0	0	264	9	2	arc from trolley locomotive
11/9/64	Beatrice	Keen Mt.	Va.	Beatrice Pocahontas	0	0	96	3	0	bits of continuous miner
11/20/64	Itmann No. 3	Itmann	W. Va.	Itmann Coal	0	1	165	0	0	bits of continuous miner
12/3/64	Concord No. 1	Concord	Ala.	U. S. Steel Corp.	0	0	703	8	2	bits of cutting machine
12/7/64	No. 19	Wamsler	Pa.	Clon Alden Coal	0	5	371	2	4	unconfined (adobe) shot
12/11/64	Gateway	Clacksville	Pa.	Gateway Coal	0	0	501	5	2	bits of continuous miner

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Emp.</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>
1/7/65	Sunnyside No. 3	Sunnyside	Utah	Kaiser Steel Corp.	0	0	149	1	3	0	acetylene torch
1/26/65	Bird No. 3	Johnstown	Pa.	Bird Coal	0	1	160	2	2	0	bits of continuous miner
2/3/65	DeKoven No. 6	Union	Ky.	The Pittsburgh & Midway Coal Co.	0	1	180	0	3	0	bits of continuous miner
2/11/65	No. 5	Marvin	Va.	Horn & Whited Coal	0	2	10	0	0	3	match
2/18/65	Clyde	Fredricktown	Pa.	Republic Steel Corp.	0	0	286	6	1	2	bits of continuous miner
2/18/65	No. 217 Slope	Nanticoke	Pa.	Bristol Mining Co.	0	1	52	0	2	0	defective flame safety lamp
2/26/65	Deimont No. 10B	Hunkers	Pa.	Deimont Fuel	0	2	125	1	0	2	bits of continuous miner
3/3/65	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	381	3	1	0	bits of continuous miner
3/3/65	Pleasant View	Madisonville	Ky.	Island Creek Coal	0	0	242	1	1	0	overheated bearing on loader
3/16/65	No. 2	Helper	Utah	Carbon Fuel	0	2	27	1	1	0	bits of continuous miner
3/25/65	Osage No. 3	Cassville	W. Va.	Christopher Coal	0	0	280	2	0	1	bits of continuous miner
3/31/65	Beatrice	Keen Mt.	Va.	Beatrice Pocahontas Co.	0	0	263	3	0	0	bits of continuous miner
4/13/65	Keystone	Herndon	W. Va.	Eastern Associated Coal Corp.	0	4	473	sev.	sev.	sev.	arc from deteriorated splice
4/28/65	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	220	3	1	0	bits from continuous miner
4/30/65	Llewellyn Shaft	Farmington	W. Va.	R.G. Johnson	4	1	25	2	1	0	arc when light bulb broke
6/3/65	Robena No. 3	Greensboro	Pa.	U.S. Steel Corp	0	0	1137	9	1	0	bits of continuous miner
6/8/65	Tracy Slope	Donaldson	Pa.	Rickett Coal	0	0	2	0	2	0	open-type blower fan

Date	Mine	Town	State	Company	Killed	Inj.	Emp.	Sh.	SL	Dr.	Cause
6 24/65	Lancashire No. 15	Bakerton	Pa.	Barnes & Tucker	0	4	403	5	1	3	bits of continuous miner
6 24/65	Lowaridge	Fairview	W. Va.	Mountaineer Coal Co.	0	1	300	3	1	0	bits of continuous miner or sparks from conveyor chain
7 6/65	No. 3 Slope	Tremont	Pa.	Herb and Reed	0	2	15	2	1	0	misranded safety
7 6/65	Pandora	Sullivan	Ind.	Pandora Coal Co., Inc.	0	0	42	2	0	0	arc from power wires forced together by roof fall
7 16/65	Dekoven No. 6	Union	Ky.	The Pittsburgh & Midway Coal Mining Co.	0	2	197	0	3	0	bits of continuous miner
8 15/65	Sunnyside No. 1	Sunnyside	Utah	Kaiser Steel Corp.	0	1	158	3	7	0	arc from trolley locomotive
8 27/65	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	1	262	3	1	0	bits of continuous miner
10 20/55	Compass No. 3	Dola	W. Va.	Clinchfield Coal	0	1	178	2	2	3	bits of continuous miner
1 1/8/65	Flat Top	Flat Top	Ala.	U.S. Pipe and Foundry	0	1	200	6	2	0	arc from trolley locomotive
1 1/19/65	Hillsboro	Coffeen	Ill.	Truax-Truax Coal	0	0	85	2	0	0	bits of continuous miner
1 1/29/65	Keystone No. 1	Keystone	W. Va.	Eastern Associated Coal Corp.	0	1	500	8	0	4	bits of continuous miner
12 15/65	Keystone No. 1	Keystone	W. Va.	Eastern Associated Coal Corp.	0	1	500	8	0	4	bits of continuous miner
12 15/65	Brule No. 4	Otsego	W. Va.	Oglebay Norton Co.	1	1	80	0	0	0	sev. arc from trolley locomotive
12 21/65	Bishop	Bishop	W. Va.	Bishop Coal Co.	0	1	425	4	0	0	sev. bits of continuous miner
12 23/65	Bishop	Bishop	W. Va.	Bishop Coal Co.	0	1	425	4	0	0	sev. bits of continuous miner
12 23/65	Dutch Creek	Redstone	Colo.	Mid-Continent Coal & Coke	9	0	60	0	7	0	blown-out temporary cable splice

Date	Mine	Town	State	Company	Killed	Injured Emp.	Sh.	Sl.	Dr.	Cause	
1/24/66	DeKoven No. 6	Union	Ky.	The Pittsburgh and Midway Coal Mining	0	0	197	0	3	0	Blasting
1/25/66	No. 19	Mariane	Pa.	Glen Alden Coal	0	4	360	2	4	0	arc or spark from trailing cable
1/28/66	Shannopin	Bobtown	Pa.	Jones and Laughlin Steel Corp.	0	0	471	3	0	10	bits of continuous miner
1/29/66	Shannopin	Bobtown	Pa.	Jones and Laughlin Steel Corp.	0	5	471	3	0	10	bits of continuous miner
2/11/66	No. 1 Lykens Vein Slope	Joliett	Pa.	Lengel Coal	0	1	4	0	2	0	blasting from power line
2/12/66	Gateway	Clarksville	Pa.	Gateway Coal	0	0	523	5	2	0	bits of continuous miner
3/2/66	Burrwell No. 1	Hesperus	Colo.	Oren A. Pilcher, Operator	3	0	4	0	0	2	undetermined
3/11/66	DeKoven No. 6	Union	Ky.	The Pittsburgh and Midway Coal Mining	0	1	224	0	3	0	blown-out shot of permissible explosives
4/19/66	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	1	262	3	1	0	bits of continuous miner
6/1/66	Beatrice	Keen Mt.	Va.	Beatrice Pocahontas	0	3	309	3	0	0	bits of continuous miner
6/13/66	Shannopin	Bobtown	Pa.	Jones and Laughlin Steel Corp.	0	0	456	3	0	10	bits of continuous miner
6/23/66	Robena No. 3	Greensboro	Pa.	U. S. Steel Corp.	0	4	1181	10	1	0	frictional sparks from roof fall
7/20/66	No. 2 Dutch Creek	Redstone	Colo.	Mid-Continent Coal and Coke	0	0	26	0	0	5	bits of continuous miner
7/23/66	Siltix	Mt. Hope	W. Va.	The New River	7	2	113	1	1	2	arc or spark from shuttle car
3/4/66	Occord No. 1	Occord	Ala.	U. S. Steel Corp.	0	0	762	8	2	0	bits of cutting machine
2/12/65	Marwick No. 2	Greensboro	Pa.	Duquesne Light	0	0	181	2	0	3	arc from trolley locomotive
8/31/66	Deer Colliery	Ashley	Pa.	Illus Coal Corp.	0	2	330	1	2	0	match

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injure:Emp.</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>	
2/1/66	Nos. 3 and 4	Superior	W. Va.	Cannelton Coal	0	2	131	sev.	0	arc from trolley locomotive	
3/9/66	Ireland	Mountaineville	W. Va.	Hanna Coal	0	0	264	4	2	bits of continuous miner	
10/27/66	Stanford No. 2	Stanford	W. Va.	The New River	0	1	123	1	1	2	mishandling of flame safety lamp
11/4/66	Concord No. 1	Concord	Ala.	U.S. Steel Corp.	0	0	760	8	2	0	bits of cutting machine
11/30/66	Beatrice	Keen Mt.	Va.	Beatrice, Pocahontas	0	0	300	3	0	0	arc from trailing cable of continuous miner
12/2/66	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	1	320	3	1	0	bits of continuous miner
12/14/66	Concord No. 1	Concord	Ala.	U.S. Steel Corp.	0	0	760	8	2	0	bits of cutting machine
12/26/66	Lancashire No. 24	Stiles Crossing	Pa.	Barnes & Tucker	0	0	208	1	1	0	arc from contact of trolley wire fall from roof fall
1/10/67	Mathies	Courtney	Pa.	Mathies Coal	0	0	375	7	0	1	arc from grounded mobile coal drill
1/24/67	Va. Pocahontas No. 1	Oakwood	Va.	Island Creek Coal (Shaft Sinking Operation Zint-McKinney-Williams Corp.)	3	5	45	3	0	0	arc when switch of d.c. current was opened
1/30/67	Jeanne	Rachel	W. Va.	Jeanne Coal	2	4	218	4	0	0	bits of continuous miner
2/2/67	Helms No. 2	Hopedale	Ohio	The Youghiogheny & Ohio Coal	0	0	169	1	1	0	bits of continuous miner

Date	Mine	Town	State	Company	Killed	Impaired Emp.	Sh.	SL	Dr.	Cause
2/7/67	Jamison No. 1	Salina	Pa.	Jamison Coal	0	6	107	1	0	bits of continuous miner
3/6/67	Beatrice	Keen Mt.	Va.	Beatrice Pocahontas	0	3	300	8	0	bits of continuous miner
3/10/67	Concord No. 1	Concord	Ala.	U.S. Steel Corp.	0	7	44	2	0	do
3/30/67	Compass No. 2	Dola	W. Va.	Clinchfield Coal	0	1	148	11	0	bits of continuous miner
4/19/67	No. 32	Revioc	Pa.	Bethlehem Mines Corp.	0	0	380	8	0	acetylene torch
4/3/67	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	352	3	1	frictional sparks from roof fall
5/12/67	Gateway	Clarksville	Pa.	Gateway Coal	0	0	519	6	2	bits of continuous miner
6/1/67	Gateway	Clarksville	Pa.	Gateway Coal	0	0	519	6	2	bits of continuous miner
6/14/67	DeKoven No. 6	Union	Ky.	The Pittsburgh and Midway Coal Mining	0	0	260	0	3	bits of cutting machine
6/20/67	Foss Valley No. 6	Hopedale	Ohio	Hanna Coal Co.	0	1	41	0	1	arc from pump motor
6/22/67	No. 1	Bartley	W. Va.	Island Creek Coal	0	2	8	7	0	arc from hoist motor or cigarette lighter
6/29/67	Osage No. 3	Cassville	W. Va.	Christopher Coal	0	3	300	3	0	bits of continuous miner
7/6/67	Humphrey No. 7	Maldenville	W. Va.	Christopher Coal	0	0	400	6	0	bits of continuous miner
7/28/67	No. 1	David	Ky.	Princess Coals, Inc.	4	0	111	0	2	arc from hoist motor or smoking
8/10/67	Moss No. 2	Clinchfield	Va.	Clinchfield Coal	0	0	321	3	1	friction sparks from roof fall
8/17/67	Forge Slope	Newport Twp.	Pa.	Glen Han Coal	0	2	325	0	6	friction sparks from roof fall
8/18/67	Robena No. 4	Greensboro	Pa.	U. S. Steel Corp.	0	0	1181	10	1	bits of continuous miner
9/6/67	No. 7	Keen Mt.	Va.	Horn and Whited Coal	0	6	10	0	0	arc from control box of open type battery truck
9/21/67	Wenashire No. 15	Baiforbon	Pa.	Barnes and Tucker	0	4	143	4	0	bits of continuous miner
10/10/67	Treland	Moundsville	W. Va.	Ohio Valley Div. Consolidation Coal	0	0	341	6	2	bits of continuous miner

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Emp.</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>
10/17/67	Back Slope	Tremont	Pa.	Farley Coal	0	1	6	0	2	0	smoking
10/17/67	No. 32	Reyloc	Pa.	Bethlehem Mines Corp.	0	0	368	7	0	0	arc from short circuit in trailing cable
10/17/67	Compass No. 2	Dola	W. Va.	Clinchfield Coal	0	3	154	4	0	3	bits of continuous miner
11/17/67	DeKoven No. 6	Union	Ky.	The Pittsburgh and Midway Coal Mining	3	1	260	1	3	0	acetylene torch
11/28/67	Compass No. 3	Dola	W. Va.	Clinchfield Coal	0	3	50	2	2	0	bits of continuous "miner

Mine	Town	State	Company	Killed	Injured Emp.	Sh.	Sl.	Dr.	Cause	
1/13/68	Gateway	Pa.	Gateway	0	0	531	6	2	0	bits of continuous miner
1/22/68	West Gulf No. 5	W. Va.	Winding Gulf Coals, Inc.	1	1	133	4	0	0	arc from trolley locomotive
2/8/68	Clyde	Pa.	Republic Steel Corp.	0	0	265	5	0	2	bits of continuous miner
2/22/68	Sunnyside No. 1	Utah	Kaiser Steel Corp.	0	0	104	0	7	3	arc from power cable to pumps
4/9/68	Vesta No. 5	Pa.	Jones & Laughlin Steel Corp.	0	0	225	4	0	7	bits of continuous miner
5/8/68	Virginia Pocahontas Mine No. 1	Va.	Island Creek Coal	0	2	261	3	0	0	bits of continuous miner or sparks from displaced shaft
7/5/68	Hove No. 1	Okla.	Hove Coal	0	0	51	1	1	0	bits of continuous miner
7/10/68	Concord No. 1	Ala.	U.S. Steel Corp.	0	0	703	8	2	0	burning explosives
7/15/68	Mars No. 2	W. Va.	Clinchfield Coal	0	3	96	2	0	3	defective flame safety lamp
7/19/68	Hove No. 1	Okla.	Hove Coal	0	0	51	1	1	0	bits of continuous miner
7/24/68	Slab Fork No. 8	W. Va.	Slab Fork Coal	0	8	206	0	4	2	do
7/26/68	Hove No. 1	Okla.	Hove Coal	0	0	51	1	1	0	do
7/30/68	Hove No. 1	Okla.	Hove Coal	0	0	51	1	1	0	do
8/27/68	Ireland	W. Va.	Consolidation Coal	0	0	426	5	2	0	do
8/30/68	Moss No. 2	W. Va.	Clinchfield Coal	0	2	356	3	1	0	do
9/12/68	McLus No. 2	Ohio	Youghiogheny and Ohio	0	0	177	1	1	0	do

<u>Date</u>	<u>Mine</u>	<u>Town</u>	<u>State</u>	<u>Company</u>	<u>Killed</u>	<u>Injured</u>	<u>Sh.</u>	<u>Sl.</u>	<u>Dr.</u>	<u>Cause</u>	
10/21/68	Middle Split Slope	Goodspring	Pa.	Erdman Bros. Coal	0	1	0	2	0	undetermined	
10/31/68	Hove No. 1	Heavener	Okla.	Hove Coal	0	2	48	1	1	bits of continuous miner	
11/13/68	No. 2	Dante	Va.	Clinchfield Coal	0	3	124	0	0	sev. improperly confined explosives	
11/20/68	Consol No. 9	Farmington	W. Va.	The Mountaineer Coal Div. of Consolidation Coal	78	0	320	7	1	0	undetermined
11/22/68	Lambert Fork	Dante	Va.	Clinchfield Coal	0	0	131	0	0	sev. bits of continuous miner	
12/23/68	Lambert Fork	Dante	Va.	Clinchfield Coal	0	1	149	0	0	sev. bits of continuous miner	
12/23/68	Concord No. 1	Concord	Ala.	U.S. Steel Corp.	0	0	702	8	2	0	bits of continuous miner
1/8/69	No. 10	Tams	W. Va.	Slab Fork Coal	0	3	161	1	2	0	arc from cable splice
2/6/69	Hove No. 1	Heavener	Okla.	Hove Coal	0	0	53	1	1	0	bits of continuous miner
2/12/69	Robena No. 1	Greensboro	Pa.	U.S. Steel Corp.	0	0	133	10	1	0	bits of continuous miner
2/13/69	Ditch Creek No. 1	Redstone	Colo.	Mid-Continent Coal & Coke	0	0	59	0	7	1	ground fault on continuous miner
3/19/69	Hove No. 1	Heavener	Okla.	Hove Coal	0	0	53	1	1	0	bits of continuous miner
4/29/69	No. 2	Helper	Utah	Carbon Fuel	0	0	48	1	1	0	bits of continuous miner
5/23/69	Concord No. 1	Concord	Ala.	U.S. Steel Corp.	0	0	720	8	2	0	burning explosives
5/26/69	Gateway	Clarksville	Pa.	Gateway Coal	0	0	551	6	2	0	bits of continuous miner
6/5/69	Blacksville No. 1	Blacksville	W. Va.	Blacksville Div. (Consol. Coal Co.)	0	0	168	2	0	0	do
6/7/69	Gateway	Clarksville	Pa.	Gateway Coal	0	0	551	6	2	0	bits of continuous miner
6/10/69	Lambert Fork	Dante	Va.	Clinchfield Coal	0	0	157	0	0	0	sev. bits of continuous miner

7. Data on the Number of Coal Mines That Liberate Excessive Quantities of Explosive Gases From the Records of the Bureau of Mines

(a) 46 underground coal mines produce more than 1 million cubic feet of methane per 24-hour day.

(b) 10 underground coal mines produce more than 5 million cubic feet of methane per 24-hour day.

(c) 2 underground coal mines produce more than 5 million cubic feet of methane per shift.

The amount of methane emitted depends, to a large extent, on the size of the mine, so that some small mines which do not meet the criteria, referred to above, may actually have more difficulty in keeping the methane content in the air to levels which would prevent an explosion.

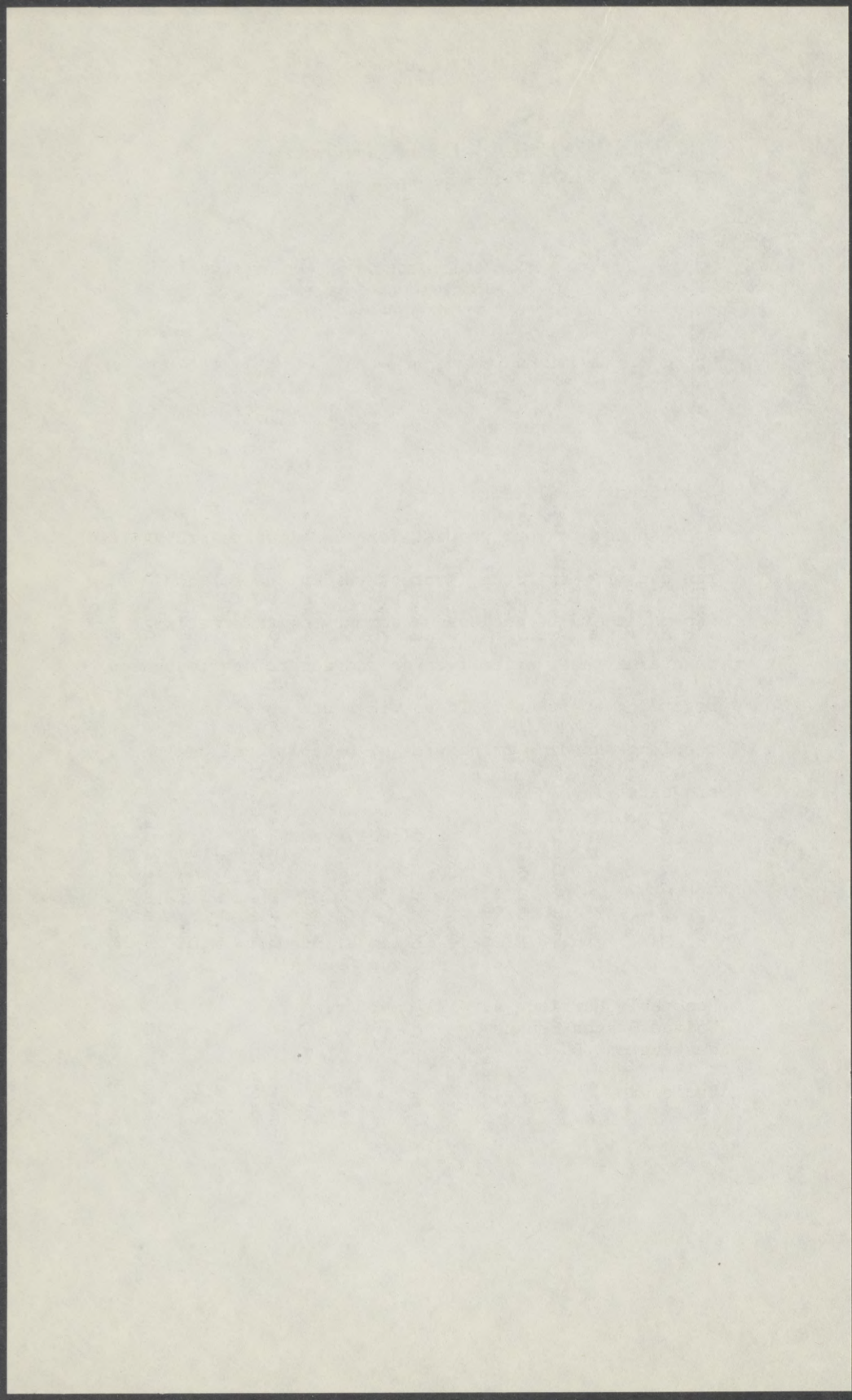
In addition, there are a number of mines which would not meet any of the above criteria in which one, or in some instances multiple, ignitions have occurred.

8. Gassy underground mines in which more than one ignition or explosion occurred, July 1952-July 1969

<u>Mine</u>	<u>Company</u>	<u>Location</u>	<u>No. of Ign. or Exp.</u>	<u>Killed</u>	<u>Injured</u>
Domell #1	Rochester & Pittsburgh Coal	Four States, W. Va.	2	0	6
Doss No. 2	Clinchfield Coal	Dola, W. Va.	18	2	5
Wildwood	Butler Consolidated Coal	Wildwood, Pa.	2	0	4
Sage No. 3	Christopher Coal	Cassville, W. Va.	4	1	9
Overidge	Mountaineer Coal, Div. of Consolidation Coal	Fairview, W. Va.	3	1	1
Obama No. 4	U.S. Steel Corp.	Greensboro, Pa.	2	0	0
Forge Slope	Glen Nan Corp.	Newport Twp., Pa.	2	4	10
rd No. 3	Bird Coal	Johnstown, Pa.	6	0	9
Compass No. 3	Compass Coal	Dola, W. Va.	6	0	4
lley Camp No. 3	Valley Camp Coal	Triadelphia, W. Va.	2	0	1
lyde	Republic Steel Corp.	Fredricktown, Pa.	3	0	0
ekoven #6	Pittsburgh & Midway Coal Mining	Union, Ky.	7	1	4
o. 93	Consolidation Coal	Jordan, W. Va.	2	0	2
ensie	Warner Collieries	E. Springfield, Ohio	3	0	2
arianna No. 58	Bethlehem Mines Corp.	Marianna, Pa.	6	6	5
apple Creek	U.S. Steel Corp.	New Eagle, Pa.	2	0	7
nest No. 3	Rochester & Pittsburgh Coal	Ernest, Pa.	3	0	1

<u>*Mine</u>	<u>Company</u>	<u>Location</u>	<u>No. of Ign. or Exp.</u>	<u>Killed</u>	<u>Injur.</u>
Gateway	Gateway Coal	Clarksville, Pa.	8	0	0
No. 2	Carbon Fuel	Helper, Utah	3	9	3
Lancashire No. 15	Barnes & Tucker	Bakerton, Pa.	8	0	14
No. 2 Shaft Storrs Colliery	Moffat Coal	Dickson City, Pa.	2	0	5
Purglove No. 15	Christopher Coal	Purglove, W. Va.	4	0	9
Vesta No. 5	Jones & Laughlin Steel Corp.	Vestaburg, Pa.	8	0	1
Consol No. 9 Llewellyn Shaft No. 9	Mountaineer Coal, Div. of Consolidation Coal, Jamison Coal Co.	Farmington, W. Va.	3	98	1
Keystone No. 1	Eastern Associated Coal Corp.	Keystone, W. Va.	2	0	2
No. 32	Bethlehem Mines Corp.	Revloc, Pa.	2	0	0
Ireland	Hanna Coal	Moundsville, W. Va.	4	0	0
Concord No. 1	U.S. Steel Corp.	Concord, Ala.	10	0	0
Sunnyside No. 3	Kaiser Steel Corp.	Sunnyside, Utah	2	0	0
Beatrice	Beatrice-Pocahontas	Keen Mt., Va.	5	0	5
Nelms (No. 1)	The Youghiogheny & Ohio Coal	Cadiz, Ohio	4	0	0
Dutch Creek	Mid-Continent Coal & Coke	Redstone, Colo.	8	9	10

Mine	Company	Location	No. of		Injured
			Ign.	Exp.	
Compass No. 2	Clinchfield Coal	Dola, W. Va.	6	22	2
Shannopin	Jones & Laughlin Steel Corp.	Bobtown, Pa.	4	0	0
Melms No. 2	The Youghiogheny & Ohio Coal	Hopedale, Ohio	4	0	2
Enoco Collieries	Enoco Collieries, Inc.	Bruceville, Ind.	2	0	4
Emerald	Hillman Coal & Coke	Clarksville, Pa.	2	0	0
Itmann No. 3	Itmann Coal	Itmann, W. Va.	3	0	3
Mathies	Mathies Coal	Courtney, Pa.	4	0	0
Glen Burn Colliery	Gap-Anthracite	Shamokin, Pa.	3	1	6
Moss No. 3	Clinchfield Coal	Duty, Va.	4	0	2
Kenilworth	Independent Coal	Kenilworth, Utah	2	0	0
Robena No. 3	U.S. Steel Corp.	Greensboro, Pa.	5	37	5
Colver Ebensburg	Eastern Associated Coal Corp (3) Ebensburg Coal Co. (1)	Colver, Pa.	4	0	0
Bunker	Trotter Coal	Cassville, W. Va.	2	0	1
Howe	Howe Coal	Heavener, Okla.	6	0	2
Lambert Fork	Clinchfield Coal	Dante, Va.	3	0	1
No. 34	Bishop Coal	Bishop, W. Va.	3	22	1



Part G.—Use of Respirators

1. Letter of July 9, 1969 from Surgeon General.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
WASHINGTON, D.C. 20201

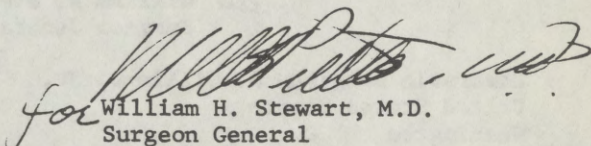
REFER TO:

JUL 9 1969

Dear Senator Williams:

In response to your request for our views regarding the use of respiratory protective devices for coal miners, there is enclosed a summary of information regarding their effectiveness and general philosophies regarding their use. These views are consistent with the long standing principles of occupational health and safety.

Sincerely yours,

for  William H. Stewart, M.D.
Surgeon General

Honorable Harrison A. Williams, Jr.
United States Senate
Washington, D. C.

Enclosure

(1781)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Washington, D. C. 20201

JUL 9 1969

Dear Senator Williams:

In response to your request for our views regarding the use of respiratory protective devices for coal miners, there is enclosed a summary of information regarding their effectiveness and general philosophies regarding their use. These views are consistent with the long standing principles of occupational health and safety.

Sincerely yours,

7s/ Richard A. Prindle, M.D.

for William H. Stewart, M.D.
Surgeon General

Honorable Harrison A. Williams, Jr.
United States Senate
Washington, D. C.

Enclosure

Statement on the Use of Personal Protective Devices
for Respiratory Protection in Coal Miners

As a general policy, the use of personal protective devices, including respirators, as a substitute for engineering control measure is not considered to be either desirable or practical for routine operation such as involved in coal mines. Admittedly, certain types of respirators (such as those with built-in air supplies or attached to a source of filtered fresh air, commonly called a supplied air respirator) can provide virtually 100 percent protection of the respiratory tract. These types of devices in themselves limit the operator's working efficiency and may cause increased safety hazards in the confined environment of a coal mine. The addition of self-contained breathing apparatus, remote supplied air breathing respirators, or filter-type respirators presents significant hazards from a safety viewpoint. Respiratory protection through the use of these types of devices has been used.

There is a long history of development of respirators and their approval by other agencies of the Government such as the Bureau of Mines. Use of this equipment has been for emergency situations where personnel are exposed to contaminants which have a rapid affect on life or health after comparatively short periods or for non-emergency situations where such conditions do not exist, in which prolonged exposure will produce chronic illness, and in which engineering control means or other means of minimizing the exposure are not practical. The mechanical filter respirators, the more common type of device which might be used in a coal mine situation, present special problems. The ability of air to pass through the filter decreases with the increase of contaminants trapped. There is a resulting possibility that the worker will remove the filter and not replace one thereby negating the protection provided. In the case of airline respirators, the possibility of

carbon monoxide being drawn into the supply line also cannot be overlooked.

As pointed out in the text, Safety Management (Simonds and Grimaldi, published by Richard D. Irwin, Inc., in 1956), there are extreme difficulties in obtaining cooperation from workers asked to utilize personal protective equipment. It also should be noted with regard to respirators and similar devices that a comprehensive maintenance program is necessary to keep them effective. Unlike the miner's helmet and his safety goggles, respiratory protective equipment may be defective although there is not obvious external indication. It is a long established requirement that respiratory equipment requires careful fitting and there must be a continuous technical effort for cleaning, inspection, and maintenance.

Accordingly, it is our view that this type of equipment should not be depended upon for routine protection of coal mines but rather should be used in those specialized occasional situations of extreme dustiness.

2. Letter of July 8, 1969, from Director O'Leary.¹

United States Department of the Interior

BUREAU OF MINES
WASHINGTON, D.C. 20240

July 8, 1969

Hon. Harrison A. Williams
Chairman, Subcommittee on Labor
Committee on Labor and Public Welfare
United States Senate
Washington, D. C. 20510

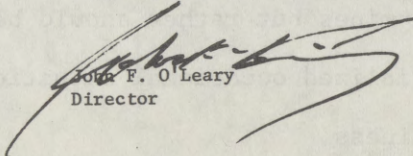
Dear Mr. Chairman:

In accordance with your request, there is enclosed material relative to the testing procedures and criteria for individual respirators to protect miners from dust-containing environments.

The availability of respirators, per se, is only a part of the problem that I perceive in substituting respirators for environmental control. As pointed out in an earlier communication to the Committee, even with the improved respirators that have recently been introduced and which have significantly less pressure drop and thus present less of an impediment to breathing, there is general agreement among experts that the respirator should be viewed as a "backup" device only, or as a temporary measure. Men, particularly those engaged in the large physical effort required in coal mining, cannot be expected to wear respirators, no matter how good, for an eight-hour shift. Moreover, even the best respirator is equipped with eyepieces on which dust can collect, thus reducing vision, especially in a dusty atmosphere. In addition, because of the need for tight fit against the face, the respirators are uncomfortable in warm atmospheres and can cause irritation to the skin.

The more important problem, however, is to assure that the respirators will, in fact, be worn by the miners. I think the only way in which that assurance can be obtained is to provide for continuous supervision by an inspector and for fines in the event that the miner does not use the respirator available to him. In the present draft of the mine safety bill, although the supervisory requirement could be met if manpower were available, the absence of any penalty for non-compliance with the requirement to wear the respirator would guarantee that the device simply would not be used.

Sincerely yours,


John F. O'Leary
Director

Enclosures

¹ Enclosures available in Committee files.



