



Reports

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River Slope Mine

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

District A

REPORT OF MAJOR MINE INUNDATION DISASTER
RIVER SLOPE MINE
MAY SHAFT SECTION, SCHOOLEY COLLIERY
KNOX COAL COMPANY, INCORPORATED
PORT GRIFFITH, LUZERNE COUNTY, PENNSYLVANIA
(Post Office - Pittston, Luzerne County, Pennsylvania)

January 22, 1959

By

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District Supervisor

and

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Federal Coal-Mine Inspector

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INTRODUCTION

The Susquehanna River broke into the River Slope area of the May Shaft section, Schooley colliery, Knox Coal Company, Incorporated, Port Griffith, Luzerne County, Pennsylvania, at 11:42 a.m., Thursday, January 22, 1959, entombing 12 men and causing extensive property damage. A total of 82 men was in the mine at the time of the river break-in, of whom 38 escaped unassisted and 32 were rescued. The break-in occurred in the Pittston vein at or near the point where the shaker chute crosscut, which was driven at about a right angle off the slope and over an anticlinal, intersected a chamber that was previously driven from a lower level. The shaker chute place was driven from a point where the rock slope first intersected the Pittston vein. The aforementioned places had been driven 90 feet beyond a safety stop line, and within 70 feet of borehole No. 1146 where core drillings indicated the rock strata to be only 19 inches in thickness between the river bed and the Pittston vein, see appendix D. The break-in was caused by mining in an area beyond the safety stop line beneath the river where the thin rock strata was insufficient to support the weight of the ice-laden river. The ice-laden river had risen from 2.1 feet above the zero mark at elevation +512.07 feet at the Federal-State Flood Forecasting Service Station at Wilkes-Barre, Pennsylvania, at 7 a.m., January 19, 1959, to 15.6 feet at 10:45 a.m., January 22, 1959, the day of the occurrence.

The names of the entombed men, their ages, marital status, number of dependents, and mining experience are listed in appendix A.

A withdrawal Order was issued January 22, 1959, under Sec. 203(a)(1) of the Federal Coal Mine Safety Act due to an imminent inundation hazard.

Withdrawal Orders were also issued to operators of the following mines because of imminent flooding danger, however, company officials had voluntarily withdrawn and debarred all persons from entering the mines, except officials and pumpmen:

January 22, 1959:

Schooley Colliery
Knox Coal Company, Incorporated
Exeter, Luzerne County, Pennsylvania

Henry Shaft Mine, Henry Colliery
Lehigh Valley Coal Company
Plains, Luzerne County, Pennsylvania

Enterprise Slope Mine, Henry Colliery
Lehigh Valley Coal Company
Plains, Luzerne County, Pennsylvania

Capone Colliery
Sam Capone Coal Company
Plains, Luzerne County, Pennsylvania

No. 2 Slope Mine
P. and J. Coal Company
Pittston, Luzerne County, Pennsylvania

No. 14 Colliery
Number 14 Coal Company
Pittston, Luzerne County, Pennsylvania

No. 6 Colliery
Inkerman Coal Mining Company
Inkerman, Luzerne County, Pennsylvania

No. 7 Shaft Mine
C. and P. Coal Company
Pittston, Luzerne County, Pennsylvania

January 23, 1959:

No. 14 Drifts Mine
No. 14 Drifts Coal Company
Hilldale, Luzerne County, Pennsylvania

No. 42 Tunnel Mine, Delaware Colliery
Glen Coal Company
Plains Township, Luzerne County, Pennsylvania

January 24, 1959:

Wyoming No. 8 Slope Mine, Henry Colliery
Lehigh Valley Coal Company
Plains, Luzerne County, Pennsylvania

The officials of the following Title I mines were notified of the seriousness of the situation and were requested to refrain from mining until such time as the danger of inundation of their workings had subsided or until the extent of the hazard could be determined. The officials and operators cooperated fully.

January 23, 1959:

No. 9 Colliery
Panzitta Coal Company
Kingstown Township, Luzerne County, Pennsylvania

No. 14 Slope Mine
Maffei Coal Company
Exeter, Luzerne County, Pennsylvania

Masci Slope Mine
Benny Masci Coal Company
Exeter, Luzerne County, Pennsylvania

No. 14 Drifts Mine
M. and D. Coal Company
Hilldale, Luzerne County, Pennsylvania

Scatena and Vennarini No. 1 Slope Mine
Scatena and Vennarini Coal Company
Jenkins Township, Luzerne County, Pennsylvania

Kassa Slope Mine
Kassa Coal Company
Wyoming, Luzerne County, Pennsylvania

No. 52 Slope Mine
No. 52 Slope Coal Company, Incorporated
Duryea, Luzerne County, Pennsylvania

K. and K. Slope Mine
Kerechuk Coal Company
Moosic, Lackawanna County, Pennsylvania

Nardone Slope Mine
Macarelli Coal Company
Yatesville, Luzerne County, Pennsylvania

Rex Slope Mine
Rex Coal Company
Yatesville, Luzerne County, Pennsylvania

Pittston Slope Mine
Gigliello Coal Company
Yatesville, Luzerne County, Pennsylvania

No. 3 Slope Mine
Zurek Coal Company
Pittston Township, Luzerne County, Pennsylvania

Rossetti No. 9 Mine
Rossetti Coal Company
Pittston, Luzerne County, Pennsylvania

No. 4 Slope Mine
C. and J. Coal Company
Laflin, Luzerne County, Pennsylvania

January 24, 1959:

No. 10 Tunnel Mine
Musti Coal Company
Pittston, Luzerne County, Pennsylvania

GENERAL INFORMATION

The River Slope mine, May Shaft section, Schooley colliery, Knox Coal Company, Incorporated, is located in Port Griffith, Luzerne County, Pennsylvania. The mine is served by the Erie Railroad.

The Pennsylvania Coal Company, Smith and Mill Streets, Dunmore, Lackawanna County, Pennsylvania, owner of the property, leased it to the Knox Coal Company, Incorporated, on May 26, 1954.

The names and addresses of the operating company officials at the time of the last Federal inspection conducted December 5, 8-9, and 11-12, 1958, were as follows:

Louis Fabrizio, president and treasurer
10 Stout Street
Yatesville, Pennsylvania

Joseph Sciandra, vice president
507 Cedar Avenue
Exeter, Pennsylvania

Josephine Sciandra, secretary
1308 Wyoming Avenue
Exeter, Pennsylvania

Robert Groves, superintendent
South Main Street
Pittston, Pennsylvania

Frank Handley, mine foreman
121 Division Street
Kingston, Pennsylvania

William Receski, engineer and section foreman
244 Marcy Street (River Slope section)
Duryea, Pennsylvania

During the last Federal inspection, a total of 174 men was employed, 23 of whom worked on the surface and 151 underground. The average daily production was 710 tons of anthracite, all of which was loaded by hand onto chain or shaker conveyors.

The principal mine openings are the River slope and May shaft. Three other shafts in adjoining areas were available for emergency escape from the underground workings. The River slope,

about 245 feet long, was driven in rock on about a 25° pitch to where it intersected the Pittston vein. The depths of the shafts were as follows: May shaft 332.37 feet; Hoyt shaft 528.84 feet; Schooley shaft 579.90 feet; and Eagle air shaft 60 feet.

Mining was being done in the Marcy and Pittston veins which lie from flat to a maximum inclination of 45°. The average thickness of the Marcy vein is $4\frac{1}{2}$ feet and the Pittston vein 11 feet. The immediate roof overlying the Pittston vein was slatestone ranging from 2 inches to 37 feet in thickness, and the main roof was sandstone ranging from 1 foot 5 inches to 51 feet in thickness, see borehole data appendix D. The roof overlying the Marcy vein is sandstone. The floor of the Pittston vein ranged from slatestone to dark sandstone and the relative thicknesses, as shown in borehole No. 1137, were 4 feet 4 inches and 9 feet 4 inches, respectively. The floor of the Marcy vein is sandstone.

MINING METHODS, CONDITIONS, AND EQUIPMENT

Mining Methods: Generally, the mine was developed and the chamber-and-pillar method of mining had been followed. Partial and complete pillar recovery was being done following the skip and split methods where written permission, as authorized by the property owners, was granted. Some development was being done in large pillars left during previous mining, and the chamber-and-pillar method of mining was followed.

The immediate roof overlying the Pittston vein is slatestone and that overlying the Marcy vein is sandstone. The main roof overlying both veins is sandstone. Cogs, three-piece timber sets, and single props were used for roof supports where roof conditions warranted. The company timbering rules required that supports be stood not more than 6 feet apart, or closer where needed.

All coal produced was loaded by hand or by gravity flow onto shaker or chain conveyors.

Mine Rescue: A mine rescue team was not maintained at the mine, however, a record was kept of the names and addresses of men employed at the mine who had completed such training. Refresher courses in mine rescue training had not been given any of these men in the past several years. At least six emergency escapeways were available from the mine via adjacent slopes and shafts. A check-in and check-out system was in force, but a written record was kept only of the number of men in the mine.

STORY OF INUNDATION AND RECOVERY OPERATIONS

Participating Organizations: The main opening of the break-in was plugged with railroad gondolas, mine cars, and other various materials through the combined efforts of the officials and workmen of numerous coal companies and contracting firms, both large and small, from Lackawanna and Luzerne Counties, and officials and workmen of the Lehigh Valley Railroad and numerous interested persons on January 25, 1959.

Two sinking pumps, twenty-two deep-well pumps, and sixteen compressed-air-driven water-air-lift pumps were installed at the various affected openings to unwater the involved area, see appendixes B and C. The sinking and deep-well pumps were installed by crews of the Glen Alden Corporation, The Hudson Coal Company, Pagnotti Interests, and the United States Steel Company, and the water-air-lift pumps were installed by Merritt-Chapman & Scott Corporation. This pumping work began soon after the break-in occurred, and the last of the deep-well pumps was placed in operation at 11:30 a.m. on March 17, 1959.

The No. 1 Contracting Company of Pagnotti Interests erected a cofferdam, installed bulkheads underground, and drilled boreholes from the surface into areas within the bulkheads; the Santarelli Vibrated Block Company poured the concrete. This work provided the seal under and adjacent to the river in the involved break-in area.

Communication and power facilities were provided by the Bell Telephone Company and the Pennsylvania Power and Light Company.

This entire program was under the direct supervision of the Pennsylvania Department of Mines and Mineral Industries.

Activities of Bureau of Mines Personnel: Gerald W. Fortney, Federal coal-mine inspector, learned of the break-in from a radio newscast at 1:10 p.m., January 22, 1959, and immediately telephoned William Rachunis, district supervisor, at the Wilkes-Barre office. Mr. Rachunis immediately directed several Federal inspectors to report to the scene of the occurrence. The inspectors' names and time of their arrival are as follows: Frank Retsel and William T. Cummings, 2:20 p.m.; Gerald W. Fortney, William Rachunis, and William T. Torrance, 2:25 p.m.; Clair S. Sigworth, with rescue truck, 4 p.m.; James A. Merrick, 4:30 p.m.; and Charles E. Jones, 6:30 p.m. Mr. Rachunis directed the work of Bureau of Mines personnel at the scene. James Westfield, Assistant Director--Health and Safety, Washington, D. C., arrived at the scene at 7:45 p.m. the day of the disaster. Bureau of Mines personnel was

informed that 82 men were in the mine at the time of the break-in and that 37 of the men had escaped via the various openings, but that 45 men were still unaccounted for. Also, that all adjacent mine operators had been notified of the occurrence and workmen had either been or were being removed from such operations.

At approximately 2:45 p.m., an observer came running over the hill adjacent to River slope shouting that some of the missing workmen were at the bottom of the abandoned Eagle air shaft. One workman, Amedeo Pancotti, company laborer, had climbed unassisted up the 60-foot-deep shaft. Inspectors Cummings, Fortney, and several workmen then proceeded to the air shaft with an insulated power cable, who together with State Mine Inspectors Andrew Wilson, Warren L. Shirey, and Thomas M. Beaney assisted three more men up the shaft. The mine foreman, colliery engineer, and an assistant mine foreman were then lowered down the air shaft where they encountered three more men who had left the seven-man group after they had reached the bottom of the air shaft to go for tools they expected to use to scale the shaft wall. These men were assisted up the shaft. A further search by the three officials failed to locate the other missing men and they returned to the surface up the shaft.

After studying the mine maps, it was decided that a six-man rescue squad composed of four mine officials and two mine workmen would go back into the Eagle air shaft area to search for the missing men. The rescue squad was lowered by rope at 5:30 p.m. Plans were to leave a man posted at 300-foot intervals beginning near the bottom of the shaft and extending into the active working areas familiar to the men in the searching party. The purpose of posting the men was to serve as a guide through unfamiliar areas. Inspectors Shirey and Fortney were at the top of the shaft. At 6 p.m., when no response was received by calling down the shaft, Inspector Fortney was lowered down the shaft to ascertain the trouble. He located the first man on post about 200 feet from the shaft bottom and then proceeded along the line of posted men into the area that was being probed. Returning to the shaft bottom, Fortney informed Shirey that all was going according to plan and that he had instructed the men to contact each other at short intervals and report their progress to Shirey on the surface.

Inspector Fortney then returned to the first man on post and informed him that he was going to make a short probe in the opposite direction from the general probing to where a rock hole had been driven from the Pittston vein to the Marcy vein. The intruding

water could be heard at that point. During this probe, 26 of the missing men were located at 6:45 p.m. by Inspector Fortney. After ascertaining that the men were all in fair condition, Fortney led them to the bottom of the shaft, attached the rope to each man, and assisted them over a rough spot near the bottom of the shaft as the men were pulled to the surface. After the last man had been pulled to the surface, Fortney informed Shirey that from information given him by the survivors, he believed that further probing and exposing rescue men to the hazard of the intrushing water should be discontinued, and that as soon as he could locate the probers, the search would be ended, to which Shirey concurred. The entire group returned to the surface at 9:15 p.m. Communications between the top and bottom of the shaft were by voice.

Other Bureau of Mines personnel who participated during the critical period following the river break-in were Federal Inspectors Nicholas M. Benson, Joseph R. Lindsey, and Joseph E. Stanton.

Mine Conditions Immediately Prior to the Inrush of Water:

The mine was operating on the day of the occurrence. The temperature soared from a low of 7 degrees Fahrenheit on January 19, 1959, to a high of 62 degrees Fahrenheit on January 21 and 22, 1959. This accounts for the ice-laden river at the time of the occurrence, as thick ice had formed upstream during November and December 1958 and the early part of January 1959. Precipitation during January 1959 was above normal, according to the U. S. Weather Bureau at Avoca, Pennsylvania; the official reading was 2.99 inches, which is 0.73 inch above the normal of 2.26 inches. The fireboss' book did not indicate any unusual condition underground prior to the inrush of water. It is believed that the extra weight of the swollen ice-laden river was a contributing factor in the river break-in at the River Slope mine.

Two Federal inspections were made of the River Slope section within 5 months of the disaster. (1) During the September 1958 Federal inspection, mining in the two involved chambers driven beyond the stop line had been completed, data from the survey thereof, that had been made in September, had not been posted on the maps, and there was no indication or evidence of inundation danger. (2) During the December 1958 Federal inspection, the "fatal" crosscut that was later driven over the anticlinal to tap the faces of the two aforementioned chambers had not been started, there was no information available then that such a crosscut would be driven, and there was no indication or evidence of inundation danger.

Evidence of Activities and Story of Inrush of Water:

Six men reported for work at the River Slope section at their usual starting time, 7 a.m., on January 22, 1959. Three of the workmen were assigned to continue the work of developing a slope in the Marcy vein, and two were directed to remove shaker pans in the Pittston vein where mining had been completed. The sixth man was a certified assistant mine foreman who examined the two working areas during the preshift and on shift. Other workmen at the colliery were assigned their respective tasks and area locations at the May shaft office. The assistant foreman visited both working areas and instructed the men in the Marcy vein to pull down some loose roof and to stand a timber set. Reportedly, there was no evidence of weight and the supports were intact in the Pittston vein area during the examination; the workmen assigned there began removing the shaker pans. About 11:30 a.m., the men heard a prop crack in the place that had been driven over the anticlinal. The miner-in-charge went down to the Marcy vein working place and informed the assistant foreman of the condition, and the assistant foreman informed the Marcy vein workmen that he was going up to ascertain conditions in the Pittston vein and inquired of them if they wanted to go outside for lunch while he was examining the upper area. Reportedly, the men stated that they would finish the car they were loading before eating lunch. The assistant foreman and miner proceeded up the rock slope to the Pittston vein intersection where they met the other workman. As they were starting into the chamber off the slope, the roof gave way and water and debris rushed in with tremendous force; this was at 11:42 a.m. The three men, realizing that the river had broken through and that it was impossible for them to be of assistance to the three workmen in the Marcy vein, which was almost directly below the inrushing raging water and debris, hurried up the slope to the surface. The assistant foreman telephoned the colliery superintendent informing him of the situation, and the superintendent then telephoned the various underground working sections issuing orders that all men be notified to get out of the mines immediately. He also notified the operators of adjacent active mines of the serious situation and suggested that they remove workmen. Such prompt and thoughtful action undoubtedly saved many lives. All the affected companies removed underground personnel immediately upon notification.

As mentioned previously, three men escaped immediately following the break-in, up the River rock slope. Twenty-three men working in the vicinity of the May shaft area escaped via the shaft at various intervals, some of whom traveled through ice-laden water

and debris. Reportedly, one of the victims was lost in this area when he stopped to change his grease-covered clothing, which was his regular habit before leaving the mine. Eleven men working in the Hoyt shaft area escaped via that shaft, but traveled through water to reach it. Thirty-three men escaped via the abandoned Eagle air shaft, after wandering around for several hours. The first seven of these men found their way to the bottom of the shaft at approximately 2:45 p.m.; one of the men was able to ascend the shaft unassisted and reported the location of his fellow workers to the people standing by on the surface. The remaining six of the seven-man group were assisted up the shaft by insulated wire cable pulled by men on the surface. Rescue men entered the mine at 5:30 p.m., and the remaining 26 men were located at 6:45 p.m. These men were assisted up the shaft in the same manner, except that a 1-inch hemp rope was used instead of the insulated wire cable. As of this writing, the 12 missing men are still entombed in the mine, see appendix B showing escape areas.

Extensive damage was evident in areas that were in the direct path of the intrushing ice-and-debris-laden water where examinations were made in areas that were unwatered. Roof supports and heavy equipment in these areas have either been swept away or moved from their original positions. Mine workings, some active and some inactive, were either inundated or partially flooded as far northeast as No. 4 shaft, Pennsylvania Coal Company, and as far southwest as Henry colliery, Lehigh Valley Coal Company. See appendix C for pump installations during the unwatering project.

Recovery Operations: Work of blocking the breach was begun soon after it occurred. The westbound track of the Lehigh Valley Railroad was broken and diverted toward the area of the break-in. Railroad gondolas, small mine cars, bales of excelsior, and other available materials were dumped into the opening. Heavy equipment, such as autotrucks, bulldozers, and cranes were placed in operation on January 23, 1959, the morning following the break-in, and large boulders were dumped and pushed into the opening along with the other materials. This work continued around-the-clock, and on January 25 the opening was blocked sufficiently to stem the fast inflow of water to a much lesser degree. Following this lessening of inflow, the break-in area was surrounded with a semi-circle of large rocks and earth materials having a radius extending into the river about 185 feet and on a level with the railroad bed. This work lessened the inflow of water further, but an estimated 20,000 g.p.m. of water was still inflowing, as indicated in appendix F, figure 5, which was photographed where water was flowing from the Pittston vein to the underlying Marcy vein on March 23, 1959.

