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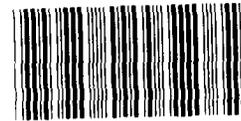
GAO

Briefing Report to the Ranking Minority  
Member, Committee on Labor and Human  
Resources, U.S. Senate

November 1987

# MINE SAFETY

## Questions Regarding Enforcement at Wilberg Coal Mine



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United States  
General Accounting Office  
Washington, D.C. 20548

Human Resources Division

B-229231

November 3, 1987

The Honorable Orrin G. Hatch  
Ranking Minority Member  
Committee on Labor and Human Resources  
United States Senate

Dear Senator Hatch:

This report responds to your June 12, 1987, letter asking us to assess the Department of Labor's Mine Safety and Health Administration's (MSHA) enforcement of certain safety standards at the Wilberg Coal Mine near Orangeville, Utah. On December 19, 1984, a fire broke out underground in one of the mine's sections, resulting in the deaths of 27 persons. Twenty-eight persons, about twice the normal number, were in this section, attempting to set a coal production record. The mine is owned by a public utility, the Utah Power and Light Company, and was, at the time of the fire, operated under contract by the Emery Mining Corporation.

Mine operators, with the assistance of miners, have the primary responsibility to prevent unsafe and unhealthful conditions and practices in the nation's coal and other mines. MSHA is responsible for developing and promulgating mandatory safety and health standards, ensuring compliance with them, and investigating accidents.

MSHA's investigation report on the fire concluded that the primary cause was mine management's failure to repair or remove from service an air compressor known to be unsafe. According to the report, the fire started in the area containing the air compressor (compressor station) at the entrance to one of the mine's sections. Dense smoke and toxic gases rapidly filled the section's two designated escapeways and three other potential escapeways. One of these potential escapeways, according to the report, was blocked by a collapsed roof and was impassable; another was restricted but traversable. The third was unrestricted and was the route traveled by the only survivor. After its investigation of the fire, MSHA cited Emery Mining for 41 safety standard violations, 9 of which, according to MSHA, contributed to the fire.

You asked us to determine (1) whether MSHA violated any laws, regulations, or policies in approving Emery Mining's proposal to satisfy a ventilation safety standard by using a method other than that required by MSHA regulations; (2) whether MSHA Coal Mine Safety and Health District Nine, the office with

jurisdiction over the Wilberg Mine, should have ensured that the mine's fire fighting and evacuation plan was up-to-date; and (3) whether District Nine should have required fireproofing of the compressor station, where the fire is thought to have started, and the installation of fire-suppression devices on the air compressor. You also asked us to conclude whether MSHA had done everything within its power to ensure safe operation of the mine.

To answer these questions, we reviewed the Federal Mine Safety and Health Act of 1977 (hereinafter referred to as the act) and applicable MSHA regulations and policies; we interviewed MSHA officials and, as you requested, the former Chief of MSHA's Division of Safety and the President of the United Mine Workers of America, District 22. As agreed, we did not (1) evaluate other issues associated with the fire, such as training in the use of self-rescue devices and maintenance of the air compressor, or (2) determine the extent to which the issues you asked us to address contributed to the cause of the fire and its consequences.

In summary, we believe MSHA could have done more to ensure safe operation of the Wilberg Mine. MSHA's District Nine personnel (1) approved without authority Emery Mining's proposal for an alternative method of satisfying a ventilation safety standard; (2) permitted Emery Mining to operate the Wilberg Mine with an outdated fire fighting and evacuation plan; and (3) permitted the compressor station to be used without the required fireproofing and the air compressor to operate without the required fire-suppression devices.

The remainder of this letter highlights key information regarding your questions; more detailed information is contained in the report that follows.

IMPROPER APPROVAL OF EMERY  
MINING'S PROPOSAL FOR  
SATISFYING A SAFETY STANDARD

The act and regulations require mine operators to submit a written proposal (termed a petition) for the use of any alternative method for satisfying a safety standard. The petition is to be submitted to the Assistant Secretary of Labor for Mine Safety and Health. Regulations require that miner representatives be given an opportunity to express their views on the proposal before it is approved.

Contrary to the act and MSHA's regulations, the District Nine manager approved in writing (before the fire), without submission to the Assistant Secretary, Emery Mining's proposal to use an alternative method to satisfy the act's safety standard, requiring that return airways must be examined in their entirety at least once each week. Although the airway in question had become impassable because a section of the roof collapsed, the manager believed that sufficient air continued to

flow to provide adequate ventilation. The manager told us that he misinterpreted the safety standard, believing that Emery Mining's proposal did not constitute a petition and it could, therefore, be approved by him.

The manager's approval also conflicted with MSHA's policy that emphasizes that return airways are to remain traversable so MSHA inspectors can travel them during their four regular inspections each year. The manager told us that he did not recall this policy. Further, he believed that Emery Mining's proposal would have been approved if submitted as a petition. Because the manager did not, however, forward the proposal to the Assistant Secretary, miner representatives--in this case the United Mine Workers of America--were not given the opportunity to comment on it.

The MSHA Administrator for Coal Mine Safety and Health told us that he believes Emery Mining's proposal would have been approved if it had been submitted as a petition. MSHA data showed that 64 petitions from calendar years 1983-86, pertaining to weekly examinations of airways, were acted on as follows: 34 were granted, 7 were denied, 21 were dismissed (consideration terminated before petition granted or denied), and 2 were given a combination of actions. Further, MSHA analyzed the 11 dismissals for calendar years 1985-86 and advised us that in the 5 cases that involved blocked return airways, similar to the Wilberg Mine situation, the operator was granted interim relief to continue mining. These 5 cases were subsequently dismissed before a decision was rendered on the petition, because the mining work had progressed past the blocked areas.

FIRE FIGHTING AND EVACUATION  
PLAN SHOULD HAVE BEEN UPDATED

To ensure that the fire fighting and evacuation plans are current and complete, MSHA procedures require inspectors, as part of regular inspections, to review mine files, which include these plans. District Nine inspectors, however, failed each year, during the four required inspections, to detect that Emery Mining's fire fighting and evacuation plan for the Wilberg Mine was (1) outdated and (2) should have been rewritten on adoption of the method of mining used in the section where the fire occurred.

Specifically, the plan on file was approved by MSHA in 1974 and did not reflect the method of mining in existence at the time of the fire. According to the District Nine manager, the plan should have been revised in 1979, when another method of mining was adopted.

COMPRESSOR STATION AND AIR  
COMPRESSOR INADEQUATELY  
PROTECTED AGAINST FIRE

The act requires the fireproofing of compressor stations and the installation of fire-suppression devices, which use water or chemicals, on unattended electrical equipment in underground mines. According to MSHA officials, before the Wilberg Mine fire, MSHA inspectors agencywide believed that air compressors and compressor stations similar to those involved in the fire were not subject to the fire-suppression and fireproofing requirements of the act. This was so because the fluid used to lubricate and cool the air compressor was not considered flammable. In addition, because these air compressors are frequently relocated, areas where they were temporarily kept were not considered compressor stations. In March 1987, as a result of its investigation, MSHA decided that the air compressor and the compressor station were subject to the fireproofing and fire-suppression requirements and cited Emery Mining for failure to comply with them.

MSHA HAS TAKEN ACTIONS TO  
PREVENT SIMILAR OCCURRENCES

MSHA has taken actions that reduce the likelihood of occurrences similar to the Wilberg Mine fire. For example, at meetings with district representatives, MSHA emphasized (1) that the examination of a return airway requires inspectors to travel the complete airway and (2) the need to review mine operating plans, including fire fighting and evacuation. MSHA also, by memorandum, more clearly defined what constitutes a compressor station and informed both underground mine operators and its own personnel that fire-suppression devices are to be installed on air compressors similar to the one involved in the fire.

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As requested by your office, we did not obtain official agency comments on this report. We did, however, discuss its contents with MSHA officials and incorporated their suggestions where appropriate. As arranged with your office, we plan no further distribution of the report until 10 days from its issue date. At that time, we will send copies to interested congressional committees, the Secretary of Labor, and other interested parties.

Should you wish to discuss the information provided, please call me at 275-5365.

Sincerely yours,

*for Charles J. Patton, Jr.*  
William J. Gainer  
Associate Director

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ABBREVIATIONS

MSHA      Mine Safety and Health Administration

**MINE SAFETY:**  
**QUESTIONS REGARDING ENFORCEMENT**  
**AT WILBERG COAL MINE**

**BACKGROUND**

On December 19, 1984, a fire broke out underground at the Wilberg Coal Mine near Orangeville, Utah, resulting in 27 deaths. The Wilberg Mine, within the jurisdiction of MSHA's Coal Mine Safety and Health District Nine Office, is owned by a public utility, the Utah Power and Light Company; at the time of the fire, the mine was operated by the Emery Mining Corporation. When the fire broke out, 28 persons, about twice the normal number, were in the section of the mine where the fire started. In an attempt to set a coal production record, extra miners had been assigned to the section and key management personnel were present.

The Federal Mine Safety and Health Act of 1977 (hereinafter referred to as the act) states that mine operators, with the assistance of miners, have the primary responsibility to prevent unsafe and unhealthful conditions and practices in the nation's coal and other mines. MSHA is responsible, among other things, for developing and promulgating mandatory safety and health standards, ensuring compliance with them, and investigating accidents. In addition, MSHA is required by the act to annually conduct four inspections of underground mines and two inspections of surface mines.

At the time of the fire, the Wilberg Mine operated using two methods of mining, one termed the longwall method (used in the area of the fire) and the other, the continuous miner method. These and other mining terms are used throughout this report to facilitate comparison with other reports on the fire (defined in fig. 1).

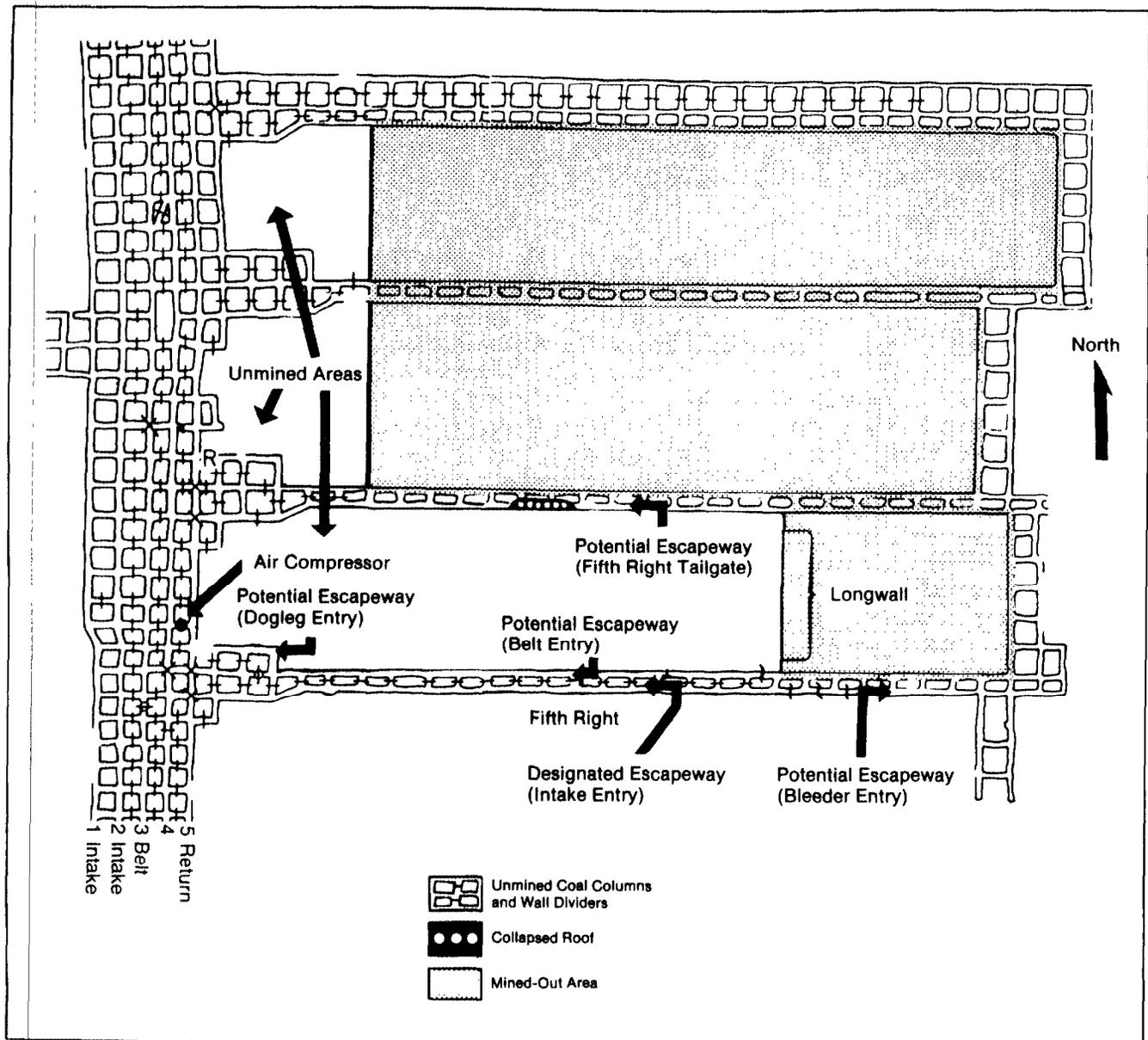
According to MSHA's August 7, 1987, final report of its investigation into the events and circumstances relating to the fire, the fire started in the area containing the air compressor (compressor station) at the entrance to one of the sections of the mine where the longwall method of mining was used, referred to as the fifth right section (see fig. 1); the fire rapidly filled the section's two designated escapeways and the three potential escapeways with dense smoke and toxic gases. These are other report conclusions:

- The two designated escapeways (the intake and belt entries) were blocked by fire and heat, and filled with heavy smoke soon after the fire broke out.
- One potential escapeway (the dogleg entry) was unrestricted and remained open for escape; the only miner that escaped traveled this route.

- A second potential escapeway (the fifth right tailgate entry) was blocked by a roof fall and was impassible.
- A third potential escapeway (the bleeder entry) was restricted but was passable.

According to the report, not all miners knew about the potential escapeways or knew the fifth right tailgate entry was blocked. The report concluded that the primary cause of the fire was the mine management's failure to remove from service or repair an air compressor that was known to be unsafe. After its investigation of the fire, MSHA cited Emery Mining for 41 safety standard violations, 9 of which, according to MSHA, contributed to the disaster. The type and number of contributory violations were as follows: failure to examine, maintain, and install fire-suppression devices on the air compressor (3); failure to fireproof the compressor station (1); failure to submit a program of instruction in fire fighting, escapeways, and evacuation for approval (1); failure to provide proper training in the use of self-rescue devices (1); failure to maintain an airtight wall between designated escapeways (1); failure to post a map of designated escapeways (1); and failure to properly maintain a telephone (1).

Figure 1: Wilberg Coal Mine Fire Area



## Definitions

- |                         |   |
|-------------------------|---|
| <b>Belt entry</b>       | ● Passageway containing the conveyor belt on which coal is carried out of the section.  |
| <b>Bleeder entry</b>    | ● Passageway used as an airway exhaust and as ventilation for the mined-out area.   |
| <b>Continous mining</b> | ● Mining method in which a mobile mining machine rips coal from the surface of the coal seam and loads it onto conveyors or into shuttle cars.  |
| <b>Dogleg entry</b>     | ● Passageway with an abrupt, angular change in the course of its direction.   |
| <b>Intake entry</b>     | ● Passageway by which the ventilating air current enters the area being mined.  |
| <b>Longwall mining</b>  | ● Mining method in which a mining machine moves back and forth across a wide coal seam (perhaps several hundred feet), removing coal by means of an automated cutting wheel moving along a conveyor belt set against the "longwall" (in one operation). |
| <b>Tailgate entry</b>   | ● Passageway at one end of the surface of the coal seam being mined, which serves as a return airway for ventilation.   |

Note: A passageway is an airway through which people may travel.

## OBJECTIVES, SCOPE, AND METHODOLOGY

On June 12, 1987, the Ranking Minority Member, Senate Committee on Labor and Human Resources, asked us to provide information concerning MSHA's enforcement of federal laws, regulations, and MSHA policies at the Wilberg Mine before the mine fire. Specifically, in the request letter and subsequent discussions with the requester's office, we were asked to address the following four questions:

- What was the nature of MSHA's approval of Emery Mining Corporation's proposal for satisfying a safety standard in the fifth right tailgate entry (section blocked by a collapsed roof)? Was it written or oral? Were federal laws or regulations or MSHA internal policies violated by MSHA's failure to give the union a hearing on the proposal to continue mining without a passable tailgate entry?
- Did the management of District Nine err in failing to require Emery to provide an up-to-date emergency evacuation plan? Would changes in mining operations, such as the introduction of diesel equipment, necessitate revising the plan?
- Did the District Nine management err in failing to require that the compressor station in the fifth right section be fireproofed and that fire-suppression devices be installed on the air compressor?
- In GAO's opinion, was MSHA's District Nine Coal Mine Safety and Health Office (Denver, Colorado) doing everything within its power to ensure the safe operation of the Wilberg Mine on December 19, 1984?

To obtain the requested information, we reviewed pertinent portions of the act and related MSHA regulations and policies. We interviewed officials and reviewed files at MSHA headquarters (Arlington, Virginia) and in its District Nine Office. We also obtained information from MSHA's former Chief of the Division of Safety and from the President of the United Mine Workers of America District 22, which had jurisdiction over the Wilberg Mine. As agreed, we did not (1) evaluate other issues associated with the fire, such as training in the use of self-rescue devices and maintenance of the air compressor, or (2) determine the extent to which the issues you asked us to address contributed to the cause of the fire and its consequences.

As requested by your staff, we did not obtain official agency comments on this report, but we did discuss its contents with the Administrator and Deputy Administrator for Coal Mine Safety and Health and the manager of District Nine. We have incorporated their comments where appropriate.

We did our review from June 1987 to September 1987. Except for not obtaining official agency comments, our review was done in accordance with generally accepted governmental auditing standards.

**IMPROPER APPROVAL OF EMERY  
MINING'S PROPOSAL FOR SATISFYING  
A SAFETY STANDARD**

The first question addresses (1) how MSHA handled Emery Mining's proposal to use an alternative method of satisfying a ventilation safety standard and (2) whether federal laws or regulations or MSHA policies were violated because the union representing the miners was not given the opportunity to comment. Our analysis showed that MSHA improperly approved Emery Mining's proposal and, as a result, the United Mine Workers of America was not given the opportunity to comment on the proposal.

Before the fire, a potential escapeway (one of the return airways) became blocked by a collapsed roof. Although not a designated escapeway, it could have been used as an escapeway if it had not been blocked. The safety standard requires that return airways be examined in their entirety by certified persons designated by operators at least once each week; the District Nine manager, however, without authority, approved in writing Emery Mining's proposal for an alternative method of examining the return airway. In addition, the manager's action conflicted with MSHA policy memorandum no. 80-26-C, dated December 1, 1980, that requires MSHA inspectors to travel return airways. Specifically, this memorandum states that

"Coal Mine Safety and Health's inspectors are required to travel return entries (airways) during the four regular inspections each year, and, by regulations, the roof control plans are to include provisions for adequately supporting travelways which include return entries."

According to the act and the procedures set forth in the implementing federal regulations,<sup>1</sup> mine operators must petition the Assistant Secretary of Labor for Mine Safety and Health for approval to use an alternative method to satisfy any safety standard. Promptly on receipt of a petition, MSHA is required to give notice of it to each known representative of miners and to publish the notice in the Federal Register. The following is a sequence of events related to Emery Mining's proposal for alternatively satisfying a ventilation safety standard before the fire:

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<sup>1</sup>30 C.F.R. part 44.

- By letter of October 25, 1984, Emery Mining asked the District Nine Manager for a "variance" from the act's safety standard that requires return airways to be examined weekly in their entirety. A return airway, the fifth right tailgate entry (a potential escapeway during the fire) was blocked by a collapsed roof.
- By letter of November 8, 1984, following a meeting with MSHA District Nine representatives, Emery Mining proposed an alternative method for satisfying the standard by examining the return airway on both sides of the blockage rather than the entire airway.
- On November 23, 1984, the District Nine manager responded in writing, accepting Emery Mining's proposal and failing to handle it as a petition.

Emery Mining's proposal constituted a petition for alternatively satisfying a ventilation safety standard and, therefore, should have been submitted to the Assistant Secretary for Mine Safety. Because the District Nine manager did not forward Emery Mining's proposal, miner representatives were not given notice of the proposal nor an opportunity to comment on it, contrary to the act and MSHA regulations. According to the District Nine manager, he misinterpreted the safety standard, believing that Emery Mining's proposal was acceptable and that it did not constitute a petition.

The MSHA Administrator for Coal Mine Safety and Health and the District Nine manager told us that they believe Emery Mining's proposal would have been approved if it had been submitted as a petition. MSHA data showed that 64 petitions from calendar years 1983-86, pertaining to weekly examinations of airways were acted on as follows: 34 were granted; 7 were denied; 21 were dismissed (consideration terminated before petition granted or denied), and 2 were given a combination of actions. Further, MSHA analyzed the 11 dismissals in calendar years 1985-86 and advised us that in the 5 cases that involved blocked return airways similar to the Wilberg Mine situation, the operators were granted interim relief to continue mining. The cases were subsequently dismissed before a decision was rendered on the petition because the mining work had progressed past the blocked areas.<sup>2</sup>

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<sup>2</sup>A July 1987 decision of the United States Court of Appeals for the District of Columbia Circuit invalidated 30 C.F.R. 44.16(c), which authorized operators to apply for interim relief from enforcement of mine safety standards while a petition for modification was pending. An important consideration in the Court's decision was that the regulation did not provide an opportunity for a hearing.

MSHA Actions Subsequent  
to the Fire

By letter to the United Mine Workers of America, dated March 18, 1985, MSHA's Administrator for Coal Mine Safety and Health acknowledged that the act's petition for modification procedures should have been followed with respect to Emery Mining's proposal. In addition, according to MSHA policy memorandum no. 81-22-C, dated June 29, 1981, a citation should be issued to a mine operator not in compliance with safety standards. Although a citation would normally have been issued, one was not issued in this case because, according to the MSHA Administrator for Coal Mine Safety and Health, the District Nine manager had accepted Emery Mining's alternative method for conducting the required weekly inspections.

At meetings with district representatives, MSHA headquarters officials reemphasized that the examination of return airways requires inspectors to travel the complete airway. In addition, MSHA is in the final stages of developing a proposed rule to revise existing safety standards for underground coal mine ventilation, including requirements for maintaining a passageway through return airways. MSHA is also in the final stages of developing a final rule to revise safety standards for roof support, including requiring operators to (1) specify the roof support methods that will be used to maintain safe travel through the return airway and (2) set forth procedures that will be followed in the event of a roof collapse that prevents travel through the return airway.

On October 29, 1987, MSHA issued Coal Mine Safety and Health memorandum no. HQ-88-802-S for the purpose of clarifying the weekly examination requirements for airways and specifying the steps necessary for maintaining a passageway through them.

**FIRE FIGHTING AND EVACUATION  
PLAN SHOULD HAVE BEEN  
UPDATED**

The second question addresses whether (1) MSHA District Nine should have required Emery Mining to update its fire fighting and evacuation plan and (2) changes in mining operations, such as the introduction of diesel-powered equipment that could be a source of fire, would necessitate such a revision. With respect to (1), District Nine failed to detect that the plan on file at the time of the fire was outdated--it did not include fire fighting and evacuation assignments for miners mining with the method used in the section where the fire occurred. However, an updated plan alone would not have provided assurance that the miners in this section were adequately prepared to fight the fire and to evacuate. In fact, MSHA's investigation of the fire disclosed that the miners had not been properly trained in fire fighting and evacuation procedures and alternate "routes of travel." With respect to (2), the introduction of diesel-powered equipment, although a potential source of fire, was not a sufficient reason for revising the fire

fighting and evacuation plan. This is because the plan addresses procedures to be followed in the event of a fire or other emergency rather than the potential sources of fire.

MSHA regulations require mine operators to submit, for approval of the district manager, a program for the instruction of miners on the steps to be followed in the event of an emergency.<sup>3</sup> This program includes a fire fighting and evacuation plan. The plan must contain procedures for (1) rapid assembly and transportation of necessary miners and equipment to the scene of the fire; (2) operation of fire-suppression devices, such as sprinklers; and (3) evacuation of miners not required for fire-fighting activities.

The report of MSHA's investigation of the fire noted that Emery Mining was in the process of developing and implementing a revised program of instruction; however, the program did not address the mining method used in the section where the fire occurred. Moreover, the fire fighting and evacuation plan on file at the time of the fire was approved by District Nine in October 1974. This plan, which contained fire fighting and evacuation assignments by job title, was developed for mine sections using the continuous mining method. In 1979, Emery Mining adopted a different method of mining, the longwall method, which was used in the section of the mine where the fire occurred (see p. 9 for definitions of mining terms). But Emery Mining did not revise its plan to incorporate longwall mining until after the fire. Because the job titles for the two methods differ, the fire fighting and evacuation assignments for the continuous mining method did not apply to the longwall method. In addition, according to MSHA's investigation report, not all miners knew about the potential escapeways.

The District Nine manager said that between the time longwall mining was adopted at the Wilberg Mine in 1979 and the time of the fire in 1984, MSHA inspectors had certified that they reviewed the mine files, which contained the fire fighting and evacuation plan. Such reviews, according to the District Nine manager, are for the purpose of determining whether the files are accurate, current, and complete. The reviews were conducted before the four inspections required each year by MSHA policy.

Because District Nine inspectors did not note that the fire fighting and evacuation plan was outdated (and did not require its revision), the district manager concluded that the inspectors either did not review the mine files or had done so only superficially. He said that he was ultimately responsible and that the plan should have been revised when the longwall mining method was adopted.

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<sup>3</sup>30 C.F.R. 75.1101-23.

As to whether the introduction of diesel-powered equipment necessitated a revision of the fire fighting and evacuation plan, the District Nine manager believed a revision was unnecessary. The former chief of MSHA's Division of Safety, who also investigated the fire, agreed that such a revision was unnecessary. MSHA regulations requiring such plans address the procedures to be followed in the event of a fire (or other emergency). However, the regulations make no reference to potential sources of fire, such as diesel-powered equipment.

#### MSHA Actions Subsequent to the Fire

At a senior staff meeting in July 1985, MSHA headquarters officials instructed the 10 district managers to emphasize the review of programs, including fire fighting, escapeways, routes of travel, and evacuation procedures. In response, the District Nine manager issued a directive in May 1987 requiring field office supervisors to review mine files for outdated, incorrect, and missing information and to conduct similar reviews at least once every 6 months thereafter. He also directed subdistrict managers to audit no less than 10 percent of the mine files in each field office every 6 months to determine if they are current and are being properly reviewed by supervisors.

In response to prior GAO testimony,<sup>4</sup> MSHA is in the process of instituting a three-tier accountability program for reviews of field activities and practices to include (1) supervisory evaluation of inspector and specialist activities, (2) internal reviews of district activities by each district manager, and (3) headquarters reviews of district activities by the MSHA Administrator for Coal Mine Safety and Health.

#### COMPRESSOR STATION AND AIR COMPRESSOR INADEQUATELY PROTECTED AGAINST FIRE

The third question addresses determining if District Nine should have required Emery Mining to install fire-suppression devices on the air compressor that MSHA investigators believe was the source of the fire and to fireproof the compressor station. The act requires installation of fire-suppression devices on unattended underground equipment, such as the air compressor involved in the fire, and fireproofing of underground compressor

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<sup>4</sup>Statement of William J. Gainer on MSHA's Inspection Practices and Accident/Injury Reporting Systems, given before the Committee on Labor and Human Resources, U.S. Senate (Sept. 25, 1986).

stations.<sup>5</sup> District Nine did not enforce these requirements with respect to the air compressor and compressor station involved in the fire.

According to MSHA regulations in effect at the time of the fire,<sup>6</sup> unattended underground electrically powered equipment containing no flammable fluid did not require fire-suppression devices. However, the air compressor involved in the fire contained an estimated 25 to 30 gallons of flammable automatic transmission fluid.

Although the term "compressor station" had not been fully defined before the fire, MSHA investigators of the fire determined that the area in which the air compressor was located was, in fact, a compressor station because air compressors were routinely placed there and the area was equipped with fixed air lines.

According to MSHA officials, before the Wilberg Mine fire, MSHA inspectors agencywide believed that air compressors were not subject to the fire-suppression requirements of the act and compressor stations were not subject to the fireproofing requirements. Because such compressors are frequently relocated, areas where they are temporarily kept were not considered permanent installations. In addition, the fluid used to lubricate and cool the compressor was not considered flammable.

The former chief of MSHA's Division of Safety, who also investigated the Wilberg Mine fire, agreed with the MSHA officials. He estimated that there were 200 to 500 such hazardous situations similar to those that existed at the Wilberg Mine. Further, an October 1986 MSHA survey disclosed that of 438 air compressors in underground coal mines, 120 were equipped with fire-suppression devices and 83 were housed in fireproofed compressor stations.

A January 1981 report on a Bureau of Mines-sponsored study concluded that air compressor hazards in underground and surface mines do not pose an unacceptable risk to the health and safety of workers. The report noted, however, that there was a need to provide guidelines to ensure that air compressors were used safely. But MSHA did not issue guidance addressing such hazards until April 1987.

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<sup>5</sup>The requirements for fireproofing compressor stations are contained in section 311 (c) of the act and 30 C.F.R. 75.1105; the requirements for fire-suppression devices on unattended underground equipment are in section 311 (e) of the act and 30 C.F.R. 75.1107.

<sup>6</sup>30 C.F.R. 75.1107-1(a) (3).

MSHA Actions Subsequent  
to the Fire

On March 24, 1987, MSHA issued citations to Emery Mining for violating fire-suppression requirements of the act for the air compressor and for violating fireproofing requirements for the compressor station.

To clarify the applicability of fire-suppression safety standards to air compressors, MSHA issued Program Information Bulletin no. 87-1C, on April 7, 1987. According to the bulletin, air compressors are (1) ordinarily lubricated and cooled by oil or other combustible liquid and (2) required to be equipped with fire-suppression devices. In addition, the bulletin defines the term compressor station, which had not been defined previously.

MSHA has developed and presented a training course on air compressor maintenance and inspection to about half of its electrical inspectors who are, in turn, presenting the course to the remaining inspectors. MSHA is also in the early stages of developing a proposed rule to revise the electrical safety standards for underground coal mines; this rule will address hazards posed by air compressors.

According to the District Nine manager, coal mine operators in District Nine are now complying with the requirements for fireproofing compressor stations and installing fire-suppression devices on air compressors.

**MSHA SHOULD HAVE DONE  
MORE TO ENSURE MINE SAFETY**

Based on the information obtained in responding to the three questions, we believe MSHA should have done more to ensure safe operation of the Wilberg Coal Mine before the fire. There are several actions that MSHA should have taken to better ensure safe operation of the mine (see table 1).

**Table 1: Actions MSHA Should Have Taken**

**District Nine should have**

- recognized Emery Mining's proposal for an alternative method of examining a return airway as a petition requiring action by the Assistant Secretary,
- forwarded Emery Mining's proposal to the Assistant Secretary, triggering the requirement for prompt notice of the proposal to miner representatives,
- adhered to MSHA's policy requiring return airways to remain open and passable,
- detected and required that Emery Mining's fire fighting and evacuation plan should have been updated to include fire fighting and evacuation assignments appropriate to the method of mining being used, and
- required Emery Mining to fireproof the compressor station and install fire-suppression devices on the air compressor.

**MSHA headquarters should have**

- issued guidelines addressing air compressor hazards when a 1981 Bureau of Mines-sponsored study suggested the need for them and
- more thoroughly monitored district office activities to ensure that safety standards, regulations, and policies were strictly enforced.



RECENT GAO REPORTS AND TESTIMONY  
RELATED TO MINE SAFETY

REPORTS

Mine Safety: Federal Efforts to Improve Inspections and Injury Reporting, HRD-87-115BR, 9/14/87

Mine Safety: Inspector Hiring, Penalty Assessments and Injury Reporting, HRD-87-71BR, 3/10/87

Department of Labor: Assessment of Management Improvement Efforts, HRD-87-27, 12/31/86

Mine Safety: Labor's Progress in Doing Required Inspections, HRD-86-65BR, 3/7/86

Strong Leadership Needed to Improve Management at the Department of Labor, HRD-86-12, 10/21/85

TESTIMONY

Statement of William J. Gainer, Associate Director, Human Resources Division, before the Senate Committee on Labor and Human Resources, on the Mine Safety and Health Administration's Inspection Practices and Accident/Injury Reporting System, 9/25/86

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