



JAHSA

Joseph A. Holmes Safety Association

May June July
2012

**Sunday Creek Coal
Company No. 6 Mine
Explosion of 1930**

...details inside

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The Mine Safety and Health Administration and Joseph A. Holmes Safety Association Bulletin contains safety articles on a variety of subjects: fatal accident abstracts, studies, posters, and other health and safety-related topics. This information is provided free of charge and is designed to assist in presentations to groups of mine and plant workers during on-the-job safety meetings. For more information, visit the MSHA home page at www.msha.gov

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May 8, 2012 Holmes Meeting

Joseph A. Holmes Safety Association Western Kentucky Chapter

By: Robert Stone

The Joseph A. Holmes Safety Association was formed in 1916. Named for the organization's founder, the first association was composed of 24 leading national organizations. Dr. Holmes was a mining safety pioneer and the first director of the U.S. Bureau of Mines. His philosophy of safety in the mining industry was underlined by his position that the task of mining safety was too big for government alone to accomplish. To justify this conjecture, from 1900 to 1916, there were 5,982 deaths reported in the coal mining industry. From 1911 until 1916, 4,933 people were killed in metal and nonmetal mining industries. The government didn't even include fatalities in sand and gravel operations until 1958. The Association's purpose was to conserve the lives of those working in the mining and related industries by educating miners in hazards and work precautions and by rewarding individual's safe work achievements.

Representatives of the Bureau of Mines, U.S. Department of Interior, proposed the Joseph A. Holmes Safety Association organize local chapters throughout the nation for mine workers and mine company officials for teaching first-aid, safety principles, and hygiene. Organization of local chapters began in 1921. In 1926, the organization saw a need to initiate an independent effort to take over the function of organizing chapters. As a result, Article V of the Constitution of the Joseph A. Holmes Safety Association established the Holmes Safety Association, and from March 5, 1926,

all future chapters of the affiliated body are known as the Holmes Safety Association. The chief function of the Holmes Safety Association is to establish chapters in mining communities for promoting the safety and health of miners, their families, and residents of the communities.

The Western Kentucky Chapter was organized on July 26, 2003, with the first meeting held at Scarlet's Restaurant. Tom Galbreath (MSHA Inspector, Lexington Field Office) was instrumental in the organization of the chapter. At the first organizational meeting, Marty Tubbs (Vulcan) was nominated as President, Gary Joiner (Martin Marietta) was nominated as Vice-President, Brad Morse (Rogers Group) was nominated as Treasurer; and Robert Stone (IMI) was nominated as Secretary. Many very informative and interesting presentations have been made since then. The generosity of the member mining companies and those member vendor organizations have made all these dinners possible, as well as the very successful annual picnic events.

I've been here from the beginning, and for me, we in the mining industry are a special group of people. I think that we're a tighter knit group than most vocations caring about the well-being of one another. We're also about family, and I think that this organization champions both our occupational well-being and promotes its functions in a manner that always includes family. It is deserving of our support and participation.



May 8, 2012 Holmes Meeting

Joseph A. Holmes Safety Association Western Kentucky Chapter

On May 8, 2012, the 2nd quarter meeting was sponsored by Rogers Group. The company's CEO, Mr. Jerry Geraghty was the featured speaker. We're very pleased that Mr. Geraghty agreed to address our group. To have a little more elbow room, the meeting was held at a different location this time around at Ponderosa Steakhouse at 127 U.S. Highway 68 East in Draffenville, Kentucky. Dinner was buffet-style, and the meeting started at 6:00 p.m.

Each company represented in attendance had the opportunity to highlight and describe any

changes, incentives, or operations modifications implemented or planned to enhance safety at their respective jobsites.

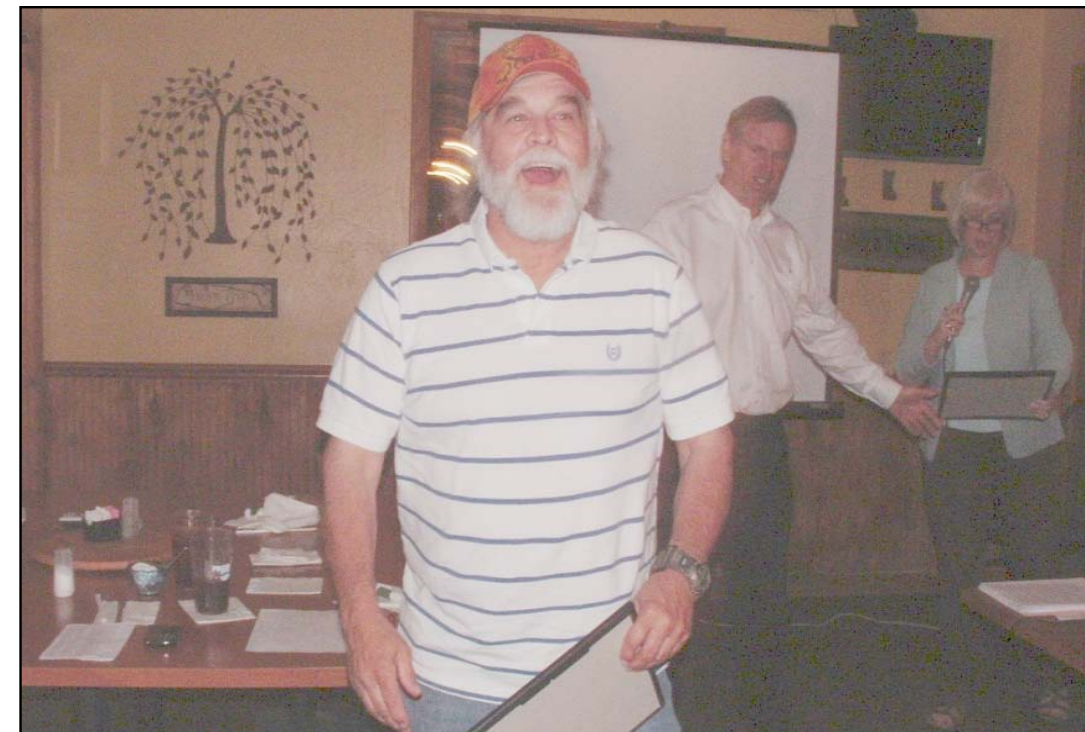
We also discussed the 6th annual Summer Sizzler event kick-off. The event sponsors (Occunet, Lafarge, Pine Bluff Materials, and Vulcan) outlined their tentative plans and greatly appreciate additional pledges and donations for gifts and help to pull it all together again for our guests and all those kids and grandkids!



Western Kentucky Chapter – All supervisors, area managers, and executives must conduct a minimum of one formal safety audit per month. Jeff Geraghty puts this at the top of his list to show how safety ranks at the top with the Rogers Group.



Western Kentucky Chapter – The May 8, 2012 Holmes Meeting at the Ponderosa Steakhouse in Draffenville, Kentucky, had 54 in attendance to hear Jerry Geraghty speak.



Western Kentucky Chapter – Roger Gray, a happy Rogers employee.



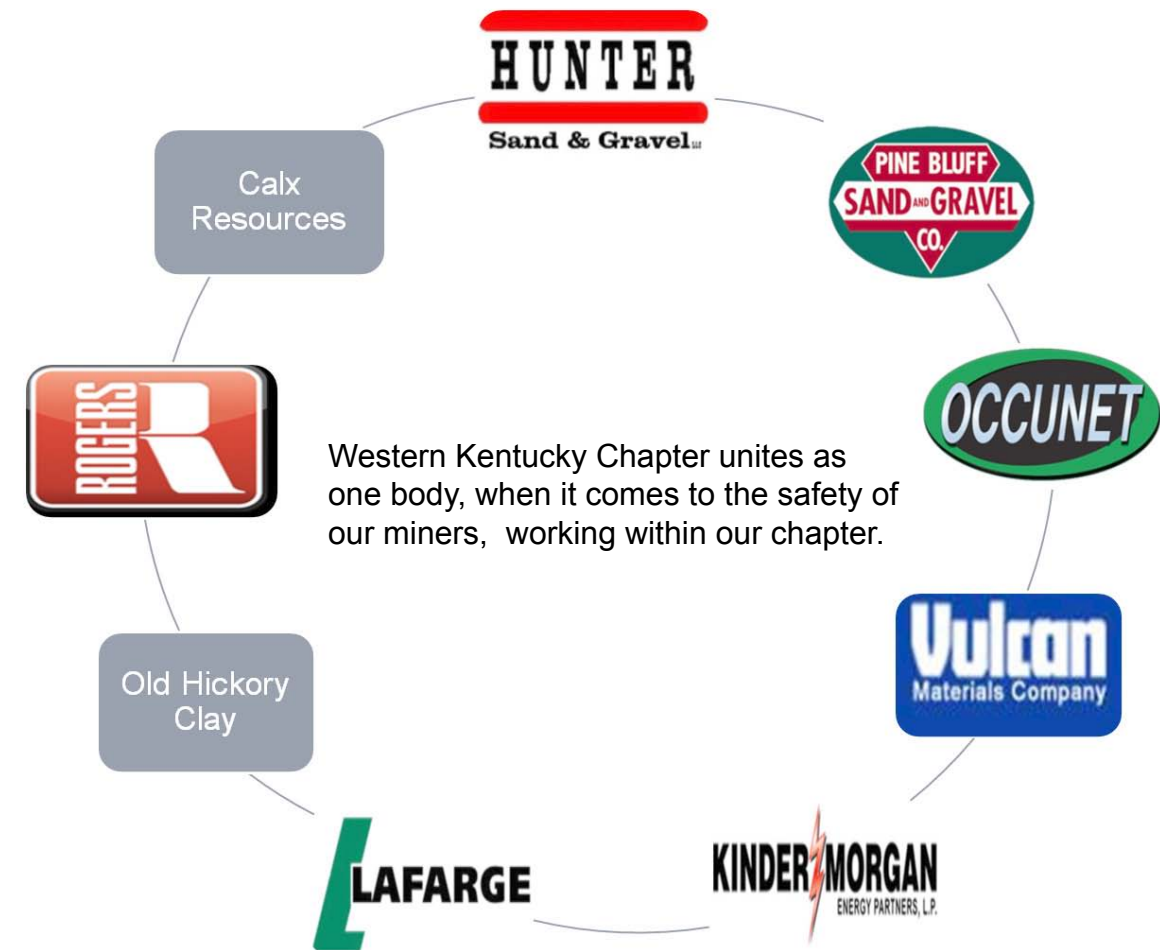
3 & 5 Year Professional Miner Award – These miners display their certificates. From left to right: Dustin Hill, Roger Gray, Quentin Oldham, Jeff Tinsley, Bob Crafton, and Jerry Geraghty.



10 Year Professional Miner Award – Given for 10 years of professional service. From left to right: Boyd Calvert, John Teer, Allen White, Steve Grimes, Kerry O'Brien, Kevin Phillips, Wayne Brown, Larry Boyd, George Devore, Bill Gregory, Lori Harper, and Jerry Geraghty.



Professional Miner Award – Jerry Geraghty presents the Professional Miner Award to Boyd Calvert.



Historical

Splash Dam #6 Mine Explosion

A gas and dust explosion occurred about 8:30 a.m. Monday, June 13, 1932 in the No. 6 mine of the Splash Dam Coal Corporation, Splash Dam, Virginia. The explosion was practically confined to the No. 6 main entry, and resulted in the death of the 10 men who were in the mine; of these one was killed outright by violence, three had severe burns, three slight burns and three were evidently killed by afterdamp alone.

The Norton Station of the Bureau of Mines was notified by telephone about 9 a.m. by the secretary of the Virginia Coal Operators' Association, C. B. Neel and shortly after by the District State Mine Inspector, D. E. Stanton. The Norton Safety Station rescue equipment was taken to the mine immediately in the Bureau trucks driven by J. F. Davies and E. H. Hodgson, arriving at 11:30 a.m.

Recovery work had been started at once by mine officials, but had been found defective by State Inspector D. E. Stanton on his arrival at 11:10 a.m.; changes in methods were made and, with the cooperation of the representative of the State, the mining company, the Virginia Coal Operators Association and the Bureau, all the bodies had been recovered by 3 p.m., June 14. Ventilation had been sufficiently restored by Wednesday, the 15th, so that the official investigation could be made. H. B. Humphrey of the Bureau arrived from Washington about 4 p.m., June 14. The official investigation was made on June 16, in which J. F. Davies, E. H. Hodgson, and H. B. Humphrey, of the Bureau of Mines, assisted. Air and dust samples were taken on June 17.

Previous Explosions

On March 24, 1927, gas from a crack in the roof over a longwall in No. 5 mine was ignited by an open light and eight men injured and burned. Standing water prevented the spread of this explosion. The gas accumulated because of a short-circuiting of the air in starting a new wall face.

Since that time, there have been numerous reports of occasional ignitions in these mines without violence or severe injuries.

Location

Mines 5 and 6 of the Spash Dam Coal Corporation are located at Splash Dam, Dickenson County, Virginia. The mine tipple is served by a siding of the C. C. & O, or Clinchfield Railroad, connecting at St. Paul, Virginia, with the N & W Railroad.

Employees and Production

Mines 5 and 6 are operated under one management, with a single general staff. The two mines employ about 165 men and produce about 800 tons per working day. Mine No. 6 employs 20 company men and 60 loaders, all on day shift. The output from this time was about 350 tons a day. Previous to the explosion, the mine was working two or three days a week.

The Mine

Both mines have drift openings; there is one inside connecting entry, which is closed by a board stopping to provide separate ventilation. Mine No. 6 is opened by a double entry system 1,500 feet in by the portal to the 1st north cross entry, where it becomes a triple

entry system for 1,500 feet more to the face. However, there is a break at the rock fault where the 3rd entry is not connected. As far as the 1st north, the No. 6 main haulageway is used for intake and the air course for the main return to the fan.

The Coal Bed

The Splash Dam bed worked at this mine is a hard, bright, bituminous coal. The bed is flat lying, broken by slight faults and undulations due to the Russel Fork fault by which it is exposed at this point. The roof is a sandy shale and the floor is clay underlain by sandstone. The coal is from 40 to 44 inches thick, with a single rock parting of about 1.5 inches.

Coal Analysis

The average analysis of the coal from the Splash Dam bed, as given in Technical Paper 365, "Analyses of Virginia Coal", is as follows: Moisture 2.4 percent, Volatile matter 29.3 percent, fixed carbon 62.7 percent, Ash 5.6 percent and Sulphur .8 percent. The ratio of volatile matter to total combustible, or volatile plus fixed carbon, is 3.18. To render dust of this kind of coal inert and to prevent propagation of an explosion in case no gas is present will require at least 61 percent of incombustible in the dust. Of this amount the moisture and ash content of the coal provide approximately 8 percent.

Coal Preparation

The coal from both No. 5 and No. 6 mines is prepared by screening at the tipple, and loaded into railroad cars by three loading tracks.

Screens are of the shaker type, producing slack, 1.25 inch, 2.5 inch, 5 inch and larger lump sizes. About 50 percent is also shipped as "run of mine". A dry cleaning process is used to remove slate by machine operating on the principle of a jig.

Dust

Dust from coal, when suspended in the air, is explosive. From the evidence of propagation and coking, dust played the major part in this explosion. The haulage roads were heavy with dust from coal spilled and broken up in the tracks. The two track cleaners were loading out this fine material from the 1 north parting at the time of the explosion. The entry faces and rooms were

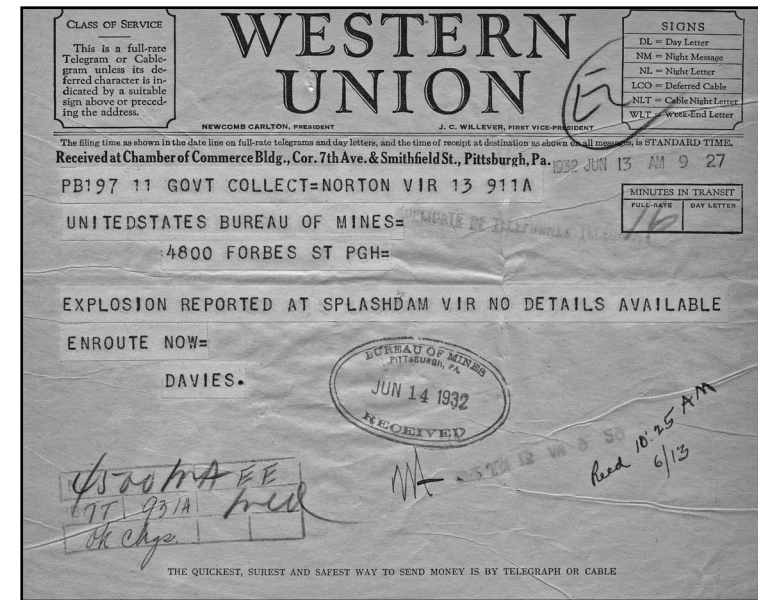
also dusty. The "very dusty roads" were mentioned in the last State inspection report, posted in the foreman's office outside the mine on May 11, 1932.

Method of Mining

The double entry, room-and-pillar method of mining was used. About 300 tons of coal per day were taken in advance and 50 tons from pillar extraction. About 25 years is the estimated life of the mine.

All coal except small stumps is undercut by Goodman Lorain shortwall machines, with 6-½ foot cutter bars. It is shot with permissible explosives, fired by fuse and detonators. All coal is hand-loaded.

Rooms are 24 feet wide and are carried from



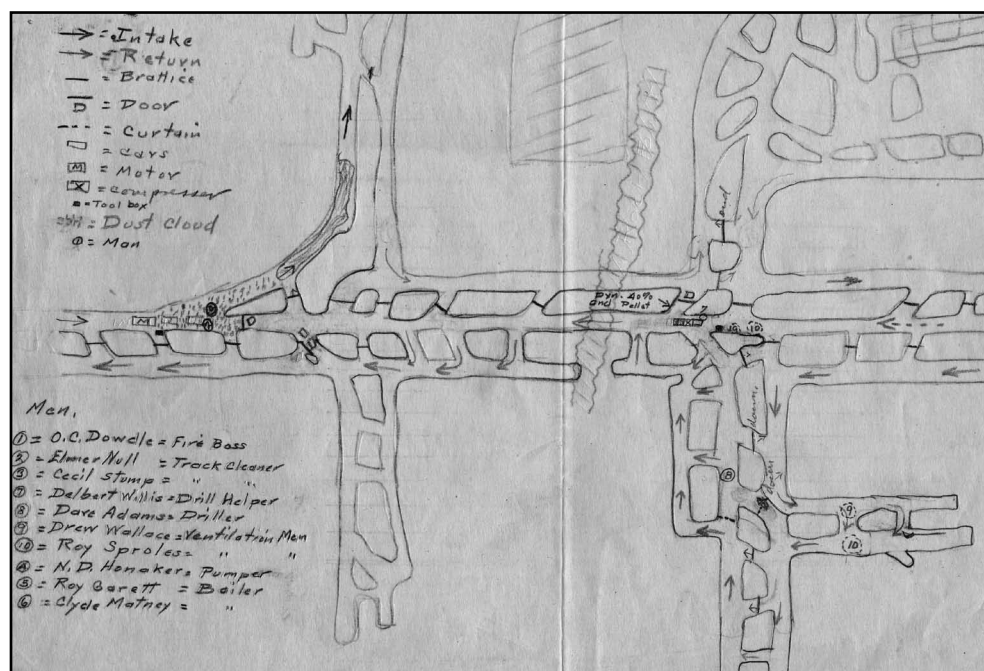
Splash Dam No. 6 Mine – First telegram sent after the explosion. Photo Bureau of Mines

the entry to the opposite air course. A row of posts 4 feet apart and 30 inches from the rail is set in the rooms, with a safety post at the face. On pillar slabbing a post is set for each car length out.

Ventilation and Gases

The mine was rated as non-gassy by the Virginia Department of Mines, although gas was known to be present, ignitions had occurred, and a lax fire boss examination was made as a precaution. No record was kept of these examinations.

A Jeffrey disc fan, 6 feet in diameter, operates exhausting at the mouth of the main air



Splashdam No. 6 Mine – Map of the No. 6 mine before the accident. Photo Bureau of Mines

course. The water gauge is unknown, but the volume was 33,800 cubic feet per minute as measured on June 16. This is probably more than the normal circulation before the explosion, as the air was not being carried to all sections, some doors not yet having been replaced. The fan is driven by a patent-composition rope drive from a 15 horsepower, 220 volt, alternating-current motor.

The mine was ventilated by a continuous cur-

rent, with the active advance faces on the last before return to the fan. Ventilation was interrupted by "shorting" the air past idle sections and by shutting down the fan when the mine was idle. Although air was reported as "fair", only a small part of the total intaking air could have reached the active faces, the major part being lost through leaking doors and stoppings. Stoppings were variously pack wall, plastered with clay, brick or board.

The fact that the fan was not damaged was due to the non-propagation of the explosion through the air course.

During later recovery of the faces of the east entries off 1 north, some accumulations of methane were encountered, formed during the time ventilation was cut off.

Rock-Dusting and Watering

No rock-dusting has been done in this mine, and no watering is done to allay dust.

Conditions Immediately Prior to the Explosion

The fan was shut down Thursday night, run from early Friday morning to Saturday noon, and was "down" till Monday morning except for the period between 2 and 6 p.m.

Sunday. At about 6:45 a.m., June 13, the fan was started before 11 men went into the mine to perform jobs which were necessary or had been left for an idle day. The inside foreman, who acted as fire boss, went in. A rock crew, consisting of a driller, his helper, and a company man, took a motor and compressor outfit to the face of 6 main, and drilled a brushing hole. The fire boss returned to 2 south, where two brattice men were waiting for instructions.

These men had come in with the rock crew. Two track cleaners brought a motor and two cars to 1 north parting and started to clean track. A pump man and two bailers took a motor and some cars, secured brattice lumber in the mine yard, and brought it in. The pump man got off at 1 north and walked in to the pump at the head of that entry. The bailers took the lumber to 2 south at 1 east, outby the curtain, unloaded it, and went into 6 east off 1 north. The company man left the face of 6 main after the hole was drilled and loaded. He passed the fire boss at 2 south and saw the brattice men near by. At the parting to 1 north, he passed the two track cleaners, and found the dust cloud so thick it choked him and made the lights a dim red. He reached the outside and waited in an old drift opening around a curve to see the superintendent about further duties in No. 5 mine. The fire boss gave his Baby Wolfe safety lamp and a flashlight to the bailers as they came out of 2 south, to take with them into 6 east. He then started outside. The driller and his helper had evidently, in the meantime, shot the hole in the face of 6 main and come back to 2 south switch. Here another hole was drilled to provide greater clearance.

When the explosion occurred, the fire boss was about 900 feet from the portal, the drill helper was completing the hole in the rib in 6 main at 2 south, the driller had gone into 2 south presumably to get a rock hammer left at the 1 east switch, and the two brattice men were in 6 main inby the drill helper or in 1 east off 8 south. The explosion occurred about 8:30 a.m.

The flames of the explosion burned leaves for almost 300 feet outby the portal. The fire boss was killed by violence, and the track cleaners by severe burns and suffocation. The drill helper was badly burned above the waist; his lower half protected by the empty car beside him, and fell in his tracks. The driller died immediately from slight burns and suffocation. The two brattice men were burned

about the head, but crawled to a point in 2 south air course before being overcome. The pumper and the two bailers were in no danger, as an extensive pool of water stopped the explosion from passing up 1 north. They came out, as shown by the clear foot prints in the dust left by the explosion, and died at once on reaching the parting at 6 main. Had they stayed at 1 east, or broken through to No. 5 mine, they probably would have been saved. Had they been equipped with self-rescuers, they might have been able to pass through the gases and reach outside.

Rescue and Recovery Work

The superintendent, Mr. G. K. Beavers, was about 200 feet from the portal when the explosion occurred. He called the general manager, Mr. G. J. Walker, at Lebanon, Virginia and then went into No. 5 mine and brought out the three men working there who knew nothing of the explosion until told; then put a crew to work placing canvas curtains into the crosscuts between the main haulageway and the main return. These were found to be ineffective by District Inspector Stanton and J.F. Davies of the Bureau, on their arrival.

After studying the map and conferring with Mr. Beavers, it was decided to rebuild the brattices with wood and plaster them with clay. Inasmuch as the fan was not damaged and the main haulage was on the intake, the restoring of ventilation and progress into the mine was rapid.

The first body, that of the fire boss, was found about 900 feet inby the portal of the mine. This body was very badly mutilated and burned. Bodies two and three, which were the motorman and brakeman who were cleaning roads, were found about 1,400 feet inby the portal of the mine; these bodies were burned.

Bodies four, five, and six were found about 75 feet inby the mouth of the first north; these men were undoubtedly overcome by carbon

continued

monoxide after traveling for a distance of 2,000 feet. The rescue party, after satisfying themselves that no dangerous gases were coming out of the 1st north, proceeded up the main heading to a distance of about 1,700 feet from the portal. At this point it was necessary to direct the fresh air up the air course on the left and use the main haulage for the return air. This procedure slowed up the work considerably, as the roof in the left-hand entry had not been brushed and was very low.

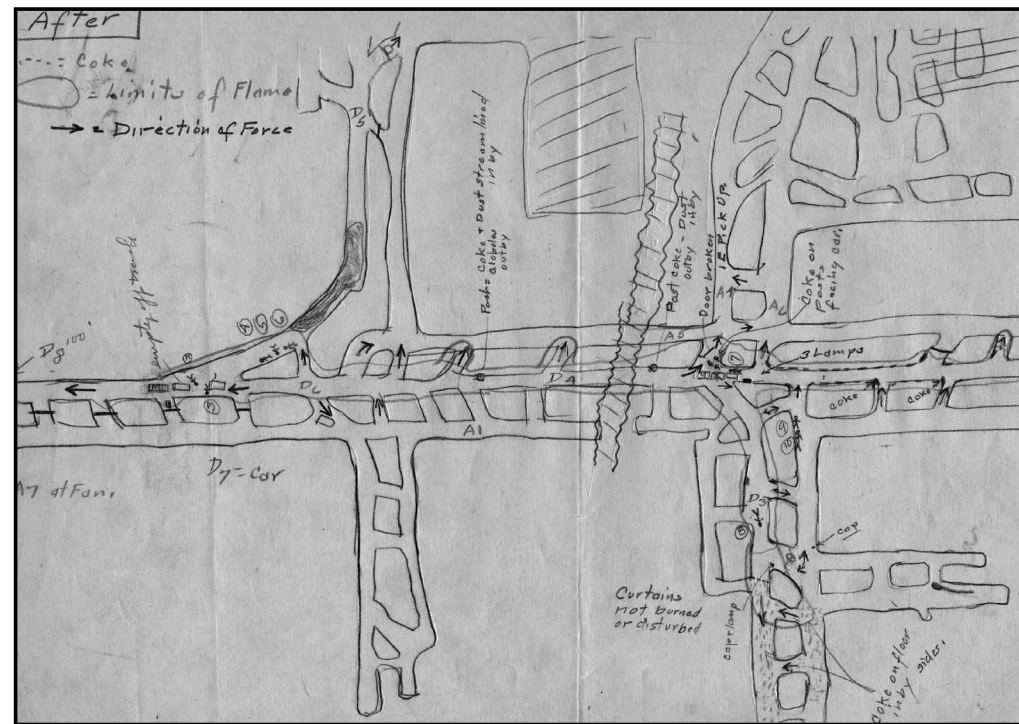
It was necessary to travel the air course for a distance of 350 feet, which enabled the rescue party to get to the 1st east pick-up. At this point carbon monoxide was encountered bleeding off the 1st east pick-up air course. For a time the fresh air was short circuited through a crosscut to the main heading, where one of the drillers' bodies was found. At this point, realizing it would require some time to clear this condition, it was agreed to withdraw the men to the outside for a short rest while this was being done. However, a curtain was erected in the 1st north, to deflect more air into this section to speed up the clearing.

On re-entering the mine, the main heading was explored to the face and found to be free of carbon monoxide. The rescue party then proceeded to explore the 2 south heading. Body number eight, the driller, was found about 150 feet in the 2 south haulageway. Proceeding up the 2 south haulageway, carbon monoxide was again encountered about 200 feet in. The party retreated to the main

heading and erected a canvas brattice across the heading which deflected the fresh air into the 2 south and cleared it in a few minutes. The two missing bodies were found in the 2 south air course.

Mine Conditions After the Explosion

The official underground investigation was made by representatives of the mining company, the State Mining Department, the U.S.



Splash Dam No. 6 Mine – Map of the No. 6 mine after the accident. Photo Bureau of Mines

Bureau of Mines, and interested Virginia mine officials. The principal damage to the mine found was the blowing out of the stoppings and doors. The force and flame of the explosion apparently picked up in violence from 1 north to the outside. Inby from 1 north to the 5th crosscut from 1 east pick-up, there is evidence of flame in 6 main heading; coke and light soot streamers being found which show movement toward the face. The flames, soot, and coke swept away into 2 south and passed under the curtains the face of the heading slowly and with no violence. Expansion and possible pools of water reduced the

force of the explosion in 1 north; doors were blown out in the east entries off 1 north, as far as 6 east, but no other damage was done.

From the evidence of force and flame observed, and the information gained of the movements of the men, the most probable cause of the explosion appeared to be an ignition of gas at some point in 2 south, which was strengthened and propagated by the dust cloud in 5 main.

Possibly the gas was liberated by the shot fired in the face of the 6th main and was carried slowly along the air course, then into the 2 south and 2 east off 2 south and ignited by an open light worn by the driller or a bratticeman; possibly the concussion of the 6 main shot started a methane accumulation in the face of 1 east off 2 south or in the face of 2 south to move to places where open lights caused the ignition.

No evidence of a gas ignition previous to the dust explosion was seen, except possibly the condition of the drill helper who was burned above the waist standing between a car and the rib. Two other possible points of origin were gas in 1 east off 2 south and dust in 6 main at 1 north. At any of these points, an open light must have been the source of ignition.

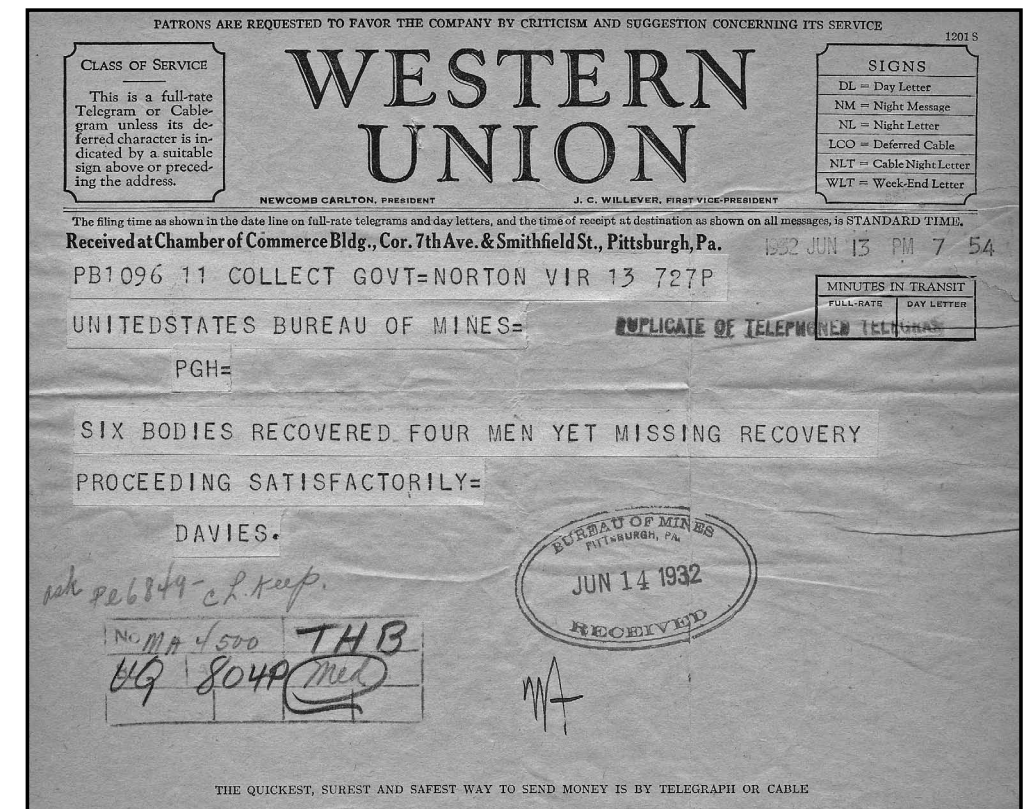
Summary of Evidence to the Cause, Origin and Propagation of the Explosion

Appreciable quantities of gas had been encountered in the 1st east off 2 south, which necessitated the use of a line

of brattices for about 40 feet. However, its use had been discontinued for several days prior to the explosion, as gas had gradually decreased. During the official inspection, and as shown by the samples taken, gas in appreciable quantities was found in the 1 east and 2 south faces.

The fan had been down for a period long enough for gas to accumulate in explosive mixtures in several faces, particularly 2 south and 1 east off 2 south.

In all probability, no inspection was made for gas beyond the curtains in 2 south. The air was not actively circulated past the faces of 2 south or 1 east, and the circulation was weak in the haulway.



Splash Dam No. 6 Mine – Update telegram sent to the Bureau of Mines. Photo Bureau of Mines

Historical

No. 6 Mine of the Sunday Creek Coal Company

No. 6 Mine of the Sunday Creek Coal Company near Millfield, Ohio

A localized gas and dust explosion occurred in the north-westerly section of Mine No. 6 of the Sunday Creek Coal Company near Millfield, Ohio on Wednesday, November 5, 1930, resulting in the death of eighty-two men, of whom two were killed outright by the force and flame of the explosion; six by combination of burns and afterdamp; and seventy-four by afterdamp. About one hundred and forty men escaped or were rescued following the explosion. Of these one hundred and nineteen escaped with little or no assistance; two were rescued promptly following the explosion and nineteen were rescued from behind a barricade.

Notice of the explosion was received at the Bureau of Mines about 1:45 p.m. on November 5 from the Associated Press; and after of confirmation of their report, mine safety car No. 5 and crew – W.D. Walker Jr. and R.A. Morgan then at California, PA.; the Pittsburgh Safety Station mine-rescue truck with Messrs. J.J. Forbes, G.W. Grove and K.L. Marshall, and S.P. Howel and N.R. Burdelsky

by auto, left Pittsburgh, the truck first at 2:30 p.m. and all arrived at the mine by 9:45 p.m., November 5.

Because several of the officials of the company had been killed or entombed by the explosion, rescue work did not progress per-

haps with that speed or precision with which it otherwise would have, although all bodies had been taken out of the mine by 6:30 a.m., November 6, except four which were discovered on the afternoon of November 7 and removed from the mine by 11 p.m.



Sunday Creek Coal Company – Tipple, loading dock and Mine Safety Car No. 3. Photo Bureau of Mines

Ventilation had been sufficiently restored by Sunday morning, November 9, so that the official investigation could be made. This was done Sunday between 10:55 a.m. and 4:20 p.m.; dust and air samples were taken on November 9, 11, and 15; the coroner's inquest was held in Millfield, Ohio on November 12 and the car and truck left the mine for Pittsburgh the afternoon of the 14th.

Location

Mine No. 6 of the Sunday Creek Coal Company is located in Dover Township, Athens County, Ohio, about one mile east of the unincorporated village of Millfield, Ohio.

The mine is served by a switch from Millfield of the Ohio Central Lines of the New York Central Railroad.

Company Officials

The offices of the Sunday Creek Coal Company are in the Overlook Building, Columbus, Ohio. The officer's were George K. Smith, Chairman, Board of Directors and secretary; C.C. Cook, treasurer; P.A. Coen, vice-president; William E. Tytus, president; H.H. Upson, assistant to the president; R.J. Jones, assistant chief engineer.

Officers of Mine No. 6 were: Walter Hayden, superintendent, Glouster, Ohio; John Deen, mine foreman, Millfield, Ohio; R.A. Marshall, Glouster, Ohio; Thomas Harley assistant mine foreman, Millfield, Ohio. There are about 370 men normally employed underground on the day shift.

Daily Production

The daily production averages about 1500 short tons. For about a month prior to the explosion the mine was operating about five days a week.

The Mine

Mine No. 6 of the Sunday Creek Coal Company is a shaft mine. It was operating in the No. 6 bed which generally in this field dips southwesterly about 28 feet per mile. The mine is served by three shafts, a 3 compartment main shaft, 187.5 feet deep, which is the full main return for the ventilation, and equipped with cages operated in balance used for hoisting coal and rock, raising and lowering men and supplies. The dimensions of this shaft are 24 feet by 10 feet, 6 inches.



Sunday Creek Coal Company – Fan motors, transformers, and seal of the new air shaft. Photo Bureau of Mines

The second shaft, located 300 feet from the main shaft, is used as a fan shaft and is the main air intake. This shaft is 176.5 feet deep and is 15 feet by 20 feet in section.

A new air shaft completed about six months ago, but not in operation at the time of the explosion is 176 feet deep.

The new air shaft is located about 7100 feet from the main shaft. This shaft is divided into two compartments, one containing a stairway, and the other being used for a fan shaft. A small fan was being installed over this shaft at the time of the explosion. The shaft, however, was sealed off from the active workings of the mine by stoppings located at and near the bottom of the shaft. One of these stoppings

continued

was partially wrecked by the explosion and this had an important bearing on the rescue and recovery operations, as will appear later.

The Coal Bed

The No. 6 bed is a non-friable, medium rank, bituminous coal. The bed has a fire clay floor and in some places it is smooth and hard, such as near the fact of No. 3 N. entry on 18 E. off main north. Above the coal are 12 -14 inches of bone above which is a thin layer of slate and then 60 feet of sandstone. When the coal is overcut the immediate top is bone coal but when the coal is undercut the immediate top is slate. There is a very hard rock parting, about 2.5 feet from the floor. The roof stands well.

Dust

This coal when in the form of dust suspended in air is explosive. Because the usual deposit of coke on outby and inby surfaces were not visible, the designation of this explosion as a gas and dust explosion and not simply a gas explosion is founded on the copious supply of coked particles of dust deposited throughout and beyond the entire explosion area and an estimation of the relative quantity of coked particles as made by the Coal Analysis Section of the Bureau of Mines in all of the dust samples taken.

Much dry coal dust was observed throughout the mine, especially in the region affected by the explosion.

Normally the mine is dry but on November 11 and 15 when the dust samples were taken, the roofs and ledges apparently had an unusually large percentage of moisture on them.

Method of Mining

The double entry, room and pillar method of mining was used and all mining was done on the advance. No pillars were robbed.

Though some coal is undercut, most of the

coal is overcut by arc wall mining machines. It is shot with pellet powder fired by squibs. Much of the coal is loaded with pit car loaders and a larger portion is to be so loaded.

There is very little timbering on new entries. There was considerable timbering in the old workings.

Ventilation and Gases

The mine was rated as gassy by the Ohio Department of Mines. Two fire bosses were employed who made pre-shift inspections of active workings, and inspections twice a week of abandoned workings. The pre-shift inspection was made between 3 and 6 a.m. and after 6 a.m. these fire bosses were mostly employed building brattices.

The fire bosses only carry flame safety lamps and these were of the non-permissible Wolf key-locked type but were not locked.

Installed at the fan shaft was a double side inlet 7-foot fan operating blowing. By the operation of doors, the air current could be reversed. It was normally operated on 6-points, that is, about 75 percent of full speed. The fan was equipped with a 60 inch pulley belted to a 20 inch pulley on a variable speed induction motor, model No 2017, General Electric, of 100 horsepower, speed at full load, 700 revolutions per minute, on 2200 volts, 3-phase, 60 cycle, alternating current.

A steam engine was installed in the fan house as a secondary source of power and previously, prior to a water shortage, the fan had been normally operated by this steam engine.

At the time of the explosion the fan is said to have been delivering approximately 65,000 cubic feet of air per minute at about 2 inches water gauge.

The mine was ventilated by two separate splits, one split of which presumably venti-

lated all of the section east of the main north entries. This section was inactive at the time of the explosion. The other split coursed through the area on the west side of the main north entries which included all of the active working places, the inactive third and the fourth north,, off 19 and 20 west, off the main north section; and several abandoned unsealed sections. The major portion of the



Sunday Creek Coal Company – Surface landing of the main shaft. Photo Bureau of Mines

main haulage was on return air and the main shaft served as the main return. It is definitely known that only a small portion of the total intaking air reached the active working parts of this mine.

Haulage

The track gauge is 42 inches and this is standard for all of the mines of the Sunday Creek Coal Company, save one.

Forty-pound rails are used on the main haulage and twenty-pound rails on back entries and rooms. The clearance is 5.5 feet on both sides of the track.

Two types of cars are used; one is the square steel end-gate type of 5-ton capacity, and the other the side slope wooden end-gate of 2-ton capacity. Main and secondary haulage is with trolley locomotives. Gathering is with crab-reel trolley locomotives.

All haulage is on return air except that portion of one of the two main line haulage routes, which is along 8 west off main north and a portion of 4 north off 8 west. Return air is here used to mean other than pure intake air. For haulage 200-275 volts direct current generated at 275 volts direct current is used.

The trolley lines were not guarded at any point either at cross-overs or elsewhere. The new haulage route recently in operation along main north inby and west and 19 west off main north outby 4 north had been ballasted with cinders thus accounting for the

high ash content of the read samples taken on 19 west off main north.

Conditions Prior to the Explosion

The mine had worked the two days previously, that is, November 3 and 4, and since November 4 was Election Day, a short shift of six hours was worked on that day. The mine was working normally the morning of November 5.

The fan was in operation as in a normal manner and it was stated by the District Mine Inspector that the fire bosses' report was clear.

continued

About six weeks prior to the explosion, the track and trolley at the junction of 3 and 4 north and 19 west had been changed so that trips from the section inby 4 north on 19 west could be directed out 19 west and main north haulage instead of as previously out 3 north and 8 west to main north. This necessitated the removal of a brattice on 19 west near 3 north. Shortly after this, fixtures for an automatic mine door to be installed at this point had been brought in, but the door had not been made or installed prior to the explosion. This caused the short-circuiting of the air at this point and permitted the accumulation of gas in the 3 and 4 north section inby 19 west.

The investigation disclosed that the section insulator switch was installed on the trolley line entering 4 north inby 19 west was closed at the time of the explosion. This switch was located on 4 north, 75 feet inby 20 west. As this section – 3 and 4 north inby 19 west – had been inactive for many weeks, there was no necessity for the power being on the trolley line inby the section insulator.

All three substations were diverting current to the mine at the time of the explosion. It was brought out at the coroner's inquest that there was a difference of opinion between the mine foreman and the fire bosses as to whether the fire bosses should inspect the old workings or do "a more important thing" such as building brattices and that the mine foreman insisted on their doing the "more important thing". It is probable, therefore, that old or inactive workings were not inspected as often or as thoroughly as they should have been.

The new air shaft was sealed at and near the bottom and the small fan installed over it was not in operation.

At the time of the explosion, workmen were closing that portion of the top of the new air shaft which was outside the fan duct. This consisted of placing and securing planks over

the collar of the shaft.

The official party, including several visitors, had reached the vicinity of the new substation when the explosion occurred.

Rescue and Recovery Operations

A farmer, B.H. Pettit, who lived near the new air shaft, and his son were returning from work in a field, toward the new air shaft and saw Ed Dempsey, a mechanic who was working on top of the shaft, blown from the top of the shaft and land 15 feet from the shaft. Pettit immediately rushed home and attempted to report the occurrence to the office at Mine No. 6 but was unable to get them on the telephone, so reported it to the offices of the Sunday Creek Coal Company at Glouster, Ohio, who in turn reported it by telephone to the superintendent's office near the main shaft of Mine No. 6.

The explosion wrecked the stopping or seal at the bottom of the new air shaft, thereby changing the ventilation in a part of the mine.

Six men escaped up the manway compartment of the new air shaft within an hour after the explosion, according to George Rasp, an arc wall machineman, whose version is confirmed in part by Joe Reynolds and B.H. Pettit.

The first man out was George Rasp, followed in sequence by Frank Shumway, Lester Shumway, Joe Reynolds (who was working in No. 11 room of 20 west at the time of the explosion), Steve Butsko, and DeVore.

DeVore was too weak to reach the top of the shaft alone so Ted Beal, (a carpenter who had been working at the top of the air shaft) went down two flights and helped him out. A seventh man, Emerson LeFever, collapsed six flights down and, after about twenty minutes, James Mackey (a fire boss at Mine 255, Ohio Collieries, who was off shift and nearby

when the explosion occurred) went down after him, carried him up two or three flights and called for help, and Ted Beal went down after Mackey and Pettit and another also assisted so that finally LeFever's body was recovered. Artificial respiration was administered for about 1.5 hours but without success.

When the explosion occurred, assistant mine foreman Robert Marshall was at the lower switch on 4 north, i.e., just inby 8 west off main north and he with other nearby men directed, or assisted, at least 111 men from 13 east, 13 west and 16 west entries off 3 and 4 north out 3 north, 8 west and main north.

A party of six led by Marshall found a machineman, Frank Williams, at the door near 16 west and 4 north and though apparently dead and badly burned, they carried him to the fresh air at 13 west and 4 north, gave him artificial respiration for about an hour and finally carried him out on an improvised stretcher. This was the first injured man to reach the bottom of the main shaft, where they arrived at 1:30 p.m., November 5.

About this time, Deputy Mine Inspector Andrew Ginman arrived, and Marshall and others under Ginman's direction erected stoppings at 7 east and 4 north and conducted air up 17 west. They then proceeded up 17 west by erecting temporary stoppings where they

found the first body at No. 11 room on 17 west and as they proceeded up 17 west they found many more bodies.

On reaching 5 and 6 north off 1B west, they proceeded up these entries to 19 and 20 west. After reaching 19 and 20 west, an exploration was made up 5 north where the bodies of the official party were located a short distance inby 20 west on 5 north. One of the men in the rescue party, Jake Maurer, wore a self-contained oxygen breathing ap-



Sunday Creek Coal Company – Fan, new air shaft. Photo Bureau of Mines

paratus a short distance ahead of fresh air at this point and located two additional bodies on a side track off 5 north.

The rescue party made its way to the bottom of the new air shaft, arriving there about 8 p.m., and by calling up the air shaft to Chief Mine Inspector E.W. Smith, informed him that the bodies found were dead.

The rescue party then returned to 17 west off 4 north and at this time was joined by Deputy Inspectors Elmer Sagle and Val E. Brown.

After consultation, the rescue party proceeded up 17 west by building additional stoppings and when about 600 feet from the face Sagle heard someone whistle. This proved to be one of the 19 men behind the barricade, which was found at 9 p.m. Fresh air was conducted to the barricade and the men removed to fresh air where artificial respiration was given to most of them and aromatic ammonia to all of them.

After additional treatment by doctors who were brought in from the outside, the rescued men, all save one who walked out, were carried on stretchers to the shaft bottom, wrapped in blankets and removed to the surface. All of them, after reaching the surface, excepting the one who walked, were given oxygen intermittently for several hours before being removed to the hospital or their homes. The wrapping of these men in blankets and the administration of oxygen probably resulted in the saving of a number of lives as some of them were in serious condition when rescued.

Following the rescuing of these men, the rescue party proceeded outby on 18 west to 5 north and again made their way to the bodies of the official party located inby 20 west on 5 north. About this time, the rescue party was joined by J.J. Forbes and G.W. Grove of the U.S. Bureau of Mines. After a conference the exploration work was continued up 5 and 6 north, and 21 and 22 west off 6 north where another barricade was found at the face of 21 west. On opening the barricade, the bodies of 7 men were located. All of these had apparently been dead for some time. At about this time three additional Deputy Mine Inspectors, Kit H. Jenkins, Thos. Reece, and Andrew Mullen, joined the rescue party. After this the remainder of 5 and 6 north and 21 and 22 east off 5 north were explored. The rescue

party then went to 17 west at 4 north where a mine rescue team from Elm Grove Mine, Valley Camp Coal Company, Elm Grove W.Va., wearing gas masks, explored up 4 north and on to 19 west off main north, finding Andy Kish Jr., the trapper boy, at his assigned station at the sand box at the west end of the switch on 19 west off main north. A fresh air crew following the Elm Grove team then found Clyde Dean, the pumper, on 4 north about 300 feet north of 18 west. Both of these men were badly burned.

By this time it was thought that all of the dead had been located and all bodies then located were taken out of the mine by 6 a.m. Thursday. However, it developed that four bodies were yet to be found, and they were all located – one at the foot of the new air shaft; one on 6 north, 300 feet inby 20 west; and two were located six flights up the air shaft. These bodies were removed by midnight, Thursday.

The State Inspector's Conclusion

It was the conclusion of the Chief, Division of Mines of Ohio, that the gas and dust explosion was probably caused by an arc or spark from a trolley line igniting an accumulation of gas on 21 east off 3 north not far from the efface of 21 east. The arc or spark was caused by a fall of roof carrying the trolley line to a rail. Prior to the report of the Metallurgical Department, Ohio State University, it was held as possible that an open light might have caused the ignition of gas, but subsequent to that report, this possibility was not held.

Investigation of Broken Trolley Wire

Professor Dana J. Demerest, Metallurgical Department, Ohio State University, Columbus, Ohio, after making a metallurgical investigation of the broken trolley wire from 21 east off 3 north, Mine No 6, Sunday Creek Coal Co., concluded that the break in the trolley wire was a new break and that it had arced after it broke.

Coroners Inquest

A coroner's inquest was held in a motion picture theatre at Millfield on Wednesday, November 12, 1930, by the coroner of Athens County, L.F. Jones, assisted by Prosecutor R.D. Williams.

Salient features brought out in the coroner's inquest were:

A. That after the pre-shift inspection, the fire bosses worked on the brattices and doors, i.e. attempted to improve the ventilation of the working places.

B. That on occasion when the fire bosses told the mine foreman they were going to inspect the old workings, he ordered them to do other things in line with their work – that is, build brattices, etc.

C. That the gas accumulation could probably not accumulate in the 3 and 4 north sections between 3 a.m. and the following midday.

D. That because of the apparent lack of coke formation, it was thought by some witnesses that the explosion was of gas only though Deputy State Mine Inspector Andrew Ginman testified that it was a "gas and dust explosion.

E. That the explosion originated in the 3rd and 4th north sections inby 20 west off main north.

F. That the most probable cause of the explosion was an electric arc at the point where there was a broken trolley line on 21 east off 3 north.

G. That it was possible that the explosion was caused by an open light.

Combination of Circumstances which Precipitated the Disaster

The primary cause of the explosion was the accumulation of gas in the 3 and 4 north section. Gas accumulated there because the air was short-circuited. The air was short circuited primarily because the automatic doors were not made and placed. Also the fire bosses had too much work to do.

There is no excuse whatever why wire should have been in the 3rd and 4th north, an inactive section and still less excuse for power being on the wire prior to the explosion. Lack of attention to these important details made possible the ignition of the body of gas.

A fall of roof carried the live wire trolley line to the rail causing the arc which ignited the accumulation of gas resulting in a gas and dust explosion.

Though this mine is classed as gassy by the Ohio Department of Mines, open lights were permitted, and the lack of appreciation of the hazards of open lights in a gassy mine is greatly to be deplored.

Probable Cause of the Explosion

The explosion was certainly caused by an accumulation of gas at 3 and 4 north section, the ignition of which was in all probability caused by an electrical arc between a trolley line broken by a fall and a rail in an inactive section, and there was no reason whatever for power being on the line.

It is remotely probable that the ignition of this gas may have been caused by open lights worn or carried by the pumper somewhere along 4 north inby 18 west off 4 north, for one of his duties was to go 50 feet into 4 north inby 20 west off 4 north to open or close the valve of a water line through which the water was pumped out of this section.

Preventing Eye Injuries

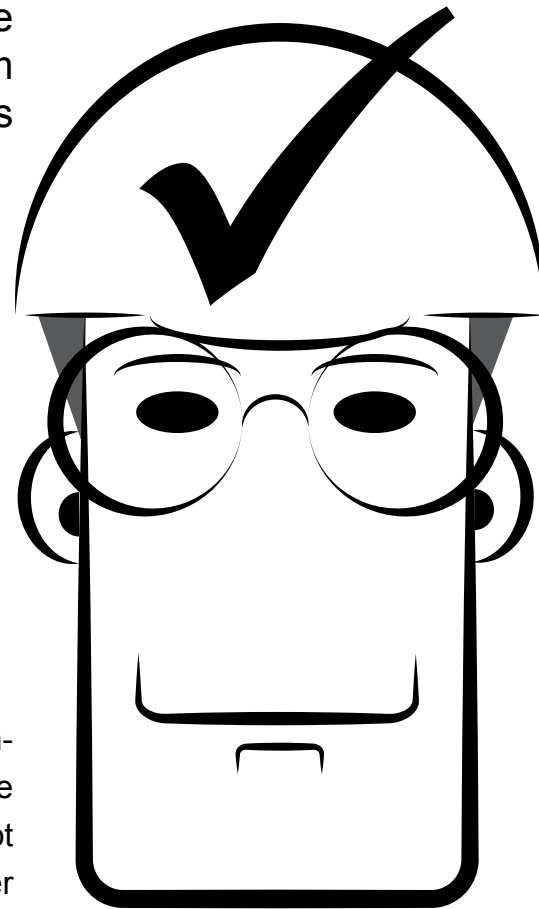
Miners are regularly exposed to workplace hazards that pose dangers to their eyes. From 2000 through 2011, about 3,200 eye injuries occurred in the mining industry.

Eye injuries are most often caused by:

- flying particles
- chemical splashes
- vapors, or dust
- being struck by or bumping into an object
- sparks or molten metal and other hot liquid splashes
- light radiation from welding

Studies have shown that 90 percent of all workplace eye injuries can be prevented when miners wear the proper eye protection. Most injuries occur because the miner was not wearing eye protection at the time of the accident. In other instances, miners were wearing eye protection but the eyewear did not adequately protect against the specific hazard involved. Miners can help avoid eye injuries by:

- Wearing protective eyewear before entering the mine or any other area where hazards may be present
- Using safety eyewear that provides the maximum protection against the specific hazard
- Making sure your eyewear fits properly and comfortably
- Inspecting protective eyewear regularly and replacing if there are defects
- Knowing where eyewash stations are located and how to use them
- Knowing basic first aid for eye injuries
- Storing your protective eyewear where it won't get scratched or damaged, and keeping it clean
- Remembering to step away from the potential hazard if the eyewear is removed for cleaning
- Using antifog material and keeping eyewear on at all times
- Immediately reporting potential hazards that could affect eyes to a supervisor



Protective Eyewear

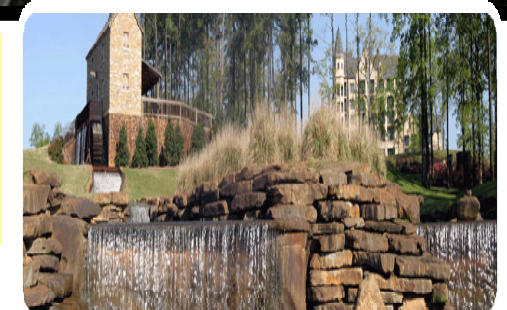
Reach for "Zero"

REGISTER ONLINE-EARLY!!

www.southeastmineconf.org
 "EARN CREDITS/POINTS (CM, CE, CEU, COC) FOR PROFESSIONAL CERTIFICATIONS (CIH, CSP, PE, OTHERS) DETAILS AT [HTTPS://SOUTHEASTMINECONF.ORG/PLANNING-TO-ATTEND.PHP](https://southeastmineconf.org/planning-to-attend.php)

Presenters will include Dr. Bruce Weinstein, Dr. Martha Bidez, American Red Cross, MSHA District Managers for MNM, Coal District 11, & many more presenters!!

Discussion topics will include: Rules to Live By III, Emergency Planning, Wellness, Ergonomics, Industrial Hygiene, Safety Strategies, Safety and Health Management Principles, MSHA Enforcement Measures, Regulations/Trends & Proposed Rules, Company Case Studies & Impact, Inspection Process - Audit Triggers & Potential Fines, Preparation - Compliance & Prevention, Resources & Support That Are Available To You



ROSS BRIDGE CONFERENCE CENTER

BIRMINGHAM, AL

Learn from experts as well as network with others in the mining safety and health profession. Vendors will be on hand displaying the latest products and services for our industry. Hands on demonstrations. Learn about new MSHA enforcement measures and the impact on your location operations .

CONTACT PERSON: **ANDREW D. PERKINS M.S., CIH, CSP**
 PHONE: (205)-298-3894 EMAIL: PERKINS@VMCMAIL.COM

6th Annual Holmes Safety Association
Family Summer Sizzler
 Saturday, July 7th, 2012 10:30-1:00
 Mike Miller Park - in Draffenville
 (in the large pavilion by the playground)

Fun for the WHOLE family

Inflatables

Door Prizes

Giveaways

Lunch

Water Activities

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SAND AND GRAVEL
CO.**

Vulcan
Materials Company

GRAND RIVERS QUARRY



Event Schedule

**Joseph A. Holmes Safety Association
 Western Kentucky Chapter**

Mark your calendar for these upcoming meetings.

July 7

July 7th will be the 6th annual Summer Sizzler Picnic, sponsored by Occunet, Pine Bluff Sand & Gravel, LeFarge West, and Vulcan.

September 11

September 11th Holmes meeting will be sponsored by Kinder Morgan. We are asking the Vice President of Operations to speak at this event.

November 13

November 13th Holmes meeting will be sponsored by Hunter Sand and Gravel. We are asking the company's CEO to speak at this event.





Event Schedule

Joseph A. Holmes Safety Association Central Alabama Chapter

Mark your calendar for these upcoming meetings.

2012 Meeting Dates & Agenda - Time of Meetings: 9:30 a.m.-11:30 a.m.

Friday, July 13

“Workplace Safety and Catastrophe Management.”

Joint meeting with the ABC Safety Executive Committee.

Location: City of Calera Library.

SPECIAL GUEST “Edwin G. Foulke” is a partner with Fisher & Phillips LLP in the Atlanta and Washington D.C. offices. Mr. Foulke was the Assistant Secretary of Labor for Occupational Safety and Health. Named by President George W. Bush to head OSHA on September 15, 2005.

Friday, Aug. 3

“Defense Driving” National Safety Council: 2125 Data Office Drive, Hoover, AL

Friday, Sept. 7

“Fire Safety” AMEREX Corp; 7595 Gadsden Hwy, Trussville.

PLANT TOUR OF THE LARGEST FIRE EXTINGUISHERS COMPANY IN THE WORLD

Friday, Oct. 5

“Aerial & Fork Lifts” Sponsored by RSC @ City of Calera Library

Friday, Nov. 2

“Hydraulic Tools & Equipment Safety”

Sponsored by Alabama Jack @ City of Calera Library.

Special presentation by Bob Andrews, Power Team. Must see program for your Maintenance Supervisors, Safety Team and Mechanical Contractors.

Friday, Dec. 7

“Using Your First Aid Kits for Medical Treatments”

@ G&R Mineral Services, 2355 Alton Road; Birmingham, AL 35210

Special Presentation by Warren Knight of Knight Safety

** For more information please call Danny Callies, G&R Mineral Services @ 205-296-3321

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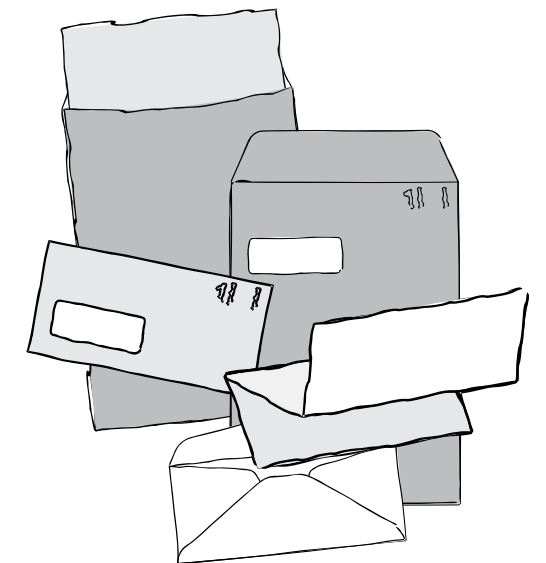
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