

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION
UNDERGROUND COAL MINE INUNDATION (WATER)
Porter Tunnel Mine - ID 36-01892
Kocher Coal Company
Tower City, Schuylkill County, Pennsylvania
March 1, 1977

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Authority

This report is based on an investigation conducted pursuant to Section 103 of the Federal Coal Mine Health and Safety Act of 1969 (the Act), (83 Stat. 742). The title page of this report refers to the enforcement Agency as the Mine Safety and Health Administration (MSHA), Department of Labor, which reflects the changes brought by the Federal Mine Safety and Health Amendments Act of 1977. The body of the report refers to the Mining Enforcement and Safety Administration (MESA), Department of the Interior, which was the enforcement Agency at the time of the accident.

Abstract

On Tuesday, March 1, 1977, at approximately 11:50 a.m., an inrush of water occurred in the West Skidmore South Dip conveyor gangway section of the Porter Tunnel Mine, Kocher Coal Company, causing the death of nine miners, injuries to three and entrapment of one who was eventually rescued. Six miners in the effected section escaped safely via the return air emergency escapeway leading to the surface. The miners working in other sections of the mine, 65 in all, traveled both the intake and return air escapeways leading to the surface.

The first of the nine bodies recovered was found in the main tunnel on March 1, 1977. The second body was located on March 2, 1977, at the No. 4 chute in the gangway. Ronald Adley, the entrapped miner, was confined in No. 17 slant breast from the time of the inrush until 8:05 a.m., Sunday, March 6, 1977, when a rescue hole driven from No. 15 breast was completed. Two miners who were working with Adley in the No. 17 slant breast at the time of the inundation did not survive. Their bodies were located and recovered shortly after Adley was rescued. The bodies of three other miners were recovered March 28, 1977, and the last two bodies were recovered on March 30, 1977. These last five bodies were found in debris above the face of the gangway. (See Appendix G, Figure 4, for location of victims.)

The inrushing water entered the mine through a breach in the mine floor at the low side rib in the gangway between No. 18 chute and the face of the gangway. The source of the water was abandoned mine workings adjacent to the West Skidmore South Dip conveyor gangway section of Porter Tunnel Mine. These abandoned workings reportedly were developed in the late 1930's and abandoned in the early 1940's and were never completely surveyed nor accurately shown on any mine maps. Some of these abandoned workings were in the Skidmore vein beneath the advancing West Skidmore South Dip conveyor gangway, and the water that had accumulated in the abandoned workings broke through the floor of the advancing gangway.

The names of the victims, their ages, occupations, mining experience and training are listed in Appendix C.

PART I

GENERAL INFORMATION

During the period from approximately 1928 through 1943, the area of land near the Porter Tunnel was mined for anthracite by bootleg operations. The term "bootlegger" generally has been used in this context to refer to an independent coal mining operation which had no legal right to extract coal from a particular tract of land, had no lease, and was not paying royalties. In approximately 1944, the Western Anthracite Company leased the land which now includes the Porter Tunnel Mine and adjacent property. Western Anthracite attempted to close down this land to bootleg operators, including the Bush Old Bootleg Slope Mine. Other bootleg operations in this immediate area were known as Miller Old Bootleg Slope Mine and Weaver Old Bootleg Slope Mine.

The Porter Tunnel Mine was owned and operated by the Reading Coal Company from approximately 1946 until 1953. The mine was closed due to economic reasons and remained inactive until 1968, at which time the Leon E. Kocher Coal Company obtained the Porter Tunnel Mine under a lease-purchase agreement. The land leased from Reading apparently included the three bootleg mines referred to above.

The Porter Tunnel Mine is located three miles east of Tower City, Schuylkill County, Pennsylvania, one-fourth mile south of Route 209. On June 5, 1975, the name of the operating company was changed from the Leon E. Kocher Coal Company to the Kocher Coal Company.

The titles, names and addresses of the operating officials were:

| | | |
|--|------------------|---|
| President | R. W. Rissinger | Box 127, Valley View, Pennsylvania 17983 |
| Vice-President | Leon F. Richter | Box 127, Valley View, Pennsylvania 17983 |
| Vice-President | Howard Hoffman | Box 127, Valley View, Pennsylvania 17983 |
| Secretary | Baylor C. Custer | Box 127, Valley View, Pennsylvania 17983 |
| Mine Foreman and Health and Safety Officer | Samuel Klinger | R. D. #1, Ashland, Pennsylvania 17921 |

A total of 145 miners were employed at the mine; 125 underground and 20 on the surface. The mine was operated two shifts a day, five days a week, and reportedly produced an average of 700 tons of anthracite daily. Reportedly, production during 1976 was 198,752 tons. The mine is opened by a rock tunnel, driven in a northerly direction through folded strata

into the Big Lick Mountain for a distance of about 4,300 feet, and by several other openings used for return airways and escapeways. The tunnel, as it penetrates the mountain, intersects nine minable coal veins dipping in northerly and southerly directions. They are first intersected on the north dip at inclinations varying between 70 and 90 degrees. They are intersected again on the south dip at inclinations, generally varying between the horizontal and 48 degrees. Mining was being conducted east of the main tunnel in the Primrose, Holmes and Top Split Mammoth veins and west of the main tunnel in the Skidmore and Middle Split Mammoth veins. These veins vary in thickness from 5 to 25 feet.

PART II

INUNDATION OF MARCH 1, 1977Mine Conditions Immediately Prior to Inundation

Reportedly, the mine was operating normally on the day of the inundation. Nineteen miners were assigned to work in the West Skidmore South Dip conveyor gangway section off the main tunnel under the supervision of Palmer Merwine, section foreman. The miners were assigned to perform duties at the following locations: Harry D. Fishburn, Jr., and Gary Klinger were assigned to the mine car-loading station at the counter chute in the main tunnel, where coal from No. 1 chain conveyor discharges onto the counter chute; Bruce Smith was at the transfer point from No. 2 to No. 1 chain conveyor; Joseph Narcavage was assigned as a chain conveyor attendant along No. 1 conveyor; John Morgan and Ernest Morgan were assigned duties at chute Nos. 12 and 13 to regulate the flow of coal from the chutes into the chain conveyor; Philip Sabatino, Ronald Herb and Mark Kroh were gangway face workers whose duties were to advance the gangway; Dennis Morgan, John Moyer and Timothy Grose were monkey airway face workers whose duties were to advance the monkey airway; and, Ronald Adley, Ralph Renninger and Donald Shoffler were No. 17 slant breast face workers. The purpose of this slant breast was to make a connection from No. 17 to No. 15 breast. Albert Carl, Jan Kornaski and Leroy Manhart were pillar recovery miners assigned to recover Nos. 12 and 13 breast pillars. (See Appendix G, Figure 3, for locations of persons in the West Skidmore South Dip conveyor gangway section, immediately prior to the inundation of water.)

In addition to the miners in the West Skidmore South Dip conveyor gangway section, crews were working in the East Holmes North Dip and East Primrose South Dip off No. 20 tunnel and the East Top Split Mammoth South Dip, East Primrose North Dip and West Middle Split Mammoth North Dip off the main tunnel.

Witnesses' Accounts of Inundation

Bruce Smith was working in the vicinity of No. 12 chute. He stated that he felt a gush of air while he was sitting on the No. 2 chain conveyor motor at No. 12 chute in the gangway. He looked around and saw water coming out the gangway and saw the conveyor moving out. He ran up chute No. 11 and out the monkey airway to the return air escapeway, seeing no one along the way. When he reached the surface, he got a ride from the stripping foreman in his pickup truck to the mine office and told John Messaros, chief clerk, what happened.

Ernest Morgan was working in the vicinity of No. 13 chute. He stated that he and John Morgan had been performing their normal duties in the monkey airway at No. 12 chute until sometime just prior to the inundation. They had completed the work at No. 12 chute and were at No. 13. Suddenly, there was a gust of wind, and they knew something unusual was happening. Ernest Morgan looked toward the face of the airway and saw a wall of water

coming out. Both men started to run from No. 13 to No. 12 chute and scrambled up No. 12 breast, trying to stay ahead of the water. Ernest Morgan ingested mine water, causing him to be hospitalized.

Ronald Adley, who was entrapped until March 6, 1977, said that they had fired a "popper" (small explosive charge) in the top coal to blow down some overhang. He and the other two men working in No. 17 chute waited in the chute for quite awhile for the smoke to clear. After waiting, they started to go to the face of the slant (being driven from No. 17 to No. 15 breast), but smoke was still thick so they again decided to wait. Suddenly, Adley felt some wind coming from the monkey airway. It seemed at first to come in broken waves, but soon there was a terrific wind and then he saw the water rushing in from the monkey airway.

Adley shouted to Ralph Renninger and Donald Shoffler to jump to the high rib. He then jumped toward the high rib; however, he was caught in the inrushing water and was washed toward the face. He held his breath as long as possible and was able to survive until the water receded. During this period he lost his cap lamp and was unable to find it in the debris; however, he saw a light below which turned out to be the cap lamp of a co-worker. He took the light and obtained tools to help dig his way out to the monkey airway. Adley thought that he had reached the airway, but due to its being blocked, he could not find a way out. About this same time, coal from the high side rib in the slant started falling. Consequently, Adley returned to the face of the slant breast, knowing that he would have to wait to be rescued. (See Appendix G, Figure 4.)

When questioned, Adley could not remember if there had been any blasting done in the gangway or monkey airway prior to the inundation. He did not know where the gangway and monkey airway workers were when the inundation occurred, nor did he see or hear any of these miners after the inundation. Adley could not be positive as to the exact time of the inundation.

Escape Route of Miners

The following miners escaped from the flooded section through the designated return air escapeway to the surface: Bruce Smith, Harry D. Fishburn, Jr., Joseph Narcavage, James McHale, Jr., Ernest Morgan, John Morgan, Albert Carl, Jan Kornaski and Leroy Manhart. Ernest Morgan, John Morgan and Harry D. Fishburn, Jr., required assistance.

After the water had receded, the miners from the area of the West North Dip sections traveled to the surface through the main tunnel.

Some of the miners from the East North and South Dip sections off No. 20 tunnel traveled through the emergency escapeway in return air on the East South Dip, and others traveled out the main tunnel to the surface. Miners from the East Top Split Mammoth South Dip gangway off the main tunnel traveled through the return airway to the surface.

Activities of Supervisory Personnel When Inundation Occurred

The general mine foreman, Samuel Klinger, was attending a monthly mine rescue meeting at the office of Hegins Mining Company, located approximately 14 miles from the Porter Tunnel Mine. He was notified by telephone that something was wrong at the mine, and immediately returned to the mine property. Palmer Merwine, section foreman, was in the East Top Split Mammoth South Dip section. Earl Dunkel, section foreman, was in the No. 20 tunnel area.

John Messaros, chief clerk, received a call in the mine office at about 11:50 a.m. on March 1, 1977, from James McHale, Jr., motorman, who was working in the tunnel. McHale reported that there was a "break." Messaros then called into the mine and talked to Palmer Merwine. Earl Dunkel overheard the conversation between Merwine and Messaros and said that he would check the West Skidmore South Dip conveyor gangway section. Dunkel and Merwine contacted other miners by telephone and instructed them to leave the mine. Martin Donahue, motorman, broke in on the conversation and said he was preparing to come out with a trip, but found water and debris on the track and could not continue.

Samuel Klinger became aware that an inundation had occurred when Bruce Smith, a laborer from the effected section, escaped to the surface by way of the return air escapeway on the east side of the West Skidmore South Dip conveyor gangway section (return air escapeway). Smith caught a ride on a pickup truck driven by Howard Hoffman, stripping foreman, from there to the mine office, a distance of 5.5 miles.

At approximately 12:30 p.m., Samuel Klinger attempted to walk in the main tunnel, but could not do so because water flowing from the tunnel was over the top of his boots. He then traveled approximately 5.5 miles from the main office to the return air escapeway to enter the mine and was the first person to reach the effected area, where he found three injured persons and assisted them to the surface.

PART III

RESCUE AND RECOVERY OPERATIONSRescue Activities

Shortly after the inundation occurred, Samuel Klinger entered the West Skidmore South Dip conveyor gangway section by the return escapeway. He met Albert Carl, Jan Kornaski and Leroy Manhart, all of whom were working in the No. 12 breast off the West Skidmore South Dip conveyor gangway. These men assisted the injured persons, John Morgan, Ernest Morgan and Harry D. Fishburn, Jr., who had all ingested water, to the surface by way of the return airway. The inundation made most parts of the gangway and monkey airway impassable due to water and debris. Most of the coal pillar at the counter chute had been washed out, thus cutting off the most direct escape route to the main tunnel. An awaiting ambulance transported the three injured miners to the Pottsville Hospital in Pottsville, Pennsylvania.

The Schuylkill Haven MESA Field Office was notified of the accident at approximately 1:30 p.m., by John Messaros, chief clerk, at the Porter Tunnel Mine. Coal Mine Health and Safety's District 1 Office, located in Wilkes-Barre, Pennsylvania, was immediately notified by the Field Office and was also notified at approximately 1:30 p.m. by Leon F. Richter. At approximately 2:15 p.m., after obtaining preliminary information, John B. Shutack, District Manager, District 1, notified Joseph O. Cook, Deputy Assistant Administrator, Coal Mine Health and Safety, Mining Enforcement and Safety Administration, in Arlington, Virginia.

Federal Coal Mine Inspection Supervisor James R. Laird, Schuylkill Haven Field Office, arrived at the mine at approximately 2:20 p.m., and Federal Coal Mine Inspectors Dean W. Updegrave and Earl J. Cawley arrived at approximately 2:25 p.m. They were informed by company official Leon F. Richter that an inundation had occurred in the West Skidmore South Dip conveyor gangway. The first persons entering the main tunnel following the inundation recovered the body of Gary Lee Klinger. The body was located in the main tunnel approximately 1,060 feet outby the West Skidmore South Dip conveyor gangway counter chute and was removed to the surface at about 2:30 p.m. on March 1, 1977.

MESA Inspectors Cawley and Updegrave entered the mine through the main tunnel at approximately 2:35 p.m., to go to the effected area to determine what had happened. They arrived at the counter chute off the tunnel at the entrance to the effected section at approximately 2:55 p.m. and found it impassable due to the fact that the timber, part of the coal pillar and the steps leading to the gangway, had been washed out. The main tunnel in the area of the counter chute was covered with coal and debris to a depth of about 5 feet.

Updegrave and Cawley returned to the surface at approximately 4 p.m. to confer with Laird about conditions in the main tunnel and the Skidmore counter chute area.

A 103(f) Order, pursuant to the Act, was issued at 4:25 p.m. on March 1, 1977, and required all persons except company officials and rescue workers, Federal and State officials, to be withdrawn from the mine and prohibited all other persons from entering the mine until otherwise notified by an authorized representative of the Secretary.

A 104(a) Order, issued at 4:30 p.m. on March 1, 1977, required all persons except public officials and those required to eliminate the condition described in the Order to be prohibited from entering all areas of the underground mine until an authorized representative of the Secretary determined that the imminent danger no longer existed.

At 4:45 p.m., an exploratory crew consisting of MESA Inspectors Earl J. Cawley and Albert Zegley, and company personnel, consisting of Samuel Klinger and three miners, traveled to the return escapeway opening and entered the mine in an attempt to locate the missing miners. At the same time, Laird and Updegrave entered the mine via the main tunnel and proceeded to the West Skidmore South Dip conveyor gangway counter chute to coordinate rescue and recovery efforts in that area. At approximately 5 p.m., John B. Shutack and Frank P. Danna arrived at the mine. At that time, nine miners of the West Skidmore South Dip conveyor gangway crew were unaccounted for, three of whom were gangway face workers, three were monkey airway face workers and three were workers in No. 17 slant breast.

Shortly after his arrival, Shutack, and Laird made an inspection trip into the tunnel. The District 1 MESA rescue effort was organized, and inspectors were given assignments to insure MESA presence inside the mine and on the surface during rescue and recovery operations. Selected MESA personnel under the jurisdiction of the District Manager were present on each shift pursuant to Section 103(e) of the Act. Jack E. Tisdale, representing the Assistant Administrator, Coal Mine Health and Safety, arrived from Arlington, Virginia, at 11 p.m., to assist in directing the rescue and recovery operation.

Personnel from MESA's Mine Emergency Operations Branch (MEO) were alerted by the Arlington Office at 3:20 p.m. on March 1, 1977. The Seismic Communications/Location system of MEO was ordered to deploy at 12:05 p.m. on March 2, 1977, and arrived at the mine site at 9:30 p.m. the same day. A Command/Communications trailer was ordered for MESA's use during the rescue operations, which was delivered and made functional by 8:20 p.m., March 2, 1977.

At approximately 7:30 p.m., March 1, 1977, the Pennsylvania State Police set up a command post with telephones and radio communications and were on duty to control the crowd that had started to assemble at the mine site.

As the recovery work progressed, MESA officials conferred with Walter Vicinelly, Commissioner of Deep Mine Safety, Commonwealth of Pennsylvania, and Leon Richter concerning the direction of recovery efforts. After all parties had concurred and the representative of the miners had been advised, the plans for recovery operations were implemented.

Relatives of the trapped miners and the news media were briefed on a regular schedule relative to the progress of the rescue and recovery operations. All efforts were made to ensure that these briefings were factual and timely. In most instances, these briefings were held by representatives of MESA, the State and Kocher Coal Company.

A body, later identified as Philip Sabatino, a gangway face miner, was sighted by mine workers at about 12:50 a.m. on March 2, 1977, in the West Skidmore South Dip conveyor gangway near No. 4 chute. A rescue team entered the mine at approximately 5 a.m. to recover the body. This team transported the body to the surface, traveling the difficult up-and-down, vein-to-vein, rock hole-to-rock hole route to the main tunnel and from there to the surface, arriving at approximately 2:20 p.m. on March 2, 1977.

During the morning of March 2, 1977, a review of maps of the West Skidmore South Dip conveyor gangway section indicated that a slant was being driven up-pitch off No. 17 breast toward No. 15 breast. All access to the slant was completely blocked by debris. Because of the possibility of survivors in the high area of the No. 17 slant breast, a decision was made by Shutack, Tisdale and Richter, to drill an exploratory hole from No. 15 breast in the coal to No. 17 slant breast. Workers had installed an air line for compressed air by about 5:55 p.m. on Wednesday, March 2, 1977, and were waiting for the necessary drill steel to be delivered to the drilling site. While awaiting the drill steels, a "rapping" was heard at the west rib of the No. 15 breast. The crew determined that the "rapping" was coming from the slant off No. 17 breast and that there was a miner or miners entrapped. When the drill steels arrived, a 1-3/4-inch-diameter hole, about 48 feet in length, was drilled through to the slant breast. At that time, voice contact was made with a miner in the slant, who identified himself as Ronald Adley. Adley informed the rescue crew that he was alright and that there were two other miners in the slant breast below him; however, he was not certain of their condition. Subsequently, there was a second 1-3/4-inch-diameter hole drilled through the pillar. A 1-inch plastic pipe was then installed in this hole at 9:55 p.m., March 2, 1977. Adley was given orange juice through the pipe. A third 1-3/4-inch-diameter hole was drilled through, and this third hole was utilized to communicate with Adley, while the first drill hole was being enlarged to 4 inches in diameter.

In an effort to provide for Adley's safety and comfort and also to provide him with light, the headpiece of a miner's cap lamp, with a cable long enough to be attached to a cap lamp battery in No. 15 breast, was passed through the 4-inch hole at 6:20 a.m. on March 3, 1977. In addition, covers, socks, a blanket, and solid food were also passed through this hole.

In order to accomplish rescue in the shortest time possible and by the safest means available, a decision was made to drive a rescue tunnel through the coal pillar between No. 15 breast and No. 17 slant. Work to drive this tunnel was started without delay. Based on information received from Adley as to the conditions of the slant breast where he was entrapped and the physical evidence of the area at No. 15 breast, a decision was made to drill a pattern of holes in the coal and break the coal with the aid of hand-held, air-operated chipping hammers. This method was selected because blasting the escape tunnel with explosives might have caused a pillar run or a fall of roof in the slant breast or the No. 15 breast.

As rescue workers advanced toward Adley, progress became increasingly difficult. Coal dust concentrations caused by the uninterrupted drilling and chipping in the restricted and confined rescue tunnel increased to a level that caused considerable discomfort to workers in the immediate area. Respirators were provided which helped to alleviate the discomfort. As the rescue tunnel was being advanced, the coal became increasingly hard to drill. Pyrite deposits were frequently encountered, thus limiting progress to approximately 5 inches an hour. On March 5, 1977, at approximately 8:50 p.m., with 7 feet remaining, unusually large concentrations of pyrite were encountered which further slowed progress.

As the rescue tunnel neared the slant where Adley was entrapped, a coning effect developed, resulting in an opening too small to permit him to crawl out. Because of this coning effect, it was determined that it would be easier to enlarge the opening from the inby end, since Adley stated that he was in good physical condition. Consequently, at 7:55 a.m. on March 6, 1977, a chipping hammer was passed through to Adley, who enlarged the hole from his location. At approximately 8:05 a.m. on March 6, 1977, the tunnel was sufficiently enlarged to allow Adley to escape. After a brief discussion at the rescue site with rescue workers, Adley walked to the main tunnel level with his rescuers. Adley boarded the man-trip in the main tunnel and was transported to the surface, arriving at approximately 8:35 a.m. An awaiting ambulance transported him to the Pottsville Hospital.

At approximately 9:30 a.m. on March 6, 1977, a recovery team consisting of Clarence E. Miller, Pennsylvania Department of Environmental Resources, Samuel Klinger, Raymond Keefer, section foreman, and Earl J. Cawley entered the No. 17 slant breast through the narrow escape tunnel to explore the area. This team recovered the body of Ralph Renninger and sighted the body of Donald Schoffler. Renninger's body was located approximately 46 feet from the face of No. 17 slant breast along the high side coal rib. Removal of the body through the narrow escape tunnel was difficult. Much difficulty was encountered in transporting the body up to the second miner heading and down to the monkey airway and then to the main tunnel.

A second recovery crew consisting of Randy Slodysko, George Feester, Richard Schaeffer, Robert Long, Melvin Krise, Charles McGee, James Fetterhoff, John Zanella, all miners, Palmer Merwine, section foreman, MESA Inspectors Dean W. Updegrave and Michael C. Scheib, and State Inspectors Arthur E. Hand and Joseph J. Halaburda, entered the No. 17 slant breast to recover the body of Donald Schoffler and to search for additional victims. At approximately 4:30 p.m. on March 6, 1977, Schoffler's body was recovered 68 feet from the face. At approximately 6:58 p.m., Schoffler's body was transported to the main tunnel. Both bodies were then transported to the surface, arriving at 7:30 p.m. on March 6, 1977.

Rescue and recovery activities in the main tunnel and in the West Skidmore South Dip conveyor gangway were begun when the water receded sufficiently to permit entry. These rescue and recovery activities were not interrupted during the time that the rescue hole for Adley was being driven.

During the early planning for rescue and recovery operations, the feasibility of drilling holes into the effected area from the surface was one of the many possibilities considered. In meetings on March 2 and 3, 1977, between MESA, State and company personnel, the company was advised that MESA equipment for drilling 28-inch-diameter escape holes was on standby and could be made available without delay. They were also advised that MESA could obtain equipment for drilling 48- to 64-inch-diameter holes, depending upon the strata encountered. The first determination to be made concerned location and purpose of holes drilled from the surface.

The debris laden and damaged condition of the gangway and monkey airway impeded the rescue and recovery progress. Early information indicated the need for a large diameter hole drilled into the gangway at No. 16 chute which would allow access inby some inaccessible areas. Such a hole could be equipped with hoisting facilities and could be used for hoisting debris to the surface from this location, as well as for escape if any survivors were found in this area. The MESA drilling equipment in Salt Lake City, Utah, was ordered to be airlifted to the site on the evening of March 3, 1977. Concurrent with these discussions, it was decided that small diameter probe holes from the surface were the most rapid means of exploring unrecovered areas in the mine.

Subsequent information provided early on March 4, 1977, indicated that local drillers might have the large hole capabilities. Initial telephone contact with Al Roman, Vice-President, No. 1 Contracting Company, indicated that they could drill a large diameter drill hole, and that he had already dispatched sufficient equipment to the site for drilling 8-inch-diameter probe holes.

After a meeting with Mr. Roman, it was apparent that there were three possible choices for equipment to drill a large diameter hole. Equipment from No. 1 Contracting Company could ream an 18-inch hole to a diameter of 24-1/2 inches. The MESA rig on location at Ebensburg, Pennsylvania, had the capability of drilling a 28-1/2-inch hole, and the equipment in the Western United States could drill a 64-inch-diameter hole. However, during the discussion time while the above information was being evaluated, additional knowledge of the conditions in the mine became known.

The underground recovery advance was to No. 15 breast at the monkey. Visual examination by rescue workers indicated that the conditions inby No. 15 breast were hazardous. Lengthy discussions with mine and State officials indicated that the underground advance would be to No. 16 chute location in the gangway in ten days, the estimated time for drilling a large diameter drill hole. The increased knowledge based on rescue and recovery progress from the mine indicated that the large diameter hole would be of little value, and the best rescue activity would comprise the normal MEO mode, which is small (8-inch) diameter probe holes to locate and sustain trapped miners while a 28-inch-diameter hole is drilled for rescue purposes. The airlift operation was then cancelled, and the MESA rig on location in Ebensburg, Pennsylvania, was ordered to the site to reinforce No. 1 Contracting Company's probe holes.

