#4

Submitted To The Record In Whole For "Safety Standards For The Use of a Belt Entry as an Intake Air Course To Ventilate Working Sections and Areas Where Mechanized Mining Equipment Is Being Installed or Removed; Proposed Rule."

Special Emphasis On:

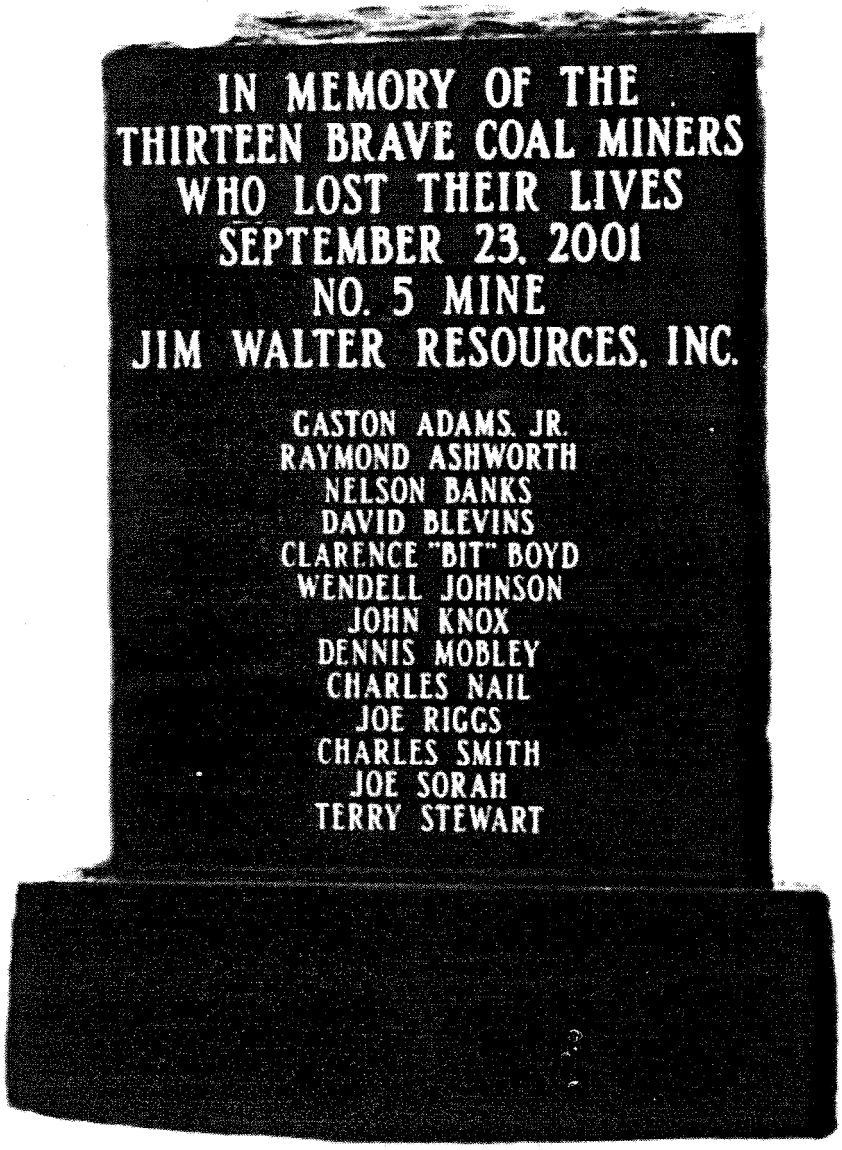
- Failed Emergency Response/Evacuation starting on Page 49
- Float Coal Dust/Rock Dust starting on Page 70
- Operator Required Examinations starting on Page 84
- Post Disaster Health and Safety Improvements starting on Page 112

There are areas highlighted that I will briefly review.

JimWalter Resources # 5 Coal Mine Disaster

September 23, 2001;

A United Mine Workers of America Report



United Mine Workers of America, Department of Occupational Health and Safety

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* Most attachments are at the end of the sections.

Forward

Immediately following the September 23, 2001 explosions at the Jim Walter Resources # 5 Mine, United Mine Workers of America International President Cecil E. Roberts directed the Administrator of the Department of Occupational Health and Safety to take charge of the Union's efforts: in the recovery of the miners who perished in the disaster; the rehabilitation of the mine; and conducting a full and thorough investigation of the coal mine disaster that claimed the lives of thirteen miners. This report contains a review of the recovery and rehabilitation missions, and comprehensive findings on the investigation into the disaster.

Acknowledgement

This report is dedicated to the thirteen brave miners who lost their lives in the tragic disaster on September 23, 2001, their families, the miners who survived the disaster, and the men and women of the Jim Walter Resources # 5 Mine who were affected by the tragic loss of their brothers and fellow miners.

Special appreciation is extended to the mine rescue teams of Jim Walter Resources, Drummond Mining, P&M Coal Company, USX Mining, the federal Mine Safety and Health Administration and the State of Alabama, and the many miners on those teams who were represented by the United Mine Workers of America. The dedication and skills of all these people led to the recovery of the thirteen miners despite the extremely difficult conditions.

Appreciation is also extended to Jim Walter Resources Inc., the Mine Safety and Health Administration, the Alabama Department of Industrial Relations, and the various branches of the United Mine Workers of America for their cooperation and dedication that lead to the safe recovery of the miners lost at the JWR # 5 Mine.

JWR # 5 Mine General Information

The JWR # 5 Mine is located approximately two miles north of Brookwood, Alabama. The mine accesses the Blue Creek coal seam at a depth of approximately 2,115 feet below the surface, through six surface openings. Miners enter the underground area of the mine through the service shaft.

The Blue Creek seam is one of the deepest and most gassy coal seams in the country. The coal found in this seam has an average height of between 57 and 84 inches. MSHA found the mine liberates an average of 17,241,082 cubic feet of methane in a 24-hour period. The methane courses through the mine's return entries and is exhausted through surface fans; some methane is also collected by use of vertical and horizontal drilling techniques.

The mine was ventilated by three main exhaust fans located on the surface at two separate return air shafts. In addition to these two shafts, the mine also has a service (elevator) shaft, two intake shafts and a production shaft. Coal was mined at the faces in two development sections, No. 4 and 6 sections, located approximately 3.3 and 3.6 miles respectively from the service shaft bottom; coal was also mined at a longwall section, located approximately 4.07 miles from the service shaft bottom. Coal is transported to the production shaft by a series of conveyor belts. The production shaft is used to transport raw coal out of the mine.

The mine was opened in 1977 and production began in 1979. At the time of the accident, the mine employed 334 hourly workers, represented by the UMWA and its Local Union 2368, and District 20; 76 supervisors also worked at the mine. During calendar year 2001, to the date of the accident, the mine had produced 1,466,897 tons of clean coal.

At the time of the accident, the three working sections were idled for routine maintenance. Thirty-two hourly and supervisory personnel were underground on the afternoon of September 23, 2001.

Overview of the September 23, 2001 JWR# 5 Mine Disaster

The Explosions of September 23, 2001 - On Sunday, September 23, 2001, in Brookwood, Alabama, two explosions occurred at the Jim Walter Resources # 5 Mine, claiming the lives of thirteen miners. The second explosion occurred approximately 55 minutes after the first one. At the time of the first explosion, at approximately 5:20 pm, 32 miners were working more than 2,100 feet below the surface at different locations throughout the mine. This mine is located in the deepest and most gas-laden coal seam in the United States. The 3:00 pm to 11:00 pm (afternoon) shift was a non-production (idle) shift. Four miners were working on the No. 4 (development) section, about 3.5 miles from the elevator shaft. The crew on that section was building wood cribs to support the mine roof; this roof had been found to be deteriorating two days prior to September 23, 2001. The mine roof collapsed near where they were working. It was followed shortly by an explosion which injured four miners: Michael McIe, Tony Key, Gaston "Junior" Adams (who was close to the roof fall) and Jim "Skip" Palmer (who was about 500 feet away). The roof fall occurred in the #2 (track) entry on top of a large six-ton 64-volt scoop battery suspended from the mine roof. The battery was connected to a battery charger. The first explosion was most likely caused by the scoop battery, which was damaged and short-circuited, igniting methane. One miner, "Junior" Adams, was disabled from the explosion and was unable to move. The communications system was not working and ventilation controls were damaged, and the other three miners with Adams went for help.

Different messages conveyed from various sources regarding the event created confusion among the miners. These messages included that there was an injured miner, a fire, an ignition, and an explosion. The JWR "responsible person" on the surface, who was the management official the mine operator had designated to respond to mine emergencies, was not prepared to handle a major emergency. He failed to take charge of this emergency. Instead, he left it in the hands of an underground foreman. With very limited information about the conditions in the mine, the foreman had to travel the entire distance of the mine to respond. Miners from other areas of the mine began to converge underground, with some transporting three of the injured miners (Key, McIe and Palmer) to safety, while a dozen other miners from throughout the mine rushed toward the accident scene to help "Junior" Adams and to respond to the accident. With precious time passing, no one was directed to establish communications at the accident area. Likewise, no one was instructed to check the gas levels or for ventilation damage. At approximately 6:15 pm – 55 minutes after the first explosion -- a second, and more violent, explosion rocked the No. 4 section sending forces of the blast throughout the mine. Miners who were clear of the explosive forces escaped the mine, but 13 miners remained in the mine, caught by the violent forces.

Rescue and Recovery Efforts – At about 8:00 pm, a mine rescue team entered the mine and explored it. With the communication system destroyed, considerable damage and debris from the explosion, and the threat of another explosion, the team progressed slowly. A second team followed later. One of the miners, Raymond Ashworth, who had survived the two explosions, was found badly burned near the mouth of the No. 4 section. At 11:28 pm, he was brought out of the mine and transported to the burn unit at the University of Alabama at Birmingham. Mr. Ashworth died Monday afternoon. The rescue workers located the bodies of three more victims, also near the turnout to the No. 4 section.

During the rescue attempts, a fire was discovered nearby, on the No. 6 section. Atmospheric readings also indicated a potential for fire on the No. 4 section. Despite rescue efforts throughout the night, the mine rescue team was unable to enter the No. 4 section. Because of high liberations of

methane, and because the ventilation controls were destroyed by the explosion forces, there was a threat of fire and the potential for another explosion. Therefore, on Monday, September 24, 2001, about 13 hours after the explosions, with no remaining hope for survivors, and because of the enormous risk to the rescue workers, the rescue efforts were suspended. The team left the mine at 7:09 am, without retrieving the three victims who had been located, and without locating the other nine miners. Monitoring devices were installed underground to determine the atmospheric conditions. Detailed plans were developed to prevent further explosions, stabilize the mine and prepare for safe re-entry.

To extinguish the fire and create a safe barrier to permit recovery of the miners, nearly 32 million gallons of water were pumped down a shaft near the explosion area. At 9:50 am, Saturday, September 29, 2001, the pumping was completed. On September 30, 2001, a borehole drilled into the No. 4 section was completed, and the atmosphere was monitored and pressurized behind the water seal. On October 1, 2001, mine rescue teams re-entered the mine. Because of both deterioration in the mine (while it was evacuated) and damage from the explosions (including disruptions in the ventilation system), rescue work had to concentrate on rehabilitating the mine up to the water seal at the 3-east turnout, nearly three miles from the elevator shaft bottom.

On October 20, 2001, at approximately 8:00 am, a specially-designed deep well pump (that was placed in the shaft nearest the explosion) began pumping. Extensive and sometimes treacherous work had to be done by the rescue teams to remove the water and re-ventilate the mine. As the teams progressed, air locks were installed to control the air, containing high levels of methane. Using breathing apparatus, the rescue teams worked in demanding conditions: methane, rubble and debris from the explosion was ever-present, temperatures were hot, and visibility was often quite low.

On November 3, 2001, at 2:00 pm, the rescue teams reached the first three victims who had been located on the night of the explosions. They were brought to the surface from the mouth of the No. 4 section (turnout). The victims were: David Blevins, Wendell Johnson, and Joe Sorah. On November 7, 2001, beginning at 5:38 pm, the remaining nine victims were located; near the end of the track on the No. 4 section. The miners were: Gaston "Junior" Adams, Nelson Banks, Clarence Boyd, John Knox, Dennis Mobley, Charles Nail, Sammy "Joe" Riggs, Charles Smith, and Terry Stewart. At 11:50 pm, on November 8, 2001, the bodies of these nine victims were brought to the surface. Thereafter, rescue teams continued recovery efforts in the mine.

Rehabilitation Of and Improvements at the JWR # 5 Mine - On December 10, 2001, after the mine was inspected and deemed safe enough for their return, and with special safeguards in place, miners began to join rescue teams in the rehabilitation operations. On June 11, 2002, the accident control order that MSHA had previously issued was released, allowing mining operations to resume throughout the mine. Several improvements were made at the mine during the post-disaster rehabilitation, including a number of increased safety protections the UMWA was able to gain through cooperative discussions with Jim Walter Resources. Among those were: an overhaul of the fire and evacuation plan; changes in mine examination procedures and examination record books; structural changes to protect batteries and battery-charging stations from damage from roof falls; increased roof supports around power centers and battery charging stations; a new (second) state of the art communications system, along with improvements to the existing system; increased continuous atmospheric monitoring of mining sections to detect methane (including de-energizing the section power center by the methane sensors), carbon monoxide and ventilation disruptions which are awaiting MSHA approval; more strengthened ventilation stoppings and overcasts; revisions in the roof control and ventilation plans; increased training of miners and supervisors on emergency

response and fire fighting and evacuation procedures; and other general improvements. However, a number of other improvements the UMWA sought (affecting emergency evacuation, training and others) were not implemented at the mine.

The UMWA Investigation - The UMWA investigation began shortly after the September 23, 2001, mine disaster. It involved: collecting and examining thousands of documents including company, union, state and MSHA inspection records; a thorough inspection of the JWR # 5 Mine and equipment, including examination of the mine and equipment damage resulting from the explosion; participating in nearly 130 investigation interviews conducted by MSHA; examining numerous mining maps, mining plans, material procurement records and ventilation recordings; participating in the testing of equipment underground at the mine and at MSHA's equipment certification and testing facility; and numerous other activities.

UMWA Investigation Findings - The investigation found that the JWR # 5 Mine is in a coal seam that has a number of abnormal geological conditions, compared to many other coal seams mined. In addition to being in the deepest and gassiest seam, it also has a number of geological faults in the strata that affected both development of the mine and control of the mine roof. A pyrite layer under the mine floor, if not controlled, leaves the threat of spontaneous combustion-induced fires. Thus, this mine requires greater attentiveness.

Federal and State mine health and safety laws contain a number of checks and balances to prevent mine accidents, fires, and explosions. However, when the checks and balances fail, disaster can result. Here, the UMWA investigation disclosed a failure by JWR to effectively manage the mining conditions, and a breakdown in the checks and balances that contributed either directly or indirectly to the September 23, 2001, disaster. These included five problems: 1) a faulty mine emergency evacuation plan; the emergency response to the first explosion was mismanaged claiming the lives of all the would-be rescuers when the second explosion occurred fifty-five minutes after the first one; 2) a failure of the mine operator to adequately control explosive float coal dust, which was found to have fueled the second explosion. (In the three weeks before the explosion, MSHA cited about four miles of float dust in the mine; moreover, dust samples taken in the mine during the investigation disclosed that coal dust was not rendered non-combustible in the area of the explosion); 3) a failure to implement sufficient roof control measures in the area of the mine that had adverse roof conditions. (The No. 4 section had a history of adverse roof conditions, and the roof had begun to deteriorate at least two days before it caved in); 4) a failure to effectively ventilate the mine so as to have sufficient air to continuously render harmless the methane being liberated. (The company had made major changes in the mine ventilation system, but these changes had not been reviewed or approved by MSHA, and ventilation problems existed throughout the active sections prior to the disaster); and 5) a failure to properly conduct examinations of the mine to detect hazardous conditions, to properly record hazardous conditions found, and to properly correct the hazardous conditions, as intended by the federal Mine Safety and Health Act (Mine Act). (Evidence disclosed that the mine operator had instructed examiners not to place certain hazards in the official examination books required by the Mine Act --including the float coal dust violations which were cited by MSHA. Many hazards identified by MSHA and local union examinations affecting ventilation, roof control, float coal dust and others were not listed in the examination books.)

JWR Compliance - The investigation disclosed that the mine operator had successfully implemented a safety program in past years-- by implementing targeted safety programs and increasing the union's participation in safety at the mine, which substantially reduced injuries and violations. It also disclosed that the mine operator abandoned the safety program, thereby allowing

both violations and injuries to rise to the point that the mine had back-to-back years of being the third-most-cited coal mine for violating federal mine safety laws.

In August 2000, in response to the high violations and accidents, JWR moved to expand the union health and safety committee inspections at the mine under the collective bargaining agreement. Over the next year leading up to the explosion, the union committees identified and wrote up more than 2,300 conditions that needed corrective action. These were in addition to the more than 500 violations cited by MSHA during that same period. The company's lack of serious interest in maintaining the mine in compliance with health and safety laws was exemplified by the company representatives' decision to not travel with the local union Health and Safety Committees and MSHA inspectors. The company safety representative also made only rare visits into the mine.

MSHA Enforcement - The UMWA investigation also found that the federal agency charged with enforcing the mining laws, MSHA, did not satisfy its enforcement obligations under the Mine Act. MSHA's enforcement of the Mine Act actually weakened as the compliance problems at the JWR # 5 Mine escalated. As violations increased, MSHA reduced its use of tough enforcement tools. For example, it cited serious violations as "non-Significant and Substantial" (non-S&S) and abandoned its use of "Unwarrantable Failure" closure orders for the repeated violations. Fines were kept low by MSHA's failure to follow-up to see if the company had actually fixed the violations by the MSHA imposed deadlines, and by claiming that most violations affected only "one" miner.

A number of actions and policies implemented by the MSHA District 11 office also undercut the enforcement of the Mine Act, even though MSHA's inadequate enforcement had been challenged by Alabama miners and the UMWA previously. Many of the MSHA enforcement problems the UMWA had complained about were evident at the JWR # 5 Mine. At the time of the explosion, MSHA's District 11 office had one of the weakest enforcement records in the country. The UMWA deems this a factor that contributed to the non-compliance attitude at the JWR # 5 Mine.

Recommendations – A number of recommendations were developed from the investigation. They include: 1) the need for MSHA to reopen the Agency investigation report; 2) having an independent review of the numerous Agency actions and deficiencies identified during investigation; 3) having MSHA use its rule-making authority to institute and apply elsewhere, the improvements needed and implemented at the JWR # 5 Mine following the disaster to prevent similar accidents; 4) strengthening enforcement of the Mine Act in a number of areas found to be deficient; 5) improving the Alabama state mining laws; and 6) overhauling the mine rescue program in the U.S. to replenish the dwindling mine rescue teams and to address safety for miners performing rehabilitation work following mine accidents; and 7) holding a national conference to address accident and mine emergency findings.

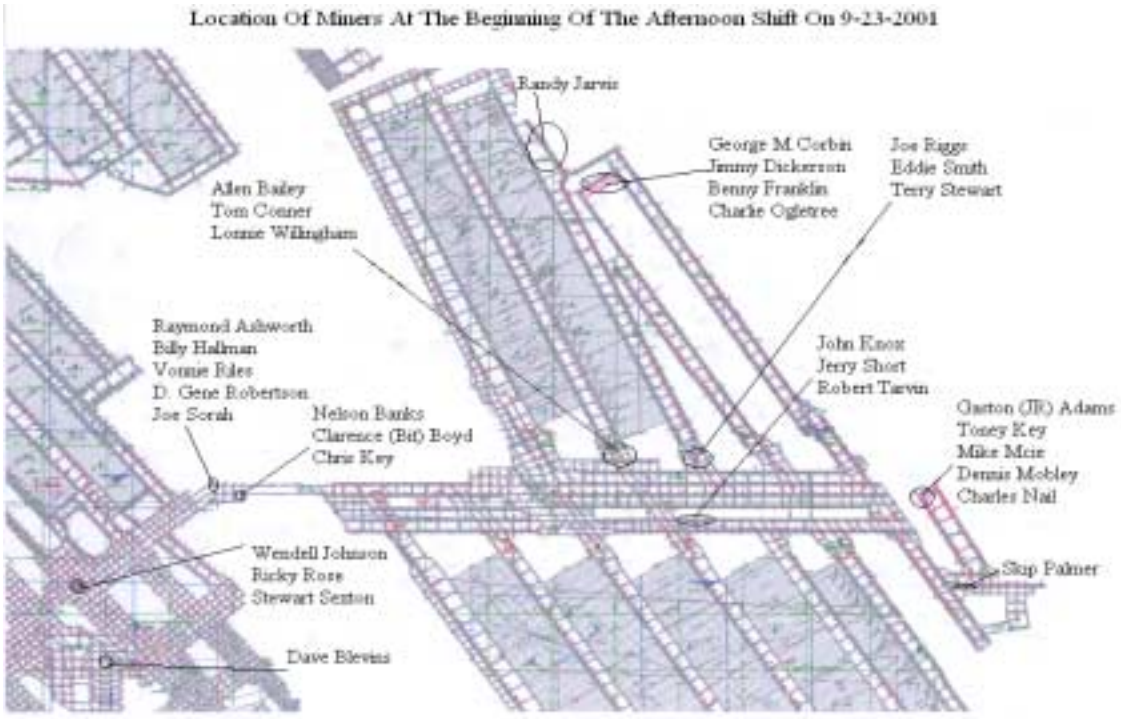
The Events of September 23, 2001

On Sunday, September 23, 2001, 32 miners prepared to go underground to perform "idle-day" work on the 3:00 pm to 11:00 pm afternoon shift at the Jim Walter Resource # 5 Mine. Since the mine did not produce coal that day, the miners were to conduct maintenance and support work underground that afternoon. Prior to the beginning of the afternoon shift, foreman Tony Key, who was located on the surface in the mine foreman's office, took the pre-shift exam call from the day shift foreman, John Puckett. Puckett, still underground, reported to Key the results of his pre-shift examination for the No. 4 and No. 6 sections of the mine. Puckett reported to Key problems with the

mine roof working on No. 4 section at and around the charging station area. Key entered in the official mine examination book that the top was "working" in the charger supply hole intersection and that work was needed on building cribs in that area of the No. 4 section. Tony Key made a note to assign his afternoon shift crew to build the cribs on their shift.

Tony Key, along with Junior Adams, Mike McIe, Charlie Nail, and Dennis Mobley, boarded their buses at the elevator shaft bottom, and entered the mine at or around 3:00 pm. The crews were delayed because the day shift belt crews (that were working on conveyor belts) left their buses parked on the mainline track on the other side of Fault Hill, which is the mainline track area located approximately 5,600 feet from the production shaft, and 13,400 feet from the mouth of the No. 4 section. Gene Robertson, the 3:00 pm to 11:00 pm belt foreman, had assigned Wendell Johnson, Ricky Rose, and Stewart Sexton to go to 1-east to check belt splices. The other belt crew, composed of Joe Sorah, Ray Ashworth, Vonnie Riles, and Billy Hallman, along with foreman Gene Robertson, were at 2-east belt drive to do belt repair work. Approximately forty-five minutes after entering the mine, traffic started moving, making it 3:40 or 3:45 pm, according to the miners. According to Key, his crew arrived at the No. 4 section at around 4:00 pm. Nail and Mobley were going to move the continuous miner into the face of the #1 entry, while McIe and Adams were to build cribs in the #2 track entry.

Key reported that he traveled to the end of the track and walked toward the area where Puckett had reported the top working, occasionally stopping to see if he could see or hear the top working. He stated that some rib rolling had occurred, but he had not noticed any excess loading on the pins (roof bolts). Key said he saw the cement block brattice behind the charger taking weight and cracking, and he noticed a hole in the brattice; other miners made the same observations. Key proceeded to the power center (which was approximately 150 feet inby the charging station at the next crosscut between the #1 and #2 entries) where he indicated the left rib, looking inby, was also taking some weight.

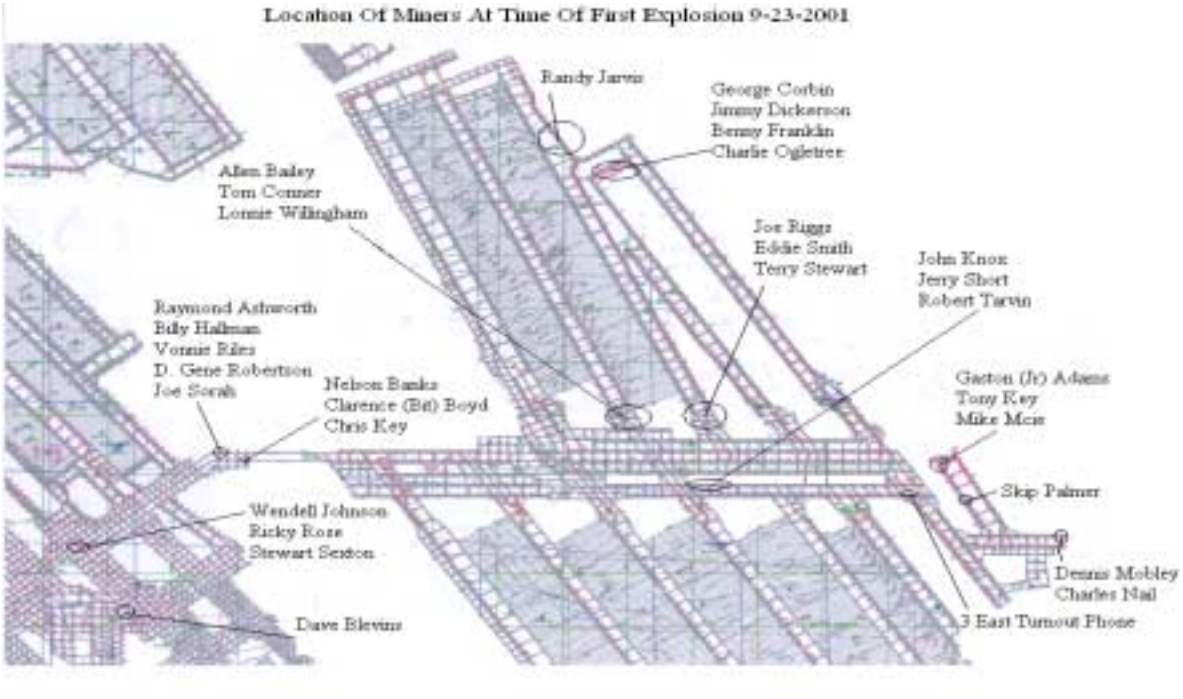


During this same time, Mike McIe got the low track, a diesel-powered utility cart, in the supply hole and started bringing cribs from the flat car at the end of the track, while Junior Adams searched for a shovel to begin building the cribs. Tony Key proceeded to the faces where he examined the #1 and #2 faces. Key stated that he checked the face of #1 and the face of #2 and found three-tenths percent of methane (CH^4) at both faces. After Key made the on-shift face examination, the power was set on the continuous miner and Charlie Nail and Dennis Mobley trammed the continuous miner into the face of the #1 entry. Adams and McIe were building the first crib outby the charger area in the track entry when Key called the afternoon shift outby supervisor, David Blevins, who was located on the bottom at the mine elevator. Key told him that they were going to need a metal brattice at the charging station to repair the damaged brattice before the end of the shift so that the next shift could produce coal. Nail and Mobley finished moving the miner up to the #1 face. They hung miner cable across the intersection so it would be ready for the 11:00 pm to 7:00 am production shift. Key asked Nail to help him under the back drop/line brattice curtain. Key did this so he could go down the #1 return to look at the backside of the brattice to see what the entry looked like, and to assess the damage of the mine roof and the brattice. Key reported a lot of pressure on the curtain making it hard for him to get under it, which was why he needed Nail to help lift it. Key reported that the #1 return entry was clear, with plenty of rock dust, and he did not see any float dust. He continued down the #1 return entry to the backside of the brattice where the battery charger and battery were located. He noted that there were a few 4-by-4 timbers that had not been taken out, and which had been temporarily set before the brattice was built. He described the timbers as busted, cracked, and split open, indicating the area was taking weight. A hole, approximately 2-feet by 2-feet, was in the cement block brattice wall at the battery charging station. Key continued down the return, eventually coming out of the man door located in the next crosscut down. This placed him in the track entry where Junior Adams was building the first crib.

Junior Adams had just finished building the first crib, having already capped it off, when Key arrived to help Adams build the second crib. Charlie Nail and Dennis Mobley were leaving to go to the No. 6 section. Key told them to go around because he did not want them to walk in the bad top area of the track entry around the battery charging station. After Key and Adams built the second crib in the track entry, Mike McIe brought up the last bundle of cribs from the flat car. All three men built the third (and last crib), located 7-foot or so inby the crib located on the right-hand side in the track entry. McIe and Key both stated that it sounded like the top was taking more and more weight. After they built the third crib, they did not have enough material to build any additional cribs to secure the area. McIe and Key reported that they had started building the cribs 60 or 70 feet outby the intersection because the top was working from the intersection of the charger all the way out. They noticed there was a slip running diagonally across the track entry through the charger, diagonally across the charger intersection and into the #1 entry. In fact, the top seemed to be working all the way out to the slip according to Key, and that is why they decided to start building the cribs where they did. Key stated he did not want to start inby and have the top falling in outby their work area. Key heard Skip Palmer come in with a motor at about the time the top started working more. Key and McIe stated they could see water dripping out of the top when they arrived at the section but, by this time, they could see that it was starting to pour into the intersection, running steady streams of water.

McIe and Key stated that they heard several loud thumps above them, like pins breaking. Then they heard more pins break. Key stated he first saw one small rock fall in the intersection, then a large rock fell, and then the whole intersection came in. He was going to call the CO room (the office located on the surface that monitors carbon monoxide activities underground and maintains underground and surface communications), so the CO supervisor could notify MSHA that a major rock fall had occurred on the section. Key stood there for about a minute talking about the fall with

McIe and Adams when he decided to call and report the damage. As soon as he turned and took three or four steps down the track entry, he heard what he described as some "bumps". The next thing Key recalled was being thrown through the air with gravel, rocks, dirt, and other loose things hitting him in the back. Key later realized this was the first explosion.



Key had to struggle with his self-rescuer because his fingers hurt from trying to grab the ground when he was knocked down from the explosion. While being rolled from the explosion his fingernails tore back, making it hard to open the lid release tab on the rescuer. After getting it open, he got the hose out, pulled the plug out, stuck it in his mouth, and got the strap around his neck. Key stated that he initially had to remove the bottom to activate the unit, but when he finally removed the bottom, the oxygen lever would not come out. Finally, Key was able to activate the self-rescuer.

He stated he then heard Mike McIe say something, and heard Junior Adams moaning loudly that his back was hurting and he could not move. McIe said his ribs and his head were hurting. The force of the explosion was so great that it knocked the cap lights off of Key and McIe. Key reported that he did not take any methane readings, though he could hear his detector (a model 412 multiple gas detector) going off. Because it was not making a constant beep he did not know whether it indicated low oxygen, high methane or CO. He did not take the monitor out of his pouch to look because he could not have seen it due to the dust.

After a short while, McIe found Adams' light. McIe stated that the light did little good because there was so much dust in the air it was impossible to see. Key made his way over to McIe and the two of them started working their way towards the track. McIe said Adams was badly hurt and he had rocks on him. McIe and Key realized they needed help in order to get Adams out of the mine. The two of them locked arms so they would not get lose from each other in the dust. They found a telephone line located in the middle of the track entry and followed it toward the motor. The visibility was so bad that they reported bumping into an empty mine car before reaching the motor. Even though the light on the motor was on, they could not see it because of the dust. When McIe and

Key got to the supply motor, which was parked up the track, Skip Palmer was getting up off the ground where he had been knocked over from the explosion. Palmer, shaken but able to walk, asked Key what had happened. Key told him that a rock fell and an explosion had occurred on the section around the charger station. Palmer stated that Key told him he thought the rock fall occurred on the scoop battery because the scoop battery was in the crosscut between #1 and #2 entries, on the inby side of the intersection. Key and McIe stated they could not tell if the rock fall completely covered the battery, because it was a solid wall of material and they could not see over it.

McIe, Key, and Palmer then got on the motor to leave the section to get help for Adams. They rode down the track where they met Charlie Nail and Dennis Mobley at the overcast. Key said that Nail and Mobley told them they could not go any further because the overcast was out. Key, Nail, Mobley, McIe and Palmer walked up to the No. 4 section switch to find a telephone to call the CO room and give notice of what had happened. Key told Nail to make sure the vacuum breaker at the mouth of the No. 4 section was off and, if it was not, to knock it off so the power would be removed. Key and Mobley started walking out the track, about a crosscut outby when a motor approached with John Knox as its operator. Knox, who had just came from the Sub-B Belt, took Key and Mobley on the motor up the track to a phone at the 3-east turnout**.** (Knox told Key he had stopped on his way in and tried to use that phone but it had not worked.) After several tries, Key got a dial tone and called Harry House in the CO room. This underground telephone that Key used was located approximately one-half mile from the fall where Adams was located on the No. 4 section. Key told House they had a rock fall and an explosion on the No. 4 section and it had taken out the overcast. Mobley and Nail had told Key it had also taken out brattices on the No. 6 section. Key told House that they needed help, asking House to call for ambulances, a helicopter and mine rescue teams, and to shut off the power in the mine. At about this same time, Knox came back from the phone at the other end of the 3-east cut-thru and reported to Key that the phone there did not work. Key told Knox that he had already talked with Harry House. Mobley and Knox got back on the motor to go back into the No. 4 section to help get Junior Adams out.

Palmer and McIe then arrived on the motor that Knox and Mobley had taken to the No. 4 section switch. Mobley, Palmer, and McIe had brought out the loads (that were supposed to be brought to No. 4 section) to free up the manbus that was inby so they could use it to transport Junior Adams out of the mine. They stopped at the 3-east turnout where Key got on the motor with Palmer and McIe. They then traveled outby to the next kickback where they met up with other miners coming towards the accident scene.

According to Ricky Rose, sometime between 5:15 to 5:30 pm, House sent a phone page to either Gene Robertson, Dave Blevins, or the belt crew. Wendell Johnson went over to the phone at 1-east belt to answer the phone page. Johnson came back to where Rose and Stewart Sexton were working on the belt and said that House reported an "ignition" on No. 4 section and needed people to go there to help put it out. (House, however, has reported that he thought he spoke to Robertson. House said he advised him of an explosion and a roof fall that had occurred on No. 4 or 6 section, that people were down, and to go there to help.) After Johnson, Rose and Sexton completed the belt splice, they proceeded toward the No. 4 section. Knowing that this mine had experienced ignitions on the No. 4 section in the past two or three weeks, Rose said he did not think anything of it. He thought he was going to put an ignition out just like the ones before.

Sexton, who was driving the bus, proceeded down Fault Hill until he got to the area referred to as the "swag". Sexton stopped the bus, got off, and ran in to tell the other miners that the CO room

said an fire had occurred on No. 4 section and that help was needed to put it out. Sexton then came back and, Rose, Ray Ashworth, Vonnie Riles, and he got on the bus to go back to the 2-east header to pick up Robertson. They backed the bus up, picked up Robertson, and proceeded up Big Fault Hill towards the No. 4 section.

After Riles overheard Sexton tell Robertson of a fire on the No. 4 section and while heading towards No. 4 section on the manbus, Riles told Rose and Sexton that they ought to be going outside, that he did not like the idea of going to fight a fire, and that it did not make sense to be going this way. Sexton agreed. When they got to the area identified as "the car wash switch" (located between 2-east header and F headgate), they saw Dave Blevins on the bus, as well as Jerry Short and Robert Tarvin getting on it.

When they got up to D panel kickback, a bus came from the direction of the No. 4 section which had Chris Key, and the injured Tony Key, Mike McIe, and Skip Palmer. McIe told Rose that Junior Adams was still on the No. 4 section and to make sure that they did not forget to go after him. Before Tony Key left, he stated he had told Gene Robertson and Dave Blevins that there was danger of another explosion because of the battery under the fall. At that time, Tony Key also told Robertson and Blevins "he Thought the battery might be on fire, and he knew it could set off the gas". Tony Key also said he "knew the ventilation was also interrupted, and he thought the battery was on fire". Dave Blevins told Chris Key to take Tony Key, McIe, and Palmer to the bottom; Chris Key left with the injured miners and headed to the bottom.

The others took one bus out of the switch and put it on the track going towards the No. 4 section. Rose reported that Dave Blevins said "I need three volunteers to go help fight this fire and you may need to wear your rescuers." Rose said he did not think anything about wearing the self-rescuers because McIe had said the scoop charger or battery was on fire. Joe Sorah, Ray Ashworth, and Wendell Johnson got on the bus with Dave Blevins and drove towards the No. 4 section. Blevins instructed Robertson to take the other bus and go to the phone at 459 switch to call the CO room for some ambulances for the men coming out, and to then return to help.

Ricky Rose, Vonnie Riles, Stewart Sexton, and Gene Robertson got on the bus to call outside for the ambulances. Jerry Short, Billy Hallman, and Robert Tarvin stayed at the switch. Within a minute or two Dave Blevins went towards the No. 4 section on his manbus, Rose, Riles, Sexton, and Robertson left towards 459 switch on their manbus. When they got to 459 switch, there was a bus sitting in the switch towards the longwall section. This bus had Benny Franklin, Charlie Ogletree, Dave Dickerson, and Mike Corbin, who made up the crew that had been working on the longwall section.

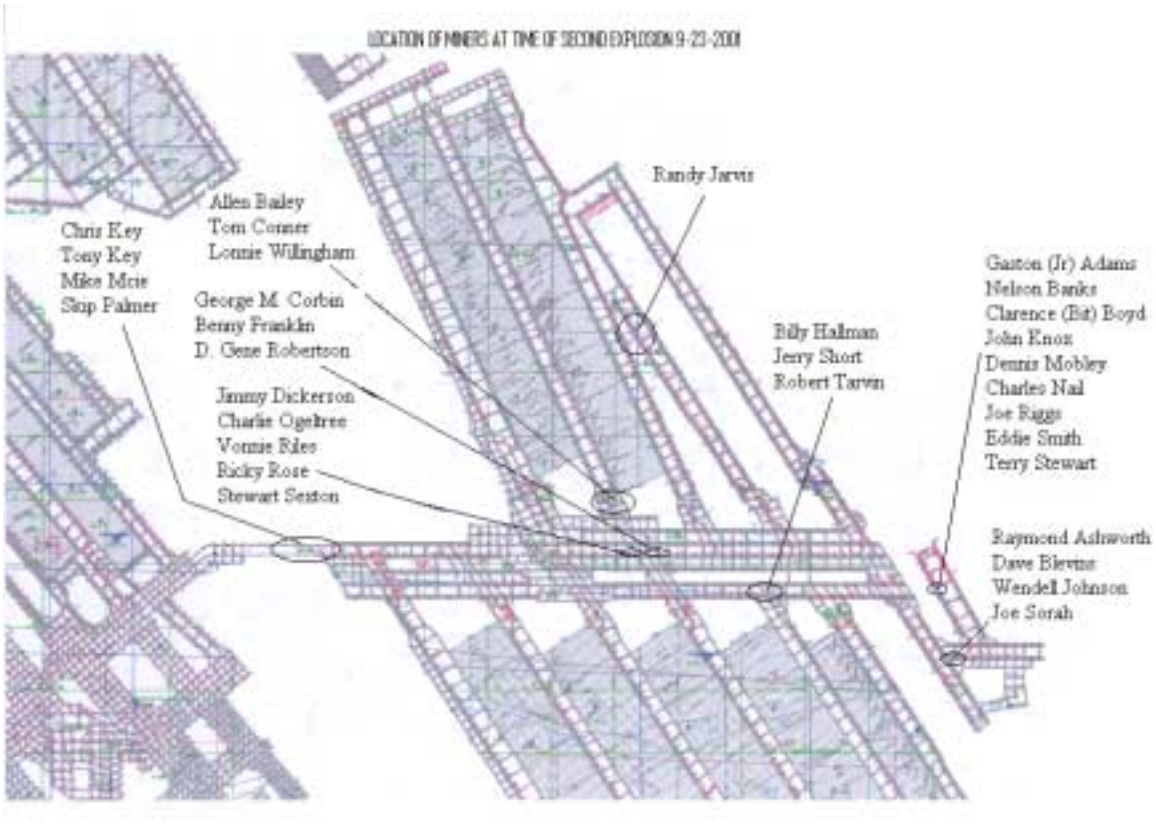
Robertson got off the manbus when Franklin asked what was going on. Robertson said he had to call an ambulance for the guys coming out of No. 4 section and that they had to go back to the No. 4 section to fight a fire. Ogletree told them to move the bus out of the track because they were going to go to the bottom. Ogletree said that when he called the CO room he was told that there had been an "explosion" and they were instructed to get out of the mine. As soon as Ogletree said that, Rose reported that it was "like time stood still. At first they felt the air flowing in the direction it is supposed to go, running over their head, and then all of a sudden it was as if someone had cut the lights off, with nothing at all moving and it became deathly quiet." This happened within a couple of seconds. The force hit them so hard that it picked them up and threw them down the entry. There

was so much dust from the explosion that the miners at 459 switch claimed they could not see their own hands in front them. Riles, Sexton, and Ogletree began yelling to get out before it exploded again. These miners quickly headed for the bottom. When they got to the bottom the elevator was on top. Rose picked up the phone and called out for the cage. After waiting several minutes and three attempted calls, the cage finally came down. They got on the cage, and headed out, riding in complete silence.

At the beginning of the afternoon shift, Lonnie Willingham, Allen Bailey, and Tom Conner had been assigned to put curtain in for the seals located one turnout past the "car wash". Connor recalled that it was in the second set of entries that would go to the left off of the mainline that were designated as the areas where seals were to be installed. They were working at the end of the track. At about 5:20 pm, they were getting all the hoses ready for the seals when they heard what sounded like a brattice door slam. Though it got dusty for a couple of minutes it cleared up, and they went back to work. It was approximately forty-five minutes later, while they were starting to eat lunch, that they heard what sounded like a big rock fall, over in the return. They could hear the brattice doors opening and slamming down the line. It got so dusty that they could not see. They first noticed that air reversed on them for about seven or eight minutes, then the air stopped, and then rushed back in. They sat there for a couple of minutes, waiting for it to clear up. There was a phone beside them and they could hear Harry House calling for Dave Blevins or Gene Robertson. Conner grabbed the phone and called the CO room. He asked House what happened because it was so dusty they could not see. House asked Conner who he was and for his seniority number. House also asked, where they were, how many people were there, and what boss was with them. House then said for them "to quit whatever they were doing and come out immediately". Conner had asked House, a second time, what happened but House said, "he could not tell him but said not to waste any time, and to quit whatever you are doing and come out immediately". House told them when they get to the bottom, the elevator will probably be on top, there is a phone, and to call out and they will let it down to them. Conner, Bailey, and Willingham loaded up, getting their respirators out of their pouches and in hand because it was extremely dusty. They got on the bus, went out to the mainline track and to the bottom to the elevator. At the bottom, they called out for the elevator and, when it was lowered, they got on and traveled outside. As soon as that elevator hit the top, John Aldridge, a member of the mine rescue team, was standing by the elevator getting breathing apparatus ready. That is when Conner, Bailey, and Willingham first realized that there must have been an explosion.

For the first part of his shift, Randy Jarvis was on the other end of the mine, where he had been assigned to fireboss, monitor, and pump water in the area on the tailgate of the longwall. While in this area, Jarvis started getting, what he believed to be, "rock dusted". Not having a dust mask with him, he came out of the longwall panel, got on the bus, and drove out of the headgate side. When Jarvis got up to the mouth of the longwall, the dust cleared. Thinking everything was okay, and noticing it was around 6:00 pm, Randy decided to eat lunch in his jeep at the end of the track on the tailgate. As he finished eating his sandwich, Jarvis heard a rumble that he described as sounding "almost like thunder." Thinking the air had reversed and that maybe they had lost another overcast (something he stated happened before in this mine), Jarvis walked up and found a telephone at the power center where he called the CO room. Jarvis spoke with House and asked House if "they lost an overcast or something?" Jarvis stated that House replied "yes" and told him to come out. When Jarvis got to the overcast, (the one he thought might have gotten sucked in) the overcast was still intact but the entry was dusty, and he continued to travel outby; at the mouth of the section, it was still very dusty. When he got to the main line and started on the way out to the track where it branches to the other side of the mine at 459 crossover switch, he saw two cap lights along the track. He went in that direction, and saw a third light look flagging for him to come in that direction. He

continued and came upon Jerry Short, Billy Hallman, and Robert Tarvin, who had been walking out on their way towards the bottom. Tarvin told Jarvis that they needed to get out of the mine "because a second explosion had occurred". Jarvis was surprised at this information because he had not known that any explosions had occurred. They got on the bus and headed for the bottom. When they got down to the bottom nobody else was there. They had to wait for a couple minutes for the cage to come down. By the time the cage got to the bottom, nobody said anything. They got on it and went outside. When they got to the top of the shaft, they saw rescue vehicles and ambulances, and realized a disaster had struck.



Of the 32 miners who went underground on the afternoon shift on Sunday, September 23, 2001, 19 escaped to the surface and thirteen did not. These 13 were: Dave Blevins, Wendell Johnson, Joe Sorah, Gaston "Junior" Adams, Nelson Banks, Clarence Boyd, John Knox, Dennis Mobley, Charles Nail, Sammy "Joe" Riggs, Charles "Eddie" Smith, Raymond Ashworth, and Terry Stewart. Three miners who initially survived the explosions were transported to the hospital that evening: Tony Key, Jim "Skip" Palmer, and Mike McIe.

Many miners gave testimony to help make this report possible. It should be noted that because of differing individual memories of the events and how they were recalled, some points of views, as written in this report, vary.

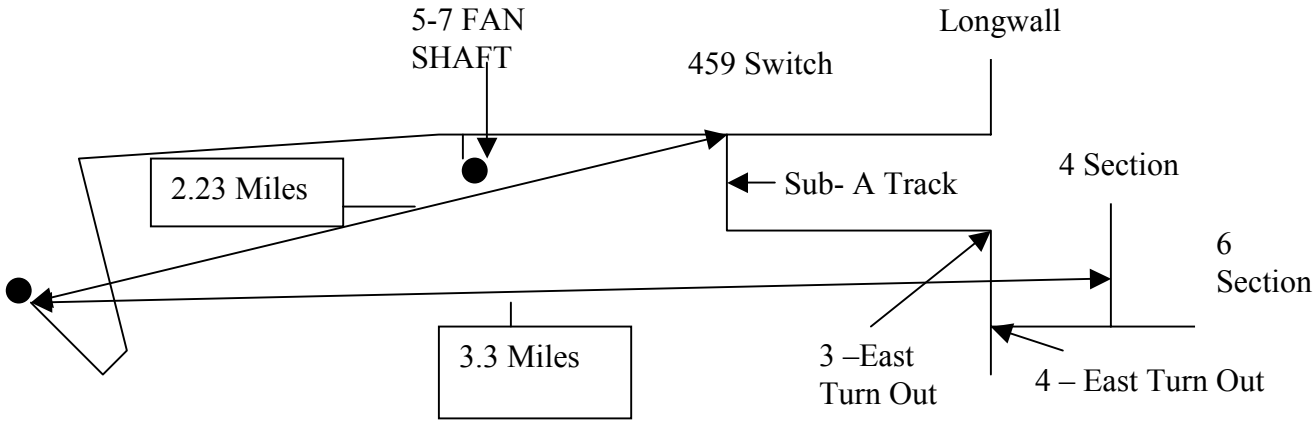
The investigative team attempted to clarify the times of the first and second explosions. After careful review of the interviews, the fan charts, and the information collected from the data stored in the CO system (a computer that collects underground atmospheric activity), the team determined when various events occurred. It is now believed that the first explosion occurred at 5:20 pm and the second explosion occurred 55 minutes, at later about 6:15 pm.

Rescue and Recovery

Following the evacuation of the JWR # 5 Mine after the second explosion on September 23, 2001, a mine rescue team entered the mine at 8:00 pm, to search for the thirteen missing miners. The team consisted of Dale Byram, Ricky Lewis, Mike Corbin, Mark Aldridge, Dale Johnson, John Aldridge, Ken Russell, and Charlie Whitehead. The rescue team arrived at the #7 switch at 8:12 pm.

At about 8:34 pm, the rescue team arrived at 5-7 shaft, where they detected 160 parts per million of carbon monoxide going toward the fan shaft. There were no signs that anyone had come through the escapeway door; there also were no signs of anyone traveling in the escapeway at that point. The rescue team arrived at 5-8 shaft at 8:45 pm. The rescue team de-energized the power inby and arrived at the top of Little Fault Hill at 8:53 pm.

By 8:59 pm, the rescue team had traveled over two miles underground, arriving at the 459 switch. The rescue team was required to return to this location at designated time frames to communicate with the Command Center since the communication system was inoperative inby this point. Traveling inby from this point down Sub-A Track, the team smelled smoke and observed some damage to a metal ventilation overcast.



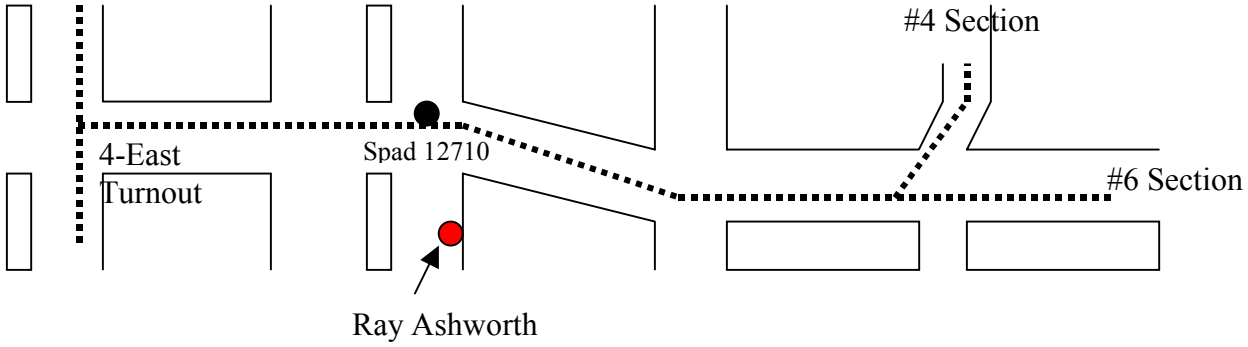
At 9:15 pm, the Command Center instructed a crew on the surface to start removing metal panels off the fan housing at the 5-9 shaft and an Emergency Hoist Truck was dispatched to that location. Instructions were given to park the Emergency Hoist Truck at this location once the panels were removed. Spare cap lamps (some turned on) and hand held communication radios were to be placed in the capsule and then the capsule was to be lowered to the bottom of the shaft. At 10:10 pm, the capsule was dropped into the 5-9 shaft.

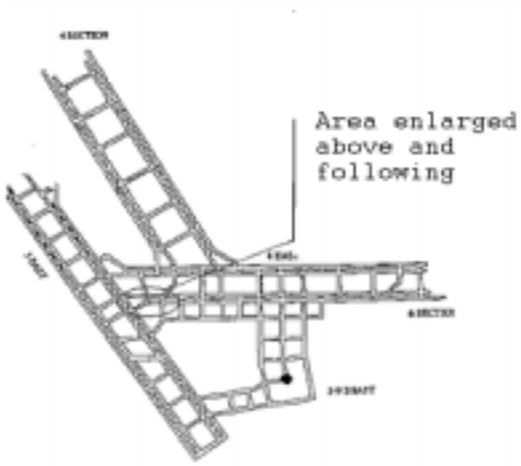
The rescue team advanced inby to 3-east where they observed significant damage, which included damaged ventilation stoppings, overcast, and significant debris and material. The team had to move debris out of the track way in order to progress.

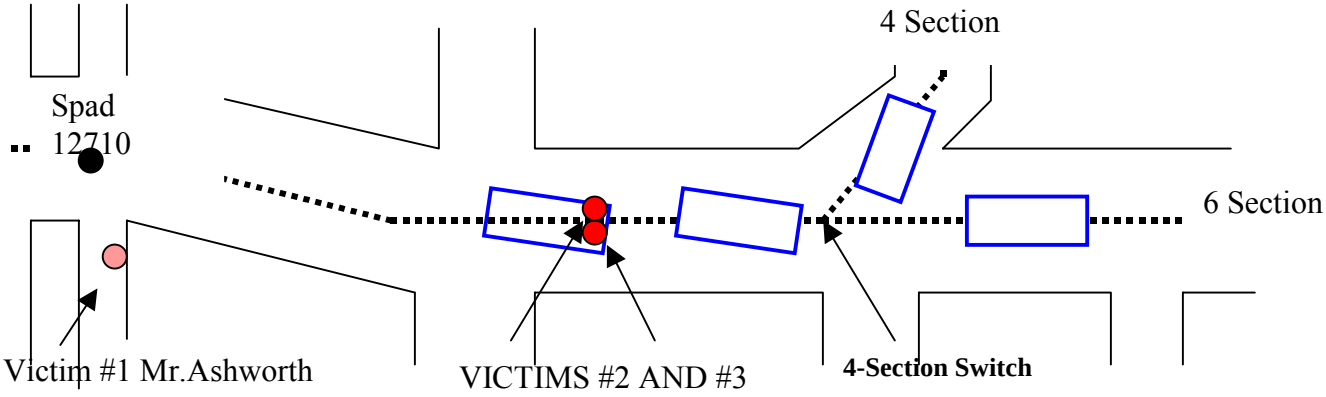
The rescue team moved material out of the track way to 4-east turnout. The rescue team manbuses could not advance further because of the large amount of material on the track. The water line was observed broken at this location.

The rescue team began advancing east on foot inby this point. They had advanced approximately 225 feet when they noticed that there was a man sitting up on the left rib. They started providing initial care and learned that he was Mr. Ray Ashworth. While some members of the team

cared for Ashworth, another part of the team went inby in the track way to make an immediate search of the area for other missing miners. This part of the team immediately returned, reporting that they had found two bodies. Ashworth was loaded into a stokes basket and prepared for transport. Two team members traveled with Ashworth to the surface.







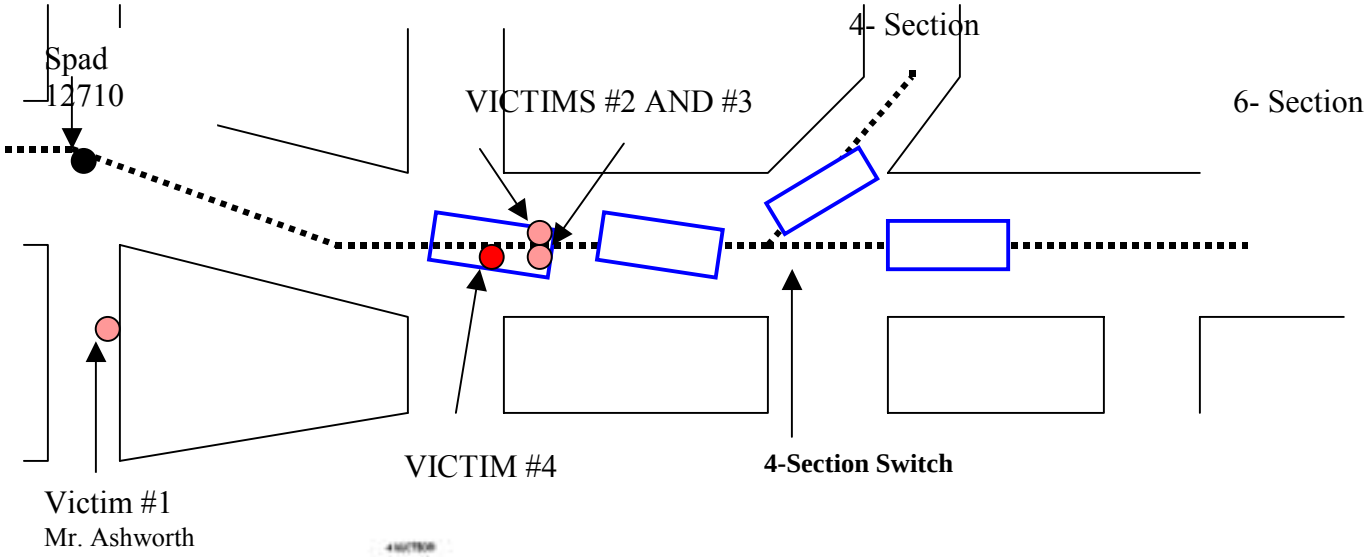
At 10:55 pm, a second mine rescue team entered the mine with phone and phone line.

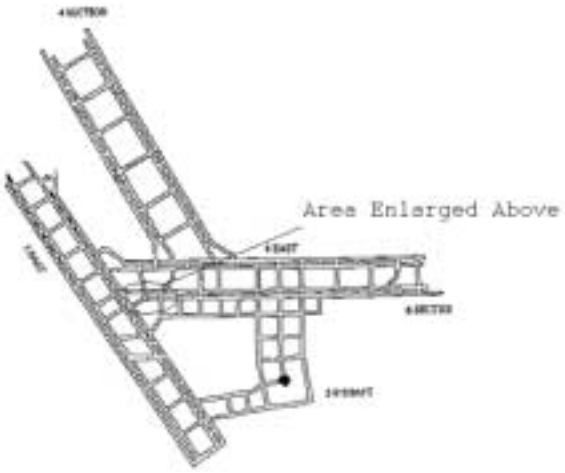
At 11:08 pm, the first rescue team notified the surface Command Center in a call from 459 switch that two team members were coming out with Ray Ashworth. The second mine rescue team was put "on hold" on the bottom.

While Ashworth was being transported, the remaining part of the first mine rescue team traveled to the bottom of 5-9 shaft. They found the spare cap lamps and communication radios in the hoist capsule at the bottom of the 5-9 shaft as planned. However, all of this equipment was found to be inoperative. It had been submerged in water that had accumulated in the shaft bottom area.

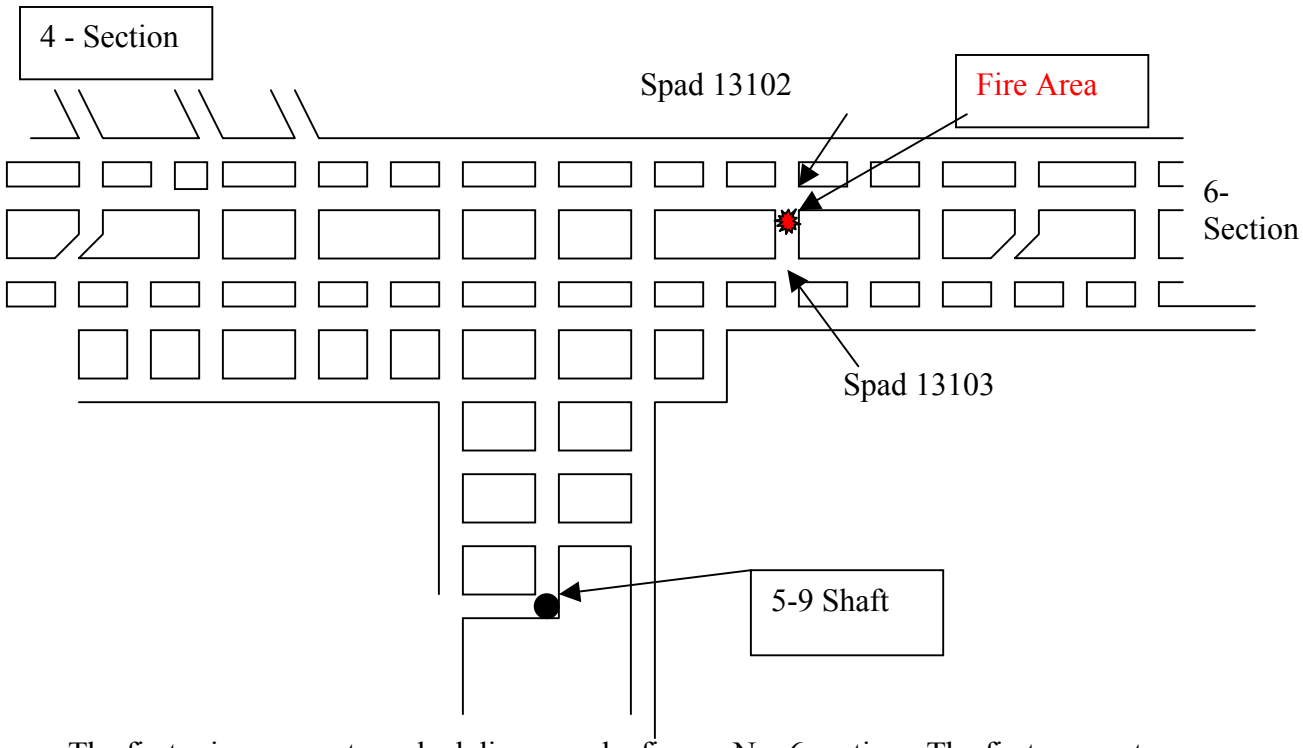
At 11:28 pm, Ray Ashworth was brought out of the mine and the second mine rescue team was allowed to advance inby. Ashworth was immediately transported by Alabama Lifesaver helicopter to the U.A.B. Trauma Center in Birmingham, AL.

After traveling to the bottom of 5-9 shaft, the first rescue team traveled back different routes to where the two bodies were located. As they approached this area, a miner's belt was located and shortly thereafter another body was discovered under one of the buses. The team retreated to 459 switch and reported this to the Command Center at 12:05 am, September 24, 2001.





At 12:30 am, with nine miners still missing, the first mine rescue team was instructed to explore No. 6 section, while the second rescue team ran a phone line towards 3-east turnout. This continued until 1:57 am, at which time it was reported that the second rescue team had run out of phone line 200 feet outby 3-east turnout.



The first mine rescue team had discovered a fire on No. 6 section. The first rescue team was instructed to work toward putting a water line together for fire fighting purposes. That work continued until 3:32 am, when the Command Center instructed two members of the second mine rescue team to go inby to get the first mine rescue team to return to the Fresh Air Base.

At 3:53 am, both teams were at the Fresh Air Base. At this time, the water line was not repaired and they still did not have enough fire hose to reach the fire.

At 4:23 am, a third mine rescue team entered the mine. The second mine rescue team was still working on advancing communication line.

At 5:27 am, the first rescue team was instructed to leave the Fresh Air Base and travel to the surface. The second rescue team was instructed to make specific checks at specific locations.

At 5:44 am, the second rescue team reported to the Command Center that the #4 return entry of No. 4 section was intaking instead of returning. The air quality at this location was 21% oxygen, 50-ppm carbon monoxide and 0.5% methane.

At 6:02 am, the second mine rescue team reported the air quality reading for the #1 return entry of No. 4 section was 20.3% oxygen, 162 ppm carbon monoxide and 3.1% methane.

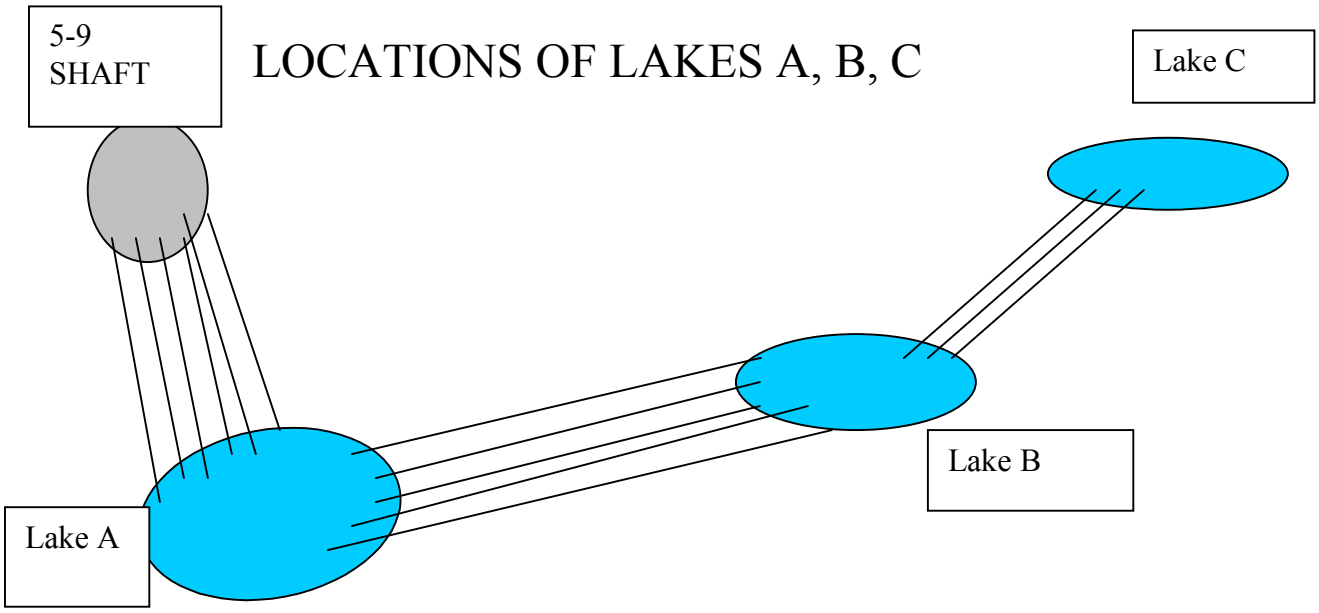
At 6:09 am, the second mine rescue team reported that all ventilation controls were out across the mouth of No. 4 section. At this time the mine rescue teams were instructed to back out to the Fresh Air Base located at 4-east.

At 6:21 am, the Command Center contacted the Fresh Air Base and notified all mine rescue teams to retreat from the mine. By 7:09 am, all mine rescue team personnel were outside and accounted for. The decision to evacuate was based on the high carbon monoxide and methane levels, the degree of destruction, and the fire in the mine. At this time, twelve miners remained underground, and rescue teams had located three of the twelve remaining victims.

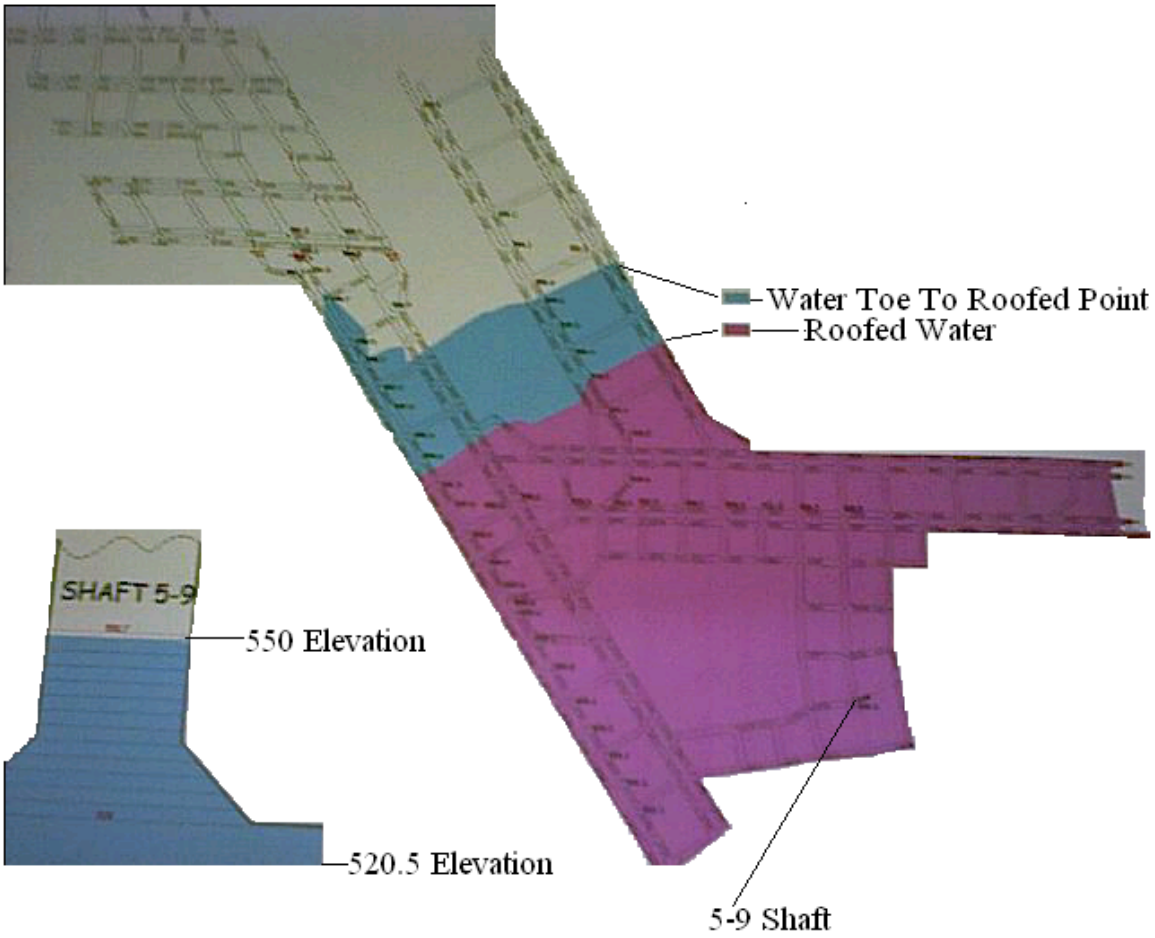
At approximately 2:00 pm, Monday, September 24, 2001, notification was received that Ray Ashworth had died at the hospital.

At 12:20 am, September 25, 2001, a meeting was held between JWR, MSHA and UMWA officials concerning a plan to start pumping water into the 5-9 shaft to prevent further explosions due to fires underground. These parties agreed to flood and stabilize the mine from the surface before mine rescue teams would again be sent underground. At 1:22 am, on September 26, 2001 the first pump was started. By 2:30 am, five pumps were pumping water into the 5-9 shaft from a lake on the surface (Lake A). Estimates indicated that 32 million gallons of water would be needed to provide a water seal inby 3-east turnout. Estimates also indicated that Lake A, which is located near the 5-9 shaft, contained only approximately 23 million gallons.

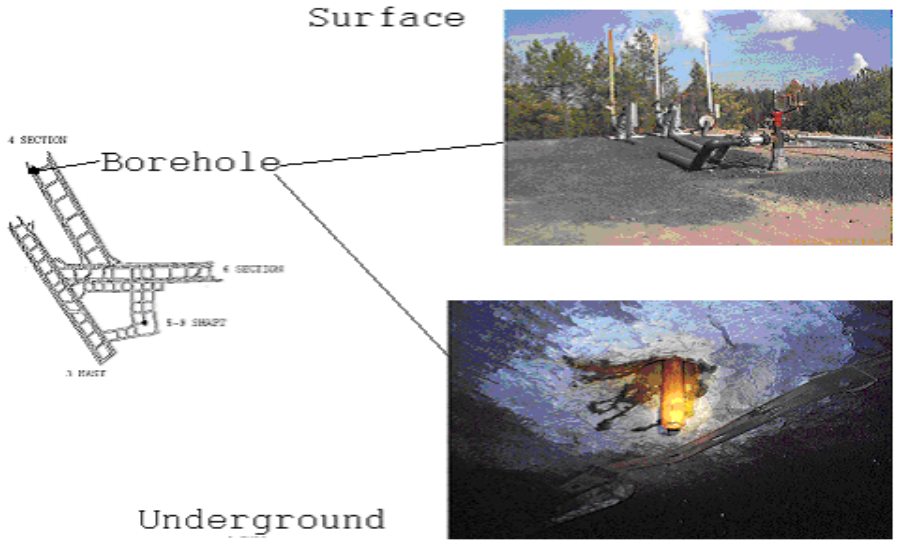
From September 25 through September 30, 2001, considerable work was accomplished toward providing a water seal inby the 3-east turnout and toward monitoring the area inby the water seal on No. 4 section. Two additional bodies of water, Lake B and Lake C, were located and assured adequate water would be available. A roadway was cleared between Lake A and Lake B. Lake B was dammed up and multiple pipes were laid connecting all of the lakes together and multiple pumps were installed. Also, during this time a borehole was drilled into the mine to intersect with the underground workings at the last open crosscut of #2 entry on No. 4 section in order to monitor the underground environment.



At 9:50 am, Saturday, September 29, 2001, (about four and a half days from when the pumping started) the pumping of water into the 5-9 shaft was stopped. It was estimated that approximately 800 feet existed where the water was roofed between the explosion area and the rest of the mine.



The No. 4 section borehole punched through into the mine at about 8:30 am, on Sunday, September 30, 2001. When the borehole punched through, pressure was released outward indicating there was a good water seal. This location was utilized for controlling pressures inby the water seal and for obtaining atmosphere samples. The borehole was later used to regulate pressure and methane, allowing rescue teams to advance. Methane was controlled to maintain it above the 5% to 15% explosive range. It was generally maintained above the 60% range in the sealed area.



At 7:00 am, on October 1, 2001, re-entry into the mine began. Six mine rescue teams were utilized during this phase. Initial re-entry included exploration, examination, investigation, and rehabilitation of the mine outby the water seal that was inby 3-east turnout. This process continued until October 20, 2001. Difficult conditions were encountered during this process, including water accumulations. Water had to be pumped, ventilation controls that were damaged or missing had to be repaired or replaced, and high quantities of methane had to be cleared. At 8:36 am, on October 1, water was found to have accumulated to within two and one-half feet of the mine roof on the east main track just off the service shaft bottom area. After this area was pumped, mine rescue teams found more water at other locations, which had to be pumped for the teams to progress. During exploration on both October 4 and October 5, explosive and higher levels of methane were encountered both outby the toe of the water at the water seals and inby along the longwall. The last of the methane was cleared on October 20, 2001, during an air change. Also, during this process the parties agreed that it would be prudent (for the safety of the rescue team work and to same time in the long run) to permanently seal the F and G longwall panels where the potential for spontaneous combustion existed. This work started on October 8 and was completed on October 12. The set of temporary seals at the toe of the water, across the 3-east turnout, were constructed during this process.

On October 16, 2001, the deepwell pump was tested for less than one hour in the 5-9 shaft for preparation to remove the water earlier pumped into the mine. The flow rate was found to be 800 GPM.

On October 18, 2001, additional mine rescue teams were brought in from P&M North River Mine, Drummond's Shoal Creek Mine, and the USX Oak Grove Mine.

On October 20, 2001, at 8:00 am, the deepwell pump that had been placed inby 3-east turnout was started for the purpose of removing the water seal. Also, on this date, a 75 horsepower blower was installed on the No. 4 section borehole to help control the pressure and methane levels inby the water seal.

As rescue teams entered the mine on Tuesday, October 23, 2001, in preparation for building the first set of air locks, they found water roofed in the track entry just inby the service shaft bottom. This was the same location where the water was found when teams made the first exploration after the mine was idle following the explosions. This was the first time rescue teams were in the area since the air change was made on Saturday, October 20, 2001, following the completion of the ventilation rehabilitation work. Pumping of this area was complete by 7:00 am, on Thursday, October 25, 2001.

Starting at 3:00 pm, on October 25, 2001, and continuing through the evening shift October 26, 2001, the second set of temporary seals were built and ventilated.

By 11:00 pm, on October 29, 2001, the third set of temporary seals had been built and ventilated.

By 3:00 pm on October 31, 2001, the fourth set of temporary seals had been built and ventilated.

At 6:02 am, on November 1, 2001, the deepwell pump at 5-9 shaft was shut off. By this time, enough water had been removed to allow access to No. 4 section turnout and No. 4 section while both (a) maintaining water over potential ignition sources on and around No. 6 section and (b) maintaining a water seal in the 5-9 shaft. By 3:00 pm, on November 1, 2001, the fifth set of temporary seals, which was across No. 4 section, had been built and the area ventilated.

From 3:00 pm, Thursday, November 1, 2001, until 7:00 am, Friday, November 2, 2001, rescue teams installed check curtains in the 4-east area, south of No. 4 section. The remaining area accessible for travel in 4-east was explored. This included the area from the fifth set of seals south to the toe of the water and outby to the backside of the fourth set of seals.

From 7:00 am, Friday, November 2, 2001, until 8:00 am, Saturday, November 3, 2001, batteries on four manbuses were disconnected and isolated and the area outby the fifth set of seals south to the toe of the water was ventilated.

Recovery of the three victims located at No. 4 section turnout began at 8:00 am, Saturday, November 3, 2001. The three victims were brought to the surface of the mine at 2:00 pm. Saturday afternoon. The state medical examiner's office transported the victims to its facility for identification.

From 3:00 pm, Saturday, November 3, 2001, until 7:00 am, on Sunday, November 4, 2001, mine rescue teams replaced the check curtains (which were temporally installed to aid in the recovery of the three victims) with more substantial ventilation controls.

At 7:00 am, Sunday, November 4, 2001, investigation and mapping teams made up of MSHA, JWR and UMWA officials entered the mine and traveled to the 4-east area. This was done to allow the four manbuses at No. 4 section turnout to be removed so that the track entry could be open.

From 3:00 pm, Sunday, November 4, 2001 until 3:00 pm, Tuesday, November 6, 2001, the four manbuses at No. 4 section turnout were removed from the mine and the debris from the track through the two overcasts going into No. 4 section was cleared. During this same time period, teams made up of MSHA, JWR and UMWA officials conducted additional mapping of the area and collected rock dust samples as part of the investigation process.

From 3:00 pm, Tuesday, November 6, 2001, until 3:00 pm, Wednesday, November 7, 2001, mine rescue teams applied rock dust to the area inby 3-east turnout.

During the evening shift on Wednesday, November 7, 2001, mine rescue teams explored inby the fifth set of seals across No. 4 section. By 5:38 pm, all nine victims had been located in the general area of spad #13303, which was at the end of the track on No. 4 section.

On Tuesday, November 6, 2001, the medical examiners made positive identification of two of the three victims recovered on Saturday, November 3, 2001. They were David L. Blevins and Wendell R. Johnson.

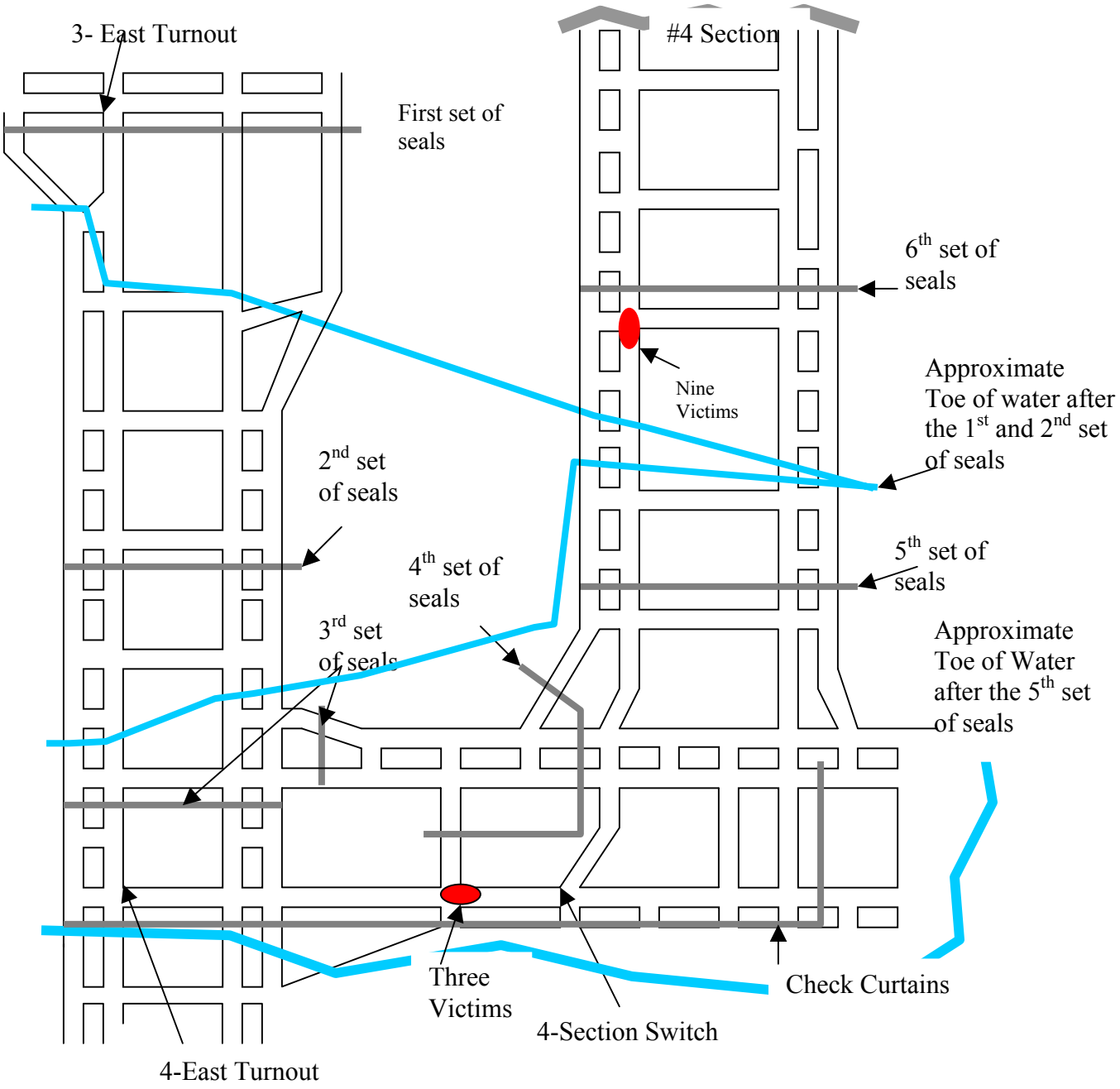
From 6:00 pm, Wednesday, November 7, 2001 until 6:30 pm, on Thursday, November 8, 2001, mine rescue teams explored all entries up to the build sites for the sixth set of temporary seals, disconnected and isolated the battery of the locomotive at the end of No. 4 section track, and ventilated the area outby the sixth set of temporary seals.

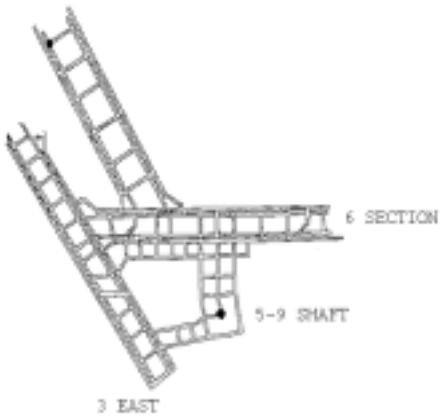
On Thursday, November 8, 2001, the medical examiner made positive identification of Joseph P. Sorah as the third victim recovered on Saturday, November 3, 2001.

At 8:39 pm, on Thursday, November 8, 2001, mine rescue teams began recovery of the nine remaining victims. At 11:50 pm, the service shaft cage arrived on the surface with these victims. They were immediately transported to the medical examiner's office for identification and identified as:

Gaston E. "Junior"Adams
Nelson Banks
Clarence H. Boyd
John W. Knox
Dennis R. Mobley
Charles J. Nail
Sammy "Joe" Riggs
Charles E. Smith
Terry M. Stewart

The following map describes the location of the twelve victims that were recovered in November and the location of the seals during recovery.


3- East Turnout
#4 Section
First set of seals
6th set of seals
Nine Victims
Approximate Toe of water after the 1st and 2nd set of seals
2nd set of seals
4th set of seals
5th set of seals
3rd set of seals
Approximate Toe of Water after the 5th set of seals
Three Victims
4-Section Switch
Check Curtains
4-East Turnout


6 SECTION
5-9 SHAFT
3 EAST

Injured Miners

The following list notes all persons injured in the two explosions at JWR # 5 Mine on September 23, 2001. The chart contains general information about each victim and the extent of their injuries.

Name	Age	Duties at Time Of Accident	Occupation	Nature of Injury
Gaston E. Adams, Jr.	56	Building Cribs	LW operator	Fatally Injured
Raymond F. Ashworth	53	Accident Response	Belt Repairman	Fatally Injured
Nelson Banks, Jr.	52	Accident Response	Electrician I/S	Fatally Injured
David L. Blevins	52	Accident Response	Outby Foreman	Fatally Injured
Clarence H. Boyd	38	Accident Response	Shearer Operator	Fatally Injured
Wendell R. Johnson	52	Accident Response	Belt Repairman	Fatally Injured
John W. Knox	44	Accident Response	U/G Motorman	Fatally Injured
Dennis R. Mobley	56	Accident Response	Electrician I/S	Fatally Injured
Charles J. Nail	59	Accident Response	Electrician I/S	Fatally Injured
Sammy “Joe” Riggs	51	Accident Response	Precision Mason	Fatally Injured
Charles E. Smith	44	Accident Response	General Labor I/S	Fatally Injured
Joseph P. Sorah	46	Accident Response	Belt Repairman	Fatally Injured
Terry M. Stewart	44	Accident Response	General Labor I/S	Fatally Injured
Tony C. Key	60	Supervising	Production Foreman	Injured
Michael McIe	42	Building Cribs	LW Helper	Injured
Jim “Skip” Palmer	48	Supplyman	Motorman	Injured

Ignition Sources and Findings

The UMWA investigation identified a number of potential ignition sources in the JWR # 5 Mine that could have triggered the two explosions on September 23, 2001. A number of electrical and battery powered sources were in the area and could have ignited methane. Some were energized while others were not. Some were of the permissible type and (if maintained properly) should not have been an ignition source for the first explosion. All potential sources identified by MSHA as possible ignition sources were either tested underground or removed from the mine by investigators and tested elsewhere. Several items that were not tested as possible ignitions sources were also removed from the mine.

It is believed that the scoop battery, which was hung from the roof that fell, was the likely ignition source of the first explosion. It is considered the likely ignition source due to its proximity to methane that likely migrated from the roof fall. The restricted ventilation in the area, damage to the battery terminals and leads caused a short-circuited capable of generating sufficient heat to ignite methane.

The likely ignition source for the second explosion was identified, by MSHA. Several potential sources existed, over a wider area, once ventilation was disrupted on the No. 4 and No. 6 sections. Permissible equipment could have been damaged, and fires or smoldering material from the first explosion could have sparked an explosion. The mine rescue team that entered the mine on Sunday reported a fire between the belt and track entry near spad #13103 on the No. 6 section. Evidence of heat was also found at many locations on the No. 4 and 6 sections. Though it is possible they may have resulted from the second explosion. Electrical equipment, such as the block light for the No. 4 section, was another possible ignition source. Roof bolts have been known to create an arc capable of igniting methane. However, MSHA's analysis found the block light system to be the most likely ignition source for the second explosion.

Below is a list of potential ignition sources on or affecting the No. 4 section. These items were sent to MSHA's Approval and Certification Center Division of Electrical Safety, Triadelphia, West Virginia for testing. They do not include any potential ignition sources from the No. 6 section or the 3-East and 4-East areas, because areas were considered to be more remote. The following reflects MSHA's testing results.

1. Scoop Battery

The battery recovered from the fall area located at spad #13333 was identified as a Douglas Battery Manufacturing Company Battery Certification No. 2250-3, normally weighing approximately six tons. A condensed version of the MSHA AC&C testing is as follows. (See pictures of battery Attachment I-1)

The outer cover of the battery had an identification plate that contained an MSHA Certification Number 2250-3 for the assembly. The nameplate information found on the right half of the battery was rated as 64 volt, 32 cell, and 765-amp hour at a 6-hour rate. Testing of battery electrolyte showed a very low specific gravity reading of about 1.100.

One cell on this battery had been bridged prior to September 23, 2001, thus reducing the overall voltage from 64 volts to 62 volts. Examination of the battery found that the right side experienced the greatest amount of damage.

Four areas of special interest were identified and two independent labs tested portions of each:

A) Two lead strap intercell connections between battery cells #2 and #3 were crushed between the cover and the internal steel frame causing electrical contact. Laboratory testing confirmed that the lead strapping had contacted the steel frame and melted as a result of high current flow due to a short circuit. This short circuit was sufficient to raise the temperature of the steel frame to between 1200 - 1400 degrees Fahrenheit.

B) The positive 1/0 AWG battery cable with #24 gauge wire stranded leads was found damaged do to pressure of the battery lid against the internal steel frame on the right side battery. This caused a possible four-volt potential. This cable had five strands melted from this condition, affecting about 5% of the cable. Based on the melting point of copper the wire strands would have produced temperatures exceeding 1900 degrees Fahrenheit. The current flowing between the cable and case would have been 30 amperes to 150 amperes to have caused the strand melting in this cable.

C) The negative battery terminal on cell #32 of the right side battery was in electrical contact with the outer part of the battery tray frame. This would have completed the short circuit path involving cells #2 and #3 and caused a potential voltage of 58 volts. Lab tests confirmed that the steel case reached a temperature of 1700 degrees Fahrenheit at this location for a short period of time.

D) Both the positive and negative cables connected to the right side battery receptacle showed signs of overheating at the receptacle connections. This area was dismissed as a potential source of ignition due to the fact that the charger cable showed no signs of this same overheating.

The damage to the battery assembly compartment, which encased the cell units, was sufficient to cause incendiary arcing and sparking. Also, thermal ignition sources were considered likely to exist for a short period of time within the battery cell area as a result of the damage caysed to the battery assembly. The auto-ignition temperature of methane is generally regarded to be about 1000 degrees Fahrenheit (537 degrees Celsius). Temperatures exceeding this value were shown (through laboratory testing and analysis), to have existed within the battery assembly for a short period of time.

Based on this information, the most likely sources for the ignition were in the areas of contact between the steel frame of the battery tray with the negative battery terminal and with the intercell connectors. Electrical activity in the area of the battery assembly where the damage to the positive

battery cable occurred was considered insufficient to be considered as a potential ignition source. Not all the battery charging cable connected between the battery plugs and the charger was recovered. Therefore, a complete examination of these portions of the connecting cables as potential ignition sources of was impossible.

The methane-air mixture that migrated into the battery enclosures during the two tests was ignited by a spark and propagated flame outside the battery enclosure. The flame ignited the surrounding methane-air mixture in the gallery.

Even though the battery enclosure, as tested, was damaged and not in the same condition as one that would typically be used in a mine, it contained representative openings and gaps that a methane-air mixture could migrate into. Therefore, it is reasonable that an ignition of methane that migrated into a battery enclosure could produce flame outside the battery enclosure and ignite any surrounding mixture of methane-air that is within the explosive limits. It was concluded that temperatures above 1000 degrees Fahrenheit existed at this battery for short periods of time, which would have been capable of igniting methane.

2. Scoop Battery Charger

The battery charger had no short circuits to ground (charger frame) and no open fuses were identified. There was no physical evidence that the charger was energized at the time of the explosion. Furthermore, there was no evidence to show that the charger or charger cable was a potential ignition source, or that either contributed as a potential source of ignition while connected to the battery assembly.

3. Block Light System and Block Light Cable

Explosion test experiments on the block light circuits showed a short circuit in the cable could produce sufficient energy to ignite an explosive concentration of methane-in-air. However, the physical evidence of a circuit fault in the cable of this magnitude, in the form of burn markings or strand melting, was demonstrated to be very difficult to detect.

MSHA concluded that the block light units were energized at the time of the second explosion and had sustained physical damage during the first explosion. The Agency's separate analysis contained detailed findings on the block light system.

4. Cap Lamp Assemblies and Components

Several cap light assemblies and parts were retrieved from the explosion area and tested. The cap lights, manufactured by Koehler, were of the permissible type Model 5200 Cap lamp (Wheat) and held 4 volts when fully charged. Thermal tests and arc testing have indicated these were not a source. It is believed that this type of light will not ignite methane.

5. Explosion Proof Enclosures Taken From Roof Bolter Located on No. 4 Section

Results indicated that openings found in the enclosures were impact damage from an explosion. It was not considered a source of ignition.

6. Telephone System

Testing ruled these out as a likely source because the system does not have high enough voltage or amperage to ignite methane.

An analysis of the expected current flow in the telephone circuit concluded that the energy produced from telephone circuits, under normal and abnormal (short circuit) conditions, would be insufficient to cause visible signs of melting of the copper-covered steel conductor wires.

7. Telephone Cable

Approximately 423 feet of two conductor 18-1/2 AWG, 30% conductivity Extra High Strength (EHS) copper-covered steel mine telephone cable (5 sections), identified as PE-75, and one other ten foot section, identified as PE-53, was recovered for further examination. No visible signs of melting or arcing (burn marks) of the copper-coated steel telephone wires were identified in any of the telephone cable sections examined. Also, the cable jackets in these sections had visible signs of heat damage, and metallic wire conductors were exposed in a number of places along the cable's length.

8. Telephone

One Mine Dial /Page Phone, Gai-Tronics Model 491-204 with a Rayovac No. 926, Twelve (12) Volt Lantern Battery, was tested and there was no evidence that any component of the phone would have produced conditions which could have provided enough energy to ignite a flammable methane-air mixture.

9. Fire Suppression System from Ram Car

An Ansul Checkfire MP automatic Fire Detection and Actuation System was tested even though it was not considered an ignition source. It was tested at the MSHA AC&C facility because it failed to activate during the explosions. It was found to have been installed improperly and, as a result, failed to activate the fire suppressant chemical.

The Following Electrical Machines and Equipment Were Examined Underground

1. Roof Bolter

The permissible J H Fletcher Roof Bolter, was believed to have been de-energized at the time of the two explosions. The bolter was located and examined in the #4 entry and was found to have permissibility discrepancies.

2. Eimco Locomotive Model No. 150D

During the initial inspection underground, a large accumulation of coal dust was observed in the two intake manifolds of the engine. The manifolds were removed to determine if this accumulation was forced into the manifolds by explosive forces, or if it was sucked into the manifolds by engine operation. If the engine was running, the coal dust found in the ductwork would have also been sucked into the valve ports and cylinders. Coal dust was not found in these areas, indicating that the engine had not been running.

3. CLA Lo-Trac, Model No. 5640N

No equipment defects were found and no evidence was found to support this as an ignition source.

4. Three Jeffery Ram Cars, Model No. 4110

These were all permissible pieces of equipment. No evidence was found to support them as an ignition source.

5. Belt Feeder

The machine's main circuit breaker handle was in the on position. The possible positions on the dials of the trip unit were set to high making it impossible to determine the ampere trip range of the trip unit.

6. A.L. Lee Corporation Rockduster

The machine's main circuit breaker appeared to be in the unlatched tripped position. No excessive openings were found.

7. Joy Continuous Miner, Model 12CM12-10BX

This permissible piece of equipment was believed to have been de-energized before the explosions.

8. Battery Scoop Tractor, Model No. 488, S&S Corporation

This permissible piece of equipment showed no evidence to support it as an ignition source. The battery for the scoop was thrown from the scoop, apparently during the second explosion.

9. Power Center Distribution Box for the No. 4 Section

On September 23, 2001, the power was off due to a power check. At about 2:00 pm, power was put on the miner only. The miner was moved to afford a travelway for the scoop car that was parked in the long break between #2 and #3 entries. The afternoon shift supervisor stated that he had asked Charlie Nail to remove the power for the No. 4 section as he left the section just after the first explosion. Evidence shows that the No. 4 section power had been turned off, using the single vacuum breaker for No. 4 section at the long crosscut between spad #12874 and spad #13207.

10. Power Distribution Boxes for the No. 4 Section Belt, 4-East Belt and No. 6 Section Face Equipment

These boxes may have been energized and were located in areas where methane accumulations could have existed. These boxes did have power on them at the beginning of the 3:00 pm to 11:00 pm shift and, according to witness accounts, were not de-energized any time prior to the second explosion.

Items Removed from the No. 4 Section But Not Tested

1. Light Above Section Power Center

The power to the light is believed to be off at the time of the explosions.

2. Chop Saw at Section Power Center

It is believed that the chop saw was not plugged in at the time of the explosions.

3. Microwave at Section Power Center

It is believed the power was off at the time of the explosions.

Pictured below is the Douglas Battery recovered from the roof fall on No. 4 section. It is believed to be the ignition source of the first explosion.

The picture below shows the damaged battery cells from the roof fall that likely caused a short circuit to the straps, allowing them to arc and become an ignition source.

ATTACHMENTS I-1

Forces and Flame Effects of the Explosions

Ventilation Damage – After First Explosion - When the roof fall occurred at spad #13333 it filled the void of what was once a 4-way intersection, restricting the intake air that normally flowed through the entry.

During rescue and recovery, this rock fall was determined to have restricted intake air flow inby the area to minimal movement, with the exception of the stopping between #1 and the #2 entries at spad #13333 which was crushing from the convergence of the rock fall. It could not be determined if the rock fall knocked out other ventilation controls that would have short circuited airflow to the #3 and #4 entry faces in No. 4 section.

At the time of the first explosion, two locations on No. 4 section and one on 4-east (near No. 6 section conveyor belt tailpiece) sent a "Comm Error" alarm to the surface. This "Comm Error" was later determined to be the result of the force and/or heat damage caused by the first explosion. It was determined that the No. 4 section ventilation was short-circuited following the first explosion.

The stopping separating #1 entry (at spad #13326) and #2 entry (at spad #13332) immediately outby the rock fall was blown into the #2 entry. Concrete blocks were found dispersed throughout the intersection at spad #13332, the area where the three men had been working. It is highly likely this occurred at the time of the first explosion and the blocks contributed to injuries the miners received. The force from the first explosion also affected the conveyor belt entries both on No. 4 section and in 4-east. Testimony revealed that following the first explosion, miners discovered the return or belt overcast at the mouth of the section (spads #12841 or #12840) blown down onto the No. 4 section track. There were also reports that stoppings were knocked out on No. 6 section. It is clear that the ventilation on No. 4 section was short circuited following the first explosion. The extent to which the ventilation was compromised and the subsequent effect on air flows and quantities could not be determined with precision.

At 6:15 pm, 55 minutes after the first explosion, a computer in the CO room received an alarm warning mine personnel that serious events were occurring underground. This particular computer receives instantaneous "real time" data from the underground CO monitoring system. The alarm was generated when the value detected by CO sensors jumped from a low level to full scale in one reading. This marked the time of the second explosion.

Force Damage – After Second Explosion - Visual effects of force were detected throughout No. 4 section. The force affected all ventilation controls on No. 4 section inby spads #12833, 12841, 13039, and 13048. This included impact on 28 stoppings or brattices, two regulators, one point feed regulator, run through drops and line curtain. All but two were completely removed and destroyed. (Figure 1).

Two partial concrete block stoppings remained standing following the explosions. One was located between spads #13344 and 13348, which was at the section power center. (Figure 2). The other was found between spads #13339 and 13333, at the rock fall location.

Mining equipment was observed both damaged and moved by the force. (Figures 3, 4, 5, and 6). The effects of the force were seen on roof supports. Primary roof support (roof bolt plates) was loosened from the force. Straps were shredded and torn like paper. (Figure 7).

Physical evidence examined on the No. 4 section indicated that strong forces traveled through the last open crosscut from #3 entry toward the #1 entry. (Right to Left). Testimony substantiated the physical evidence, revealing that prior to the explosions the scoop was parked in the last open crosscut between #2 entry and #3 entry, about 50 or 60 feet toward #3 entry. This indicates that the forces moved the scoop 70 or 80 feet until it struck the left outby corner in the #2 entry intersection,

and it continued on to where it was found resting upside down between the #1 and #2 entries (Figures 8, 9, and 10).

The damage and destruction from forces to the conveyor belt entry (#3 entry) worsened in the outby direction. A parallel observation was that the intensity of the force traveling outby in the right return (#4 entry) increased. The increase in the intensity of the force traveling out the #4 entry was clearly visible at every crosscut between #3 entry and #4 entry outby the crosscut located between spads #13229 and 13230. (Six crosscuts exist between #3 entry and #4 entry outby this point). In each of these outby crosscuts the force traveled violently from #4 entry into the #3 entry. The intensity of the forces was such that in each of these areas stopping material and the conveyor belt structure were found deposited along the left rib line of the #3 entry. In contrast, at the more inby crosscuts, the stopping materials fell in the general area where they had been built and the conveyor belt system remained intact. (Figures 5, and 11 through 19).

The three overcasts located at the outby end of No. 4 section were completely destroyed by the explosions. Two of the overcasts were located in the #2 track entry at spads #12840 and 12841. The third overcast (Figure18) was located at spad #13039. Forces dispersed in all directions from this point. Permanent ventilation controls, both east and due south, were destroyed; however, overall these areas appeared to have suffered less force. The line curtain installed inby the last open crosscut on the No. 6 section was dislodged and melted, but it still remained in place. Many of the ventilation controls located in 3-east, although damaged, remained standing, with the exception of controls constructed out of light gauge metal. Figures 20, 21, 22 and 23 are all located near 3-east turnout. These pictures demonstrate a reduction in force and damage around this location.

Ventilation controls made out of light gauge metal were discovered damaged along the 2-east belt conveyor system. Design, installation, and quality of inspection contributed to the increased failure rate observed in this type of ventilation control. At many locations through 3-east area, concrete block stoppings were damaged, but remained standing. The light gauge metal stoppings in the same area were knocked completely down, and in some cases gone altogether. Mangled and twisted remains of metal panels that had once been part of a stopping were found throughout the areas inby 459 switch. Damage from the forces of the explosions was identified as far outby in the mine as Big Fault Hill. Signs of the metal panels being carried long distances, as projectiles through the mine openings, were widespread. (Evidence disclosed that the softness of the Blue Creek coal seam combined with the regular sloughing of the ribs prevented the stoppings from being installed according to the manufacturer's recommendations. The poor design features appeared to contributed to the failure of these stoppings.)

Figure 1:
Concrete block blown from a stopping between #1 and #2 entry, taken from the #2 entry at spad #13295.

Figure 2: Partial concrete block stopping behind the section power center looking toward the #1 entry.

Figure 3: Damage to the outby side plate of scoop bucket.

Figure 4: Crack in frame on the bucket end of scoop (inby side).

Figure 5: Conveyor belt tail-piece looking outby from spad #13346.

Figure 6: No. 4 section belt power center. Taken from the #3 entry side at spad #13207.

Figure 7: Metal channels shredded and torn in the last open crosscut between #2 and #3 entry. Looking from the #2 side approximately 20 feet into the crosscut. The red flagging indicates loose roof bolt plates.

Figure 8: Battery end of scoop facing #1 entry. No battery and battery leads pulled loose from battery. Scoop located at spad #13352 toward #1 entry.

Figure 9: Scoop battery located in the last open crosscut between #2 entry (spad #13352) and #1 entry (spad #13349). This battery was found upside down during recovery operations.

Figure 10: Scoop battery lids, scoop light, and other debris located left of spad #13352 in the #1 entry along the rib.

Figure 11: Stopping material deposited in close proximity to where they were originally built. The upper portion of the picture shows the conveyor belt system. This picture was taken from the #4 entry looking into the #3 entry at the crosscut inby spads #13320 and 13318. The picture indicates very little damage to the conveyor belt system.

Figure 12: Beltline looking into the #3 entry from the crosscut located between spads #13313 and 13314.

Figure 13: Looking into the #3 entry from the crosscut located between spads #13296 and #13300. Damage to the conveyor belt system increased outby.

Figure14: Looking into the #3 entry from the crosscut between #3 and #4 entry, to the right of spad #13233. Conveyor belt system is totally destroyed and deposited along the left rib of #3 entry.

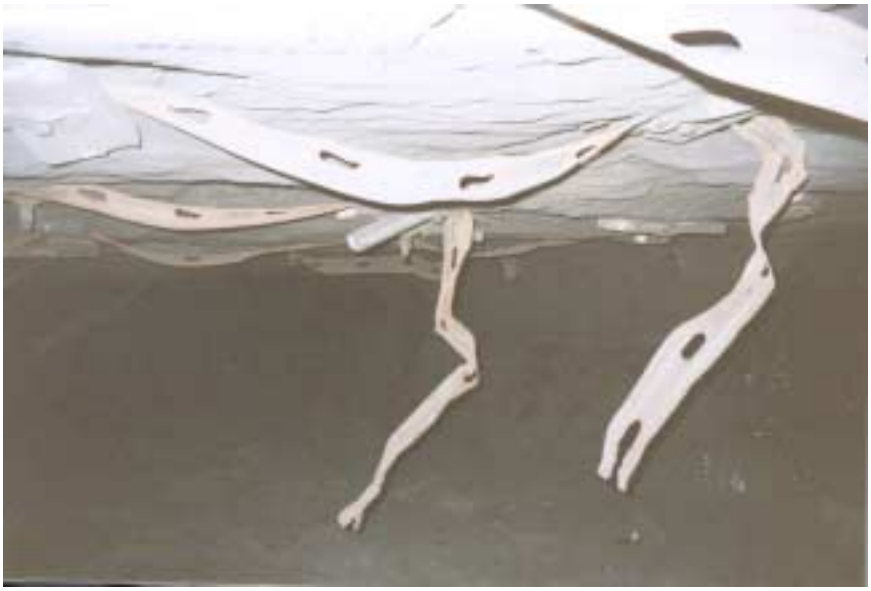


Figure 15: Standing in the #4 entry facing outby at spad #13233, increased damage to the roof straps can be observed.

Figure 16: Looking into the #3 entry from the crosscut located between spads #13205 and #13206 stopping material deposited along the left rid of #3 entry. Note: Starting at the outby corner at spad #13206 and extending inby toward spad #13209 in the #4 entry, six broken roof straps were located along the left side of the entry.

Figure 17: Looking into the #3 entry from the crosscut between spads #13200 and #13199. Stopping material along with the damaged conveyor belt system deposited along the left rib in the #3 entry can be seen.

Figure 18: Looking into the #3 entry from the crosscut between spads #13039 and #13048. The steal beams, steal plates, and concrete blocks from the belt/return overcast along with material from the conveyor belt system were deposited along the left ribline of #3 entry. Note: In the upper portion of the picture the steel beams from this overcast can be seen twisted and bent.

Figure 19: Taken from the left of spad #13038 looking inby into the #3 entry of the left ribline at the No. 4 section header. Concrete blocks from the inby overcast can be seen at the bottom of the picture.

Figure 20: Looking outby from spad #12338, located in the #3 conveyor belt entry of 3-east. A piece of a belt vulcanizer is blown into belt structure. This picture also shows how the conveyor belt system at this location was only slightly damaged.

Figure 21: Looking outby toward spad #12341, located in the #1 entry of 3-east. This picture shows damage to 3-east return regulator.

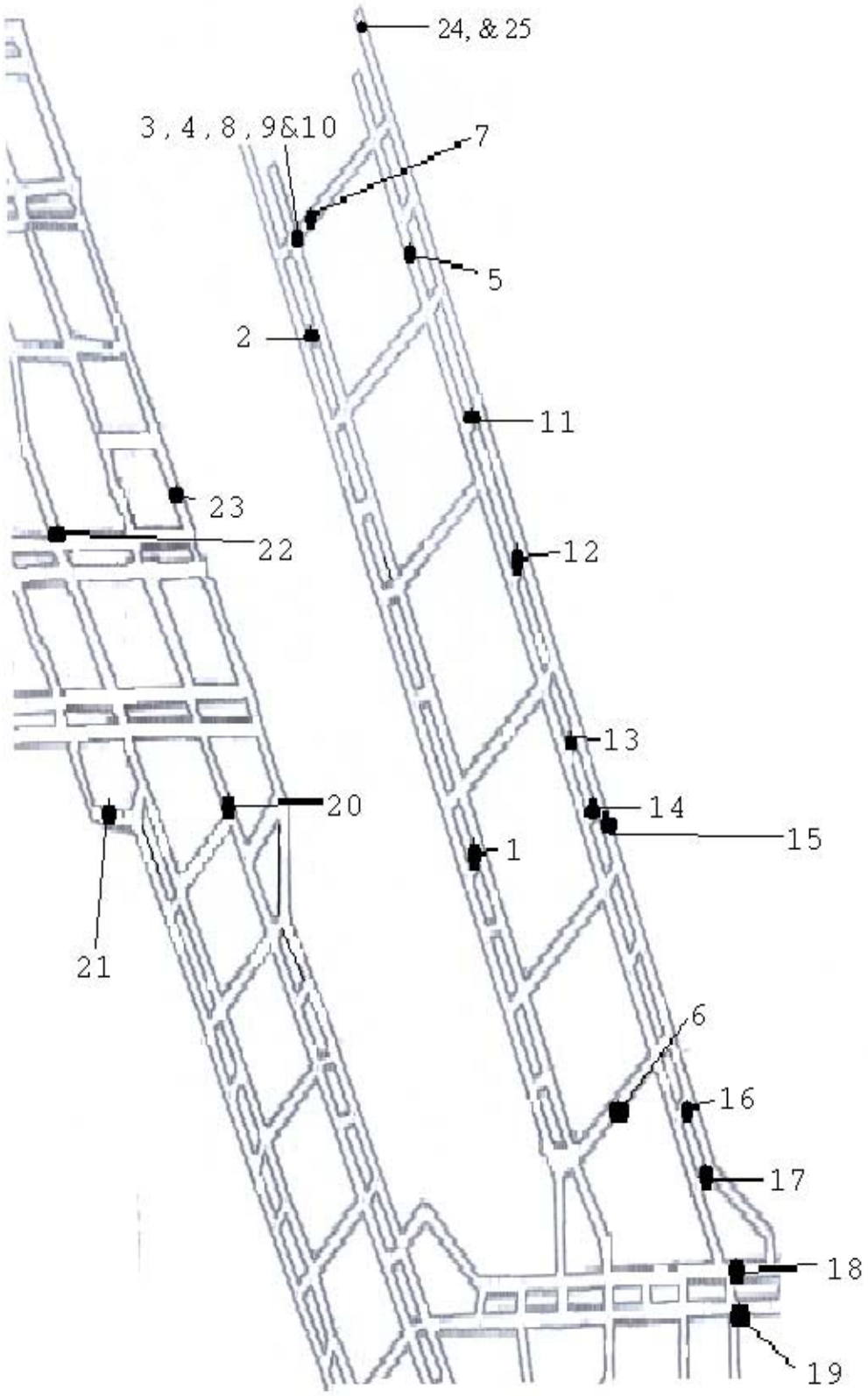
Figure 22: Looking outby at spad #12285. Picture shows damaged vercast.

Figure 23: Looking outby at spad #12408. Picture shows the position of a metal panel from a metal stopping.

Figure 24: Standing on the left side of the roof bolter in the face of #4 entry. A thick metal cover is bent up and in toward the direction of the face.

Figure 25: Standing at the front of the roof bolter looking outby. Metal machine covers and roof bolting material is blown in the outby direction.

Pictures Plotted Of Fource



Heat Damage - As reported in the "Mine-Wide Atmospheric Monitoring System" section of this report, it was determined that heat was experienced throughout the area inby 3-east turnout. The degree of observable heat damage in this area relates to several different factors including: a) the degree of the heat at a given location; b) the rate of speed that the heat traveled through an area; and c) the compound of the material exposed to the heat.

The most visible signs of coking on the roof and ribs of the No. 4 section were found in the last open crosscut between spad #13352 (#2 entry) and spad #13353 (#3 entry), (Figure 32), and inby the last open crosscut in the #3 entry. (Figures 34 and 35). Evidence of heat damage on No. 4 section is depicted in Figures #26 through #38. Damage from the heat of the explosion was identified as far outby in the mine as 3 East turnout at spad #12286

Figure 26: Located at the left outby rib corner at spad #13231 in the #2 entry. Picture is of a "J"hook and shielding melted into high voltage cable.

Figure 27: Located along the left rib of #2 entry at spad #13319. Picture of melted shielding hanging off high voltage cable.

Figure 28: Located near the outby left corner at spad #13348. Picture of the effects of heat on trashcan, edge of seat and a book on the table.

Figure 29: Located near the inby left corner at spad #13348. Picture of melted insulation jacket of phone cable.

Figure 30: Located in the #1 entry inby spad #13349 along the right rib. Picture of a melted "J" hook on the continuous miner water line.

Figure 31: Located in the #3 entry along the inby ribline of the last open crosscut between spad #13352 and spad #13353. Picture of melted resin cartridges on the supply sled.

Figure 32: Located in the last open crosscut between spad #13352 (#2 entry) and spad #13353 (#3 entry), 50 feet into the crosscut from #3 side. Picture of coking on "T-Board".

Figure 33: Located in the #3 entry at spad #13353. Picture of melted curtain line material.

Figure 34: Located in the #3 entry inby the last open crosscut (Inby spad #13353). Picture of coking on the roof starting 30 feet outby the #3 face.

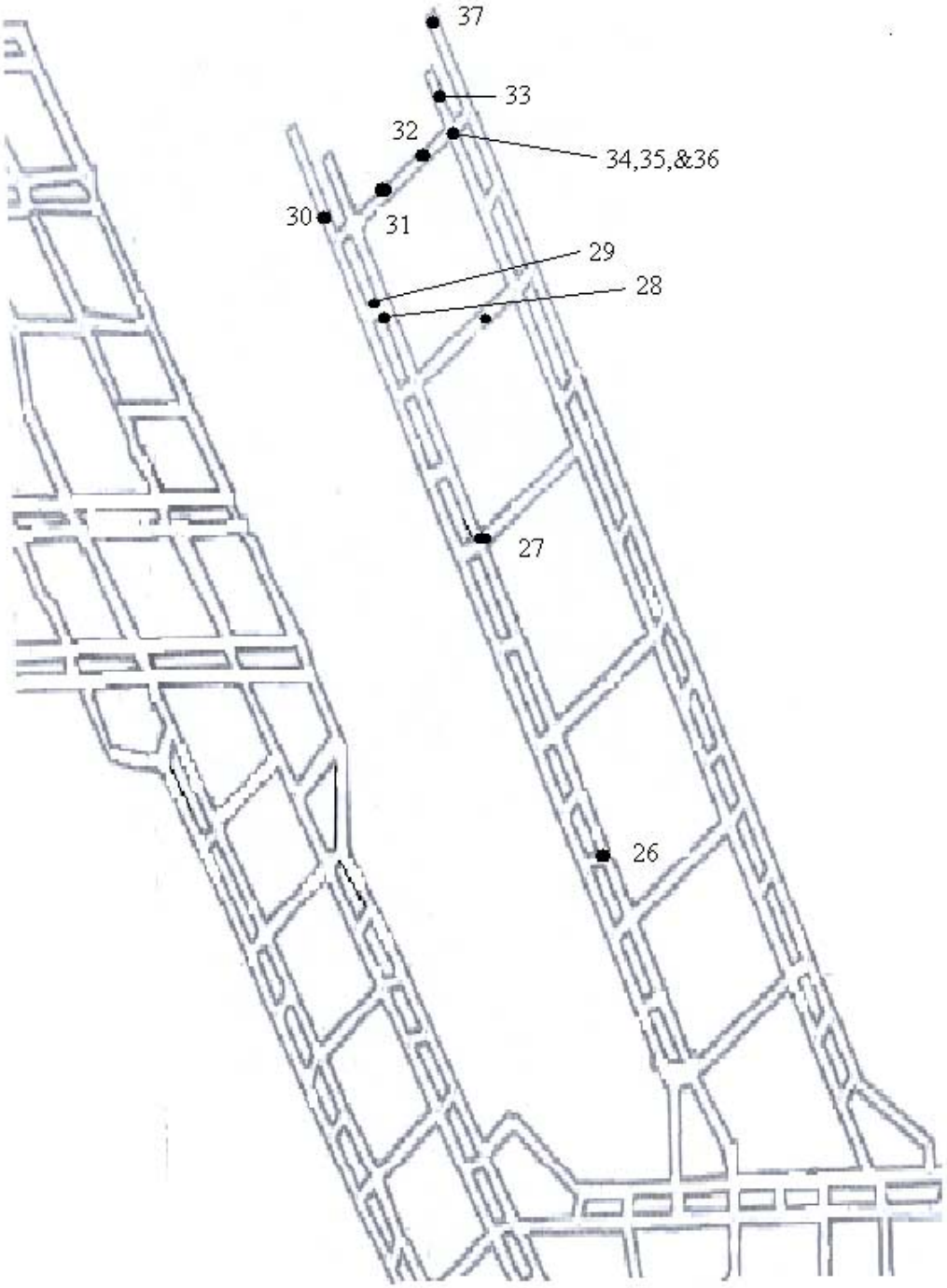
Figure 35: Picture of coking on the roof starting 30 feet outby the #3 face.

Figure 36: Located in the #3 entire inby the last open crosscut (Inby spad #13353). Picture of burnt paper sack located 20 feet outby the face and four feet off the left rib.

Figure 37: Located in the #3 entry inby the last open crosscut (Inby spad #13353). Picture of burnt paper sack located at the #3 face, in the center of the entry.

Figure 38: Located in the #2 entry and in the area of the rock fall along the inby ribline in the crosscut between spad #13333. Picture of two big rock dust bags melted or burnt away exposing dust.

Pictures Plotted Of Heat



Summary of the Causes and Contributing Factors

The investigation into the September 23, 2001, coal mine disaster at the JWR # 5 Mine identified a number of areas that may have caused or contributed to the disaster. The conclusions were reached after gathering information provided by miners, mine management officials, MSHA, the State of Alabama, and others. Information was gathered in the form of interviews; inspections and examinations, records, reports and documents; and inspections of the JWR # 5 Mine. As the investigation proceeded, specific areas emerged as the focus of our attention regarding the cause and contributing factors of the explosion. Those involved:

- A failed mine emergency response
- A failure to adequately control the mine roof
- A failure to control and render harmless the float coal mine dust in the mine
- A failure to have the mine properly examined for hazards
- A failure to properly ventilate the mine
- An overall failure of the mine operator to comply with the Mine Act and a failure of MSHA to effectively enforce it.

The following sections cover the investigation findings on the factors listed above.

Failed Emergency Response/Evacuation at the JWR # 5 Mine September 23, 2001

During the investigation into the causes of the September 23, 2001, disaster at the JWR # 5 Mine, two facts concerning emergency response became evident. First, the company was not prepared to respond to the type of accident that occurred. Secondly, the Fire Fighting and Evacuation Plan (The Plan) and its associated training had failed. Twelve miners traveled from different locations in the JWR # 5 Mine to respond to a mine emergency and an injured miner. None of these would-be rescuers, nor the injured miner, survived.

At approximately 5:20 pm, on September 23, 2001, the surface CO Room (where carbon monoxide system, fans, underground electrical systems, and mine conveyor belt systems are monitored) received three separate "Communication Errors" from three different underground sensor locations; all three were received at the same time. The printout for the system revealed that the "Communication Errors" were acknowledged or silenced by the CO supervisor, Harry House; the CO supervisor is the person on the surface who JWR # 5 Mine management had designated as the person responsible for responding to mine emergencies. At that time, House did not deem the "Communication Errors" significant. Later he indicated that no additional action was planned or taken as a consequence of these "Communication Errors".

House received a telephone call from Tony Key, who informed him of a rock fall, an explosion, damage to ventilation controls, and the need to send help. House testified that immediately after this call ended, he attempted to page Key to obtain additional information, including the location of the emergency. Following his unsuccessful attempts to page Key, House called 911 and the Lifesaver Helicopter. Key stated that he called House a second time and told him to have the power knocked off going into the mine. (In his testimony, however, House did not remember Key telling him this.)

As the emergency started unfolding, House was confused as to who was the responsible person(s) underground. House made several pages to a supervisor who was not on duty that night. His pages to underground supervisors were eventually answered by supervisor Dave Blevins, who was on duty. At this point, House had only the information that he received through one brief phone call, which included information of an explosion. House instructed Blevins to go to the scene of the accident to help. Blevins had to travel the full distance of the mine to reach the accident scene; from the elevator at the shaft bottom to the No. 4 section, he had to travel nearly 3.3 miles. That would take about 45 minutes.

During the 55 minutes between the first explosion and the second explosions, House did not seek or gather information on the stability of the underground environment, methane or carbon monoxide readings, ventilation directions and flows, or of the locations of underground personnel. There is no evidence that any examinations for methane or other gasses were made in the affected area. What information was available (i.e. that three "Communication Errors" had been received from the same area of the mine) was not shared with those instructed to respond. The communications failed such that after the first explosion House directed some personnel to travel to the "fire" only to find out later that he gave this directive to a different person than he intended, and that he did not realize to whom he gave the directive.

On September 23, 2001, the miners on the afternoon shift were not working on production sections but were performing idle day maintenance work, and many were assigned to workplaces other than their normal work sites. No system was in place for tracking the locations of the miners, and in fact, the CO supervisor did not know the location of personnel underground at the time of the emergency.

When House had knowledge of an explosion, and that some underground personnel were responding to the emergency site, he also knew that other miners were still working throughout the mine. However, he did not to initiate a mine-wide page to evacuate, even though he had the responsibility to do so, according to federal regulations. Even when some miners were later told to evacuate, it was only after some had grown concerned and initiated contact with the CO supervisor. Some of these calls took place after the second explosion.

Communications with the underground miners were not tracked or logged by the CO supervisor. He later stated that he had no idea how many miners he contacted that night or how many were evacuating. He also did not know exactly who was working underground on that shift.

The emergency communications received by the miners underground on September 23, 2001, (which have been reviewed) included faulty or incomplete information, mixed messages and confused messages. Some messages indicated there was a "fire," while others told of an "ignition," "over-cast out," "brattice knocked out." Some miners heard only that "we got a problem," "I can't tell you." Others heard they should "come out of the mine," "come on out," and "come out immediately," while some heard "they want every available man up there (meaning at the No. 4 section) right away."

Following the second explosion, House received a call from a group of three miners, who informed him of the second explosion. After receiving this information, he again failed to check on their status or ability to escape. He simply told them to get out and hung up the phone. They began to exit, by foot, through the thick dust. Also following the second explosion, a miner who had been working alone further in the mine, made his way through the dust-filled atmosphere on his track

haulage equipment until he was able to locate a telephone. He called the CO supervisor, asking "what did we do, lose an overcast or something?" House responded, "yeah, come on out" and hung up the phone. The miner's efforts to call back House were unsuccessful. This miner got back on his equipment and started creeping slowly through the thick dust toward the service shaft bottom. Coincidentally, this single miner, who had transportation met up with the three miners on foot at the 459 switch and they traveled out of the mine together.

For the period between the two explosions, the CO supervisor did very little in the way of communications with the underground miners, monitoring the changing mine atmosphere, or controlling the evacuation and emergency response activities. The time that was available for these functions, however, was reduced by time engaged in phone calls to and from persons off the mine property. These calls included calls to 911, the Lifesaver helicopter, his direct supervisor, the deputy mine manager, and to and from the mine manager and several calls from the manager of safety and training, while the latter was traveling to the mine site. (This list of off-property calls is not exhaustive.)

There were no communications established at the accident site, nor were those employees who contacted or responded to House ordered to systematically communicate as they approached the accident scene. Only one or two short communications occurred between the CO supervisor and the accident scene. As miners were ordered to respond to the emergency after the first explosion, no consideration was given to the equipment that would be needed to lessen hazards to those responding. No arrangements were made for those responding to be equipped with either multi-gas detectors or communication devices.

Nine victims were found at the end of the No. 4 section track. No methane or other gas detector of any kind was found with these nine miners. Additionally, the miners were located approximately one-half mile past the last known working telephone, the same phone Tony Key used to report the emergency.

The Plan in place at the time of the disaster did not address a number of important issues. It relied upon an immediate response to any emergency, instead of a planned response, designed with rescuers' safety in mind. The emergency response plan was designed to respond to fires, but not explosions; and it was designed only for working sections. Response for emergencies that occur at locations outby the sections, or for idle day work when miners would be sent to unfamiliar areas to do temporary work were not included in the Plan.

The Plan then in place left the individual in charge of the CO Room as the responsible person who would coordinate emergency communications with the underground personnel. He was faced with numerous responsibilities including: withdrawal of miners; collecting information from underground and surface about the conditions; passing critical information to those responding; monitoring the atmospheric and alarm systems underground; handling calls coming to the mine, directing the disconnection of power underground; keeping track of energized locations; and communicating with supervisors about the emergency. House failed to handle many of these numerous responsibilities.

Miners who lost their lives responding to the emergency on September 23, 2001, did not know how explosive the environment was they approached. While some in upper management knew to expect heavy liberations of methane when roof falls occur, it is not clear whether all the miners were aware of the extent of this danger; some of those who survived, later indicated that they

appreciated the dangers (and that is why some chose to evacuate.) Those traveling to the accident scene lacked the instruments to detect the methane levels; and the stationary atmospheric monitoring systems in place only monitored carbon monoxide in the conveyor belt entry. The miners were simply not trained or equipped to respond to the emergency. They lacked the factual information about the mine conditions as they existed after the first explosion, even as they traveled into the epicenter of the dangers.

Review of the consequences of September 23, coupled with shortcomings in "The Plan" and associated training, reveal a grossly inadequate and flawed Fire Fighting and Evacuation Plan. The miners' actions were consistent with their training in this Plan. However, the Plan failed to address this type of an emergency and the mine had no appropriate evacuation procedures in place. In short, on September 23, 2001, the emergency situation that existed after the first explosion was neither controlled nor managed.

Roof Conditions/Controls at JWR# 5 and the September 23, 2001 Roof Fall

Strata Characteristics and Roof Control - The JWR # 5 Mine operates in the Black Warrior basin. The Blue Creek seam is the main seam that is mined. The seam thickness is about six feet. The Blue Creek seam coal is a relatively soft coal compared to other coals. A seam of rock that varies in thickness from one to seven feet above the Blue Creek seam separates it from the Mary Lee coal seam. The Mary Lee seam varies in thickness from one foot to three feet thick. Above that Mary Lee seam lies a series of shale that extends approximately 30 to 45 feet to the lower Newcastle seam. Above the Newcastle seam is a series of shales.

The JWR # 5 Mine utilizes the "yield pillar approach" for its longwall system. The yield pillars are designed small enough to yield and shed any large loads, while still providing support for the immediate roof. The yield pillars were used to separate the outside entries (#1 and #2 entries and #3 and #4 entries) in the developing sets of 4 entries that will be the longwall headgates and tailgates during longwall retreat mining. The longwall development called for long coal blocks to be used between the #2 and #3 entries. The entry centers and crosscut centers were 40-foot minimum to 360-foot maximum. On September 23, 2001, the primary roof support was installed on 5-foot by 5-foot spacing and the maximum entry width allowed was 24-feet. The primary bolt pattern on the development sections was a five-foot square pattern, using full column grouted resin rebar bolts.

In areas where JWR # 5 had adverse roof conditions, supplemental support was to be installed, according to the MSHA-approved roof control plan. The primary supplemental support that JWR # 5 Mine management had chosen prior to the explosion consisted of 10-foot hardened steel non-tension cable bolts. Other supplemental supports were to be installed when needed. The safety department and the supervisors on the sections were to ensure proper training of the miners before implementing a supplement to the roof control plan. JWR management reported that this training normally was merely informational, such as changes in the requirements of the plan. They also reported that when a new roof control product was introduced they would ask the manufacturer to send a representative to train the foremen who were to use the new products. They reported that mine management went over the plans during required annual training for the miners.

Introduction on the Roof Fall - The methane and adverse roof conditions that this mine encountered during development of the No. 4 section indicated that JWR would have to take extra protective

action to prevent roof failures. However, they failed to take adequate measures to prevent the roof fall that occurred on September 23, 2001.

The roof fall on the battery charger and battery in the No. 4 section on September 23, 2001, was not without warning. The roof at that location had drawn particular attention at least two days earlier when a bump was reported to have occurred in the top, and cracks appeared with water running from them. The bump and cracking happened before the battery charger and six-ton scoop battery were moved toward the face and placed in that particular spot under the already-weakened roof. Although additional supports (ten-foot cable bolts) were added before the battery and charger were placed, evidence shows this support was insufficient to prevent the fall. Over the course of the next two days more signs of a faulty roof appeared which indicated that the mine roof over the charger and battery was becoming less stable. These signs included additional cracking in the roof, increases in the amount of water discharging, and rib sloughing. Efforts to prevent the collapse were insufficient.

Even after the roof showed signs of deterioration, management placed a highly energized battery and charging station under it The battery and charger remained under the troubled roof.

The roof fall covered the entire 4-way intersection at spad #13333 in the #2 entry and extended into each approach. The scoop battery was completely covered under the massive weight of the fall, located in the left cross-cut between the #1 and #2 entry. Although the height of the fall was not measured, it occurred above the anchorage point of the 10-foot cable bolts.

Background on Roof Conditions in the JWR # 5 Mine - The roof conditions on the No. 4 section had been adverse for a long period of time. A geological fault near the section, one of many in the mine, left disturbances in the mine roof. JWR had already mined through an area called a "discontinuity" (joints and faults) zone coming off the fault. (See **Figure 1** titled **4 section discontinuity map,** prepared by MSHA). That area of discontinuity also extended across the No. 4 section into the No. 6 section. (See **Figure 2** titled **4 and 6 section joint zone** map on the discontinuity zone prepared by MSHA). Upper management knew from past experiences that roof falls were sometimes followed by methane outbursts that could overpower the ventilation system. That is what happened on the No. 4 section prior to the explosion: methane had accumulated in the top in the #4 entry and blew out, bringing the top down. Deputy Mine Manager Trent Thrasher was aware that a fall had occurred in the #4 entry of the No. 4 section, and that some kind of joint crack was running perpendicular to the development that put out quite a lot of methane. Thrasher knew that a fault ran "not too many degrees off," parallel of the No. 4 section.

Senior mining engineer for the JWR # 5 Mine, Robert Howell, who prepares the # 5 Mine roof support plans and reports to Thrasher, traveled underground to the No. 4 section about three weeks before the September 23, 2001, explosion. He was with Ray Wilson, a representative from Jenmar Corporation, the supplier of roof control materials. Howell had asked Wilson to review the mine conditions and to recommend better roof control measures. According to Howell, they had already begun experiencing problems supporting the roof by that time. Howell said the problems began at about spad #13232 in the #1 entry on the No. 4 section; that was about six short crosscuts

outby the September 23, 2001, roof fall. Mining had begun in that area at about the end of May 2001, nearly four months prior to the disaster. Mine Manager Mark Piper and Section Coordinator Burt Duvall stated they had asked that Howell bring in Jenmar to look at other roof support means after the methane outburst in the #4 entry at survey station #13318. They also noted this was needed because of the deteriorating roof conditions in that area.

Thrasher and Howell, along with other company officials, acknowledged that they could not hold the roof in some areas of the mine while mining. For example, they had to reduce the 30-foot mining cuts to less than 10 feet in some places on the No. 4 section because the roof otherwise would collapse. Howell verified that JWR management was aware that there were at least three series of fractures that came across the No. 4 section and extended out to the faces of the No. 6 section.

The top-level management at this JWR Mine had substantial experience with adverse roof conditions from the numerous faults located throughout the mine. (See **Figure 3** tiled **High Angle Joints and Fractures Map**). They had also just mined through fault areas when developing the previous longwall panel. They had expected to encounter adverse roof, slips, and cracks in the No. 4 section, as they actually began to experience in May 2001. Howell admitted that while the No. 4 section could have been mined safely without cable bolts that would have been a slow process. He also admitted that there were other methods to control the fractured roof but they would have been, "extremely expensive".

According to Howell, on the development of the gate entry of the G-panel, when they mined through those faults they had to twin seam mine by cutting up through the Mary Lee seam to the bottom of the main roof and then use standard support. Despite its expectations and the adverse roof actually encountered, JWR management did not consider twin seam mining to remove the fractured roof or reduced spacing of primary roof support, in the No. 4 section, even though these techniques had been effective in controlling the roof in the gate entry of G-panel. Additionally, a provision in the roof plan that called for the use of straps or crossbeams when slips were encountered in the roof, were <u>not</u> used in any of the crosscuts between the #1 and #2 entries on the No. 4 section. JWR management responded to the adverse roof conditions by installing 10-foot cable bolts in some areas. However, evidence shows they were <u>not</u> used in any of the crosscuts that contained slips.

JWR revised its roof control plan after the local union safety committee raised concerns about problems with roof control on the sections at its monthly safety meeting with JWR on August 14, 2001. After that meeting the Company submitted to MSHA changes in the roof control plan, which called for larger bolt holes and combination bolts. That revised plan was approved one week before the disaster, but it had not yet been implemented.

Chronological Events at the Roof Fall (Spad Location #13333) Prior To Explosion Friday, September 21, 2001:

- **Owl Shift**

According to the Section Report, the owl shift produced coal for a total of 70 feet. There is no evidence that problems were identified or that any supplemental roof supports were added to the area at spad #13333 (September 23, 2001 rock fall area) during this shift.

- **Day Shift**

During the beginning of the day shift on Friday, September 21, 2001, Greg Brown said his supervisor, Burt Duvall, told him the top had made a bump in the intersection (where the September 23, 2001 roof fall eventually occurred). Brown said he wanted some additional support to be installed in that area as a precaution. Duvall later said during the investigation that he had wanted the additional support due to the cracks in the roof and the water coming out of the top at that location. The intersection had six-foot resin bolts put in during development. Brown and Duvall spent approximately ten minutes examining the roof conditions that day. There were some cuts in the top but this was not an isolated spot on the section, according to Brown. Brown stated that in various spots on the section there were cracks, breaks, and water dripping from the top. Two roof bolters, David Terry and Wayne Bonner, were assigned by Brown to take their roof bolter to the intersection and to install 10-foot cable bolts. The day shift Section Report for September 21, 2001, indicates that 10-bolts were installed. Terry said that he encountered cracks and separations after drilling about six and a half to seven feet into the roof. He estimated that was where the Mary Lee seam met the main roof. Terry and Bonner encountered mud and water as they drilled above the six-foot bolts, which had been installed as the primary roof support. They also encountered a lot of methane gas liberating and blowing out most of the drill holes. They had to shut the power off the roof bolter because of the methane and they had to let the methane bleed off. Terry thought that at least one foot of his bolts was anchoring in the main top, while Bonner said that due to the mud and water, he did not know if his bolts were anchored in the top at all. Brown observed Terry and Bonner as they drilled into the mud, water and methane and installed the 10-foot cable bolts. Despite the adverse roof conditions encountered management did not install standing support (i.e. cribs, beams or posts) in the intersection**.**

- **Afternoon Shift**

The scoop charging station was advanced and set up in the crosscut between #1 entry (Spad #13339) and #2 entry (Spad #13333). A scoop battery weighing about 6 tons was then suspended from the mine roof at the location where the 10-foot cable bolts were installed. Section Foreman Mike Buchanan first noticed water dripping from the roof in the area of spad #13333 when the charger was moved up. There is no evidence that any supplemental roof supports were added to the area at spad #13333 (September 23, 2001 rock fall area) during this shift. Following the power move, the continuous miner was backed out of the face and parked at spad #13348. Buchanan was aware that cable bolts had been placed in the intersection at spad #13333 where the battery charging station had been placed. He had been told the cable bolts were put in after his boss, Burt Duvall, had heard a bump there.

Saturday, September 22, 2001:

- **Owl Shift**

Bruce Mabe and his crew produced coal on the owl shift Saturday, September 22, 2001, mining fifty-five feet of coal. During the entire shift, Mabe noticed water pouring at spad #13333. There is no evidence that any supplemental roof supports were added to the area at spad #13333 during this shift.

- **Day Shift**

Greg Brown and his crew produced coal on the day shift of Saturday September 22, 2001. According to Brown they started in the #2 entry and mined it, then mined #1 entry, #3 and #4, and then came back to #2 entry and mined part of it. This works out to approximately four-and-a-half cuts taken during the shift. There is no evidence that any supplemental roof supports were added to the area at spad #13333 during this shift.

- **Afternoon Shift**

The continuous miner was backed out of the face and moved outby to the power center so that work could be done on the miner. There is no evidence that any supplemental roof supports were added to the area at spad #13333 during this shift.

Sunday, September 23, 2001:

- **Owl Shift**

A fan check was scheduled on this shift and no one was assigned to the No. 4 section.

- **Day Shift**

Roof bolter Johnny Sealy, who worked that day shift, recalled seeing some sloughage of ribs, noting that every once in while he could hear something roll off or fall from the ribs. Sealy was originally assigned to bolt in the #4 face, but there was a power check that day and, because they had no power, he could not roof bolt. The foreman assigned Dave Terry and Sealy to move the supply hole up from one long break to the next long break toward the face. John Puckett, Sealy's foreman, had Sealy look at the area behind the charger, because the brattice at the bottom had busted out and there was a little hole at the middle bottom of the block in the brattice directly behind the charger. He also described seeing a crack in the roof over the charger around the middle of the top. Sealy explained that they examined the area sometime after lunch. The area had been "raining water" all day so it was just water that Sealy initially noticed, along with the continuous rib rolling. As he traveled past the battery charging station to the power center area, however, he noticed the roof looked different, and adverse. He noted that the raining was very different from the way it was on the last day he worked, Thursday, September 20, 2001.

Underground electricians Jeff Jarrell and Isaac Smith were doing a high-voltage check on the 7:00 am to 3:00 pm shift Sunday, September 23, 2001. Jarrel reported that they did not have any power most of the day on the No. 4 section. The continuous miner was already at the power center, so Smith and Jarrell worked on oil leaks on the miner all day. Jarrell recalled hearing one bump while working on the miner but could not tell exactly where it came from. Around 1:00 pm to 1:30 pm, Smith heard a pop in the roof by the crosscut away from the power center, near the battery charging station. At around 2:00 pm, power was restored and Puckett told Jarrell and Smith that they would need to move the miner. The scoop was inby the miner, so the miner had to be moved to get the scoop out. Puckett said the scoop was needed to carry cribs to the area of the battery charger to begin building cribs. After they finished moving the miner, Smith went back to the crosscut to see what was going on. This is when Smith noticed the brattice had taken weight and he went back and so informed Jarrell. Jarrell said both of them looked at the stopping behind the charger. It had cracks in it like it had taken some weight. They also looked at the bolts: some looked like they had taken weight, but these miners did not notice that the cable bolts in the intersection had taken any weight. Puckett came back and pointed out a crack going across the roofline. Smith stated that he and Puckett got some flags and flagged off the area so people would not go into the area. Smith also observed a crack in the brattice at the charger station where it was separating the #1 and #2 entry. According to Smith, the roof had an open crack in it, approximately three inches wide. Smith said that as a precaution, they put a methane detector spotter up in the crack and found .05% to .06% of methane. Smith saw water coming out of it with a crack that ran through the entry, up the rib and right across in a straight line, parallel with the crack that was in the brattice that was running diagonally into the crosscut separating the #1 and #2 entry**.**

Jarrell, who had worked on No. 4 section continuously for at least a month, had noticed on Friday that there was a little water dripping out of the roof; however, by Sunday he noticed quite a bit more. According to Jarrell, it was not like a rainstorm, but there was a noticeable difference in the amount of water coming out. He also observed a crack, about a quarter-inch wide, that went diagonally across through the stopping behind the charger. He saw the stopping had cracks in the blocks, though he did not recall seeing any holes in the wall. Jarrell also said he had seen top that was worse, but which did not fall, and the top in No. 4 section did not look “that bad”.

Smith, who normally worked on the longwall, said there was no discussion from Puckett about moving the charger and the batteries out of that area. He said that they knew the top was working, but evidently did not think it would be that severe**.**

There was no work done on the day shift that day to correct the roof conditions, other than hanging streamers as a warning to other miners.

- **Afternoon Shift**

On Sunday September 23, Key came in the office where Burt Duvall had already talked to John Puckett. Key stated (in both of his interviews with MSHA) that Duvall told him that they were having problems with the "top working" on No. 4 section. (Both Duvall and Puckett disputed telling Key this in their testimony to MSHA.)

Duvall had drawn Key a map showing where he wanted the cribs built, based on what Puckett had just told him over the mine phone. Key then took the pre-shift call-out from Puckett on the No. 4 and No. 6 sections. Key recorded in the fireboss book that "the top was working in the charger supply hole intersection of the No. 4 section." Puckett told Key they needed to work on building cribs and informed Key there were four bundles of cribs at the end of the track on a flat car. Key said he met Puckett at the bottom of the elevator shaft, where he said Puckett told him the top was working just outby the intersection on the corner.

Key got on the section around 4:00 pm and walked toward the area where Puckett told him the top was working. Key walked slowly observing the top; he could hear the top working in places, as well as the ribs cracking. As he was inspecting the roof, pin plates, and T-boards, he said he did not see any excess loading of the pins. He then continued up to the supply hole area to examine the top and he saw it was not working. Key was looking at the charger area and observed the brattice behind the charger taking weight and cracking, and he noticed a hole was starting to come in it. Key stated he may have seen cable bolts in the same area where the left rib was, between spads #13348 to #13333. The roof conditions that he observed close to the charger and in the areas inby the charger of the #2 entry, indicated the roof had been working a lot. Key said he would hear or see a rock fall, a rib roll and roof crack or pop in this whole general area of both the #1 and #2 entries, basically from the last open crosscut out three or four crosscuts. Key said he saw a slip running diagonally across the track entry across the charger into the #1 entry. This is where Key said they were supposed to build cribs on all four corners of this intersection and the area of which Duvall had drawn the map.

From there Key traveled inby to the power center and observed the top working. In this area, the left rib looking inby was taking some weight and there was a good bit of coal on the ground. Key then checked the backside of the brattice to see what the entry looked like. In the return he saw some temporary 4inch-by-4 inch wood posts that had not been taken out, but that were busted, cracked, and split open. Key said he could see the brattice was taking some more weight and there was a hole in it of approximately 2 feet. Key said the top seemed to be working all the way out to that slip and that is where they had started building the cribs. Key then said that the top had started working real heavy and, though water was dripping out when they got there, it had started to pour steady streams of water in the intersection. Key said he heard several loud thumps above and then heard a pop like a pin popping, one or two pops, described as loud shocks like pins breaking, then a couple more pins broke. He first saw one small rock fall in the intersection, then one large rock fell, then the whole intersection came in. (See picture RC # 2)

Roof Conditions on the No. 4 Section - Deputy Mine Manager Trent Thrasher, Senior Mine Engineer Robert Howell, Manager Mark Piper and a number of other members of JWR mine management were aware of the faults on the No. 4 section and knew that adverse conditions could

lead to roof falls and methane outbursts. They had employed various techniques in the past to enable entries to be mined safely, which included various types of supplemental supports, and taking out the middleman and Mary Lee seam to get up to solid top. The company had encountered adverse roof in the No. 4 section and could not hold the top in places, causing mining cuts to be reduced by two-thirds. Howell acknowledged that management was aware there were at least three series of fractures that came across the No. 4 section and extended out to the faces of the No. 6 section. Two maps created by MSHA titled "4 section discontinuity map" and "4 and 6 section joint zone" identified the areas of the No. 4 section where well-defined adverse roof faults and joints (slips) existed. (Figures #1 and 2 attached). Those maps were consistent with Howell's description. UMWA examinations verified Howell's statement, finding slips, mud slips, and joints prevalent in all entries throughout the discontinuity zone on the No. 4 and No. 6 sections. During these inspections and examinations on No. 4 section, the discontinuities were identified in the mine roof in areas over 500 feet outby the rock fall in the #2 entry. The discontinuities were documented during the disaster investigation by MSHA (See Figures 1 and 2) starting at the following locations:

A #1 entry - outby spad #13299
B #2 entry - outby spad #13312
C. #3 entry - outby spad #13302
D. #4 entry - outby spad #13300
E. The crosscut between #2 entry, spad #13303 and #3 entry, spad #13302.

Open joints measuring ¼ inch wide, up to 10-inch wide joint swarms and multiple directional slips/joints in confined areas also made up the discontinuities found in the roof of No. 4 section.

Numerous visible roof discontinuities were observed during the UMWA investigation and documented by MSHA in the two discontinuity maps referred to earlier and the "Roof Evaluation Map" dated January 23, 2002. Evidence indicated the existence of discontinuities prior to the September 23, 2001, disaster. Some are as follows:

- The primary roof support installed in the #1 entry at spad #13339, which was installed with straps across joints, left the plates of the roof bolts and metal of the straps at different roof plains. A similar condition existed one crosscut inby at spad #13339. (See picture RC #1) and in the #2 entry outby spad #13348. (See picture RC 2). Some of these joints extended into the crosscut toward spad #13333 (Battery Charging Station) where no straps were detected. Additional cross cuts were observed without straps between entries #1 and #2 including the last open crosscut. (See picture RC # 3)

- Mud was physically dug out of joints where the plain of the mud was the same as the mine roof, which was marked by the cutting bits of the continuous miner.

No Standing Support/Cribs Installed at Intersection Where Roof Fell on Battery - Standing support was a part of the supplemental support at the mine. Cribs and prop setter (posts) were used. Cribs were installed in the bleeder and longwall tailgate entries during retreat. But it was management's responsibility to see that they were installed to hold the top instead of cable bolts, when adverse conditions were encountered.

On the Friday before the disaster, it was reported that a bump had been heard in #4 entry and upon inspection by Section Coordinator Burt Duvall and Section Foreman Greg Brown, they found an adverse roof condition in the intersection of the #2 entry at the location where the roof fell on the

battery two days later. Duvall decided to have the roof supported by cable bolts instead of cribs. The roof area in question was also in the adverse fault or discontinuity zone on the No. 4 section.

The bolters reported that, as they installed the 10-foot cable bolts in the intersection, they encountered cracks and separations after drilling about six and a half to seven feet into the roof. They reported that they encountered mud and water as they drilled above the six-foot bolts, which had been installed as the primary roof support. They also encountered a lot of methane gas liberating and blowing out most of the drill holes and they had to shut the power off the roof bolter because of the methane, needing to let the methane bleed off. (One bolter thought that at least a foot of his bolts were anchoring in the main top, while the other said due to the mud and water on the side he was drilling, he did not know if his bolts were anchored in the top.) Section Foreman Brown said he watched the bolters the entire time as they drilled the holes. He also said they did not drill test holes to check conditions. Brown claimed that the bolts were in solid top. Wayne Bonner described the strata in the intersection where he and Dave Terry installed the cable bolts on Friday September 21, 2001, as abnormal. He said that both Terry and he encountered mud, water, and methane gas while drilling. He also stated that he drilled through some cracks in the intersection and that Brown observed the entire drilling and cable bolt installation. Mine management knew that they were going to move up a highly energized battery charger and battery the next shift and put it in that location.

When JWR # 5 Senior Mine Engineer Robert Howell was told (during the investigation interviews) of the conditions that bolters reported while drilling the holes for the cable bolts, Howell replied that he may have recommended that beams and cribs be put in at that time. Howell said that was because it was a condition that the supplemental support (cable bolts) would not develop the anchorage to hold. However, he said he was not informed about the roof conditions. Section Coordinator Duvall was asked (during the interviews) if he had been told by Brown, that the roof was fractured and mud was encountered during the installation of the cable bolts, would he have done anything differently. He responded that he would have put in standing supports. Duvall said he did not remember if day shift Section Foreman Greg Brown told him about the mud and water problems encountered while drilling the main roof where they installed the cable bolts.

The cribs Duvall had ordered (after section foreman Puckett called for them) did not get to the No. 4 section until the afternoon shift. A supply car with ten bundles of cribs had reportedly been delivered to the No. 4 section on Saturday between 3:00 am and 4:00 am. It could not be determined what happened to these cribs, except that possibly three bundles were used by Tony Key on the evening shift, September 23, 2001. The roof fell before the cribs were delivered to No. 4 section or built.

Inadequate Supplemental Roof Support on the No. 4 Section - The primary supplemental support that management utilized on the No. 4 section was 10-foot cable bolts. According to Howell the cable bolt was the first choice of supplemental supports when adverse roof was encountered. However, the investigation revealed that for some adverse roof conditions cable bolts were not utilized. Two maps (Figures 1 and 2) developed by MSHA identified a discontinuity zone consisting of slips and faults in the mine roof on the No. 4 section. This area is the general location that Howell and others reported to have had adverse conditions during mining. An Agency roof support map dated January 23, 2002, titled “Roof Evaluation Map”, identified where these supplemental supports did and did not exist, and described locations where cable bolts and straps were installed on the No. 4 section. A comparison of the MSHA maps indicates areas of well-defined joints (slips) in the discontinuity zone where cable bolts or straps were not installed. The MSHA “Roof Evaluation Map” identified that:

- There was no known pattern or density to the installation of cable bolts throughout the section or throughout the discontinuity zone. The quantity and frequency of cable bolt installation varied.
- A comparison of the quantity of cable bolts installed per entry revealed that 149 bolts had been installed in the #1 entry, 25 had been installed inby and 30 were installed outby the roof fall in the #2 entry, while 71 had been installed in the #3 entry, and 163 had been installed in the #4 entry. (More bolts were located in the #1 and #4 entries of the No. 4 section. The additional cable bolts were installed because they were to be used as the bleeders for the long term, according to JWR management).
- Only two cable bolts were installed in the "yield pillar" crosscuts between the #1 entry and the #2 entry. Those were installed between spad #13232 and spad #13231. Only one crosscut in the "yield pillar" crosscuts between #3 and #4 entry had any cable bolts installed; this was inby spad #13320, which had six cable bolts installed.
- Four cable bolts were located in the long crosscut between spad #13333 in the # 2 entry and spad #13340 in the #3 entry. No other cable bolts were found in any of the other long crosscuts.

Installation of Bolts and Test Holes - There were concerns about the installation of the roof bolts and the conditions of the strata in which they were used. The top two officials over the development sections at JWR # 5 Mine were Mark Piper (Section Manager) and Burt Duvall (Section Coordinator). When questioned during interviews as to what was adequate anchorage for a cable bolt, Piper said he did not know. When asked if he knew how much of a cable bolt needed to be grouted he said "not exactly, no." When Burt Duvall was asked similar questions could not give specific answers to these questions.

Howell, Piper and Duvall all confirmed that at least twice in the month of September, 2001, groups went to the No. 4 section to examine the roof. On at least one of these examinations, the group included Duvall, Howell, Owens (Manager of Geological Services, JWR Central Mining Office), and Ray Wilson (Jenmar Representative). One visit was made following a fall of roof inby spad #13318 in the #4 entry, which measured 12 feet long by 22.7 feet wide by 6 feet high. Duvall described that roof fall as a "blowout" with methane release. This is defined as methane pushing down the roof. During one of these September visits by Howell and others, holes were drilled in the roof of the #1 entry and the #3 entry. These holes were scoped with a strata scope revealing to the representatives of JWR and Jenmar that a 1/8 inch coal streak lay twelve and one half feet above the mine roof in the #1 entry, and that laminated shale, two inches thick, lay nine and one half feet above the mine roof in the #3 entry. The thin coal separation was just above the anchorage location of the 10-foot cable bolts used at the mine. Following these tests and after acquiring this information, management reported it continued the same supplemental supports and did not increase the length of cable bolts.

The UMWA investigation found only two test holes that had been drilled, and both were in the #1 entry and #3 entry. None was known to be drilled in the #2 entry, where the fall occurred. JWR # 5 management admitted that it did not drill test holes to check the strata above the roof when installing the standard bolts. Duvall said that not only did they not drill test holes when installing the regular 6-foot bolts, but he did not know how the roof bolters determined the strata above the coal without drilling the holes. Piper also said they were not drilled.

Roof Straps and Cross Beams not Installed on the No. 4 Section as Required by Plan - Also during these inspections and examinations on the No. 4 section where the discontinuities were identified, determinations were made concerning compliance with the MSHA approved Roof Control Plan. One of the minimum requirements of the roof control plan in effect at the time of the disaster stated, on Page 6 (1a) under "Safety Precautions for Full Bolting and Combination Plans," that: "When a slip or hillseam is encountered, straps or, depending on the severity of the condition, cross-beams shall be used." It was determined that this minimum Roof Control Plan requirement was not complied with in all areas of the No. 4 section. Crosscuts that had well-defined slips / joints did not contain cable bolts, straps, or cross-beams. The MSHA January 23, 2002, "Roof Evaluation Map", which identified where these supplemental supports did and did not exist, showed the absence of these supports in areas of the mine where faults and joints were identified by two other maps created by MSHA. Those were the "4 section discontinuity map" and "4 and 6 section joint zone".

The following locations were among those where joints (slips) and faults existed but where straps, and /or cross-beams were not used, as was observed during investigations made during the week of January, 2002 and later on the No. 4 section.

A. The crosscuts between #1 entry and #2 entry between the following spads:
   - spad #13304 and spad #13303
   - spad #13311 and spad #13312
   - spad #13317 and spad #13319
   - spad #13326 and spad #13332
   - spad #13339 and spad #13333 (Battery Charging Station)
   - spad #13334 and spad #13348
   - spad #13349 and spad #13352

B. Several areas between spad #13303 and spad #13319 in the #2 entry. This represents a distance of over 500 feet outby the September 23, 2001, rock fall in the #2 entry.

C. Areas in the long crosscut between spad #13303 in the #2 entry and spad #13302 in the #3 entry.

D. Areas in the long crosscut between spad #13319 in the #2 entry and spad #13320 in the #3 entry.

E. Several areas between spad #13302 and spad #13331 in the #3 entry.

F. The crosscuts between #3 entry and #4 entry at the following locations.
   - between spad #13302 and spad #13301
   - between spad #13313 and spad #13314
   - between spad #13353 and spad #13347

The areas referenced in items A through F above represent a distance of more than one thousand feet of mine roof where straps or cross beams were not present, contrary to the previously mentioned requirements in the MSHA-approved Roof Control Plan. Nowhere on No. 4 section had the mine operator considered the severity of the roof condition adverse enough to implement the installation of cross-beams, even though mud slips, open joints and up to 10-inch wide joints had been identified.

The investigation found roof fractures and discontinuities, absent the minimum requirements of the Roof Control Plan, and evidence that the roof discontinuities were present prior to September 23, 2001, on both the No. 4 and No. 6 section.

Entry Widths / Reduced Roof Bolt Spacings / Depths of Cuts in Abnormal Roof Conditions - The roof control plan for the JWR # 5 Mine allowed the mine operator to mine up to 24

feet wide entries. Senior Mine Engineer Howell said that the 24-foot width was only mined in the gate entries for the longwall set up. According to Howell, they needed to keep the entry widths at about 20 feet on the No. 4 section, and that anything greater than 22 feet would cause support problems. Nevertheless, the investigation disclosed a number of locations in the No. 4 section where the widths exceeded 22 feet --even in the discontinuity zone. Just inby and just outby where the roof fall occurred in the #2 track entry, the entry widths were measured at 25 ½ feet and 24 feet respectively. Even with the known faults affecting the roof, JWR took no action to reduce the entry widths in the adverse roof area in the No. 4 section.

JWR management stated that it would reduce the primary roof support spacing to 4-foot by 4-foot in areas of adverse roof. However, the No. 4 section had a considerable area of adverse roof – as mine management knew -- yet UMWA investigators did not locate 4-foot by 4-foot support patterns on the No. 4 section.

Only after the roof began to fall out in face areas, the company reduced the depth of continuous mining machine cuts. Duvall was asked by MSHA; "What was the depth of the cut you were taking on 4 section?" He said: "Depth of cut would range between 20 and 25 feet depending on top conditions". He told investigators that the roof conditions on the No. 4 section would have permitted 20 feet or greater cuts up to the week before the explosion. Nevertheless, cuts of 25 feet were taken as late as September 22, 2001, long after entering the fracture zone.

Findings - With the knowledge that there would be adverse roof conditions encountered during development of the No. 4 section, and after encountering a series of fractures, slips, and/or joints the operator needed to more effectively implement prudent roof control measures from the list below:

- Installing standing support in adverse roof conditions when this type of support was needed to prevent the failure of mine roof;
- Installing straps and crossbars as required by the approved roof control plan as a minimum safeguard;
- Installing longer bolts prior to approaching the fault zone and systematically throughout the fault zone that would anchor above separations that could lead to failure;
- Reducing the maximum 24-foot width of development entries and reducing the diagonal cross section of the four-way intersections in this adverse roof zone to reduce roof stress;
- Reducing the distance between roof bolt installation as primary roof support from 5-foot by 5-foot to 4-foot by 4-foot;
- Evaluating roof conditions by drilling test holes to determine primary roof support prior to approaching, and routinely, through this zone;
- Maintaining standing support (prop setters and cribbing) on the sections as required by the regulations, particularly on sections where adverse roof conditions existed. Installing standing support in advance of roof failures where bolting is questionable in holding the roof;
- Suspending extended cuts to prevent weakening of the roof as they entered the fault zone; and
- Implementing twin seam mining to remove the fractured strata allowing permanent roof supports to be installed in the main roof, as the operator had successfully done in other areas of the mine.

A failure to control the mine roof and placing the unprotected battery and battery charger under the roof in a fracture area that had given signs of instability set the stage for the explosions and ultimate disaster at the JWR # 5 Mine on September 23, 2001.


Figure 1
4 section discontinuity map
Feet
0
400
Joint or fault
N25W Orientation
N
Roof fall
DRAFT

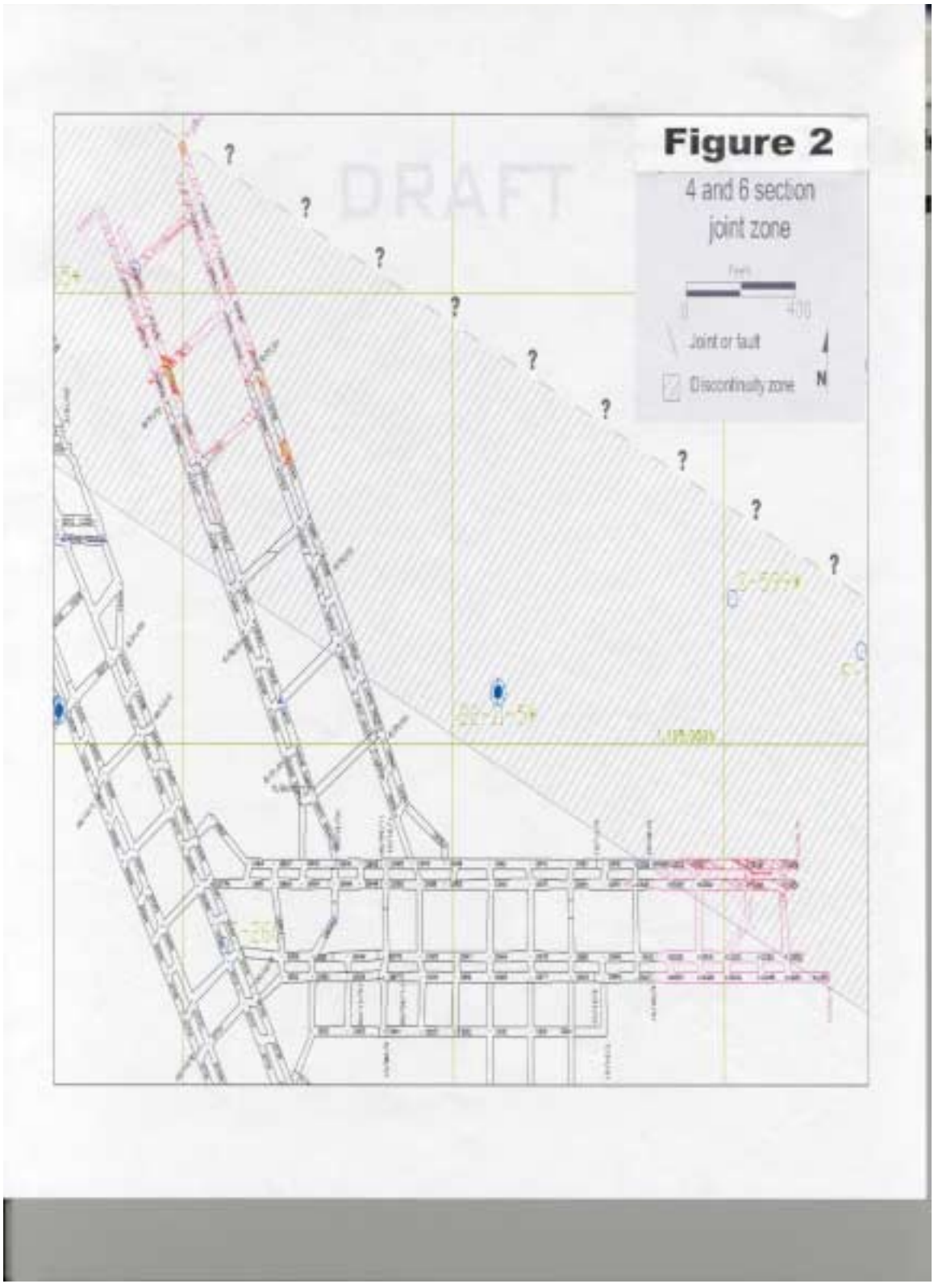


Figure 2
4 and 6 section
joint zone
Joint or fault
Discontinuity zone
N
DRAFT

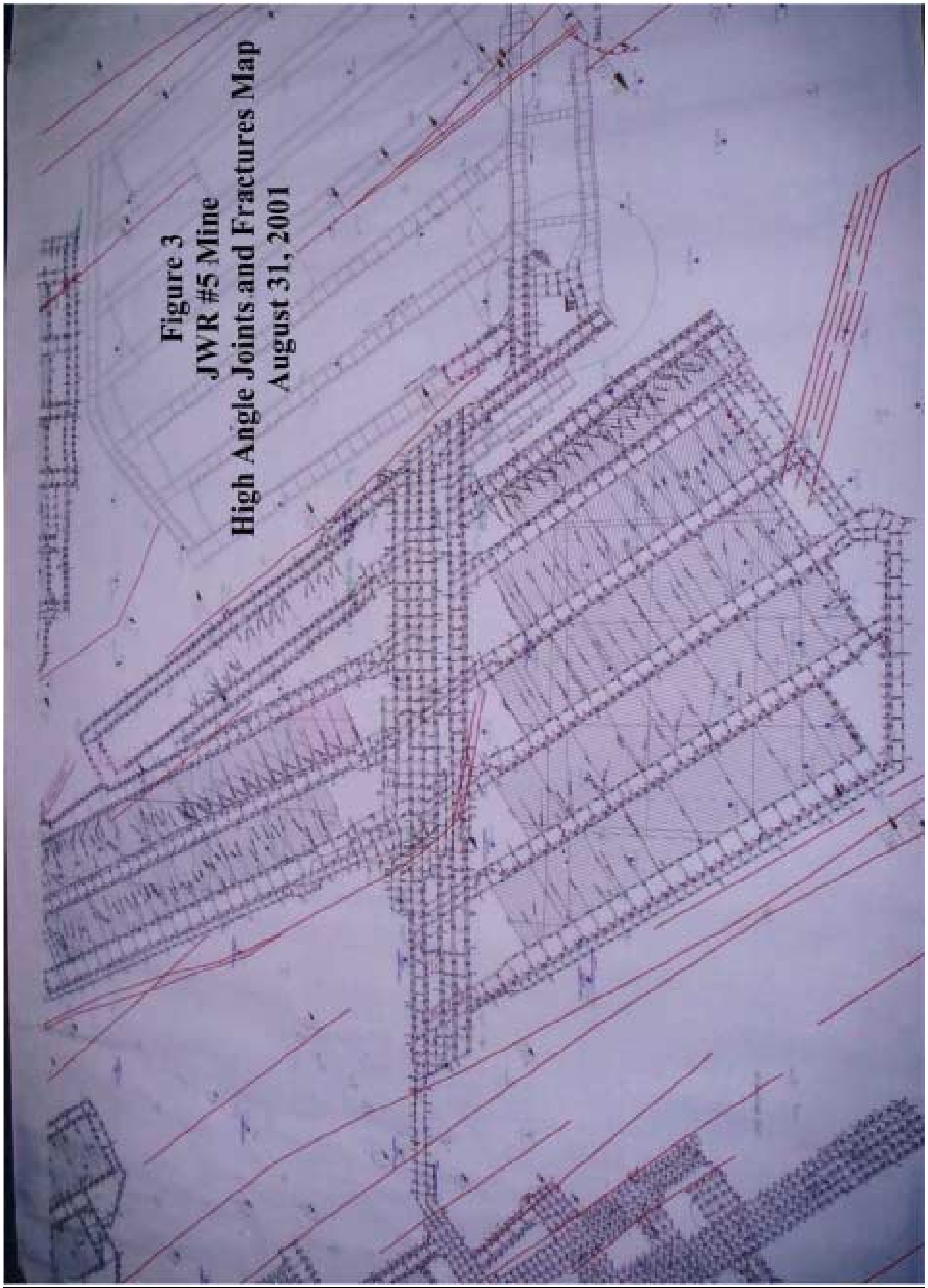


Figure 3
JWR #5 Mine
High Angle Joints and Fractures Map
August 31, 2001

RC # 1

The roof of the crosscut above the scoop between Spad 13352 in the #2 entry is shown without any straps installed. This was evident in all the crosscuts between # 1and # 2 entries even when the slips and joints were well-defined in the roof of the crosscuts.

RC # 2

This picture was taken facing outby at Spad #13348 in the # 2 entry toward the rockfall at Spad #13333. A well-defined joint/slip can be seen in the roof. The roof straps and roof bolt plates can be seen across the joint/slip running diagonal from right to left. This is a clear indicator that this well-defined joint/slip was present at the time of the roof bolt installation.

RC # 3

This picture was taken from Spad #13344. Roof straps and roof bolt plates can be seen across joint/slips leaving the plates and the metal of the straps at different roof plains. This also existed in the # 1entry at spad #13339 where it entered the crosscut at the battery charger.

Float Coal Dust / Rock Dust

Whether float coal dust increased the violence of the explosion forces and the death toll on September 23, 2001, at the Jim Walter Resources # 5 Mine was a primary area of concern the UMWA, particularly after reviewing the troubled compliance history of the JWR # 5 Mine. Mining laws require coal mines to be adequately rock dusted to neutralize the highly explosive float coal dust that can accumulate when coal is being mined. Proper rock dusting is critical to prevent the explosion of the fine dust generated from mining activities. Float coal dust can become suspended in the air, and ignite or explode, upon meeting an ignition source. If methane or other gasses explode, suspended float coal dust will increase the explosive forces.

Investigators examined numerous records, statements and documents to determine how float coal dust was controlled in the mine and how "rock dust" was applied to reduce the potential for explosions. Many of the records, including enforcement documents issued by MSHA, revealed that the mine had serious problems controlling float coal dust and accumulations of combustible material, overall. The JWR # 5 Mine had a high number of rock dust / accumulations of coal and float coal dust and combustible materials violations. In less than nine-months immediately preceding these explosions (January 1, 2001 to September 23, 2001), MSHA issued the JWR # 5 Mine 79 citations on combustible materials and rock dusting -- mostly for accumulations of coal and float coal dust. A number of the citations extended for thousands of feet. In the last three weeks leading up to the disaster, MSHA cited the mine operator ten times for accumulations of float coal dust. The float coal dust violations ranged from about 300 feet to 7,000 feet and covered areas throughout the mine. The total area cited by MSHA during the prior three weeks covered over 22,000 feet in the mine. The No. 4 section had been cited for float coal dust just four days before the disaster: 300 feet of float coal dust was cited in the No. 4 section belt entry and 1,000 feet of float dust was cited in that section's left return. These amounts do not reflect the entire section, in that it was not entirely inspected on that day.

When the investigation team was able to examine the mine after the explosions, digging into the packed material on the mine floor, the dust in the last open long crosscut in the No. 4 section appeared black with little evidence of rock dust. Heavy coking was found in the same area as well as in the heading leading into the face of # 3 entry.

Rock dust and coal dust samples were taken throughout the JWR # 5 Mine during the investigation. The samples were sent to the MSHA coal dust analysis facility in Mount Hope, West Virginia for testing. The UMWA made several requests to obtain the results of these samples, but MSHA officials initially denied the requests. Only after MSHA released its final report to the general public was the UMWA able to review the sampling information. The data from those samples is vital to our report. It provides the overall combustible content information and reveals the condition of the mine prior to the explosion.

According to the Federal Code of Regulations, the incombustible content of the combined rock dust, coal dust, and other dust must be maintained to at least 65% in the intake air courses and at least 80% in the return air courses, in the absence of methane.

There were a total of 648 underground samples collected by various teams over four different time periods. The types of samples collected included band samples taken around the entire perimeter

at each location, roof-rib samples, and roof-only samples. At the conclusion of each day's sampling activities, the samples were packaged and transported to Mount Hope for testing and analysis with the results as follows:

- Of the 648 samples collected, 338 samples were collected outby 3-East; 89 of these samples did not meet the incombustible requirements.
- A total of 310 samples were collected throughout 3-East, 4-East, No. 4 section, No. 6 section, and the connecting entries for the 5-9 Shaft. 305 of these samples were tested and found be below an incombustible content of 65% in the intake air courses and an incombustible content of 80% in the return air courses. 123 of these 310 samples collected were band samples and were the only samples used by MSHA to determine if the JWR # 5 Mine complied with the regulatory requirements. The results determined that 121 of these samples, which calculates to 98.4% of the band samples collected, did not meet the regulatory requirements for incombustible content of the combined rock dust, coal dust, and other dust.

MSHA noted that two (2) activities took place during the recovery, which could have affected the sample results:

The first activity was the water pumped into the mine through the 5-9 shafts to extinguish the fire on the No. 6 section and to isolate the explosion area from the rest of the mine. MSHA explained that most of the mine inby 2-East was inundated. It further explained that surface moisture was removed before testing. According to MSHA, if inherent moisture increased as a result of the flooding, the incombustible content of the samples would have been further increased. Only inherent moisture, not surface moisture, contributes to incombustible content of mine dust.

- The sample results collected and analyzed for the No. 4 section were not affected by the flooding because the water level never reached this section. All 31 samples collected on the No. 4 Section were below the requirements for incombustible content.

The second activity was the dumping of rock dust into the 5-8 Intake Shaft. Approximately 88.5 tons of rock dust was pumped into the shaft during the recovery operations to cover the surfaces inby the 2-East area of the shaft. This was done to increase the safety of the rescue teams while they performed recovery work. According to MSHA, this additional rock dust would have elevated the incombustible content of the samples taken from the affected areas.

Following a review of the testing and analysis results of the dust samples collected, evidence shows that the JWR # 5 Mine had inadequate rock dust application that allowed float coal dust accumulations to occur. Consistent with MSHA's findings these accumulations became a major source of fuel for the second explosion. This increased the forces and damage of that explosion that led to the death of at least 12 of the 13 miners.

The UMWA investigation disclosed that top JWR mine management provided training that instructed certified mine examiners not to record float coal dust found during examinations in the "official" mine examination books. Therefore, the legally-required examinations records could not be relied upon to determine how much float coal dust may have accumulated throughout the mine in the days leading up to the disaster. These same records also could not be relied upon to establish whether corrective actions were ever taken. The investigation revealed the mine operator failed to accurately identify the float coal dust hazards and to have them recorded in the "official" examination book.

Interviews conducted during the investigation also revealed there were more float coal dust hazards throughout the mine than the mine examination books reflected.

The violations MSHA issued for accumulations of combustible material and float coal dust at the JWR # 5 Mine identify inadequate rock dusting and cleanup at the mine. Several miners interviewed during the investigation also described flaws and cutbacks in the rock dust procedures at the mine prior to the explosion.

Rock Dust Used at the Mine – The Company purchased rock dust from various suppliers, it was stored on the surface area of the mine and transported underground as needed. Some of the bulk dust used at the mine was described by miners who applied it as being gray in color, damp, fine, sandy, with marble-sized lumps, containing metal, being hard or slow to pump, heavy, plugging the lines and not sticking to the mine roof or ribs. Miners complained that the use of this dust often damaged the bulk dust tanks. Other dust used however, did not have those problems.

In addition to the dust that was applied by the bulk dust tanks, JWR used semi-bulk bags on the sections and 50-pound bags throughout the mine. On each section, a pod duster filled using 50-pound bags was to be used on that return during mining. Also, 3,000-pound semi-bulk bags were to be used in the section returns. Two of these bags were to be spread, per crosscut, in the first block outby the face on the footwall (mine floor) during the move-up process according to a standard operating procedures guide for the sections. The sections also had a scoop-mounted bantam duster that the service crews used to dust recently mined areas using the 50-pound bags of dust. This machine would blow dust through a flexible hose.

Problems With Rock Dusting the Mine - There were eight job bid classified rock dusters working at the JWR # 5 Mine on September 23, 2001. Four miners worked the 11:00 pm to 7:00 am shift, two worked the 7:00 am to 3:00 pm shift and two worked the 3:00 pm to 11:00 am shift. According to miners, the rock dusters applied the dust to areas of the mine outby the section or last open breakthrough using track-mounted bulk tanks. Each crew had an area in which they mainly worked but they could be sent to dust other parts of the mine or to perform other work, pursuant to instructions by their supervisors.

Evidence found that the dusters were required to install pipe so that the dust could be blown in the returns and the belt entries. This pipe was hung in each crosscut as the sections advanced and allowed the dusters to connect a flexible hose to one end of the pipe while the track-mounted bulk tank was hooked to the other end. A rock dust crew generally consisted of three miners on each shift, one operating the bulk tank and the other two dragging the hose that they were rock dusting with, however, sometimes there were fewer dusters. Complaints were raised about having fewer members on the crew than was necessary to adequately complete the job. This made it difficult on those trying to get the dusting done. The company started having the rock dust crews place tanks at locations throughout the mine and turn them on, without an operator, between shifts. This type of dusting was described as “phantom rock dust tanks”.

The No. 4 section ran three shifts, with workers now switching over at the face, at least 5 days a week. However, for many years, up until early 2001, rock dusters said they worked nine-hour shifts, so that dust could be blown in areas such as belt intakes, track and returns while the sections were idle between shifts. When the JWR # 5 Mine began producing coal between shifts by relieving the crews at the working face, the rock dusters worked eight hour shifts.

According to one classified rock duster, the dusters did not have their own assigned motors, and there was a shortage of motors for the rock dust crews to use. The JWR# 5 Mine used motors to move supply cars, rock dust tanks, and other duties. This meant that on occasions, the dusters would have to wait for the motormen to help them move the dust tanks to the job site instead of doing it themselves. This was reported as occurring about half the time. Moving the dust tanks required the use of two motors on each loaded tank.

Installation of track did not keep up with the mining development and section advancement. This meant that rock dust pipe had to be hung over greater distances so that rock dust could reach the areas to be dusted. Pumping rock dust a longer distance increases the time needed to apply it. When working nine hours, evidence indicated that the crews would average two to three tanks per shift; with the reduced shifts they would pump only an average of one tank per shift.

Deputy Mine Manager Trent Thrasher noted there was no specific management person who oversaw rock dusting at the mine, and there was not a cycle to the rock dusting. He explained that when an area needed dusting, it was scheduled to get dusted as soon as possible. Don Fowler, haulage coordinator for the JWR # 5 Mine, who has 22 years at the mine, admitted that he was unaware of the company doing any rock /coal dust surveys. The company apparently let MSHA inspectors do rock dust sampling for them. Further, despite the assertion that production concerns did not interfere with rock dust maintenance, statements by both miners and mine management refuted this claim.

Jesse Cooley confirmed that there was no standard protocol for ensuring all areas of the mine were rock dusted. He also said that one or two people may have had sections assigned to them, for purposes of maintaining sufficient rock dust, though he was not familiar with that practice. While Cooley suggested that rock dusts crews were <u>not</u> shut down and utilized to move longwall equipment (saying that miners from the section or other outby people would be used for longwall moves), evidence showed that rock dusting was affected.

During the longwall move in early September 2001, the motors used by the rock dusters to move the dust tanks were utilized to move the longwall equipment. This meant that rock dusting was limited during this longwall move. Haulage coordinator for the # 5 Mine Don Fowler was responsible for the motors used in the mine. He said that the motors assigned to the longwall move, which took about six or seven days, <u>did</u> affect the ability to rock dust the mine during this time period. The purchase orders (JWR numbers 10793-10909) also show reduced purchases of the bulk dust used by the track-mounted dusters during the longwall move. Records supplied by JWR (exhibit numbers 10793 – 10841) show delivery of Chemical Lime products to JWR # 5 are as follows:

March starting (3-23-01) - four loads totaling 115 tons
April of 2001 - eight loads totaling 228 tons
May of 2001 - eleven loads totaling 324 tons
June of 2001 - seven loads totaling 200 tons
July of 2001 - five loads totaling 143 tons
August of 2001 - ten loads totaling 294 tons
September of 2001 – two loads, (9-4-01 and 9-21-01) totaling 56 tons, prior to 9-23-01.

These purchase records disclose that the amount of dust purchased during the month of September was far less than in previous months. This reduced purchase of the bulk dust coincided with testimony that during the month of September tank rock dusting was about half the normal amount.

MSHA Inspection of the No. 4 Section Prior to the Explosion - On September 20, 2001, MSHA Inspector Jarvis Westery reported to the JWR # 5 Mine to do an inspection of the longwall electrical equipment. The longwall had just been assembled for this panel and was required as being part of the normal quarterly inspection to have an electrical examination by MSHA for permissibility to ensure no openings in the electrical boxes were present that could serve as an ignition source. However, Inspector Westery was diverted from going to the longwall on September 20, he instead checked carbon monoxide (CO) sensors and collected rock dust samples on the No. 4 section. On September 20, 2001, three violations were written by Westery on the No. 4 section under part 75.400, Sub-part E, Combustible Materials and Rock Dusting. Those were:

1. Loose coal and muck was allowed to accumulate in the belt entry tail roller extending 20 feet outby, five feet wide, fifteen inches high, also, on the off travel side, loose coal had accumulated behind the wing measuring up to four feet high by five feet wide by ten feet long. (There is no record that this violation was corrected in the required examination records and MSHA did not re-inspect the area prior to the explosion to verify abatement. JWR documents show the violation was worked on during the September 20, 2001, day and afternoon shifts; JWR claims the violation was corrected).

2. Float coal dust, black in color was allowed to accumulate over previously rock-dusted surfaces in the 4-east belt entry. The accumulations were observed on the mine floor and adjoining crosscuts starting at the belt drive area and extending to the Header. This is for a distance of approximately 300 feet. (There is no record that this violation was corrected in the required examination records and MSHA did not re-inspect the area prior to the explosion to verify abatement. JWR documents report that the violation was worked on during the September 21, 2001, midnight (11:00 pm to 7:00 am) shift; this would have been after the violation abatement deadline had passed. Documents did not reveal that the violative conditions were corrected).

3. Float coal dust, black in color was allowed to accumulate over previously rock dusted surfaces in the 4 section left return air course. The accumulations were observed on the floor starting at spad number 13304 and extending for 1000 feet. (The examination records did not contain evidence that the condition was corrected and MSHA did not return to re-inspect the violation after the abatement date had passed. JWR records indicate that during the September 21, 2001, midnight (11:00 pm to 7:00 am) shift work was performed on this violation. Those records do not show the condition was corrected. Evidence shows the rock dust crew dusted from the back drop at the last open crosscut out one crosscut that night, using one tank of dust, which is questionable if that would be sufficient for the area. Spad #13304 was located three crosscuts outby the last open breakthrough.)

During the September 20, 2001, inspection, Westery collected dust samples for combustible content on the No. 4 section at 0+00 and at 0+500 locations. The results of the rock dust samples taken by Westery on September 20, 2001, (revealing that at least half of the samples were out of compliance) are as follows;

Lab #	Bag Number	Sample of	Location in Mine	Results
			No. 1 Entry Return	
S82441	1A1	Band	0+00	98.2
S82442	1A2	Band	0+500	83.1
			No. 2 intake (Track Entry)	

S82443	1B1	Band	0+00	41.3	
Lab #	Bag Number	Sample of	Location in Mine	Results	(continued)
S82444	1B2	Ribs	0+500	64.5	
			No. 3 intake (belt entry)		
S82445	1C1	Ribs	0+00	65.8	
S82446	1C2	Band	0+500	64.4	
			No. 4 Entry Return		
S82447	1D1	Band	0+00	63.7	
S82448	1D2	Ribs	0+500	84.6	

Dust sampling is part of the quarterly inspection required under the Mine Safety and Health Act. The sample results that are listed above give the non-combustible content of the combined coal dust, rock dust, and other dust. Regulations require the dust in return entries to be no less than 80% incombustible and the intake entries to be no less than 65% incombustible. Keeping the dust non-combustible prevents the coal dust from becoming explosive if it becomes dispersed into the air. The results of the bag samples numbered 1B1, 1B2, 1C2, and 1D1 (the track, belt and right return entries) contained greater amounts of combustible coal dust than permitted by part 75.403 of the Code of Federal Regulations. Those regulations also require increased non-combustibility of the mine dust where methane is present. Part 75.403 also states:
Where methane is present in any ventilating current, the per centum of incombustible content of such combined dusts shall be increased 1.0 and 0.4 per centum for each 0.1 per centum of methane where 65 and 80 per centum, respectively, of incombustibles are required.

Other evidence indicated that methane was present in the right return at levels as high as 1.2% on September 20, 2001 (the day this dust sample was taken). The presence of methane in the return should have been factored into the rock dust sampling, increasing the 80% level accordingly. Using the formula in 75.403 means that a minimum non-combustible content would have to be 84.8%, given the presence of 1.2% methane. The non-combustible content in the right return was less than 84.8%. The mine operator examination book had excessive methane in the No. 4 section recorded on each of the four days prior to the disaster.

Coal Dust / Rock Dust Violation History at the JWR # 5 Mine – The company's violation history shows that float coal dust and combustible material violations were a significant problem at the JWR # 5 Mine. In 2000, the JWR # 5 Mine was cited 110 times for violating the combustible material / rock dust standards. Over thirty-one involved float coal dust, coal dust or coal accumulations, with each covering a distance of 500 feet or more. For at least fifty-six (or just over half of those) MSHA did not check for correction on the abatement date, and at least twenty-seven of those went unchecked four or more days after the legal deadline for correction had passed. MSHA cited over 90% of those as "non S&S" violations; nearly all the violations MSHA cited listed only "one person" as being affected by the conditions. MSHA's actions (in not using certain enforcement tools available to it) helped keep the operator fines low. Section 104 of the Mine Act gives MSHA the power to take tougher enforcement actions, including issuing closure orders, at mines where the operator unwarrantably fails to comply with the mine laws. By way of comparison, in 2002, MSHA cited the operator at least seven times under the Mine Act for unwarrantable failures to comply with the combustible material / rock dusting standard.

The JWR # 5 Mine continued to exhibit a pattern of non-compliance with the combustible material / rock dust standards in 2001. Seventy-nine combustible material and rock dusting citations/orders were issued in the nine-month period of January 1, 2001 through September 23, 2001. For fifty-two (or approximately two-thirds), there is no evidence to show the violations were abated as required. Seven were fifteen or more days past the abatement date before MSHA re-inspected the areas, including seven that remained outstanding at the time of the explosion. Over 80% were cited using the weaker "non S&S" enforcement tool. Ninety percent were cited by MSHA as conditions affecting only one person. MSHA did not cite the operator for an unwarrantable failure to comply for any of the combustible materials / rock dust violations cited in 2001. The extent of the problem in 2001 includes: nineteen citations/orders issued for this condition in excess of 500 feet, eleven (11) in excess of 1,000 feet, five in excess of 2,500 feet and two for a distance over 5,000 feet. Despite the magnitude of the problem, MSHA cited only five of these as "Significant and Substantial".

MSHA's failure to vigorously enforce the Act and to require timely corrections likely contributed to the widespread violations in the mine. By citing most of these as "non S&S", leaving little threat of hefty fines or closure orders for repeated violations, and allowing the accumulations of coal and float coal dust violations to languish for days or weeks after its own deadlines for correcting the conditions had passed, and citing only "one person" as affected by the violation, MSHA did not curb the operator's non-compliance.

A number of complaints by miners about the rock dusting practices at the JWR # 5 Mine were raised during the investigation. Those concerns need further investigation by MSHA.

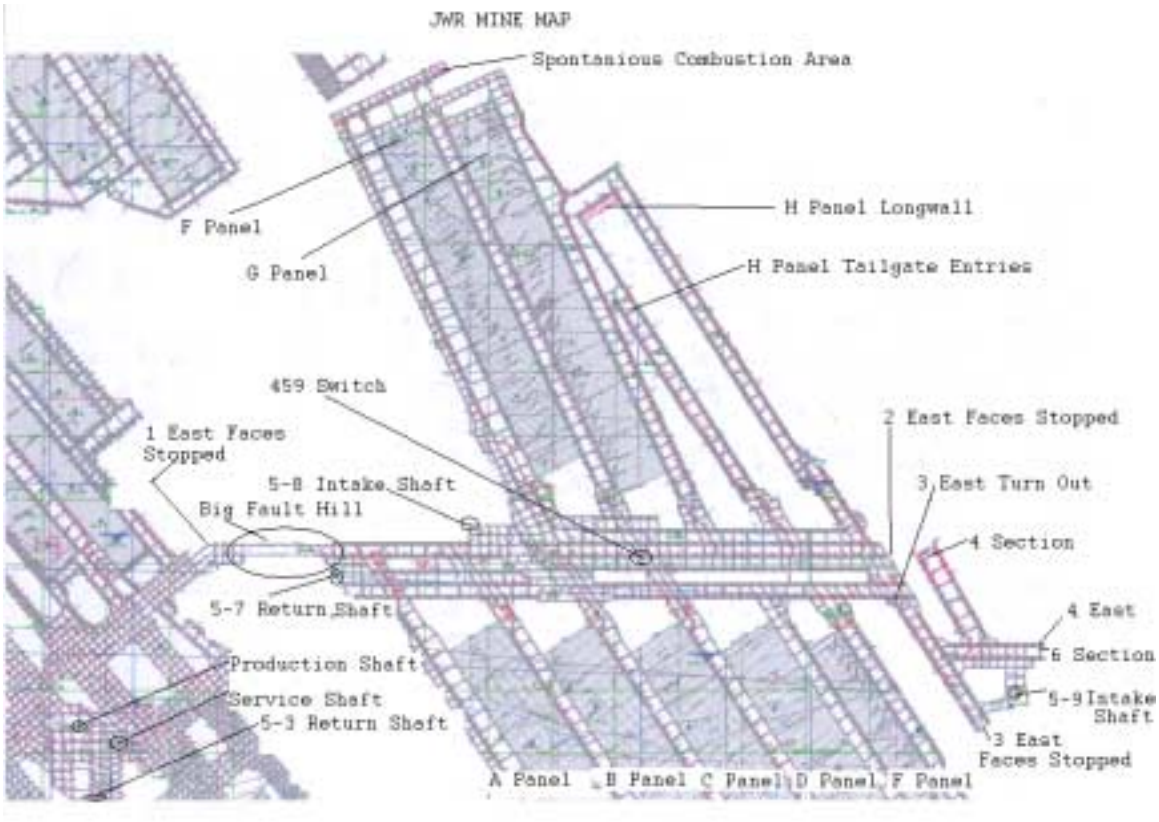
Mine Ventilation

Another area that was a particular focus of attention during the UMWA's investigation was the mine ventilation. From the outset of the investigation into the disaster, many miners expressed criticisms about mismanagement of the ventilation system at the # 5 Mine. A review of the mine operator examination books, MSHA inspection records, interviews of miners and mine management personnel, and the review of numerous documents and plans confirmed that serious deficiencies existed in the mine ventilation system at the JWR # 5 Mine. Some difficulties were brought about by the challenging conditions that were beyond the norm, and which required increased attentiveness. Some, however, were brought about by the way these special challenges were actually handled and mismanaged by mine management. Evidence also disclosed that methane problems existed at the mine, some of which were not documented by required company records. MSHA issued ninety-two violations regarding ventilation standards (30 CFR 75.300) in just the last nine months (January 1, 2001 to September 23, 2001). Of that, twenty-one were cited as "Significant and Substantial".

The investigation also disclosed that the mine operator had made major changes in the mine ventilation system, about five months prior to the disaster. Those changes had not been submitted to MSHA for review and approval under part 75.370 of Title 30 CFR, though the law requires such changes to be submitted and approved. They involved adding a new air shaft in the mine and changes in ventilation to the working sections. Those unapproved-changes were in place at the time of the explosion. MSHA inspections, over a five-month period, failed to address this serious violation of the law. Miners raised numerous concerns during the investigation calling on MSHA to investigate the ventilation problems at the # 5 Mine. A number of these are cited in this section.

Geological conditions, some altering the mining plans of the # 5 Mine as it was developed, and changes in the ventilation system, set the stage for the difficulties that were encountered. Numerous faults in the coal strata were encountered as the mine was developed, causing changes in the location, and number of entries. That included dramatic changes in the main entry development and longwall panel locations. The faults left noticeable roof fracturing and, at times, a shift in the coal seam exposing a rock fault in its place. A vein of pyrite lay just beneath the mine floor that caused spontaneous combustions when exposed to air and moisture when the floor heaved in mined-out areas. Methane at times built up in the coal seam and was released into the mine atmosphere, requiring extraordinary attention to mine ventilation. The massive overburden, which loads up on the soft coal pillars, had an impact on ventilation controls. This required special attention during installation, examination and maintenance activity. (Ventilation Controls are addressed in other areas of the report.)

Development of the JWR # 5 Mine 1995–2001 - The ventilation and return air capacity in the # 5 Mine was limited in the summer of 1995, as two entries were developed off the older part of the mine to serve as the connection for future development. Because of the displacement of the coal seam (replaced with stone), the company encountered difficulty mining. Two entries (instead of three that were planned) were mined through an area of solid stone for a distance of over 1,200 feet called "Big Fault Hill," It had only a track and a belt entry developed through it. That divided the mine into two parts: the old area serviced by the 5/3 return shaft fan, which included the service shaft (manhoist) and production shafts; and the new development of the mine inby "Big Fault Hill," which is serviced by 5/7 return shaft fans.



Just inby the 5/7fan shaft, the main entries (2-east) expanded to twelve headings or entries (six intake, six return), which was at the 5-8 intake shaft. Those continue until they stopped where the H longwall panel was developed to the northwest, and the 3-east sub-mains were developed to the southeast. The 2-east mains was stopped at this point due to faults in that area. The mains were then developed off of 3-east to the east; this became 4-east. Entries were also developed from the southern portion of 3-east toward the 5/9 air shaft area. The H longwall panel development entries were offset and the longwall panel was shortened to avoid faults in that location.

The future longwall panel that was being developed at the time of the disaster (No. 4 and 6 sections) was several months behind schedule as a result of the changes in development to the mine around the fault area at the end of the 2-east mains. Plans to develop another set of entries (called the A-2 east panel) parallel to 3-east to assist with the ventilation had not been implemented at the time of the explosion. Four approaches were planned to the 5/9 shaft as shown on the JWR # 5 Mine map dated April 27, 2001, however only two had been mined by September 23, 2001.

The return air from areas east of Big Fault Hill was coursed through the 5/7 return shaft. Miners raised concerns about the high resistance on the 5/7 return shaft. Some reported that the 5/7 fans had stalled. During recovery efforts following the September 23, 2001, explosion, the pressures on the fan were a concern . The top ventilation official for JWR acknowledged that the 5/7 fans were operating at the top of operating performance pressure-wise, which was reported to be around 19 inches. The fan readings supplied by JWR for the time periods July 25, 2000 through September 23, 2001 showed that the 5/7 fans ran with water gauge readings never below 15.7 inches and as high as 20.7 inches. The JWR # 5 Mine General Service Coordinator Robert Statham reported that on occasion the pressures were so high that it had sucked out two overcasts. The introduction of the 5/9 shaft, in April 2001, decreased the intake air pressures and total intake air increased, but the pressures on the 5/7 fans were adjusted back to maintain the maximum pressure in the mine, according to JWR Manager of Ventilation.

Because of ventilation needs of the H panel longwall development entries and the No. 4 and 6 sections, the 5/9 shaft, which was being developed as a return air shaft, was temporarily placed on line as an intake shaft in mid-April 2001. When that occurred, major changes were made in the mine ventilation system. The ventilation of the H panel longwall development entries and the No. 4 and 6 sections were all changed. They began receiving intake air from the 5/9 shaft to ventilate the intakes, track and belt entries, replacing air from the 5/8 intake shaft. Directions of air were reversed, return and intake air courses were re-designated, and ventilation controls including regulators or stoppings were installed. Air regulators were installed on the shaft bottom at the 5/9 intake air shaft.

Due to the extensive damage from explosive forces and water pumped into the mine, the exact locations and settings of intake regulators associated with the 5/9 shaft on September 23, 2001, could not be determined. However, evidence revealed that there were regulators in the two entries to the north of the 5/9 shaft. The third entry to the west was reported to be un-regulated. The production sections (H panel longwall and development entries, No. 4 and 6 sections) were linked together by the 5/9 intakes with the returns coursed through the 5/7 return shaft.

The “Ventilation Report” filed each month under Alabama mining laws listed 115,995 cfm of intake air entering the 5/9 shaft on April 31, 2001, shortly after the shaft went on line. The 5/9 shaft reached a high of 739,752 cfm on June 29, 2001, and was measured at 678,065 cfm during the last “Ventilation Report” reading on August 31, 2001. At the time of the September 23, 2001 explosions,

the 5/9 shaft was being converted to a return shaft. Construction of an exhaust fan structure on the surface at the 5/9 shaft was underway when the explosions occurred.

Concerns were raised during the investigation about the impact of the ventilation changes that warranted investigation by MSHA. Miners reported that after the 5/9 shaft was put into service in mid-April 2001, air on the working sections often seemed inadequate. There were reports that air on 3-east track, No. 6 section belt and 3-east belt had reversed and that a dead air space existed between 4-east switch and the 5/9 shaft entries; ventilation problems on the east side of mine increased as it was mined away from the 5-7 fan; and air on the No. 4 and the No. 6 sections also decreased as they advanced. With the starting up of the H panel longwall on September 14, 2001, just two weeks prior to the explosions, ventilation problems increased.

The JWR # 5 Mine map was found to be inaccurate, and there was confusion by management personnel over the direction of air and ventilation controls in the mine. During this investigation, JWR officials had difficulty explaining some of the ventilation system on the mine map and gave conflicting information during the official interviews. Some key JWR mine officials responsible for ventilation underground and mine examinations gave the appearance (during their investigation interviews) that they were unfamiliar with examination of the ventilation system and some examination records did not meet the requirements of the law. In some cases, required air readings in the air courses were not recorded. Some examinations were not made at required locations.

As of September 23, 2001, JWR # 5 had two advancing continuous miner sections operating: No. 4 section and the No. 6 section with both less than 3000 feet from the 5-9 shaft. The No. 4 section had two return entries, the #1 and #4 entries, with air entering the section using the #2 track and #3 belt entries. The No. 6 section also used the #1 and #4 entries for return. The #3 track entry was the only entry the No. 6 section had for an intake. The No. 6 section belt entry and the 3-east belt entry had the belt air going in the outby direction. These two belts were the only belts that air was coursed outby in the JWR # 5 Mine. The air coming out from the No. 6 section belt ventilated the No. 4 section belt and the longwall section belt. The No. 4 section belt received all its air from the No. 6 section through a point feed located near the section tail piece and from over the feeder located at the end of the No. 6 section belt. Before the No. 4 section was created, about August 5, 2001, it was considered part of the No. 6 section.

Methane/Ventilation Problems on the No. 4 Section - Evidence examined during the investigation indicated that the No. 4 section was not being effectively ventilated. According to information gathered during the investigation, the outby General Services Coordinator Robert Statham was approached in September 2001 about ventilation problems on the No. 4 section. Statham said he was told that the mine was having considerable methane liberations; he believed it was Mark Piper who told him.

One thing that stood out in the investigation was the recording of methane during daily examinations and the reduced airflow on the right side of the No. 4 section prior to the disaster. During the examination of the mine after the disaster there was evidence that some of the most powerful forces of the explosion on September 23, 2001, were on the right side of the No. 4 section. While company officials reported that major air changes were not made on the No. 4 section prior to the disaster, the examination records showed a reduction in the air ventilating the right return (#4 entry) on the No. 4 section beginning on September 19, 2001. The lower air readings continued to the day of the explosions.

Following the reductions in ventilation, day shift company examiner Greg Brown, cited excessive levels of methane in the right return for four consecutive days in the examination books. During interviews, Brown said the excessive methane would have been from 1 to 2%. Brown reported his concerns about the ventilation on the right side to his superiors during the week prior to the explosion. Brown also reported that methane problems were common on the No. 4 section and they had to shut down several times during a shift to clear methane. He also reported that not all the excessive methane that was encountered was listed in the examination books. The day shift supervisor reported that if methane decreased during the shift and without intervention, then he would not list it in the examination books.

Evidence disclosed that the No. 4 section needed more air than would be used to satisfy normal mining conditions with the adverse roof conditions on the No. 4 section and the potential for methane outburst from roof falls. Fractures from the fault that ran parallel to the No. 4 section were affecting the mine roof. Senior Mine Engineer Howell reported that sometimes when there were roof falls, methane gas liberations also occurred. He reported that with some roof falls, methane had overpowering effects on the "allocated" ventilation in other parts of the mine. Others, such as Robert Statham, Outby Services Coordinator, also reported experiences in the past with excessive methane liberations when the mine experienced roof falls; he reported having to let it sit for a considerable time to bleed off. Additional information on the roof conditions and methane problems are addressed in the section on Roof Conditions /Controls. There were also concerns about methane problems on the No. 4 section raised by miners during the investigation.

Methane Ignitions on 8/30/01 and 9/4/01 on the No. 4 Section - According to MSHA findings, on August 30, 2001, a methane ignition occurred in the #2 entry on the No. 4 section at 2:58 am. It was completely extinguished at 3:20 am. The crew had mined the cross cut face, taking a 20-foot cut, when they heard a pop and saw the flames come from under the pan and the head of the miner. According to MSHA, methane from a bleeder was trapped under the machine, feeding the fire until the miner was moved back. MSHA cited no violations of the law over the ignition. The crew had just left the #4 entry after it was mined a distance of 10 feet stopping due to poor roof conditions.

A second methane ignition occurred in the #1 entry of the No. 4 section on the day shift, September 4, 2001. According to the investigative report, at 11:41 am, the miner operator was shearing down on the final clean up cut for the left lift when he heard a noise and he felt heat from behind. The fire was reported to have burned for about four minutes and was extinguished at 11:45 am. The subsequent investigation found that a conveyor motor gut was damaged and ignited a bleeder in the floor. This condition was cited by MSHA.

Methane Problems on the H Panel Longwall - As the H longwall began production on September 14, 2001, nine days prior to the disaster, miners' apprehension about the ventilation appeared to increase, including concerns that mine management was moving air around on-shift, which some felt was unsafe or illegal. Ventilation changes affecting the longwall could affect ventilation of the No. 4 and 6 sections. Reports that methane and ventilation was often a problem on the new H longwall was validated by various evidence. Methane and ventilation problems that existed on the H panel longwall led to the idling of the longwall on the afternoon shift during the week prior to the explosion, September 17-21.

Entries for the H longwall had been developed in an awkward way due to the faults in the area. Because of faults, the panel had to be moved over, requiring the development of four tailgate

entries instead of using the old G panel headgate entries. The panel was also angled to the left tying into G panel at the far end tailgate side of H panel to help ventilate the section through the old longwall bleeder entries. According to the Mine Map, for the period immediately prior to the accident on September 23, 2001, the tailgate end of the longwall had two returns and two intakes. The headgate end of the longwall had one return and three intakes, giving them a total of six intake entries and two return entries between the tailgate and the headgate of H panel. Tying into G panel gave the longwall additional return ventilation entries through the bleeders of the two mined out longwalls, (F and G panels). Using those panels to help ventilate the H longwall created problems because of an area prone to spontaneous combustion (that was monitored each shift) in the mined-out G panel when pyrite in the mine floor is exposed to air and moisture. (The mine was idled from spontaneous combustion fires in 1989, 1993 and 1995). The tailgate side of F panel had deteriorated so much that six evaluation points had to be used. The H longwall bleeder entries (just inby the longwall) also were reported to be restricted due to water, adverse roof conditions, and floor heave, all of which compromised ventilation and travel. Testimony revealed that, during the week before the disaster, these bleeders were restricted due to water reportedly "chest high." The G bleeder examination book for the G panel had no entries after September 2, 2001. The last weekly exam performed there was on September 19, 2001.

The mine map supplied to the investigators showed that the air ventilating the longwall had several regulators. These regulators could impact the quality and quantity of air that ventilated various parts of the longwall, as well as the No. 4 and 6 sections. JWR's top ventilation expert provided testimony that it was not the practice at the # 5 Mine to adjust the regulators because doing so could impact another regulator. Miners, on the other hand, claimed that mine management did adjust regulators. Moreover, Haulage Coordinator Don Fowler admitted that he made such changes. He reported that he would, on his own, make air changes. At different times he had moved boards a few inches at the regulators to make incremental air changes under 9,000 cfm and then check the results.

The company examination records showed that ventilation changes were made on September 17, 2001. Robert Statham confirmed that the longwall operated during two shifts that week and was shut down one shift to allow methane to bleed off. He also acknowledged that the longwall was experiencing ventilation problems and that excessive methane problems had been reported there. During the initial mining of longwall panels, ventilating the longwall face is usually more difficult until a fall occurs behind the shields, as the fall keeps the air pushed closer to the longwall face. If air is marginal on the face, problems can be expected. At the time of the explosions, the longwall had only mined about 115 feet from the start of the panel.

The operator's ventilation plan required that air velocity of at least 600 feet per minute be maintained along the longwall face. A minimum quantity of at least 55,000 cfm of air was required near the headgate (at the tenth shield), at the middle of the longwall face, and at the tailgate when mining. Methane had to be maintained at less than 1%. If 1% or more of methane would be encountered, the mine operator was required to increase the ventilation to render the methane harmless. Following a review of the company's examination books, however, the longwall air readings were found to vary considerably. For example, the headgate air readings ranged from 56,480 cfm to 122,720 cfm during the week prior to the explosion. The fluctuations from one shift to the next were up to 52,000 cfm.

Trent Thrasher said that on Monday, September 17, 2001, during the 11:00 pm to 7:00 am shift, air changes were made on the longwall, changing the immediate tailgate entry from intake to

return air**.** Thrasher reported that the air change was made due to several production shifts being lost due to clearing methane, among other things. He said that they had methane because floor heave had restricted airflow on the longwall and because they did not have a good fall to keep the air to the face on the longwall. Evidence disclosed that this change failed to remedy the methane and ventilation problems. What follows describes the ventilation problems on the H panel longwall the week prior to the explosions:

Company examination documents reported that prior to the beginning of the 11:00 pm, shift on September 16, 2001, the longwall had about 60,000 cfm across the longwall face. Just a few hours later, during that Monday midnight shift, MSHA inspector Jarvis Westerly conducted a spot inspection and found the longwall did not have the legally required air, finding only 31,157 cfm midface and 26,130 at the tailgate – that was far short of the required 55,000 cfm. When Westery inspected the face, the operator had ceased production and the inspector did not cite the company for the violation.

Company records reported that air readings conducted shortly after 4:00 am found between 55,740 and 65,000 cfm along the longwall face. This would indicate that a major air change had occurred between the time Westery inspected the longwall and these readings. Were those changes made and were miners withdrawn while doing so is a question that needs answering. More air readings by another MSHA inspector just a few hours later found inadequate air similar to inadequacies found by Westery.

On the September 17 day shift, MSHA Inspector Sheila Dawkins inspected the H panel longwall. As the inspector was traveling toward the longwall face inspecting the #1 return (prop entry) and #2 belt entry on the headgate side of the longwall, she noticed several defects in the ventilation system. Holes were found in three different ventilation stoppings between the two entries progressing toward the face. Two were gaping holes, one of which was about 6 feet high and 10 feet wide.

While inspecting the longwall #1 prop entry, Dawkins discovered methane just inby the large hole in the stopping. The inspector issued an imminent danger order because methane in excess of 5% was detected. This methane was about five crosscuts outby the longwall face. About 20 minutes after MSHA inspector Dawkins abated the closure order for the explosive methane, she traveled to the longwall face. She took air readings across the face and found only 40,950 cfm at midface of the longwall and 36,650 cfm at tailgate –nearly 20,000 cfm less than the minimum required by law. Dawkins issued a citation for not having the minimum required air on the longwall. Despite the problems with the ventilation system, and the critical need to have effective ventilation on the longwall face, only a non-S&S violation was issued, with hours to abate. A citation allows the operator to continue mining.

Starting the afternoon shift on Monday, September 17, the longwall, which then was the main coal producer for the mine, was idled during that shift for the remainder of the week.

On September 20, during the day shift Local Union Health and Safety committeeman Gary Toxey reported that he inspected the longwall and found 1.3% and 1.4% methane there. After he detected it, he reported the section shut down production and let the methane bleed off. Toxey returned to the mine that night during the 11:00 pm to 7:00 am shift and traveled to the tailgate side of the longwall where he reported that he then found 7.5% methane seven crosscuts outby the longwall face, and 2% methane located ten feet from the tailgate corner. Toxey said he informed the

section foreman of the problem who called the headgate operator and told him to pull the power because they had discovered a methane problem.

The UMWA Safety Committee chairman Ricky Parker, who traveled with inspector Dawkins on September 17, 2001 and aware of the inspection by Westerly, said he met with MSHA supervisor Terry Langley at MSHA's Hueytown, Alabama office on Tuesday, September 18 , 2001, and informed him about the ventilation problems on the longwall, and what the MSHA inspectors were finding. He requested increased inspections at the mine to respond to the problems. He reported that Langley told him he could not get inspectors at the mine because they were directed to go to other mines, but that he would try to be responsive. (Langley did not send any more inspectors to the longwall at JWR # 5.) Langley said during the investigation that he did not recall the conversation with Parker.

On the day shift on September 20, MSHA inspector Jarvis Westery traveled to the mine to conduct an inspection to conduct a permissibility inspection on the electrical equipment on the longwall. That inspection is intended to assure that sparks do not escape from electrical equipment that can trigger an explosion. Evidence disclosed that Deputy Mine Manager Trent Thrasher learned of the inspection and asked Westery to not inspect the longwall. When the inspector refused Thrasher called Westery's supervisor, Terry Langley. Langley reported that Thrasher asked to delay the inspection until the afternoon shift so he would not have to shut down production on day shift. Despite the ventilation and methane problems, Langley called inspector Westery and the inspection was then changed from the longwall to the No. 4 section. There was no evidence that the longwall electrical equipment was inspected by MSHA.

Miners' Concerns About Mine Ventilation - As noted, during the course of the investigation numerous complaints were heard regarding ventilation of the mine and methane problems at the mine. Those, coupled with evidence in the official record, made it clear that these concerns had merit. The agency however, failed to respond to those in their investigation findings, leaving them hanging -- and they warrant investigation by MSHA. There were far more serious problems than implementation of a mining plan without scrutiny or legal approval drawing a minimal violation. Given the fact that the mine has already experienced a mine explosion, MSHA response to the miners' concerns are more than justified.

Complaints about ventilation problems and a lack of confidence in MSHA's response were abundant. Concerns were raised that management tried to hide the methane problems and intimidate those miners who demanded that the gas be properly controlled. Miners particularly raised several specific methane problems on the H panel longwall, No. 4 and No. 6 sections citing that methane was frequently encountered above the legal amounts, which should not happen in a properly ventilated mine. Miners complained that they would question supervisors about whether the air was sufficient; these concerns would not be addressed.

Management is moving of air while miners were working on the affected splits of air was one of those complaints, with miners believing this practice to be improper and unsafe. Those included a complaint that a company official made a major air change of nearly 30,000 cfm in the mine during the MSHA inspection on September 17, 2001 (when the closure order was issued outby the longwall over methane) while miners were inby. It was reported the company attempted to justify the air change with miner's inby by claiming to move incremental amounts of air at a time. These types of adjustments, which should be considered contrary to the mine law (that calls for changes to be kept under 9,000 cfm with miners in the mine) reportedly went unchallenged by MSHA. The events of

September 17, 2001 regarding air readings by company examiners and MSHA, showing significant change, highlight this concern. Complaints about overhearing foreman on the surface calling the foreman underground to change the air were also noted.

High ventilation pressures in air courses sucking out return brattices, orders by management to turn the belts back on after the longwall was gassed out, mining in methane in excess of 1% of methane, and management disabling the methane sensor to permit coal to be produced, were among the complaints.

Concerns about the control Black Warrior Methane (the company responsible for de-gassing the mine) had over the ventilation and methane in the mine and that the de-gassing of the coal block had not been done correctly (which did not allow the longwall to bleed off) were voiced.

Miners complained about the experience level of federal inspectors not being what it should, for a mine with methane. Failures by MSHA to check the air courses to see what was affecting the loss of air left miners with the belief that enforcement was not being done properly. Complaints that MSHA only inspected the 11:00 pm to 7:00 am shift once every two or three months and telling the company officials what areas of the mine they were going to inspect, beforehand was raised.

Given these and numerous other methane and ventilation problems that were raised, the UMWA urges that MSHA re-open its investigation to address these issues that were sidestepped.

Operator Required Examinations at the JWR # 5 Mine

The UMWA investigation focused on the mine examinations required under the Mine Act and Title 30 of the Code of Federal Regulations (30 CFR) that are to be performed by the operator. UMWA investigators discovered widespread failure by the operator in fulfilling those requirements. These failures included not recording hazardous conditions in the examination books as required. The operator also failed to conduct certain examinations as required by law. The UMWA found that these deficiencies contributed to the September 23, 2001 disaster.

With the constantly changing conditions in mines, the various operator-required examinations are the front-line protection miners have to make sure they are not exposed to hazardous conditions. The pre-shift examination, one of the most important, is required to make sure hazards are identified before miners are sent into the mine to work. Hazards found during inspections must be recorded in a secure book, identifying who observed the condition during pre-shift, weekly and other examinations. The law also requires the mine foreman (or assistant mine foreman, or equivalent mine official or certified person designated by the operator to conduct examinations) to countersign the exam books. Additionally, the law requires hazardous conditions found by a mine foreman (or other designated person) be corrected. Hazards that cannot be immediately corrected must be danger off. If the condition constitutes an imminent danger miners must be withdrawn from the area. It also requires the individual who takes corrective actions to record those actions in the approved book. The corrective action must also be countersigned by the mine foreman (or designated person). The examination books must be open to inspection by MSHA and other interested parties. These legal requirements were sidestepped by the examination procedures used at the # 5 Mine. Conditions, such as extensive float coal dust, were not entered in the required books and were therefore not a matter of record. Because of this practice the mine operator was not held accountable for either the conditions or their failure to correct.

In brief, the operator of JWR # 5 Mine implemented a system whereby examiners not report or record hazards found in the required examination books. This system continued even after MSHA cited the problem. MSHA did not increase enforcement tools to address this operator failure, but continued to issue non-S&S citations, low fines and virtually no threat of closure orders. Despite evidence of vast accumulations of coal float dust, poorly constructed ventilation controls, adverse roof conditions, and build-ups of methane gas the mine operator routinely failed to list the hazards in examination records.

On September 20, 2001, just three days prior to the mine explosions, an MSHA inspection took place in the No. 4 section. That inspection found, among other things, ventilation and float coal dust violations. Float coal dust of 1,000 feet in length was found in the left return, and for a distance of 300 feet in the conveyor belt entry. These float coal dust violations had not been reported in the required company examination record books. (Float coal dust is a known ignition source that can explode if suspended in the mine air.) Defects in ventilation controls were also found in the track and belt-to-return entry on the section. (Ventilation stoppings, which direct the flow and direction of the mine air, among other things, also keep methane diluted to prevent explosions.) These conditions were not recorded in the required pre-shift examination records – nor did the exam books indicate any of the conditions were ever corrected. Given this evidence and the company's apparent practice of ignoring such hazards during the required examinations, it is likely that similar conditions continued to exist after the September 20, 2001 MSHA inspection.

Operators must perform pre-shift, on-shift, weekly, and electrical exams. The mine operator must conduct these examinations of the mine to identify hazards to miners, and to take corrective action when necessary. The examination procedures at the JWR # 5 mine were found to be in violation of the Mine Act and 30 CFR in a number of ways.

Examiners were recording only limited hazardous conditions in the on-shift, pre-shift, weekly, and conveyer belt record books. According to the directions JWR # 5 Mine management gave them, and training given by MSHA, other conditions examiners found during examinations were to be noted in a separate book. Hazardous conditions were entered in other books which include; the belt book, section activity book, outby book, haulage record book, outby haulage record book, or outby maintenance record book. These unofficial records were kept in the belt foreman's and outby coordinator's office.

Jesse Cooley told MSHA investigators that JWR had been issued citations on its examination books. The company said it had MSHA conduct training on the examination requirements of the law. MSHA District 11 inspectors Don Greer and John Terpo gave a training class to JWR examiners. According to Richard Cates, the top company safety supervisor at the JWR # 5 Mine, MSHA officials told the examiners during a training class some six months to a year earlier (based on his November 30, 2001 testimony) the types of conditions that did not need to be recorded in the exam books. Cates cited "accumulations in conveyor belt entries" as one of those conditions that did not need to be written in the exam books even though it must be corrected. The numerous violations cited by MSHA at the Mine for failure to conduct proper examinations appear to contradict the company's claims. However, Cates explained that his understanding was that those violations were what led to the training, and he suggested that changes in company practices occurred as part of the MSHA training.

The UMWA's investigation was unable to determine what was included in MSHA's training on examinations. Neither MSHA nor JWR provide critical information about this issue during the investigation. In particular, MSHA refused the UMWA's requests to have the MSHA inspectors involved in the training, made available for questioning during the interview process. JWR did not provide the mine examination records for the period prior to and during the reported training eliminating the possibility of review or comparison. MSHA also did not secure those records from JWR.

Regardless of changes that may have occurred in record-keeping after the MSHA training, evidence showed the company had a system of not listing numerous conditions, that should have been considered hazards, in the appropriate examinations books. Richard Cates admitted that JWR kept a second set of books called the "other books". This system kept hazards from being recorded in the required exam books and allowed the company to escape certain legal responsibilities.

Following a review of records made available to the UMWA, for both the federally-required examinations and State-required exams, a number of deficiencies were identified at the JWR # 5 Mine, including:

- Widespread failure to record hazards found throughout the coal mine in the MSHA required examination books. Conditions such as damaged ventilation controls, adverse roof conditions, accumulations of combustible material and float coal dust in active areas, conveyor belt entries, and in critical return air courses had not been recorded in the proper book, and the hazards these conditions created were not noted. This failure is a violation of section 25-9-86 of the Coal Mining Laws of the State of Alabama. Rather than recording the actual amount of methane gas detected during required examinations, only "excessive methane" was listed in many instances.

- Examinations were not being made in designated locations in the mine as required by MSHA regulations. The investigation found that examinations of the bleeder evaluation locations were not conducted as required. According to Bob Statham, who countersigned the weekly-examination record book, a roof fall found on July 31, 2001 blocked the F panel tailgate travelway. JWR submitted for three-evaluation points inby and three-evaluation points outby this fall area, which MSHA approved However, these areas were not examined as required.

- Evidence of a pattern of inadequate examinations and a failure to make critical examinations existed at JWR # 5 Mine. MSHA inspection records revealed that the Agency cited the JWR # 5 Mine on well over twenty separate occurrences (from January though September of 2001) for failure to record or make required examinations. The following provides an example of the seriousness of this problem:

  > On April 6, 2001 MSHA issued an imminent danger Order stating that a hazardous accumulation of methane gas in explosive range was detected in three working places on the No. 5 section that was not recorded in the pre-shift record book. One month later, on May 7, 2001, MSHA issued a 104(d)(1) Citation #7675854, of Part 75.360(b)(3) as follows; "The operator has failed to conduct an examination of all areas on section 6 where methane is likely to accumulate. The area at the bottom of the 5-9 shaft did not have any evidence of an examination in that no dates, initials, or times were posted in the area.

> There is no record of any examinations being conducted in this area even though this air ventilates the section. This citation is issued as an underlying factor to an imminent danger. The shaft has been active since 4-29-01". During that same inspection, the inspector issued a 107 (a) Order (# 7675853) when he found 1.5% methane was permitted to accumulate behind the cut through brattices at the bottom of the 5-9 shaft.

As identified throughout the Union's investigation, the problems with the operator's examinations and record keeping included more than unrecorded ventilation and methane conditions. Roof conditions were also ignored. For example, there were various middleman falls on the No. 4 section with only a few records found of any adverse roof conditions in the required on-shift, pre-shift or weekly examination record books.

The pre-shift examination records did include entries identifying some hazards in the No. 4 section in the four days prior to the explosions. These hazards could have contributed to the explosions:

- A section foreman listed "excessive methane" on four consecutive days (September 19 through 22) in the right return, indicating that a ventilation problem existed on a continuing basis; 30 CFR § 75.360 requires examiners record the exact percentage of methane gas that was detected during a pre-shift examination.
- A pre-shift examination report called out during the day shift on September 23, 2001 by foreman John Puckett and entered in the pre-shift examination book by afternoon shift foreman Tony Key which said—"No. 4 section charger taking weight, top working". (Puckett later claimed he did not report the top working. Key, however, said he met Puckett at the bottom of the elevator shaft, where he said Puckett again told him the top was working just outby the intersection on the corner. Puckett also signed the examination report that included the notation, "top working".)

> (The roof condition was at the location of an energized scoop battery and battery charging station -- the same location where the roof fell a few hours later. Puckett listed "no action" in the required examination books which means that during the day shift on Sunday, employees did not remove the battery or charging station, and they did not support the adverse roof over the charging station. The only action known to be taken was that danger flags were hung in the area and cribbing was ordered to support the roof on the next shift.)

On Friday, September 21, 2001, two days before the roof fall, Bert Duvall was concerned with the roof conditions in the face area after talking with third shift section foreman Bruce Mabe. He traveled to the No. 4 section to observe the roof condition with day shift section foreman Greg Brown. A decision was made to install cable bolts in the intersection where the charger was to be moved. He noticed water dripping and cracks in the top. Brown did not record this deteriorating roof condition or corrective action taken in the Pre-shift/On-shift examination record book. Duvall countersigned the exam report in the record book.

The UMWA Mine Health and Safety Committee had reported to the company on a regular basis that large areas of the mine had inadequate amounts of rock dust. As float coal dust accumulated through the mine, the mine operator failed to record those conditions in the official mine examination record books. MSHA violation records on combustible materials and float coal dust

describe the severity of this problem. Approximately four miles of float dust was cited by MSHA in the three weeks prior to the explosion.

The Local Union Health and Safety Committee had reported numerous hazardous conditions in the months preceding the September 23, 2001, disaster. These conditions were not entered in the required examination record books. A review of the Local Union inspections and MSHA's findings in the two months before the disaster, compared to the conditions and actions taken as listed in 30 CFR-required examination records shows on these particular days this failure. It should be noted that the union and MSHA inspections covered only a portion of the mine, while the company's exam records cover the entire mine. Comparisons of those along with actions taken are shown below.

Comparison of Conditions Identified During Inspections / Examinations –

UMWA Local Union 2368 Inspection Findings - Date 8-03-01

- A276483 Location: #1 section. Need support at spad #13164 in track entry at right long crosscut. Completed, 8-4-01.
- A229308 Location: Track. Replace roofbolt , rib side outby old tool room. Completed, 8-11-01.
- A229309 Location: Track. Replace all 36" roofbolts at seal pumps inby old #7 switch. Not completed.
- A229310 Location: Track. Support pot at old #7 switch. Not completed.
- A229313 Location: Track. Support three pots on Fault Hill inby escape way door. Not completed.
- A229314 Location: Track. Support pot on Fault Hill inby escapeway door. Not completed.
- A229315 Location: Track. Support pot on 2-east track outby block light. Not completed.
- A229316 Location: Track. Support two pots on 2-east track between Fault Hill light and Dust Hole switch. Not completed.
- A229319 Location: section. Replace roofbolt in track entry one crosscut inby dinner hole. Completed, 8-6-01.
- A229318 Location. Track. Support pot on 2-east track outby old sub-main switch. Not completed.
- A229320 Location: Track. Replace two roof bolts on east side of cage, first curve. Completed, 8-13-01.
- A276476 Location: Track. Support brow inby old tool room. Completed, 8-11-01.
- A276477 Location: Track. Remove trash from old #7 switch. Completed, 8-7-01.
- A276478 Location: Track. Support roof where roofbolts have fallen out and rib bolts are wide. Completed, 8-22-01.
- A276479 Location: Track. Replace roofbolt inby second overcast past Big Fault Hill. Not completed.
- A276480 Location: Track. Replace roofbolt outby third overcast, inby old F panel switch. Not completed.
- A276481 Location: Replace broken exhaust pipe on manbus. Completed, 8-7-01.

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD

PRESHIFT-ONSHIFT REPORTS

- NO HAZARDS REPORTED

WEEKLY EXAMS
- NO HAZARDS REPORTED

MSHA CITATIONS / ORDERS: - **Date 8-06-01**

- #7677301 104 (a) 74.400 Accumulations of oil and coal dust on #177 manbus. Non S&S, due: 8-06-01. Not terminated.
- #7677302 104 (a) 75.400 Accumulations of oil and coal dust on the #184 manbus. Non S&S, due: 8-06-01. Not terminated.
- #7677303 104 (a) 75.1910(j) On the No.1 section. Battery not secured on #15 Lo-Trac. Non S&S, due: 8-06-01. Not terminated.
- #7677304 104 (a) 75.400 On the No.1 section. Accumulations of oil and coal dust on the #15 Lo-Trac. Non S&S, due: 8-06-01. Not terminated.
- #7677305 105 (a) 75.1914(a) On the No.1 section. The on/off circuit board was bad. S&S, due 8-06-01. Not terminated.

LOCAL UNION 2368 INSPECTION FINDINGS

- A228151 Location: 1-east belt. Float dust accumulation from header to seal #26. Corrected, 8-15-01.
- A230865 Location: 1-east belt. Accumulations from header to take-up. Corrected, 8-15-01.
- A230867 Location: Haul road. Roads need graded. Corrected, 8-09-01.
- A229113 Location: East track. Replace roofbolt at spad #351, rib side**.** Completed, 8-16-01
- A229111 Location: 1-east track. Replace roofbolts between seals 53 - 56 to next crosscut. Corrected, 8-13-01
- A229112 Location: East track. Replace roofbolts between spad #316 at the pump in swag. Corrected, 8-16-01
- A229114 Location: East track. Replace roofbolt outby spad #400 on rib side. Completed, 8-21-01
- A229115 Location: East track. Support pot inby spad #400. Completed, 8-21-01
- A229119 Location: East track. Replace roofbolts and support pot outby spad #1092. Completed, 8-22-01

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD

PRESHIFT-ONSHIFT REPORTS
- Owl shift – 3-east belt needs cleaned between header and drive.

WEEKLY EXAMS
- NO REPORTS OF HAZARDS

LOCAL UNION 2368 INSPECTION FINDINGS - Date 8-31-01

- A277626 Location: Outby. Old sub-main switch, telephone will not work. Not completed.

- A229144 Location: 1-east belt. Need rock dusted from drive to brattice #6. Corrected, 9-18-01.
- A229143 Location: Belt. Needs coal accumulation cleaned up were sub A belt dumps onto 2-east. Corrected, 8-31-01.
- A277627 Location: Longwall. The secondary escapeway needs rockdusted from the set up to the regulator. Not completed.
- A277628 Location: Longwall. Need to install 48-inch door in secondary escapeway regulator in the #1 entry. Not completed.
- A277625 Location: Outby. #27 manbus needs guard over outby driveshaft. Not completed.
- A216860 Location: East track. Replace roofbolt over PVC pipe, 60 feet outby swag-light from bottom. Completed, 9-02-01

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD

PRESHIFT-ONSHIFT REPORTS
- Day shift, excess CH4, #4 entry, No. 4 section , removed.
- Sub-b belt, owl shift-drip pan gobbed out. Corrected.

WEEKLY EXAMS
- No hazards noted

LOCAL UNION 2368 INSPECTION FINDINGS - Date 9-7-01

- A292358 Location: Outby. Right return from back drop to spad #13301 needs dusted then from spad #13301 to #13399 needs rock dusted. Corrected, no date.
- A292359 Location: Outby. Left side return needs dusted from spad #13210 to #13311. Corrected, no date.
- A292360 Location: Outby. Left side return brattice needs back packing and leakage stopped at spad #13076. Corrected, 9-8-01.
- A292361 Location: Outby. Left return repair hole in brattice at spad #13088. Corrected, 9-8-01.
- A292362 Location: No. 6 section. Track to power center needs calcium on roadway. Corrected, 9-13-01.

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD
PRESHIFT-ONSHIFT REPORTS
- 4-east and No. 4 section belts, owl shift-tail pieces gobbed out.
- Owl shift – 3-east and sub-main B belts, drip pans gobbed out. Corrected.

WEEKLY REPORTS
- South # 17 seal excess water could not make exam.
- Longwall setup prop entry, float dust present from spad#13164 to outby regulator.

MSHA CITATIONS / ORDERS: DAY SHIFT - Date 9-17-01

- #7677219 104(a) 75.333(h) The permanent stoppings at spad #13193, #13164, and #13146 along the longwalls alternate escapeway not maintained. Non S&S, due, 9-17 01. Not terminated.
- #7677220 107(a) An imminent danger was observed 100 feet inby spad 13164 in a high spot along the #1 longwall's alternate escapeway. The methane detected was in excess of 5.0 percent, an air quality bottle sample was collected for analysis to support this 107(a) imminent danger order issuance. Corrected at 12:00, a check curtain was hung, reducing the methane concentration to 0.5%.
- #7677221 104(a) 75.333(a)(2) Doors in the No.1 longwall alternate escapeway were not clearly marked. Non S&S, due, 9-17-01. Not terminated.
- #7677222 104(a) 75.400(a) Float coal dust located from spad #12981 to the regulator existed on the mine roof, ribs, and floor., Non S&S, due 9-19-01. Not terminated.
- #7677223 104(a) 75.380(d)(4)(ii) Alternate escapeway for the No.1 longwall was not at least 4 feet wide. Non S&S. Not terminated.
- #7677224 104(a) 75.370(a)(l) The ventilation plan was not being compiled within the No. 1 longwall, non S&S. Due 9-17-01. Not terminated.
- AR#23819 Day shift citation #7677351 104(a) 75.1909(b)(4) no. Pt 27 diesel man bus on the No.1 longwall section was not provided with a audible warning device. Non S&S, due 9-17-01. Not terminated.
- AR#23819 Day shift citation #7677352 104(a) 75.400 oil and oil soaked rags present on the Pt 27 diesel powered manbus located in the No.1 longwall. Non S&S, due 9-17-01. Not terminated.

LOCAL UNION 2368 INSPECTION FINDINGS

- A228333 Location: Longwall. Rock dust from #1 backgate behind longwall from regulator to track entry. Not completed.

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD

PRESHIFT-ONSHIFT REPORTS

- Owl shift, Longwall ventilation below required amount worked on face curtain and drops outby.
- Evening shift, No. 4 section, dirty roadways in #2 and #3 entries, scooped and wet down.

WEEKLY EXAMS

- No. 6 section right return float dust present, excess water spad #13157 and spad #13152, brattice crushing and cracking at spad #13157 hole has started.

MSHA CITATIONS / ORDERS: **DAY SHIFT - DATE 9-18-01**

- #7677353 104(a) 75.1405 The No. 60 locomotive automatic uncouplers would not work. Non S&S, due 9-18-01. Terminated
- #7677354 104(a) 75.1405 The No. 63 locomotive automatic uncouplers would not work. Non S&S, due 9-18-01. Not terminated.

- #7677355 104(a) 75.1403 The No. 63 locomotive sanders not working. Non S&S, due 9-18-01. Not terminated.
- #7677356 104(a) 75.400 The 2-east belt entry had float coal dust and accumulations of loose dry coal. S&S, due 9-19-01. Not terminated.
- #7677357 104(a) 75.202(a) Mine roof not supported in the 2-east entry, S&S, due 9-18-01. Not terminated.
- #7677358 104(a) 75.1725(a) The 2-east belt was running off, rubbing stands, hot to touch, S&S, due 9-18-01. Belt was removed from service
- #7677359 104(a) 75.333(h) The overcasts in the 2-east belt not maintained, Non S&S, due 9-18-01. Not terminated.
- #7677360 104(a) 75.400(h) Float coal dust present in the intake entry of the future 3-east belt conveyor for 1000 feet, Non S&S, due 9-19-01. Not terminated.

LOCAL UNION 2368 INSPECTION FINDINGS

- A326550 Location: Bleeder. Repair phone at water hole. Not completed.
- A326551 Location: Longwall rockdust from end of track to stage loader. Not completed.
- A326552 Location: Longwall C header, repair sprays on header. Not completed.

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD
PRESHIFT-ONSHIFT REPORTS

- Day shift, No. 4 section, Dirty roadway in big block area, scooped, wet down and picked up trash. Excess Ch4 in #4 entry, Removed
- Owl shift, sub-main A and B belts, drip pans gobbed out.

WEEKLY EXAMS

- No hazards reported

MSHA CITATIONS / ORDERS: - **DATE 9-19-01**

- #7677365 104(a) 75.400 The No. 68 diesel locomotive located in the service shaft area had oil, diesel, and oil soaked rag. Corrected.
- #7677366 104(a) 75.110-3 The chemical fire extinguishers had not been examined for 6 months. Non S&S, due 9-19-01. Corrected.
- #4870855 104(a) 75.1911(a)(4) The fire suppression nozzle located on the No.148 diesel manbus had a missing cap. Non S&S, due 9-19-01. Corrected.
- #4870856 104(a) 75.1911(a)(4) The fire suppression was not maintained. Non S&S, due 9-19-01. Corrected.
- #4870857 104(a) 75.1909(a)(2) Fire extinguisher not located properly. Non S&S, due 9-19-01. Corrected.
- #4870858 103K. Order methane gas ignition has occurred in the #2 entry of the No. 6 section.
- #4870859 104(a) 75.503 The No.80 roof bolter not permissible, S&S, due 9-19-01. Corrected.

- #7677364 104(a) 75.1403 The old track switch leading up Pooches Straight not maintained properly. Non S&S, due 9-19-01. Not terminated.
- #767363 104(a) 75.1403 The first inby track switch from the Johnson pump switch on the Johnson pump track was not being properly maintained. Non S&S, due 9-19-01. Not terminated.
- #7677362 104(a) 75.1403 The Johnson pump switch was not being maintained properly. Non S&S, due 9-19-01. Not terminated.
- #4870852 104(a) 75.400 Oil and oil soaked coal dust present on the No. 48 diesel manbus. Non S&S, due 9-19-01. Not terminated.
- #7677361 104(a) 75.1403 The tucker track switch not maintained properly. Non S&S, due 9-19-01. Not terminated.
- #4870853 104(a) 75.1403 The old 7-east track switch not maintained properly. Non S&S, due 9-19-01. Not terminated.
- #4870854 104(a) 75.1403 The emergency track switch not maintained properly. Non S&S, due 9-19-01. Not terminated.

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD

PRESHIFT-ONSHIFT REPORTS

- Owl shift, No. 4 section, spotted 2 pins right inby corner of long cross cut.
- Day shift, No. 4 section #4 entry had excess CH4 in #3 entry, removed.
- Evening shift, No. 4 section, dusty roadways in track entry, calciumed roadway.
- The No. 6 section had methane ignition in the #2 entry at 2:55 am, section released at 2:10 pm.
- The No. 6 section #4 entry had excessive methane, day shift.
- Owl shift longwall, several times CH4 excess of 1%.

WEEKLY EXAMS

- Excessive water at spad #12699, longwall bleeders.

MSHA CITATIONS/ORDERS - DATE 9-20-01

- #7677367 104(a) 75.400 The No. 4 section belt entry had accumulations of loose coal and muck 20 feet by 5 feet wide 15 inches high. Non S&S, due 9-20-01. Not terminated.
- #7677368 104(a) 75.400 The No. 4 section belt entry had float coal dust black in color starting at the belt drive for a distance of 300 feet. Non S&S, due 9-20-01. Not terminated.
- #7677369 104(a) 75.333(h) The No. 4 section brattice located at the spad #13301 between the belt and the return entry had a hole 3 inches by 8 inches. Non S&S, due 9-20-01. Not terminated.
- #7677370 104(a) 75.333(h) The No. 4 section track entry brattice at spad #13189 not maintained. Non S&S, due 9-20-01. Not terminated.
- #7677371 104(a) 75.400 The No. 4 section left return air course had float coal dust black in color at spad #13304 extending inby for 1000 feet. Non S&S, due 9-20-01. Not terminated.

- #7677372 104(a) 75.400 The 2-east belt entry had float coal dust black in color. Not terminated.

- **LOCAL UNION 2368 INSPECTION FINDINGS**

- A277640 Location: 2-east belt. Rock dust from brattice #8 to 2-east header. Not completed.
- A277633 Location: 2-east belt. Need water pumped between brattice #41and #42. Not completed.
- A277642 Location: 2-east belt. Clean under rollers on top of # 22 overcast. Not completed.
- A277641 Location: 2-east belt. Rock dust from brattice #39 outby to #31. Not completed.
- A277634 Location: 2-east belt. Brattice #41 needs hole repaired. Not completed.
- A277632 Location: No. 4 and 6 section. Rockdust intake entries into both sections. Not completed.

COMPANY EXAMINATIONS RESULTS CITED IN THE EXAMINATION BOOKS FOR THAT PERIOD

PRESHIFT-ONSHIFT REPORTS

- No. 6 section three bolts torque above range, owl shift,
- No. 4 section excess CH4 in #4 entry day shift, corrected.
- No. 4 section tailpiece needs cleaned, being cleaned, day shift.
- No. 4 section, Dirty roadways in #3 entry, scooped and dusted. Tailpiece under citation, shoveled T.P.
- Day shift Longwall, "When CH4 is in excess of 1%, knocked power and tightened up curtain on face"

WEEKLY EXAM

- Spad #10633 to #11137, float dust present, bridge where waterhole has broken.

JWR # 5 Mine Compliance With the Federal Mine Safety and Health Act

UMWA investigators examined the history of violations and penalties assessed by MSHA at the Jim Walter Resources # 5 Mine to understand the mine operator's compliance attitude regarding the Mine Act and the Agency's response. That history identified both serious compliance problems by the mine operator, and erratic enforcement by the Agency. One noticeable finding - as the mine operator's failure to comply with the Mine Act escalated, MSHA's use of more stringent enforcement tools to rein them in declined. The investigation found numerous flaws with the manner MSHA implemented the Mine Act. It also found that years of troubling compliance and lax enforcement of the Mine Act undercut health and safety at the JWR # 5 Mine.

Poor Safety Records at the JWR # 5 Mine in the Mid 1990's - The violation history review found that the mine operator had serious compliance problems in the mid-1990's. In 1995, MSHA cited the mine operator 512 times for violations of mine health and safety laws. This included at least forty-seven orders closing areas of the mine. Of the total violations cited, thirty-seven were for an unwarrantable failure to comply with the law, or failure to correct violations within the legal time frame. The amount of violations cited as Significant and Substantial (S&S) was approximately 60% of the total violations cited in 1995. Those violations carry much stiffer penalties than "non S&S" violations. (S&S violations can carry a fine of up to $55,000 per violation while the minimum penalty

for non-S&S violations is a $55 fine.) S&S violations also carry the additional threat the Agency will issue a closure order if repeated. The mine was fined nearly $290,000 (or about $563 per violation) in 1995. The accident and fatal rate at the JWR # 5 Mine was well above the industry average with one fatal accident and sixty-six lost time accidents that year.

Changes in Management's Health and Safety Attitude at JWR # 5 - In response to its compliance problems, JWR # 5 Mine Manager Chuck Stewart instituted changes at the mine. One major action was to develop a closer working relationship with the Union to improve compliance and reduce accidents. Stewart and members of UMWA Local Union 2368 entered into a series of discussions aimed at addressing those conditions at the mine that were causing accidents and violations. A decision was made to implement the Labor Management Positive Change Process (LMPCP), as outlined in the National Bituminous Coal Wage Agreement (NBCWA or Contract). From the inception, monthly meetings were held between the Union and management and plans were devised and implemented that fostered safe work practices, as well as violation reporting and reduction programs. The overall impact of the program was measured at the joint monthly meetings.

With this increased emphasis on compliance, violations, fines, and accidents were substantially reduced. By 1997, the number of violations cited by MSHA fell to 289 -- a noticeable decrease of 44% – and closure orders fell to about nine. The number of S&S violations dropped to 37% and the unwarrantable failure and failure to abate actions dropped to just three. The fines assessed in 1997 fell to approximately $53,000 (or about $184 per violation), while lost time accidents dropped to a total of twenty-seven. These decreases represent reductions of 38% in fines and 59% in accidents.

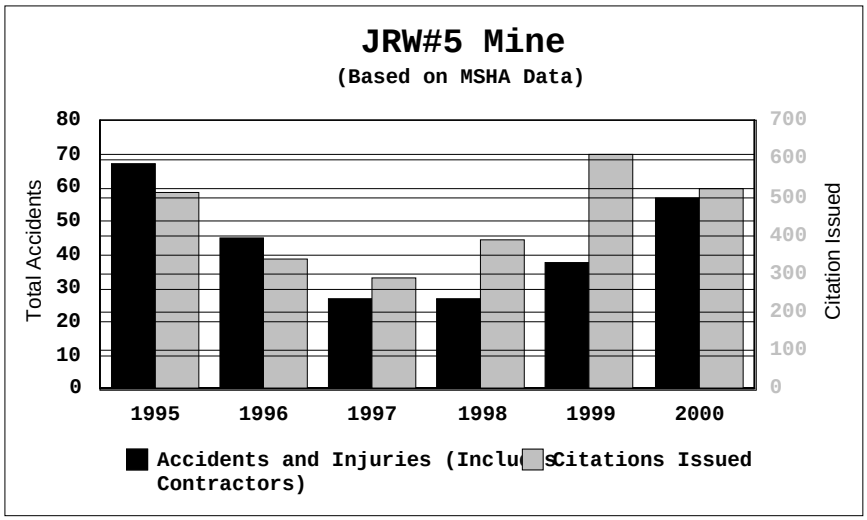
Changes in MSHA enforcement policies, however, likely played a part in some of the reductions in severity of violations cited and fines imposed at the JWR # 5 Mine. Beginning in late 1995, MSHA District 11 began decreasing inspections, and changed its aggressive enforcement including reducing fines for violations of the Mine Act. In fact, MSHA District 11 policies and actions led to numerous complaints filed against the Agency by Alabama miners and their representatives at different mines. Those included numerous wide-ranging complaints the UMWA filed with the Inspector General's (IG) office, including complaints that Agency officials discriminated against miners.

Decline in Safety at JWR # 5 / Management Rejects Union Help / Weak MSHA Response - The improvements in the compliance record at the JWR # 5 Mine did not last. Chuck Stewart was replaced in November 1998, with interim Mine Manager Bill Christian. Jesse Cooley replaced him on March 22, 1999. A combination of new management's different attitude toward compliance and MSHA's weakened enforcement of the Mine Act, reversed the safety improvements made at the JWR # 5 Mine. The new Mine Manager made clear his displeasure with the cooperative labor-management programs at the mine. Cooley, along with the new management staff he brought (from the closed JWR # 3 Mine), began making changes, eroding the role and voice of the miners and Union. Initially, he limited the size and scope of the LMPCP Committee. Initiatives and programs that fostered open communications were dismantled and others, like the use of work orders, were scaled back. Mine Manager Cooley did not see the LMPCP program as cost effective, expressing in various meetings that the program did not increase productivity and put a strain on resources. Cooley also expressed his opinion that the JWR # 5 Mine was the next mine in the company slated for closure, and programs like the LMPCP were unnecessary.

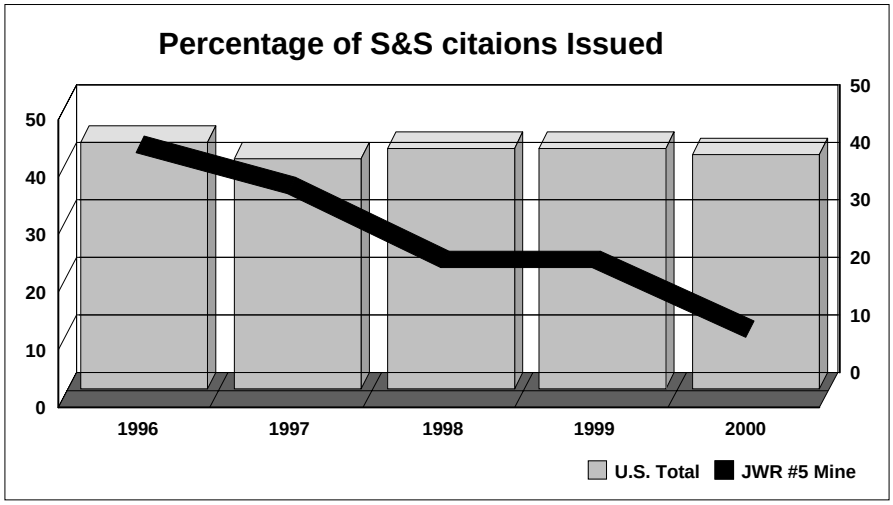
The change in management philosophy and the undercutting of the LMPCP program had a substantial negative affect on health and safety at the mine. By the end of 1999, the JWR # 5 Mine had elevated its status to the third most cited coal mine in the United States, with 613 violations cited. That was a 48% increase in violations from 1997. Accidents were again on the rise, with thirty-eight lost time accidents that year.

However, in response to the increase in Mine Act violations one thing that did not increase was any stiffer enforcement by MSHA. Although the Agency was issuing a tremendous number of citations at the mine, it was not using the available enforcement tools to curb the operator's escalating non-compliance. Despite the dramatic increase in violations found at the JWR # 5 Mine, S&S violations cited by MSHA fell to only 145 (or 24%) and only thirteen closure orders were issued. Also, despite the escalation of repeat violations, MSHA issued only seven violations for unwarrantable failure to comply or failure to abate within the required time.

A review of the violations disclose that MSHA's failure to cite violations as S&S and/or unwarrantable failure were not the only breaks the operator received. MSHA listed only "one person" affected for many violations cited. Also, inspectors would not return to check compliance until days after the legal abatement dates. That saved the mine operator both hefty fines and closure orders. The fines levied by MSHA in 1999 were less than half those assessed in 1995, at $135,690 (or $221 per violation). Also, the "toothless tiger" enforcement actions in the MSHA District 11 eroded miners respect for the Agency.

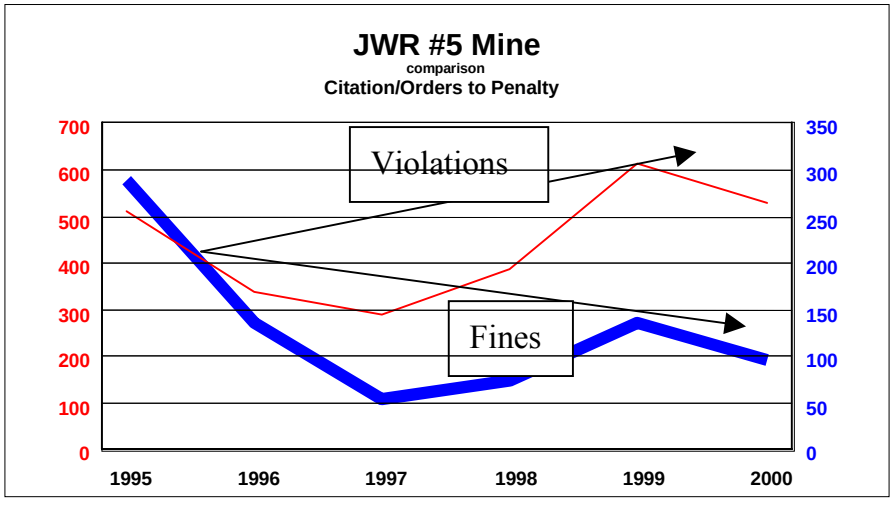


JWR # 5 Mine Continues as Third Most Cited Mine in the Nation/ No Fear of MSHA Response
The JWR # 5 Mine safety record in 2000 remained dismal, the Mine was again ranked as the third most cited in the nation, with 525 violations of federal mine health and safety laws. Accidents at the mine continued to rise as well, with fifty-one lost time accidents at the mine in 2000 – a 25% increase from the previous year. Given this record, MSHA's enforcement response was perplexing. Despite the troubled compliance record, MSHA reduced enforcement at the mine.



The Agency reduced S&S violations at the mine to only 12% of the total cited. Closure orders and unwarrantable failure violations posed no threat for non-compliance, with only twelve and seven cited, respectively. No closure orders were issued for failure to abate violations. However, evidence showed that MSHA was not returning to the mine for days and weeks after the legal abatement dates. This eliminated the miners' rights under the Mine Act to challenge extensions of citation abatement dates and gave the operator inappropriate extensions, allowing them to avoid closure orders. The Agency failed to timely check on the abatement of citations issued 214 times, accounting for 41% of the total citations issued in 2000.

The Agency practice of listing only one person being affected by the violations took on a new dimension, as MSHA wrote all but sixteen of the 525 citations that way. In effect, that practice substantially reduced the fines the operator was assessed. The weak enforcement by MSHA substantially reduced the fines with only $97,000 assessed to the operator, at an average of $185 per violation.



Increased Inspections by the Union - With the steady upward trend of accidents and injuries at JWR # 5 Mine, management responded. It encouraged more participation in the "work order" system already in place at the mine. This system, which had been utilized for several years, relied on

employees, management and rank and file to fill out forms and submit them to the mine's Planning Department when violations or hazardous conditions were identified. Those work orders, however, were recommendations, with no legal requirement to take action. This system appeared to contribute little to overall mine safety.

On August 21, 2000, management dropped its resistance to members of UMWA Local Union 2368 being involved in safety at the mine, and entered into a memorandum of understanding (MOU) expanding the inspections outlined in the NBCWA. The joint inspections conducted by the UMWA Health and Safety Committee and representatives of mine management were increased from bi-monthly to a more continuous rotating inspection. Those inspections did not take the place of examinations the mine operator is required to conduct under the Mine Act. The work orders were routed to the appropriate management employees and copies of each were forwarded to the mine's Safety Supervisor, Richard Cates.

Health and Safety Improvements Marginal at the JWR # 5 Mine in 2001 - From August 2000 through September 23, 2001, the Local Union Health and Safety Committee filed approximately 2,350 recommendations (work orders) with management for action over conditions needing correction in the mine. Committee members estimated that the percentage of corrected work orders ranged between 80% and 90%. However, shortly after implementation of the program, management stopped participating as outlined in the MOU. To further compromise the effectiveness of the plan, Mine Manager Cooley only went underground about once a week and Deputy Mine Manager Trent Thrasher was in the mine less than once per week. Further, Safety Supervisor Richard Cates admitted to traveling with the MSHA Inspector only when the inspector was investigating something peculiar. Cates was the management employee at the operation assigned exclusively to miners' health and safety issues. The fact that management at this level did not take a hands-on approach to the joint inspection system had a detrimental impact on its effectiveness.

During the year 2001, to the date of the September 23, 2001 disaster, MSHA issued 365 citations at the Mine. The mine was on a course to be cited approximately 500 times. The number of "orders" remained low. Despite the continued compliance problems, MSHA reduced even further the unwarrantable failure and failure to abate violations to only three for the first nine months of 2001. Of the total citations and orders issued in 2001, a review found that approximately 77% were non-S&S and carry a penalty of only $55.00. MSHA would also allow violations to languish for days or weeks after they were cited with 53% of the violations not being checked the day they were to be corrected. The Agency continued to cite violations as affecting only <u>one</u> miner with 91% of the violations so cited – reducing fines for JWR # 5. Simply put, MSHA's enforcement served as no effective deterrent to the mine operator's continued non-compliance!

In the twenty plus months prior to the explosion, despite the alarming increases in violations cited at the operation, and increased accidents, MSHA failed to use the tools provided in the Federal Mine Safety and Health Act of 1977 to increase pressure and force management to comply with the law. The Agency failed to increase enforcement to curb repeat violations and it cited conditions as <u>non</u>-significant and substantial. The failure to cite violations as S&S, and repeated conditions as "unwarrantable failure violations" likely contributed to JWR's non-compliance. When questioned during the investigation, the MSHA supervisor assigned to JWR # 5 Mine, Terry Langley (a former JWR management official) claimed he did not know about the mine being the third most cited in the country and having disproportionately low S&S violations. The problems created by the enforcement actions of MSHA District 11 personnel described above were substantial, however a closer review of the facts reveal the problems went even deeper.

Data collected by the Agency from 1995 through 2000 shows the major fluctuations in the number of violations issued. Just as important, the chart demonstrates that despite increasing violations the amount of penalties assessed continued to decline per citation. This trend illustrates MSHA's lack of resolve to systematically increase enforcement efforts to bring the operator into compliance.

Citations and Orders

Year	103K	104A	104B	104D1	104D2	104G1	107A	314B	Proposed Penalties ($)	Current/Final Penalties ($)	Amount Paid To Date ($)
1995	4	465	10	0	27	0	5	1	288,091.00	150,803.00	150,803.00
1996	7	310	1	0	13	0	4	5	136,841.00	107,901.00	107,901.00
1997	7	269	0	3	0	1	1	8	53,278.00	47,393.00	47,393.00
1998	5	374	0	2	0	0	4	3	73,432.00	60,684.00	60,684.00
1999	6	597	1	4	2	0	2	1	135,690.00	112,695.00	112,695.00
2000	5	513	0	0	7	0	0	0	97,043.00	82,727.00	82,727.00

MSHA Data Retrieval System December 10, 200

Like the information in the previous chart, the data below shows the up and down trend of accidents that occurred at the JWR # 5 Mine. In calendar years 1997 and 1998, when labor and management were working together, the mine experienced the fewest reportable accidents. When the health and safety programs were cut back or dismantled, accidents began to rise to their pre-1997 levels.

	Fatal Operator Accidents	NFDL Operator Accidents	Fatal Contractor Accidents	NFDL Contractor Accidents	Operator Hours Worked*	Coal Produced (tons)	Operator Fatal Incidence Rate**	Operator NFDL Incidence Rate**	Mine Type National Fatal Incidence Rate**	Mine Type National NFDL Incidence Rate**
1995	1	54	0	12	712,936	1,530,400	0.281	15.15	0.051	10.15
1996	0	41	0	4	725,086	525,066	0	11.31	0.068	8.61
1997	0	27	0	0	848,763	1,186,498	0	6.36	0.042	8.35
1998	0	27	0	0	881,616	1,632,525	0	6.13	0.045	8.93
1999	0	32	0	6	876,862	1,737,220	0	7.3	0.04	8.38
2000	0	44	0	7	882,342	1,981,288	0	9.97	0.046	8.43

MSHA Data Retrieval System December 10, 2002

MSHA's Enforcement Defects at JWR # 5 - An Agency Management Problem - On March 4, 2002, the UMWA informed MSHA that the investigation into the September 23, 2001, mine disaster identified numerous disturbing problems with MSHA's enforcement of the Mine Act. One particular problem was that serious violations, such as thousands of feet of combustible materials, float coal dust and disruptions in the mine's ventilation system had been cited as only minor infractions.

Approximately 110 violations were cited in 2000 for failure to comply with the combustible materials standards. Of those, 101 were cited as low penalty, non S&S, violations. During the first nine months of 2001, MSHA cited seventy-nine violations of 30 CFR 75.400, with sixty-four of those cited as non-S&S. In the last three weeks leading up to the disaster MSHA cited the mine operator ten times for float coal dust for a distance of nearly four miles in the mine. Explosive float coal dust was not being treated as a serious condition by MSHA.

The mine was cited 129 times in 2000 for violation of the standards affecting mine ventilation and ninety-nine times in the first nine months of 2001. Of those, 91% were cited as non-S&S in 2000 and 82% in 2001.

The two major areas of concern regarding compliance at JWR # 5 Mine include: ventilation examinations (30 CFR 75.300) and combustible materials and rock dusting (30 CFR 75.400). These two sections of the regulations account for 45% and 48% of the total violations issued at the mine in calendar years 2000 and up to September 23, 2001 respectively. These patterns are extremely troublesome as many of these deal with excessive methane, inadequate ventilation or ventilation controls the making air changes and the sending miners into work areas without adequate pre-shift examinations.

The operator was cited twenty-four times in 2001 for improper, inadequate or unrecorded examinations. The failure to conduct proper pre-shift examinations by the mine operator can place miners at great risk. Those examinations are intended to make sure conditions that can harm or kill miners are not present underground before they must travel there. However, MSHA cited nineteen of these as non-S&S citations, assessing the operator a $55 fine, and only five listed more than one person as affected by the condition.

Under the rules, a violation must be considered as an S&S violation before MSHA can issue unwarrantable failure violations under section 104 (d) of the Mine Act. The unwarrantable failure tool allows MSHA to issue closure orders when similar violations are found during the inspection or subsequent inspections. This makes mine operators stand up and take notice. When faced with a closure order and hefty fines, they are more apt to clean up the mine, as opposed to a minimal $55 fine and little or no threat of closure. MSHA cited a large number of violations as low negligence on the part of the mine operator and with little likelihood that someone would get injured or killed. Both negligence and gravity affect the level of a fine.

Previous enforcement statistics show how dismal MSHA's use of the penalty tools were at the JWR # 5 Mine. Despite repeat violations and the seriousness of those, significant and substantial violations and unwarrantable failure citation / orders were seldom issued.

A second problem with MSHA enforcement was its failure to return to the mine in a timely fashion to determine whether violations had been abated. The failure of MSHA to make timely re-inspections of conditions cited can save the mine operator a lot of money in fines. Under Part 100 of 30 CFR, if the condition cited is corrected within the time set for abatement, the mine operator gets a 30% reduction in the fine. If the condition was not corrected during the time given, the operator forfeits the 30% reduction and is assessed an additional penalty of 10%, but only if MSHA returns to find it <u>not</u> corrected. If the violation is cited as a non-S&S violation and assessed the $55 minimum penalty and is not corrected in the time given, the operator would lose that minimum fine and be assessed at higher levels, but only if MSHA returns in a timely fashion.

MSHA had a habit of ignoring violations for days and weeks after citing them. In 2000, MSHA regularly failed to return to make sure violations were corrected until after the abatement date passed. Eighty were not abated until five or more days after the required time, and one went sixty-one days beyond the abatement date.

In calendar year 2001, up to the September 23 explosion, 193 of the 365 citations issued or 53% went past the required abatement time. This failure by MSHA allowed violations of the Mine Act to linger without legal extensions, undercut miners' representatives' right to challenge the improperly extended violations; saved the mine operator considerable money; and allowed the operator to beat closure orders.

During 2001, up to the date of the explosion, nearly half of the citations/orders pertaining to ventilation problems were not inspected for abatement in a timely fashion. One was eighteen days past the required time and eleven were still outstanding at the time of the explosion. Of the seventy-nine combustible material and rock dusting citations/orders issued from January 1, 2001 through September 23, 2001, fifty-two, or 66% were not checked by MSHA to make sure they were abated on the dates due. Seventy-four were five or more days past the abatement date before MSHA checked them.

At the time of the disaster there were thirty-one outstanding violations at the JWR # 5 Mine overdue for abatement. Those included roof control, ventilation, ten float coal dust violations, as well as other conditions. Records produced by the mine operator identifying work they claimed was undertaken on the thirty-one outstanding violations found at least nineteen or 61% were not corrected by the legal termination date. These citations were issued for violations of several different regulations. However, the vast majority, 74% were issued for violations of roof support (five citations), ventilation (eight citations), and combustible materials (ten citations). Despite the seriousness of some of these violations, including two that cited 5,200 ft and 7,000 ft of float coal dust, the Agency continued its practice of not following-up on citations.

In addition, MSHA had a practice of listing only one person as being affected by violations, as was the case with all but sixteen of the 525 citations issued in the year 2000. That practice helped keep the fines for violations substantially reduced. MSHA continued that practice in 2001 by citing 91% of the violations as affecting only one miner. Citations indicating only one person affected were routinely issued incorrectly, including the following:

- Citation 7676020 issued January 22, 2001. The citation notes no pre-shift records for "the bottom, No. 6 section, No. 2 longwall section and the sub-mains A and B belts." This covers a vast area of the underground workings, hazards discovered would have affected several sections of the mine, and all persons working in or inby these areas.

- Citation 7668725 issued January 24, 2001. The citation reports float coal dust accumulations of 1,100 ft. and 1,800 ft. in the secondary escapeway of the No. 5 section. Igniting that fuel source would have affected all workers in the area, including those crews working at the face of inby sections.

- Citation 7677350 issued September 14, 2001. The citation describes "loose coal and muck…16 inches deep 4 to 5 ft. wide for a distance of five cross cuts. Float coal dust accumulation of 3,000 ft." The cited area of 3-east belt would have had a major and immediate impact on the crews working in 4 and 6 sections, at the very least.

Examples of MSHA's Weak Enforcement at JWR # 5 Mine - MSHA wrote citations that indicated serious hazards, but the seriousness was not reflected in the enforcement tools used. The severity and gravity of violations and management's negligence toward compliance was downplayed, which allowed JWR # 5 Mine to avoid more stringent fines and enforcement action. These five

citations were written as non-S&S, unlikely to cause injury or illness, cited the operator as only low or moderately negligent and having affected only one person:

- Citation 7675717 issued on January 4, 2001. The citation describes an area in the No. 5 section that was mined 25½ to 35 ft. wide for a distance of 15 ft. This was in an area of the mine where the roof was known to be fractured.
- Citation 7676016 issued on January 18, 2001. The citation describes insufficient air in the longwall tailgate to dilute and render harmless excess methane.
- Citation 4870841 issued on July 3, 2001. The citation describes stoppings not being maintained between intake and belt entries. A hole measuring 64 square feet (over 40% of the brattice material was missing) and numerous cracks were observed.
- Citation 7676613 issued on July 18, 2001. The citation states water was allowed to accumulate in the alternate escapeway two to three feet deep, rib to rib for a distance of 150 feet.
- Citation 7675728 issued January 22, 2001. Describes a float coal dust accumulation in the left return of the No. 1 longwall section for a distance of 1,200 feet.

In the weeks and months prior to issuing each of these, similar violations were written by the Agency at JWR # 5 Mine. Likewise, strikingly similar conditions would be cited again and again by MSHA in the period before the explosion; and these citations represent only a few of the re-occurring and serious problems that existed at this operation.

Another example is citation 7675719 issued January 5, 2001, which was cited as non-S&S. The citation stated, "Combustible material in the form of float coal dust on previously rock dusted surfaces was allowed to accumulate in the left return air course of the No. 5 section. The float coal dust black in color…included adjoining entries and crosscuts for a combined distance of about 1,850 feet." As written, the citation was assessed at $55. Based on these conditions, however, and understanding the extreme hazard float coal dust presents to the entire mine, the citation should have been written S&S, and should have shown at least ten miners were affected. With those two changes in the citation the operator would have been assessed a penalty, based on 30 CFR 100.3, of $796.00. The UMWA suggests this more likely would have prompted JWR # 5 Mine management to take a more active approach to compliance.

Given the overall conditions encountered by the inspectors, the citations written did not reflect the gravity of actual hazards to which miners were exposed. With regard to citation 7675719 used in the previous example, if the inspector had issued an S&S citation and noted ten miners affected elevated the gravity to "highly likely," and "permanently disabling," as well as citing the operator for "reckless disregard," the single citation would have carried a penalty of at least $6,600.00. Again the UMWA believes this action by the Agency would have prompted JWR # 5 Mine management to take a more active approach to compliance.

Finally, citing these violations for the significant and substantial hazards they posed would have afforded MSHA the ability to apply the prescribed escalating enforcement tools and cite similar violations for an "unwarrantable failure to comply," resulting in closure orders for ignoring mining laws.

The citations issued at JWR # 5 Mine are a cause for concern, when viewed separately. However, reviewing the enforcement actions taken by MSHA over the course of a day or even longer, based on the conditions found, is reason for alarm. The problems become apparent when reviewing the events of September 17, 2001. On that day an MSHA inspector wrote a series of

citations during a routine inspection of the No. 1 longwall section. These six citations/orders represent a single day's events that sum up some of the problems existing with the inspection routine occurring at the mine.

1) Citation #7677219 issued at 10:45 am, "The permanent stoppings at spad #'s13193, 13164 and 13146 along the longwall's alternate escapeway were not being maintained to serve the purpose for which they were built in that there were openings in the stoppings."

2) Order #7677220 issued at 10:50 am, "An imminent danger was observed 100 feet inby spad #13164 in a high spot along the #1 longwall's alternate escapeway. The methane concentration detected was in excess of 5.0 percent."

3) Citation #7677221 issued at 10:57 am, "The personnel doors at spad #'s 12995, 13027, 13125 and 13146 along the #1 longwall's alternate escapeway were not clearly marked so that the doors could be easily identified by anyone traveling the escapeway."

4) Citation #7677222 was issued at 11:25 am, "Float coal dust, black in color, was allowed to accumulate along the #1 longwall's alternate escapeway on the mine ribs and roof from spad #13256 to spad #12981 and from spad #12981 to the regulator this condition existed in the mine roof, ribs and floor."

5) Citation #7677223 was issued at 11:40 am, "The alternate escapeway for the #1 longwall section was not at least 4 feet wide to enable miners to escape quickly in an emergency. The route of travel passed through a personnel door which was 33 inches wide."

6) Citation 7677224 was issued at 12:20 pm, "The company's approved ventilation plan was not being complied with in that the ventilation for the #1 longwall was not coursed with the minimum of 55,000 cfm at mid-face and the tailgate when coal was being mined. When tested the air quantity was 40,950 cfm at mid-face and 36,650 at the tailgate."

The citations and inspector notes clearly show that in a matter of one hour and thirty-five minutes the inspector encountered these six violations, all within the same general area of the No.1 longwall section. One specifically identified problems in the alternate escapeway, that limited miners' ability to escape in an emergency. One involved short-circuiting of ventilation that can lead to explosions. The inspector's notes clearly described one stopping with a hole measuring 84 square feet. That means over 60% of the entire brattice wall was missing at this single location. Another identified an explosive methane accumulation and another, almost one mile of float coal dust (which can explode) on the roof, ribs, and floor of the entry in one of the section's escape routes. Three that had a potential for mine explosions-the damaged ventilation controls, float coal dust and shortage of air on the longwall face-all were treated as non-serious. Despite the conditions described in the citations and the inspector's notes, <u>all of the 104 (a) citations were issued non-S&S, unlikely to cause injury or illness, moderately negligent and only affecting one person</u>. The determination to write these citations in this manner, given the circumstances, defies logic.

The response <u>should</u> have been to shut down the entire area until the conditions were corrected. Just one ignition source at the right location could have led to disaster for the longwall and support crews working in or inby the affected areas noted on the citations. (The investigation also disclosed that MSHA had not conducted a permissibility inspection of the longwall to insure ignition sources were not present on the equipment that could trigger an explosion). Regarding negligence,

conditions such as the accumulation of 5,200 feet of float coal dust cannot occur quickly and therefore should have been cited as "reckless disregard." Finally, in the event of an explosion or accident, miners needing to escape through the alternate escapeway may not initially have been able to locate an access door. In the event they were able to enter the escapeway with an injured miner, they may have had trouble squeezing through the small door cited by the inspector.

This situation is serious considering the conditions the inspector encountered while traveling to the longwall section. Upon arrival at the longwall face the inspector discovered the ventilation to be far less than the legal requirements to render harmless and carry away the explosive methane gas. Moreover, this discovery was made while coal was being mined. Even with the benefit of the information gathered on the way to the section (the short-circuited ventilation, float coal dust, methane, faulty escapeways for miners) the inspector still issued the citation as non-S&S, unlikely to cause injury and affecting only one person.

As issued, the citations allowed the company to continue to mine coal. These events all took place less than a week before the September 23, 2001, mine disaster.

Of the citations and order listed above, only two, (order #7677220 and citation #7677221) were abated in the time required by the inspector. The other four, including citations #'s 7677219 and 7677224 to be abated September 17, 2001, citation # 7677223 to be abated September 18, 2001 and citation #7677222 to be abated September 19, 2001 were still outstanding at the time of the explosion on September 23, 2001. These represent only four of a total of thirty-one citations issued by MSHA, which had abatement times already past due at the time of the explosion.
The practice of allowing abatement times on citations to lapse was routine at JWR # 5 Mine.

Other Impacts of MSHA Enforcement at the JWR # 5 Mine - Federal regulations require hazards found and /or corrected during the pre-shift, weekly, and other required examinations to be recorded in official examination books and countersigned by the Mine Foreman (or the equivalent). The UMWA determined that the mine operator had discontinued entering hazards in the official mine examination record books months prior to the explosion. Those included conditions such as the vast area of float coal dust in the mine. JWR management claimed MSHA trained the examiners on how to fill out the examination books.

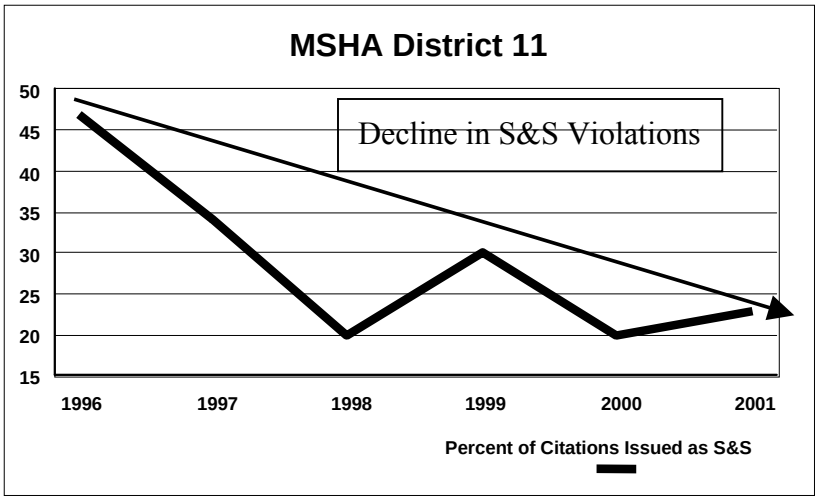
The Union investigation also found the mine operator had implemented mining plans – plans that required MSHA approval – without receiving MSHA's approval. Those unauthorized plans included connecting a new air shaft to the JWR # 5 Mine and changing the air courses for every working section of the mine. These changes, made five months prior to the disaster, created serious ventilation problems in the mine. Even though air changes were made without Agency approval, MSHA did not take enforcement action. The roof control plan and roof conditions at the mine also lacked the needed attention from MSHA.

One reason for the problems may have been the staffing assignments and changes within MSHA District 11. During FY 2000, the ventilation supervisor, who was also responsible for overseeing roof control, was temporarily designated to another position and subsequently reassigned. Two MSHA officials were assigned to alternate as the ventilation supervisor, with collateral duties of roof control supervisor. That arrangement continued through January 14, 2002 when Johnny Calhoun was assigned to oversee both ventilation and roof control.

The data demonstrates a pattern of neglect on the part of the Agency, both when issuing citations and when following up on known violations, as required by the Act. These practices, allowed JWR # 5 Mine management to ignore problems and violate the law. All of the factors cited above created an atmosphere at the mine that would play significantly in the events of September 23, 2001.

MSHA District 11 - The Union's March 4, 2002, letter informed MSHA about other problems, too. There is evidence that feelings of distrust existed between MSHA District 11 and many miners. Those misgivings resulted from Agency policies and actions that reduced enforcement action and restricted the miners' ability to participate. Since its inception, MSHA District 11 has continuously and substantially reduced the percentage and number of S&S violations and the unwarrantable failure rate. The District has become one of the weakest in the country in terms of Mine Act enforcement. Given the types of hazards and the potential for harm to miners in the Alabama mines, particularly the Blue Creek seam, it is puzzling why enforcement was so weak compared to other MSHA Districts!

During calendar years 2000 and 2001, approximately 80% of all violations cited were non-S&S. Further, during 2001 only nine unwarrantable failure violations were cited at all mines in District 11.



Numerous complaints regarding the practices and policies implemented by District 11 were filed by the UMWA, miners and miners' representatives, to the MSHA Arlington Headquarters. These problems were also reported to the DOL Inspector General's Office, along with complaints against specific Agency personnel through procedures under the Mine Act. Many complaints were treated lightly, and others were dismissed on technical grounds or ignored all together. These actions caused miners to lose faith in the Agency. The UMWA investigation found the District's policies and actions adversely affected health and safety at the JWR # 5 Mine. The following represents only some of the Agency actions that undercut the Mine Act over the years leading up to the tragedy:

- Enforcement activity at the mines in District 11 was reduced as MSHA inspectors were reassigned to perform compliance assistance duties. Despite meetings between miners' representatives and MSHA to reverse this trend, the District continued to reduce enforcement actions. While over time the miners' and Union's efforts led to increased inspections, they

were not successful in improving MSHA's lax enforcement of the Mine laws. As a result, Local Union health and safety committees had to beef up their own inspections.

- As the new District was formed, the Agency began reducing the number and percentage of violations issued at all the Alabama mines. S&S citations declined dramatically under the District's new enforcement scheme. The number of violations cited in the first six months of 1996 declined 23% compared to the last six months of 1995, and the percentage of total violations issued as S&S dropped from 59% to approximately 45%. That S&S rate in MSHA District 11 continued to decline and was only at 20% in 2000 and 23% in 2001.

- The number of unwarrantable failure orders issued at all mines in MSHA District 11 in the first six months of 1996 declined 28% from the 101 issued in the same period in 1995 and by 2001 that fell to only nine.

- Requests for safety inspections filed with MSHA District 11 by miners were another major problem; miners' requests for inspections and enforcement were routinely ignored. Several complaints filed under the Mine Act did not receive action for over three months. Compliance problems and miners' complaints at one mine did not prompt action until an explosion occurred. At another operation in this District, complaints about hazardous conditions on the haulageway were ignored for two weeks. The Agency was forced to take action when the condition resulted in an accident. Similarly, MSHA found no merit to miners' complaints filed in August of 2001 describing unsafe work practices by contractors working on JWR property; the following day one of the workers was killed while working in the area. The Local Union Health and Safety Committee chairman at the JWR # 5 Mine reported that less than a week prior to the disaster he met with the MSHA field office supervisor over the mine condition and requested that MSHA beef up inspections because of methane and ventilation problems on the mine longwall. According to safety representatives, the supervisor said he did not have the inspectors to go to the mine but he would try. Two days later, when an inspector was at the mine to inspect the longwall (to make sure the electrical equipment did not have sparks coming from it that could trigger an explosion), that same MSHA supervisor diverted the inspector to another area of the mine. When questioned about the matter the MSHA supervisor said he did not recall the ventilation concerns being expressed.

- Earlier complaints were lodged against the Agency when miners and miners' representatives were intimidated and chastised by MSHA employees. Miners and miners' representatives were singled out in front of the mine operator and, as the miners viewed it, harassed for filing health and safety complaints. During the course of this investigation miners at the JWR # 5 Mine reported threats of retaliation from MSHA for reporting safety complaints if the Agency did <u>not</u> find a violation.

- Complaints that advance notification of MSHA inspections was being given to the company (which is illegal) had been lodged to MSHA and the Inspector General's office by miners in Alabama. Complaints came from both union <u>and</u> non-union miners about advanced notification of inspections by MSHA. (In one such instance a miner overheard a conversation on the mine phone by his boss about MSHA plans for a "surprise" respirable dust inspection. That complaint was reported to the Inspector General's office. To the Union's knowledge the IG never responded to the complaint. MSHA however claimed a JWR company official overheard discussions and tipped off the company. MSHA later hired the

individual as an inspector. Many miners are aware of this and it breeds skepticism about MSHA's commitment to the Mine Act.)

During the investigation at the JWR # 5 Mine, evidence of advance notice of inspections also surfaced. On September 20, 2001, an inspector arrived at the JWR # 5 Mine to conduct an inspection. The mine operator was made aware that the inspector was going to a specific location (the longwall) to conduct a permissibility inspection to make sure the equipment would not ignite a methane explosion. This not only gives the mine operator the opportunity to "clean up" before the inspector arrived, but it gave the company the opportunity to actually call the inspector's supervisor and halt the inspection. This was also the longwall for which the union safety representative had requested inspections due to ventilation and methane trouble just two days earlier. The inspector's supervisor (a former JWR boss) was the same individual the union safety representative said he went to for help.

- Another complaint raised by a number of miners during the investigation was the large number of JWR bosses who MSHA hired to oversee the miners' safety, and Mine Act enforcement.

During the investigation of the JWR # 5 disaster a number of requests were made to have miners and miners' representatives meet with the Agency to outline the problems they had with MSHA's implementation of the Mine Act. Those requests were made all the way to the Assistant Secretary for Mine Safety and Health, but were rejected. When the UMWA learned of the internal review of MSHA District 11 by MSHA Headquarters, official requests were made for MSHA to meet with miners from the other mines so the Agency problems could be properly identified. Those requests were also rejected by the Agency.

It is easy to understand the distrust and low expectations miners in Alabama have of MSHA, the agency charged with policing the mines and protecting their health and safety. After challenging the system to restore its fundamental purpose, the situation became worse after efforts were made to reform it. The miners underground at the JWR # 5 Mine on the afternoon of September 23, 2001, understand the ultimate price for the weakened compliance of the mine safety laws.

MSHA Processing of Civil Penalties - JWR # 5 - 1998-2002 - There is a systematic problem with MSHA's handling of civil penalty assessments. While MSHA District 11 is part of the problem, a review of the penalty history shows that the national MSHA office is to blame as well. Such review also makes clear that the enforcement problems in MSHA District 11 are more of an MSHA management problem than an inspector problem. MSHA inspectors note and document the conditions they encounter at the mines and the Office of Assessments attaches appropriate penalties accordingly. However, the conference officers and Solicitor's Office are too quick to downgrade the seriousness of any cited violations and reduce the accompanying civil penalties. If the dollar value of the assessed penalty is more than $4,000.00, it is directed to the Solicitor's Office for review. Anything $4,000.00 or less can be taken before the MSHA Conference Officers.

From 1998 to 2002, 170 violations issued at JWR # 5 with accompanying civil penalties had the amount of the penalties changed either by the Office of the Solicitor or the MSHA District 11 conference officer. Of those 170 violations, 101 were reduced and settled by the Office of the Solicitor. The proposed dollar amount of civil penalties for the 101 violations was $140,891, but JWR # 5 had to pay only $90,342, a reduction of $50,342. Sixty-four of the 170 violations were reduced and settled by a conference officer. The proposed dollar amount of the sixty-four violations was $27,162, but, again, JWR # 5 paid only $16,527, a reduction of $10,635. Three of the 170 violations were declared issued in error by the Office of the Solicitor and two violations were

declared issued in error by a conference officer. The proposed amount of these five violations was $2,286.

The reductions of civil penalties assessed at JWR # 5 contributed to the lack of compliance at the JWR # 5 Mine; this lack of compliance with the Mine Act was a major factor in the September 23, 2001 mine disaster.

An example is the 104(d)(2) Order that was issued on March 29, 2000, because rock dust was not maintained to within 40 feet of the longwall face. The Solicitor's Office determined that the evidence did not support the grave finding of "highly likely and permanently disabling" because, although the inspector stated that high levels of methane had been found in the past, he did not detect any excess of methane on the day the Order was issued. The fact that JWR # 5 mines coal in the gassiest coal seam in the country was not taken into consideration.

If the Mine Act is to be implemented as Congress intended to protect miners, MSHA solicitors and conferencing officers need to understand the serious ramifications to miners' lives when they cut penalties and undermine safety laws.

The UMWA recommends that the Department of Labor and MSHA review the handling of every aspect of the civil penalties assessment process. Recently, the Government Accounting Office (GAO) reported to the Labor Department that MSHA had not adjusted its civil monetary penalties for inflation as required by law. Based on the Act's requirements, MSHA should, at a minimum, adjust two levels of its regular assessments so that a $5,500 penalty would become $6,500 and a $55,000 maximum penalty would become $60,000. MSHA said that it was developing a rule to make those adjustments. While doing so, MSHA should also develop new rules to re-establish effective assessing and meaningful civil penalties—and end the practice of routinely reducing them. Civil penalties are assessed when mine conditions warrant it. When reduction of these penalties becomes the exception rather than the rule, mine operators will begin making a more serious effort to alleviate dangerous conditions underground. This will result in a safer work environment for all miners and will certainly lessen the possibility that another tragedy on the scale of JWR # 5 ever occurs again.

Mine Rescue and Recovery Improvements

The recovery phase of the JWR # 5 Mine began on October 1, 2001, when six mine rescue teams entered the underground area of the mine. The examination, rehabilitation, and daily maintenance work necessary to ensure safe advancement, as well as recovery of victims and the mine, was massive and labor intensive. By October 18, 2001, all available mine rescue personnel in the State of Alabama were being utilized. During the recovery operation, plans were developed to allow miners, who were not trained in rescue and recovery, to enter areas that had not been rehabilitated. However, MSHA took the position that the protections contained in Title 30 CFR would not extend to these miners. After objections were raised by the UMWA , subsequent safeguards were implemented to increase protections.

The routine training given to miners does not prepare them to safely perform rehabilitation work. Because of the extreme hazards that are encountered, this type of work has historically been performed by mine rescue teams. The rehabilitation work combined with maintenance activities such as pumping of water and building brattices is extremely labor intensive. These processes slow recovery efforts and quickly exhaust the limited number of trained rescue teams available.

In 1997, MSHA created a new activity code (AFD). With this code in place, miners' rights are not protected under the 1977 Mine Act. Further, the protections and requirements contained in the Code of Federal Regulations (30CFR) are suspended. Implementation of that policy does not fully protect miners, and the UMWA recommends that it be revoked. As it stands, this 1997 action by MSHA (which was implemented to "track the true" work load nature) jeopardizes the ability to perform recovery operations.

There is a growing shortage of mine rescue teams in the United States to respond to mine emergencies. Failure to address the major problems facing the mine rescue program will result in limited mine rescue capabilities. The UMWA recommends that action be taken to increase the number of properly trained rescue teams.

Communication limitations and deficiencies contributed to the September 23, 2001, disaster. They also slowed the advance of mine rescue teams and increased their exposure to undue risk. The limited system allowed communication voids to exist between the advancing rescue teams and the Command Center.

The UMWA recommends that, improved communication systems be developed to provide protection of mine rescue personnel during rescue and recovery operations.

The UMWA recommends that state of the art atmospheric monitoring systems designed to function if disruptions occur, to provide necessary information on atmospheric conditions in the area prior to sending in miners or rescue team be utilized at coal mines.

State of Alabama, Department of Industrial Relations

During the last regular full inspection of the JWR # 5 Mine by the State of Alabama Department of Industrial Relations, Division of Safety and Inspections on August 23, 24, 28, 29 and 30, 2001, the agency cited JWR for three violations of the Alabama Coal Mining Safety Law of 1975. Those were sections 25-9-82(c) - insufficient amount of air allowing the accumulation of methane on the No. 4 section; 25-9-19(a) - unsupported roof in several locations; and 25-9-111(b) - inadequate rock dust on the new longwall and two sections connected to it. These limited findings identify shortcomings in the state inspection process.

A number of limitations on the effectiveness of the state's role on furthering and protecting miners' workplace safety were identified.

This Department has only six employees:

- The Chief of Division
- Mine Inspector Supervisor
- Secretary for Chief of Division
- Three State mine inspectors

The State inspectors are responsible for inspecting eight underground coal mines and thirty-three surface coal mines, as well as forty-eight limestone quarry pits (every 90 days) and forty-five sand and gravel pits (every six months). The inspectors work day shift and 40-hours a week. Mines are not inspected on the evening or midnight shifts, Saturdays or Sundays.

Article 1, Section 25-9-20:

> AMine shall be given one complete inspection every 45 days and more often if necessary. Special or partial or complete inspections shall be made when deemed necessary by the chief.@

This section is clear on what areas of the underground must be inspected. It states Acomplete inspection.@ The extent of a Acomplete inspection@ is also addressed in 25-9-7 which states: Athe equipment, works and machinery connected with said mines,@ Atransportation, ventilation, circulation and conditions of air, electricity, explosives, timbering, drainage, practices and general security.@

These requirements are not being met. Given the small number of inspectors and the large number of mines, the State inspectors cannot satisfy the state law. Inspectors spent five days at the JWR # 5 Mine during the last full inspection prior to the September 23, 2001, mine disaster.

The State usually has time to inspect only the working sections and longwalls that are currently producing coal. The return entries of the sections and longwalls are not inspected in their entirety for accumulations of methane and coal dust. The State inspection does not include the following:

- Section belts, longwall belts and main belts
- Permissibility
- Firefighting
- Evacuation
- Haulage
- Heavy equipment
- Slurry impoundments
- Haul road
- Diesel shops, machine shops and welding shops
- Training of miners, etc.

The main returns, bleeders and seals of the underground coal mine also are not inspected completely by the State mine inspectors. Preparation plants (at underground mines) that process coal from mines are only inspected on one eight-hour shift, twice a year.

State mine inspectors at underground mines like JWR # 5 spend approximately five days inspecting the sections and longwalls underground. During the inspection, they record any violations found. Once the inspector has finished his inspection of a mine, he goes back to the State Department of Industrial Relations office and fills out his report. It takes five to ten days from the time the inspection is conducted for the State Department to send a written report to the coal mine operator of the violations of the State=s mining laws that were observed.

Once the report of violations is sent to the mine operator, the operator is supposed to fill out a form showing corrections were made, and send it back to the Chief of the Division. There is no specific time frame that operators must meet in either correcting violations or returning the form. There is no legal action that can be taken if the operator does not send the form back to the Chief of Division.

This system allows hazards and violations at the mines to exist for several days or weeks before they are corrected, if they are ever corrected. The law provides no real pressure on operators or incentives to induce them to correct the hazards or violations found.

Other issues include the following;

Article 5, Section 25-9-111(b) states that:

> ARock dust shall be applied and maintained up on the top, floor and sides of all open places, passages and haulageways in such quantities that the incombustible contents of mine dust that could initiate or propagate an explosion will not be less that 65 percent, but the incombustible content in the return air course shall be no less than 80 percent. Rock dust shall be so applied and maintained to include the last open breakthrough of rooms and entries and to within 40 feet of the faces or closer if necessary.@

In the State of Alabama, mine inspectors do not take rock dust samples during their inspections. They do not have the equipment necessary to take rock dust samples; they also do not have any way to analyze the sample to determine the incombustible content.

Article 4, Section 25-9-86(h) states:

> AExamination for gas and other dangerous conditions shall be made by a certified official or approved competent person before taking loading or cutting machines inby the open breakthrough nearest the face or before applying power to machinery that remains at or near the face at not more than 20-minute intervals during cutting, drilling or mechanical loading, before drilling with electric drills, before blasting, after blasting and before other work is resumed and at such other times as may be necessary or designated by the operator or mine inspector for adequate safety.@

The UMWA investigation found that following an inspection at JWR # 5 Mine of No. 4 section in November 2000, in which excessive methane was found, the State mine inspector designated additional methane testing to provide adequate safety. Following this recommendation being reduced to writing on his regular inspection report, a notation was added instructing the State mine inspector Anot to put on report.@

Article 17, Section 25-9-365 states:

> AAny mine inspector shall have the authority to order suspension of operations of a coal mine or pit or any part thereof when violation of this chapter are of such gravity as to be or become imminently hazardous to workmen therein. Upon correction of such hazardous conditions, the mine or part thereof may resume operations.@

This enforcement tool is seldom utilized by the State inspectors. The coal mining laws of Alabama do not contain two other common enforcement tools utilized to achieve operator compliance: Civil penalties and criminal sanctions.

In summary, as a result of these identified deficiencies and others, it was determined that the ADivision of Safety and Inspections@ is not functioning as an effective guardian of miner safety. The UMWA recommends that, to ensure compliance with the safety standards, State mine inspectors should immediately notify a mine operator of hazards and violations, and give the mine operator a specific time period in which to correct the problem; the inspector=s notice should be written, describing the conditions as well as the time allotted for correction or abatement; and the notice should be prepared and delivered at the end of the inspection shift during which the hazard or violation was found. The UMWA further recommends that the State mine inspector re-examine the areas where hazards or violations were found after the operator has corrected them, to assure they were properly corrected and to assure that the miners= health and safety are no longer at risk. Changes in staffing and inspections as identified are needed as well.

Post Disaster Health and Safety Improvements at the JWR # 5 Mine

Immediately following the September 23, 2001, disaster the UMWA began developing a comprehensive list of health and safety improvements needed at the JWR # 5 Mine. The sources for this list came from interviews with and information from miners and their families and company officials; a review of mining records, plans and documents; inspections of the mine; and examinations of various systems in place at the mine. This list became know as "Summary of UMWA Issues of Concern".

The UMWA did not await reports on the investigation findings to identify and cause implementation of improvements. Simultaneously with the investigation and mine recovery activities, meetings with key JWR officials began quickly to respond to the Union's list of health and safety improvements. This process began without regard to what the causes and contributing factors may be in any of the final investigative reports. A goal of this process was to have improvements made as part of the mine reconstruction, and prior to the mine resuming production. Therefore, prior to the miners' return underground on December 10, 2001, to begin rehabilitation work, special health and safety protections were temporarily put in place. This initial list was not intended to limit any final actions needed based on findings by the UMWA, State and / or MSHA in their report(s) on the disaster.

The initial health and safety improvements contained in the "Summary of UMWA Issues of Concern" (or known as the "list") the UMWA raised with JWR was follows:

1. Install a Leaky Feeder Phone System
2. Revise the Fire Fighting and Evacuation Plan
3. Install a PED Emergency Communication System
4. Improve the Mine Wide Atmospheric Monitoring System
5. Develop better protection of section electrical equipment
6. Revise the Roof Control Plan
7. Determine vertical degasification options near underground fault areas
8. Improve and revise all examination books
9. Provide additional training of examiners, including filling out books
10. Automatic methane monitors at power centers
11. Quantity, quality and distribution of methane detectors
12. Procedures and system for power removal when bad roof is reported
13. Training of miners on each new system
14. General retraining of miners

15. Better battery design
16. Brattice construction and materials
17. Existing phone system improvements
18. CO Room training

The following briefly describes the concerns and discussions held on these issues and the current status, as known by the UMWA.

Fire Fighting and Evacuation Plan and Improvements - A number of deficiencies were identified with the firefighting and evacuation plan in place the night of the explosions. These deficiencies prevented timely evacuations and safe response to emergencies. Dialogue with JWR officials did not accomplish all the safeguards the UMWA sought, but it did result in a number of improvements, as follows:

A. General Evacuation Procedures were spelled out. The procedure now contains the following**:**

- Requires the operator to designate a Responsible Underground Person for all shifts. This person's name is required to be posted in the Control Room. The approved plan in place on September 23, 2001, did not account for all shifts and did not make clear who the responsible person was.
- Requires a general knowledge of the location of each crew working underground from the line-up at the start of each shift and regular communications updates from outby crews or individuals not working near communications. The approved plan in place on September 23, 2001, did not address the location of miners for emergency notification.
- Places responsibilities on the Control Room Operator in conjunction with the Responsible Underground Person as to who may designate mine personnel to physically find, inform and evacuate crews or individuals (i.e; fireboss/pumpers, etc.) who have not been notified of an evacuation by other means of communication. This is to assure all underground personnel will be notified, a responsibility that did not previously exist.
- Specifically prohibits persons from traveling to the site of an emergency unless requested to do so by the Responsible Underground Person or Control Room Operator.

B. The availability of fire fighting and emergency equipment was expanded to include the knowledge of the location of fire fighting and emergency equipment and specifically required hands-on and simulation training.

C. The new plan expanded training concerning Self-Contained Self-Rescuers (SCSR) to specifically train miners that SCSR's are not to be used for fire fighting purposes.

D. Communications were expanded requiring two methods of underground communications in the mine to improve notification during an evacuation and communications on the emergency conditions. It also addresses the procedure of shutting down the conveyor system and/or sounding the CO monitor alarms to initiate calls to the Control Room when an evacuation has been called.

E. Response to a fire or other emergency was spelled out in greater detail with additional safeguards and restrictions as follows:

- In the event of an actual fire or mine emergency, personnel remaining in the area must establish and maintain communication with the Control Room Operator.
- Only the Control Room Operator in conjunction with the Responsible Underground Person (if available) can dispatch crews to assist with the emergency. This response will be based on all information available from the scene.
- Each responding crew must be equipped with multi-gas detector and communication equipment. Crews shall not split up into more groups than there are available detectors.

- Responding personnel shall systematically maintain communication with the Control Room Operator while in transit to the scene of the emergency.
- Responding personnel shall immediately notify the Control Room Operator and/or the Responsible Underground Person of any disruption of ventilation or damage to ventilation appliances; and
- If adequate information is not available to determine if response can be made safely, the mine rescue team will be activated to make the initial entry.

Additional improvements affecting the Fire Fighting and Evacuation plan were also developed. Those included communications, training, atmospheric monitoring and other areas.

Shortcomings in the New Fire Fighting and Evacuation Plan: - The JWR # 5 Mine Fire Fighting and Evacuation Plan, approved by MSHA on March 18, 2002, represents vast improvements over the pre-disaster plan at this mine, as well as over plans MSHA has approved at other mines. However, it still lacks certain protections, which could minimize the risk to miners during emergency situations:

- It fails to require the operator to verbally inform miners who is the Responsible Underground Person in charge of mine emergency response and evacuation on each shift. This is important since it may not always be the same person.

- Does not clearly define "regular communication updates" from outby crews or individuals, leaving the possibility of having to hunt for miners during emergency situations.

- Responding crews need only to be equipped with one multi-gas detector, which places severe restrictions on the crew's ability to spread out quickly and respond to an emergency situation. With this restriction and the possibility of the only unit failing, responding crew members should be equipped with multiple multi-gas detectors.

Mine Emergency Training: - The training requirements in the Firefighting and Evacuation Plan were jointly reviewed by the UMWA and JWR; this review revealed that the miner training models approved by MSHA do not meet the needs of miners faced with life or death emergencies. For example, miners who donned their SCSRs had to do so without any visibility because their cap lamps were blown off and there was thick dust. The MSHA-approved training included Self-Contained Self-Rescuer (SCSR); escapeway training; location and use of fire fighting equipment; fire drills (section, longwall and outby) and the training for the surface and underground persons who are deemed responsible for ordering miners to evacuate or respond during an emergency.

The inadequacies included incomplete and shallow course material. For example, the approved plan at the time of the disaster did not address workers who were working an idle shift in an area of the mine different from their regularly-scheduled shift. In all the areas reviewed, the parties determined the frequency of training should be increased, and it was also agreed that quality would improve by use of simulations (instead of having the foreman just reading the material, which was the prior practice). Minimal improvements in training were made at JWR # 5 Mine as the miners returned to start the re-construction process. The UMWA is still in discussions with JWR on other training improvements.

Communications – Communications are essential in underground coal mines when emergency strikes. The absence of communication devices can spell the difference between life and death. The communication system in place at JWR # 5 Mine was given considerable attention during the UMWA's investigation, and the Union identified a number of deficiencies. The UMWA investigation

findings led to discussions with JWR on improvements needed in the mines communication capabilities. Those involved: installing state of the art communication systems; reinstalling the "all" pager system removed just prior to the disaster; improving the current phone system; posting the phone directories at each phone; and addressing communication systems in the Fire Fighting and Evacuation Plan.

The underground communication system at the time of the disaster consisted of a Giatronic Pager Phone System and a few Motorola hand-held radios. The Giatronic Pager Phone System utilizes phone boxes that were mounted within the mine, connected together by phone cable. Communication is possible with this system from the surface area of the mine to any location where a phone box is located and between the various phone box locations underground.

The original phone cables between 459 switch and 3-east turnout did not suffer substantial damage from heat or force and were still properly connected to the phone boxes. The phone cables inby 3-east turnout suffered major damage from both heat and/or force. Although not generally utilized in this manner, underground phones could be connected to the public phone system by going through the CO Room operator. Hand held radios that were used had limited range over very short, straight-line, distance underground from one unit to another. Communication systems were not mounted on any of the manbuses, motors or other equipment.

When the first explosion occurred on September 23, 2001, the section phone was inby the rock fall. Injured miners traveled outby to the 3-east switch in low visibility to find a phone to call for help. As miners already underground entered the explosion area in their rescue attempt, they lacked communications. As the disaster was unfolding, communications were hampered because the "all" page system (which could have been easily activated by miners from any underground mine phone for broadcasting over loudspeakers, for all phones in the mine) was eliminated by mine management just days before the explosion (and without any real notice). The phones all had individual numbers to call but the phone numbers were not posted at the various phones. Most miners underground on September 23, 2001, apparently did <u>not</u> know the CO Room number.

During rescue efforts the night of September 23, and the morning of September 24, communications were disrupted from 459 switch inby. Considerable time was lost by the mine rescue team when it had to backtrack to the 459 switch (which was about 6,900 feet from the deepest advancing point) just to communicate with the surface Command Center. A second mine rescue team had to advance and establish communications from the 459 switch to inby 3-east turnout and then further inby. There were also periods when no communication occurred with the rescue teams.

The UMWA and JWR examined five different cables inby 3-east turnout to determine damage from the explosions for improved methods to protect them. The five cables (which were communication and monitoring cables) are listed below, starting with the most damage:

1. Phone cable (connects one stationary phone to another)
2. Point heat sensor line (transmits data from point heat-sensors outside to the CO Room)
3. Fiber optic cable (utilized with CO system and underground cameras for transmission to CO Room)
4. Mine Wide Monitoring cable (runs to each sensor)
5. Remote line (SO cord) (provides power from one remote box to another)

The parties met with the JWR # 5 Mine phone technicians in an attempt to identify the source(s) for the communications disruption from 459 switch inby to the 3-east turnout on September

23, 2001. The technicians explained and demonstrated the design and make up of the Giatronics phone boxes. Each phone box contains a battery that makes its terminal connections toward the back of the box. The battery is then held into place by an outer bracket that is screwed into place across the battery. The technicians reported that they regularly found the brackets missing from inside of the phone box. It was their belief that the method for holding the battery in place was an "unfriendly design," resulting in the brackets not being put back in place each time a battery had to be changed out. Subsequent examinations of these phones, both at JWR # 5 Mine and other mines, revealed this bracket was routinely missing from the phone. The technicians further reported it was their belief that when the phone boxes had been disturbed by the force of the explosion that the terminals lost their connections. Two recommendations that came from this meeting dealt with this issue. Those were (a) to securely mount all phone boxes, and (b) to request a meeting with Giatronics representatives to discuss the "unfriendly design" of the battery brackets. A meeting was held with Giatronics representatives, but to date no response has been received.

The UMWA investigation also found a number of other deficiencies in the communication system. Those were:

- Permanent locations of underground phones were not mapped on the surface to allow surface personnel to know where they were.
- Underground phones were randomly moved without notification.
- An effective and timely communication system to notify personnel when an evacuation had been called or to notify necessary personnel of the nature of an emergency was not in place at JWR # 5 Mine on September 23, 2001.
- The communication system in the surface control room was designed to receive all incoming calls from outside the mine on evening and midnight shifts. This was true on September 23, 2001, and it remains true today. This same communication system must also receive all incoming calls from underground. There was no way for the Control Room operator to know who is calling or whether it is from the mine or elsewhere, until he answers.
- No other person was immediately available on the surface at JWR # 5 Mine on September 23, 2001, who could assist in the Control Room during this emergency.
- Sometimes the Control Room operator leaves the Control Room unattended, when he goes to the restroom, or to address other duties spelled out in "# 5 Mine CO Room Supervisors Responsibilities, Procedures, and Phone Numbers".

Numerous meetings took place between UMWA and JWR personnel to discuss these communication inadequacies and the proposed solutions. In addition to changes in the current system, the UMWA recommended two additional systems be added to improve the JWR # 5 communication system for general and emergency use. Those are (1) a Leaky Feeder Phone System, and (2) a PED Emergency Communication System. JWR accepted and implemented the first recommendation, but rejected the second one.

The Leaky Feeder Phone System utilizes a cable along the underground workings that carry communications transmitted by hand-held and/or machine-mounted radios. This system would provide constant communication with personnel traveling throughout the mine and to the surface. It <u>does not</u> require individuals to be stationed near a phone. JWR installed and used the Leaky Feeder Phone System at other mines. JWR agreed to purchase and install this system at JWR # 5 Mine. That system was installed during the initial rehabilitation work. Initially, twenty radios were purchased for mounting on all track-mounted equipment. Ten hand-held units were also purchased. The mine

already had a stock of the Motorola hand-held units that could be utilized, as well. In October 2002, one additional handset was provided on each working section after the UMWA expressed its concerns.

The PED Emergency Communication System has the ability to send emergency instruction simultaneously to all personnel and vehicles in fifteen seconds. Various mines in the United States utilize this system. It has been used to contact miners in remote areas where phones are not located and to withdraw miners during emergencies. The PED signal will propagate through several hundreds of meters of rock strata and can be received at any location throughout the mine with a loop antenna on the surface. The receivers of this system interface to the miner's cap lamp battery and will display a message up to 32 characters in length. Upon receiving a message, the cap lamp will flash and the message is displayed. JWR did not implement this recommendation for the JWR # 5 Mine.

On February 12, 2002, the UMWA and JWR reviewed the communication system and developed some joint recommendations for implementation. Those included the following:

- Training should be developed and miners trained on the importance, use, and care of all communication systems.
- Miners should be trained on all methods of notification of personnel when an evacuation has been called.
- Areas should be identified throughout the mine where phones would be required at all times.
- The zone of communications around a Leaky Feeder Wire should be defined and miners trained on those.
- The Control Room should be notified of the location of all personnel and miners and trained on the importance of this notification.
- Miners should be trained to maintain constant communication from the emergency scene.
- Miners should be trained on what critical information should be communicated from the emergency scene.
- Evacuation and emergency notification should be accomplished using pager phones, the Leaky Feeder System, turning conveyor belts off, activation of CO alarms, and by the constant tracking of outby personnel.
- The duties and responsibilities of the Control Room operator should be reviewed and revised.
- An audible alarm should be installed at the Control Room to sound anytime the operator is out of the office.
- A method should be installed to block or transfer outside calls from the Control Room that could be activated during an emergency.
- Practice drills should be developed and implemented for the Control Room operator.
- Backup personnel should be trained and available during emergencies to assist with Control Room responsibilities.

Mine Wide Atmospheric Monitoring System - The investigation of the disaster disclosed that miners lacked the information necessary to understand the extent of disruptions in the ventilation system and that methane was likely accumulating in areas of the mine where ignition sources existed. The only remote sensors in the area were the carbon monoxide (CO) sensors located in the conveyor belt entries. The monitoring system used at JWR # 5 Mine is a JWR software system with Conspec CO sensors utilized underground. These sensors are located every 2,000 feet in the conveyor belt entries.

On September 23, 2001, there were two sensor locations in the No. 4 section conveyor belt entry and a sensor located near the conveyor belt tailpiece on the No. 6 section. All three of these sensor locations were disabled following the first explosion. This left the first operating sensor following the first explosion at the 4-east belt header. No CO presence was communicated by this sensor or any other operating sensor following the first explosion. Following the second explosion, the 4-east belt header was disabled and the first sensor to communicate the presence of CO was located outby at the 3-east header. A finding of the investigation was that if other atmospheric monitoring devices had been strategically located in the area and designed in a way to survive the initial explosion (with data being constantly reported out), the emergency response could have been handled differently and better. About fifty-five minutes lapsed from the first explosion to the second one, which should have been adequate for a safe evacuation for most miners underground.

The parties recognized that improvements to the atmospheric monitoring system were needed to give miners access to important information. There are a number of monitoring systems available for use in coal mines that can remotely monitor methane, carbon monoxide, air flow quantity and pressures. They can be located in a number of strategic places in the mine with data constantly sent to a central location and for continuous monitoring.

The UMWA and JWR discussed various ways of improving the atmospheric monitoring system (AMS) to provide increased safety on a daily basis and to improve the information available from the scene of a mine emergency. Development and deployment of systems that would better monitor methane, carbon monoxide and ventilation flows; protect them from damage as much as practicable, so they can provide constant information to the CO Room on the surface; and use of that information to assess the environment routinely and during emergencies, was the center of those discussions. JWR agreed to install CO sensors and air pressure sensors at the mouth of each section in each return. Those would be designed to monitor both ventilation flows and concentrations of carbon monoxide. JWR is awaiting MSHA approval sought by the manufacturer for the pressure sensors. Two methane sensors are to be installed on each working section. The first is to constantly monitor methane at the section power center and the second one located in one of the sections intake splits (belt entry) would be constantly monitored at the CO Room on the surface.

The UMWA and JWR also investigated damage to the cabling system. The parties looked at the construction of the cables along with the location of the monitoring cables and sensors with regard to the damage caused from the explosions. The primary questions were: could more durable cables be used, and could both cables and sensors be better located to better withstand explosion forces and heat? Underground observations had indicated that all cables inby 3-east turnout had experienced heat and the degree of heat damage related to the compound of cable jacket material. Force damage was observed, in that cables were found broken in several areas and pulled loose in others.

The parties developed specific recommendations based upon these observations. These recommendations are:

- Kellen grips should be installed any time a cable enters or exits a box.
- All out stations should be securely mounted.
- During cable installation, a six-foot loop should be hung in every crosscut on a shear pin hanger to prevent quick snapping of the cables.
- Additional standards for cable installation should be developed and followed.
- Hard mount vs. flex mount of sensors should be tested with known forces.

The UMWA secured a commitment from NIOSH to conduct explosive testing of the sensors (to determine the optimum locations to protect them from damage) at the Lake Lynn Pennsylvania Testing Facility. Arrangements have not been completed for testing.

Protection of Section Electrical Equipment - Prior to the recovery and testing of the batteries and battery charger as an ignition source of the explosions, the parties were concerned that equipment could become an ignition source if it shorted out as a result of a rock fall. The section power center would also be a source. While it is important to protect areas from roof falls, it is also important to design equipment to protect it from damage should a roof fall occur. The UMWA discussions with JWR led to the following actions:

A. All of the battery chargers were encased in a heavy gauge metal cage on all sides.
B. Prototypes were built and put into use for on-board battery protection. To accomplish this, two heavy gauge metal beams were installed to extend across the top of the battery lids in a manner that would prevent any large rock from coming into contact with the lids. Also, a third heavy gauge metal beam was installed to extend across the top of the battery plug and receptacle area to prevent any large rock from coming into contact with this area.
C. For the section power centers, circuitry was developed and methane monitoring units installed on the section power centers that will de-energize the power at the vacuum breaker upon detection of 1% methane.

Additional Improvements in Battery Design - Early discussions and examinations of equipment batteries were held between JWR and UMWA personnel to address concerns with the possibility of rock falling on equipment batteries. Several ideas were discussed between the two groups including:

A. Installation of rubber conduit on all cables or leads;
B. Installation of rubber or other material to the underside of the battery lids and;
C. The installation of a center support or brace in the middle of the battery lids.

Following these early discussions, JWR representative arranged a meeting for January 8, 2002, with representatives of Crown Battery, JWR and UMWA. Our concerns and ideas were shared with Crown Battery representatives. Other ideas (including spraying the underside of the lids with a Rhino Linings product, increasing the thickness of the metal lids, installation of a 1/4" piece of dividing steel in the middle of the cells to provide a center support for the lids while reducing the width of unsupported lids over the terminals, and the installation of a fire suppression system) were also discussed. The UMWA understands that Crown Battery already offered the spraying of lids' underside with a plasticsol lining type material, but the other recommendations would require additional MSHA approval.

At a later meeting on January 21, 2002, the reply from Crown Battery was discussed. It stated that "some of the possible prevention methods are adding rubber conduit that would encase the cables . . . a 1/4" piece of hard plastic sheet be installed on the inside of the lids . . . raise the distance of the lids". On February 28, 2002, the UMWA was informed that the rubber conduit on battery leads had been implemented on new batteries at JWR # 5 Mine. However, the existing batteries were not retrofitted. This recovery revealed that Douglas, not Crown Battery, manufactured the battery. The battery was damaged as a result of the rock fall. At the time the battery was first recovered, there was an appearance of heating and sooting in the general area of the damage. The battery and charger were sent to the MSHA Approval and Certification Center in Triadelphia, West Virginia for testing and analysis.

Roof and Rib Control Plan - Prior to bringing any miners back to begin reconstruction of the mine, JWR and UMWA personnel conducted an inspection of the entire mine outby the 3-east turnout to identify all hazards, violations and/or conditions and danger off unsafe areas to protect the returning miners.

There was evidence of roof and rib conditions and/or hazards that were associated with the mine explosion. However, numerous conditions were found concerning roof and rib control that were not associated with the mine explosions on September 23, 2001. The type, quantity and locations of roof and rib control hazards found during this inspection indicated that many such hazards were not being properly identified and corrected prior to the September 23, 2001 disaster.

The UMWA conducted and participated in detailed inspections and examinations concerning the roof control and the roof conditions of the area inby 3-east turnout. The UMWA requested an MSHA inspection of that area on January 10, 2002, based on the Union's concerns about the mine roof. The findings and results of those inspections and examinations are discussed separately.

The information gained from the underground inspections and examinations was utilized to develop requested changes to the approved Roof Control Plan. Initial discussions with JWR representatives achieved the following clarifications or changes to the proposed Roof Control Plan that was being developed:

- The strata intervals were changed to reflect actual conditions (Page 1 of Plan);
- The entry width would be reduced from 24 feet to 22 feet after January 2002 (Page 2 of Plan);
- Language was added concerning marking and indicating depth of test holes (Page 3 of Plan);
- A statement was added concerning information contained on resin boxes (Pages 4 and 5 of Plan); and
- Language was added stating that holes would be angle drilled into the roof and floor (Page 8 of Plan).

There were additional clarifications and changes the UMWA sought, but which JWR did not make. Once the proposed Plan was submitted to MSHA, the UMWA requested and received a meeting with MSHA District 11 to discuss the following issues and/or concerns:

A. The operator's failure to maintain wooden cribbing tight and secure against the mine roof.
B. The need for a plan requirement that roof bolt plates be against wood and/or roof when using Resin Grouted Rods (Page 4).
C. The need for a plan requirement for teflon washer use to reduce frictional sparking during roof bolt installation.
D. The need to reduce the spacing allowed between the roof bolt and the rib.
E. The need to require a four-bolt pattern instead of a five-bolt pattern.
F. The need for clarification and additions to the language on Page 6 - "1a. Safety Precautions for Full Bolting and Combination Plans".
G. Concerns with criteria for changing from 6-foot column resin to resin point and / or combination bolts.
H. Concerns with primary support anchorage in general roof conditions.

I. The need for a plan requirement concerning resin return when using fully grouted bolts.
J. Concerns with primary support anchorage in adverse roof conditions.
K. The need for a plan requirement restricting allowable intersection sizes.
L. Objections to not suspending extended mining cuts when abnormal roof conditions are encountered.
M. The need for a plan requirement concerning supplemental support at electrical installations.
N. The need for the plan to address the primary and supplemental support needs for the discontinuity zone of No. 4 and No. 6 sections.

MSHA notified JWR # 5 Mine in a letter dated April 24, 2002, that during the course of the review of the proposed Roof Control Plan, "it was discovered that portions of the approved plan were deficient and/or required further information".

Quantity, Quality & Distribution of Methane Detectors - Following the disaster of September 23, 2001, many family members asked the UMWA if the victims of the disaster could have taken a methane check prior to the explosion had they wanted to determine the methane accumulations. Throughout the investigation into this disaster and the reconstruction of JWR # 5 Mine, no evidence was ever found that any of the miners located inby No. 4 section turnout were equipped with any detectors. Also, many miners shared with the UMWA their concerns with the quantity, quality and distribution of gas detectors at the JWR # 5 Mine. The concerns raised were:

- Supervisors picked up the detectors on the surface, not the miner.
- Supervisors would place the detectors into a bag to carry them and the detectors would be jarred around in this bag.
- When the detectors were distributed to the miners underground, the miner would be uncertain about the calibration of the instrument.
- Some detectors that were distributed to miners failed to function properly for a full shift.

During the investigation, the UMWA requested that management demonstrate the system in place at JWR # 5 Mine, including the number of detectors available for use, and their locations. The method of distribution, maintenance and calibration of the detectors was also reviewed. Management failed to locate or properly inventory the detectors. Of 135 detectors reportedly assigned to JWR # 5 Mine, twenty-five detectors could not be located despite numerous management attempts to do so. Miners assigned and qualified to perform maintenance and calibration on the detectors confirmed that they were repeatedly unable to locate many of the detectors for calibration. Many of the devices assigned to supervisors were locked up in desks, lockers, or offices.

Prior to the December 2001, reconstruction work, all detectors were to be checked and calibrated prior to use and the safeguards implemented required at least one qualified member of each work crew carry a methane detector in addition to the supervisor. If a detector failure occurred, a new one was to be sent to the crew.

As the reconstruction work progressed inby 3-east turnout, equipment operators were provided a methane detector that resulted in timely detection and dilution of methane. Discussions between JWR and UMWA continued on this issue and additional detectors were purchased and a new system was implemented which included: detectors being centrally located in a secured area, over-

seen by miners qualified to perform maintenance and calibration on the detectors; and distribution of fully-charged and calibrated detectors at the beginning of each shift, with collection at the end of each shift so they can and will be prepared for their next use.

There was, however, a limit on the multi-gas detector distributed for Fire Fighting and Evacuation Plan personnel responding to an emergency. (See discussion under "Fire Fighting and Evacuation Plan"). More of those devices have to be purchased, to assure that crews responding to mine emergencies have sufficient detection devices.

(The UMWA has requested that NIOSH conduct research on methane monitoring devices mounted in miners' cap lights that signal a warning at 1% of methane. Those devices, are used in South Africa and manufactured in Germany. They have been tested at the NIOSH Mining research facility in Bruceton, PA and were found to be effective.)

De-gasification - Discussions between JWR and the UMWA on de-gasification focused on current and future actions around fault areas where the potential for increased methane exists. JWR claimed little success from drilling in those areas to intersect bodies of methane. JWR agreed to drill a test gas well located east of No. 4 section in section 22, T 20-S, R7-W and is identified as De-gas Well 22-6-321. The hole was completed on February 21, 2002, to a total depth of 2050 feet. It was reported to produce approximately 600 barrels per day of water and had no gas production as of July 22, 2002. De-gasification of the seam in advance of mining is still a matter of concern.

Examinations - The UMWA was instrumental in the development of a new and improved version of examination books for the JWR # 5 Mine. The new books were a complete overhaul of the old type used at the mine prior to and during the mine disaster of 2001. These improvements were:

1) The size of the record books was adjusted.
2) Increased the area available for comments from the examiner on hazards.
3) A complete and systematic layout for the examiner to better understand what to note for a better review of the examination.

Additional training was provided to the examiners in how to locate and identify hazards. Also, they were trained on how to properly fill out the examination books. MSHA and Jim Walter Resources participated jointly during this training.

Procedures For the Removal of Power When Adverse Roof Conditions are Encountered - Training was conducted on Addendum 46 for all underground miners prior to the December 10 re-entry underground at the mine to begin rehabilitation work. During this time the procedures for removal of power was incorporated into the training for when bad roof encountered by miners.

Brattice / Stopping Construction - During the investigation after the mine disaster, it was found that a problem existed with the construction of brattices and the type of materials used. One problem was that management apparently used various personnel to build the concrete stoppings, even though some employees were not trained on the proper procedures to perform this job. Smaller blocks were reportedly used when larger ones were required. Also, the concrete brattices were not built level to the extent possible and they were not built straight, using a lot of mortar to firmly cement the locks together. Also, during the investigation it was found that the metal brattices used were ineffective. The metal brattices reportedly were not hitching into the rib line as prescribed by the manufacturer

due to the soft coal seam and sloughing. This could cause this type of ventilation control to fail easily as it apparently did during the explosions.

Accident Investigation Procedures

When Congress created the Federal Mine Safety and Health Act (Mine Act), it placed on MSHA the responsibility to conduct thorough investigations of mining accidents. Section 103 of the Mine Act describes the powers vested with the Agency to conduct "public hearings" in the investigation of any accident. It also provides tools for the Agency to obtain testimony of witnesses, documents, records and other information necessary to investigate mining accidents. The UMWA believes that Congress intended MSHA's investigations to constitute a "public" accounting, not a secretive process. From the broad investigative powers and tools granted to MSHA, it is also obvious that Congress intended for MSHA to be thorough in its collection of facts when investigating any accident or other occurrence relating to health or safety in a mine.

In Section 2 of the Mine Act, Congress declared that "(a) the first priority and concern of all in the coal or other mining industry must be the health and safety of its most precious resource – the miner." With that in mind, it is only fitting that miners and their representatives be included, not excluded, in MSHA's effort to determine causes of mine accidents -- to help prevent any reoccurrences. During the investigation of the JWR # 5 Mine disaster, however, MSHA's policy guidelines were re-written even as the investigation proceeded. The Union has a number of concerns about the Agency's investigative practices utilized in its investigation of this mine disaster; the UMWA urges that MSHA's investigative hearing process be reformed to prevent a repeat of these problems.

The Agency set the focus of the investigation on narrow issues, excluding a wider "root cause" examination of the disaster, even though established Agency policy provides that investigations should uncover root causes. Investigations should never restrict information that would allow root problems adverse to the miners' health and safety to remain hidden and unchanged. For example, a mine operator's overall compliance record, and how ventilation is handled, should be examined. Just because an explosion occurred on one section does not mean that methane monitors on machines in another section (where ventilation problems were known to exist) should be considered off-limits, as was the case here.

Also troubling was MSHA's refusal to interview several Agency officials as part of the investigation process. The Union requested that a number of MSHA individuals be called to testify at the hearings because they possess information regarding ventilation and roof control plans approvals and interpretations, assignment of personnel to conduct inspections and follow-up abatement inspections. They also have knowledge about how the Mine Act was enforced at this mine, and other matters critical to the investigation. During the investigation, Company representatives claimed that Agency officials gave training for mine examiners <u>not</u> to enter certain hazards in the mine examination books, such as float coal dust. While upper management in the Company admitted to this practice, they pointed fingers at MSHA as the party responsible for training examiners to not put hazards in the official examination books. Questions about that possible Agency culpability remain unanswered.

MSHA has claimed that it will investigate itself. However, with several Agency misdeeds identified during this investigation, MSHA's refusal to call key MSHA employees leaves the Agency open to charges of a cover-up. This process must be changed if credible investigations are to be

conducted. Along with mine management and miners, those responsible for enforcement activity at the mine need to be part of the "public" process. MSHA should not be permitted to conduct only a closed-door review on its roles in this matter.

During the investigation interview process, the Agency refused to allow a number of miners (who could provide information about the health and safety conditions at the JWR # 5 Mine) to appear at the interview process. MSHA instead created a whole "new" process that operated under different, made-up rules. A list of approximately 50 miners, whose names the Union submitted to MSHA as miners with information relating to conditions of the mine, to be interviewed as part of the official "public" record, instead, were referred to the new and separate process that MSHA established as "confidential".[1]

While the miners who testified in this second interview process were given the opportunity to review their transcripts for accuracy, the witnesses in the first interviews were not. MSHA's refusal to use the information obtained from the nearly 50 interviews in the second interview process for the "official" investigation, raises additional questions about MSHA's procedures.

Another shortcoming of the September 23, 2001, disaster investigation was the lack of a procedure to take control of all physical evidence from the mine. A key piece of evidence -- a

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[1] By this process, another MSHA representative allowed them to provide information about mine safety issues, but this information was not generally shared with the investigation team. These interviews were also conducted in a manner different from the official ("public") investigative interviews. Without hearing from or questioning these miners, MSHA' investigation team somehow decided their information fell outside the scope of its investigation. (It should be noted that some of the miners on that list had been openly critical of MSHA's lack of enforcement of the Mine Act. It was widely known that numerous complaints were filed by miners and their representatives over practices of MSHA District 11. Miners believed these practices undercut enforcement of the Mine Act and miners' rights.)

The Agency also refused to provide the Union with copies of those miners' testimony, despite the miner's specific written request that MSHA do so. Again, though the Union was present for these MSHA interviews, the Union was prohibited from questioning the miners, and the Agency encouraged miners to keep their statements confidential. The Agency also declared that the information gained in those nearly 50 interviews would be <u>off limits to the public</u>, which allows the Agency to bury the substance of the miners' concerns and complaints, keeping them from public knowledge and accountability. The Agency said that the confidentiality <u>offered</u> the miners was the reason for keeping the information from the public. We find this particularly curious in view of Section 103(g) of the Act, which contains a protection of confidentiality when miners file safety complaints. These protections have been in place since 1969. (Under the Section 103 (g) procedure, the Agency hands the substance of miner's safety complaints over to the mine operator, without disclosing the miner's name.) The Union urged in this case that the Agency follow that same procedure. The request was rejected outright and the Agency has kept to itself the information it received through these unofficial interviews on health and safety conditions at the mine, along with a number of complaints about MSHA's failure to enforce the law. The UMWA representatives attended these interviews, and determined that many included critical information about health and safety problems, along with MSHA enforcement flaws, that are in need of remedy. The miners' information <u>could</u> be disclosed in a manner comparable to the 103(g) procedure to improve the health and safety conditions for miners in a manner that would nevertheless retain confidentiality.

methane gas detector carried by the section foreman at the time of the first explosion, which stored critical information on CH4 and CO gas levels recorded during the shift was lost during an exchange between the Company and MSHA. The Agency did not have a written procedure in place to take control of evidence coming from the mine until several days after the mine disaster. The Agency's policy of allowing the Company to copy the secured examination record books before surrendering them to the Agency needs revised as well.

MSHA controlled all exhibits placed with each witness's testimony in the official record. Some exhibits important to the actual events that lead up to the September 23, 2001, disaster were lost, including a hand-drawn map showing the locations in the intersection that fell where the roof bolters had installed cable bolts, as instructed by management.

On March 4, 2002, the Union advised the head of MSHA about a number of deficiencies found during the investigation of the JWR # 5 Mine. That correspondence outlined how Agency enforcement and other policies implemented in MSHA District 11 years back had adversely affected compliance at the JWR # 5 Mine. The UMWA learned that on the heals of that notice, MSHA hired an ex-Agency official (who was overseeing the field operations including MSHA District 11 during the time when several UMWA complaints were lodged), to preview the MSHA report on the Jim Walter # 5 Mine disaster: the union is still not certain what changes he may have effected. This type of influence may prevent certain information and findings regarding failed Agency policies from being placed in the report.

Anticipating future accident investigations, the UMWA recommends that the following changes be made:

- MSHA should construct the hearing/interview process to be more open. It would be in the best interests of improved mine health and safety to have witnesses provide information in the "public" light rather than in the "confidential" manner. (If a witness is only willing to testify in confidence –of his or her own will - that should of course be respected.)

- To avoid the self-investigation dilemma and the appearance of cover-up, the Agency should provide for testimony from MSHA employees in a public setting. Miners and their representatives need to be involved in that process. Asking questions of *all* those involved in mine safety is essential to a comprehensive process.

- Procedures need to be improved that will guarantee a quick and secure method of collecting evidence following a mining accident.

- The Agency should be careful about who it allows to influence its reports on accident investigations. The Agency should prohibit all individuals who had any level of involvement in the underlying events, from participation in the investigation.

CONCLUSION

The UMWA investigation of the September 23, 2001, mine disaster at the JWR # 5 Mine determined the following:

1. A roof fall occurred at the JWR # 5 Mine on Sunday September 23, 2001 at approximately 5:20 pm in the intersection of the # 2 track entry at spad #13333 of the No. 4 section of the

mine. The mine roof fell on top of a scoop battery connected to a battery charging station in a cross cut between the #1 and #2 entry. The 6-ton scoop battery was damaged and had short-circuited, generating sufficient heat to ignite methane and likely sparked methane which was being emitted from the mine roof resulting in the explosion.

2. The roof fall resulted from a failure of the mine operator to adequately support adverse roof conditions that had been detected prior to the fall.
3. The scoop battery and charger were placed in the area where the adverse roof existed without adequate roof support installed to prevent the roof fall.
4. Following the roof fall and first explosion, four miners were injured, with one unable to move; and ventilation controls in the mine were damaged, allowing methane gas to build up in the No. 4 section.
5. The mine operator's emergency response to the accident was deficient and failed to protect and evacuate the miners in the mine. Twelve miners responded to the accident, but without necessary information and direction, and were caught in a second explosion about fifty-five minutes after the first, claiming their lives, along with that of the miner previously injured and unable to move.
6. The second explosion was fueled by a combination of methane gas and float coal dust. It destroyed ventilation and damaged equipment in the mine. It took seven weeks to safely recover the miners who were victims of the explosion, and over eight months of rehabilitation before the mine was safe enough to resume operations.

In addition to a failure to adequately support the mine roof and have and execute a safe mine emergency evacuation plan, a number of conditions contributed to the September 23, 2001, disaster. Those included a failure of the JWR # 5 Mine Operator to:

- Control and clean up float coal dust in the mine and apply adequate rock dust to prevent explosive amounts of the float dust to exist;
- Properly examine the mine to report and correct hazards and unsafe conditions;
- Properly ventilate the JWR # 5 Mine to assure sufficient air, and to dilute and carry away methane gas.
- Maintain compliance with the Federal Mine Safety and Health Act (Mine Act); and
- Install roof support sufficient to control adverse roof conditions in the mine.

The UMWA investigation found that MSHA's failure to effectively enforce the Mine Act also contributed to the operator's non-compliance with the Mine Act.

Recommendations

A number of recommendations were developed from the investigation. First, the UMWA recommends that MSHA needs to reopen its investigation to review the record and address several matters the Agency side-stepped in its investigation. Among the Agency's investigation shortcomings were failures to adequately address upper management's actions at the JWR # 5 Mine and its accountability over a number of health and safety issues. These include but are not limited to the following:

- The overall non-compliance problem at the JWR # 5 mine;
- The numerous problems regarding inadequate ventilation;
- Determining those responsible for implementing major ventilation changes without the required review and approval by MSHA;

- The instructing of mine examiners not to report hazards in the official mine examinations records;
- The signing by top JWR mining officials of official examination records when conditions in separate sets of company books revealed the existence of hazards;
- And the substandard rock dusting program.

Second, an independent investigation of MSHA's enforcement activities at the JWR # 5 Mine and MSHA District 11 is necessary. That inquiry must address the flaws in enforcement of the Mine Act identified in this report, such as the overall inadequacy in the use of enforcement tools. How could it be that as compliance with the Mine Act deteriorated, penalties for violations declined? Other specific questions that arose during the UMWA's investigation include:

- Who (if anyone) in MSHA gave instructions to not enter hazards in the mine examination books, and was there any such direction or suggestion from higher levels in MSHA;
- How did a major ventilation plan change that was not approved by MSHA (and which created a number of mine ventilation problems), go unnoticed for many months;
- Why were violations allowed to continue unabated for days and weeks;
- Who was supervising the enforcement actions and why did MSHA cite only one person as affected by violations, a practice that apparently occurred over a number of years;
- How did the advance notification of the inspection of the longwall (just prior to the explosion) occur, halting an inspection of a troubled area of the mine; and
- Did the consultant hired by MSHA to review the investigation report, while it was being developed, influence any changes and, if so, in what way?

These are just some of the questions still in need of answers – and by more than self investigation**!**

A number of other recommendations include:

- Broad implementation of improvements instituted at the JWR # 5 Mine following the disaster. These recommendations are listed in the "Post Disaster Health and Safety Improvements at the JWR # 5 Mine" section of this report. These improvements should be implemented at coal mines throughout the country to prevent similar mining accidents. MSHA should initiate rulemaking to incorporate them as mandatory standards and require them in appropriate in mining plans. Included are the following areas:
  - Overhaul and expansion of the fire fighting and evacuation plans and procedures;
  - Specialized training for persons in charge of evacuation and emergency response;
  - Establishment of two seperate underground communication systems (including state of the art systems), with improvements to the existing communication system;
  - Increased mine-wide, atmospheric monitoring systems and additional requirements on their use;
  - Installation of roof fall protection with methane monitoring and a means to automatically de-energizie section electrical installations;
  - Strengthened structural protections of mine equipment batteries;
  - Revisions of the roof control plans;
  - Revisions and improvements of examination books;
  - Specialized hazard recognition training for examiners;
  - Specialized training concerning examination book recording and review requirements;
  - Broader distribution and quantity of multi-gas detectors with miners underground, and standards for detector devices during emergencies;

- Training concerning the removal of power from energized equipment where adverse roof is detected;
- Expansion of quality and frequency of miners' training;
- Specialized training concerning examinations of ventilation controls and improved oversight of ventilation controls' construction.

- Implementation of certain improvements that were also recommended but which were not implemented at the JWR # 5 Mine involving:
  - Evacuation procedures;
  - Installation of an emergency communication system capable of transmitting evacuation orders to all miners immediately;
  - Location of atmospheric monitoring systems to prevent damage from explosion forces; and
  - Others that are found in the "Post Disaster Health and Safety Improvements at the JWR # 5 Mine" section.

- MSHA needs to improve enforcement of the Federal Mine Safety and Health Act In particular, we urge:
  - Enforcement of the mine operator examination requirements;
  - Increasing the use of S&S violations, and unwarrantable failure orders to curb non-compliance, serious violations, and repeat violations;
  - Employing sufficient number of MSHA inspectors to conduct thorough inspections of mines and timely review on abatement of violations;
  - Ending the practice of citing only one miner as being affected by violations;
  - Employing sufficient numbers of competent MSHA supervisors and technical personnel to effectively review and evaluate roof control, ventilation and other plans;
  - Adhering to the intent of the Mine Act in the hiring of inspectors, seeking individuals with at least five years mining experience;
  - Ending the practice of hiring mine supervisors / managers and giving them control over mining operations for companies where they were previously employed;
  - Establishing new policies to prohibit advance notice of inspections at areas of mines to be inspected;
  - Establishing a process to assure that miners' complaints about health and safety conditions will be responded to and miners will not be intimidated for doing so; and
  - Improve the penalty assessment process.

- MSHA's accident investigation policies should be changed as outlined in the "Accident investigation procedures" section of this report.

- The mine rescue team program in the U.S. should be overhauled to address the dwindling mine rescue teams available for mine emergencies. Also, better communications systems and safety standards for mine rescue should be developed.

- Revisions should be made to the AFD code, which was established by MSHA in 1997, but which reduces miners' protections. Miners not trained in mine rescue / recovery work, but who perform mine recovery / rehabilitation work, should not have to do so without the protection of the mandatory health and safety standards under the Mine Act.

- MSHA should review ventilation controls utilized and installed and improve these standards, so the controls can resist explosion pressures.

- MSHA should hold a national conference on the findings of this and other recent accidents and conditions encountered during the rescue / recovery and mine emergency responses to address lessons learned and improvements / research still needed.

The investigation also identified a number of deficiencies with the implementation of the Alabama State mining laws. Those are addressed in that section of the report on the State of Alabama and show the need to overhaul the State mining laws and increase State inspection staff. The investigation found that the state agency was so understaffed that it could not conduct the thorough inspections of coal mines as prescribed by the Coal Mining Laws of the State of Alabama.

Training Recommendations

During the investigation, several training deficiencies were identified and in need of improvement for mine management and miners. The following lists are also areas that should be reviewed for mine managers / supervisors and miners throughout the country to receive improved training on:

- Fire fighting drills;
- Escapeway drills;
- Emergency evacuation drills;
- Duties and responsibilities of the person responsible for responding to mine emergencies and drills to prepare them for mine emergencies;
- Examination procedures / hazard-violation recognition for individuals conducting examinations, countersigning examination books or directing mining operations or personnel;
- Dangers of coal float dust and proper rock dust applications;
- Self contained self-rescuer – donning, location and use;
- Dangers of methane, conducting methane readings, recording the results and correcting the conditions;
- Maintaining current and accurate mine maps and instructions on reading maps;
- Statutory rights of miners and their representatives;
- Respiratory device use;
- Mine communication/ location of phones;
- Roof control plan requirements;
- Ventilation plan requirements;
- Health issues such as noise and dust;
- Electrical hazard recognition;
- First aid including CPR;
- Accident prevention/recognition;.

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Alan B. Ferguson, Mining Engineer

William T. Barston, Sr., Mining Engineer

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Jerry L. Scharf, Safety Administrator & Chief of Division

John Sandlin, Acting Chief of Division

Don Keith, Lead Mine Inspector and Investigator

Gary Sparks, Mine Inspector

Rickie Evans, Mine Inspector

Gary Key, Mine Inspector

Mine Rescue Teams

Initial Mine Rescue Team Effort
September 23-24, 2001

John Aldridge
Mark Aldridge
Keith Burgess
Dale Byram
Mike Campbell
Buddy Caudill
Ronnie Cearlock
Keith Chaney
Mike Corbin
Dave Dickerson
Freddie Dickey
Jerry Elkins
Terry England
Greg Franklin
Scott Hannig
Johnny Humphreys
Dale Johnson
Ken Knight
Ricky Lewis
Larry McGiboney
John Morse
Ken Russell
Bruce Shores
Dave Waldon
Charlie Whitehead

Mine Rescue Teams (cont.)
Subsequent Recovery Efforts

JWR Mine Rescue

Ricky Lewis
Scott Sannig
Mark Aldridge
John Morse
Jerry Elkins
Dave Dickerson
Ronnie Babb
Keith Chaney
Marshal Hutchens
Keith Burgess
Stacy Piper
Ken Russell
Dale Johnson
Glenn Pierson
Carl Poe
Terry England
Freddie Dickey
Ronnie Cearlock
Ray Lee
Al England
Jim Stedman
Donnie Pennington
Craig Slate
Greg Franklin
Mike Campbell
David Shoemaker
Mike Corbin
Bruce Shores
David Terry
Larry McGiboney
Charlie Whitehead
Buddy Caudill
Ken Knight
Gary Allison
Ricky Pate
Johnny Humphreys
Johnny Aldrich
Russell Dickey
David Waldon
Kenny Nichols
Dale Byram

Initial Mine Rescue Team Effort on September 23-24, 2001

John Aldridge
Mark Aldridge
Keith Burgess
Dale Byram
Mike Campbell
Buddy Caudill
Ronnie Cearlock
Keith Chaney
Mike Corbin
Dave Dickerson
Freddie Dickey
Jerry Elkins
Terry England
Greg Franklin
Scott Hannig
Johnny Humphreys
Dale Johnson
Ken Knight
Ricky Lewis
Larry McGiboney
John Morse
Ken Russell
Bruce Shores
Dave Waldon
Charlie Whitehead

Subsequent Mine Rescue Teams Throughout Recovery Efforts
JWR Mine Rescue

Ricky Lewis
Scott Sannig
Mark Aldridge
John Morse
Jerry Elkins
Dave Dickerson
Ronnie Babb
Keith Chaney
Marshal Hutchens
Keith Burgess
Stacy Piper
Ken Russell
Dale Johnson
Glenn Pierson
Carl Poe
Terry England
Freddie Dickey
Ronnie Cearlock
Ray Lee
Al England
Jim Stedman
Donnie Pennington
Craig Slate
Greg Franklin
Mike Campbell
David Shoemaker
Mike Corbin
Bruce Shores
David Terry
Larry McGiboney
Charlie Whitehead
Buddy Caudill
Ken Knight
Gary Allison
Ricky Pate
Johnny Humphreys
Johnny Aldrich
Russell Dickey
David Waldon
Kenny Nichols
Dale Byram

Drummond Mine Rescue

Jeff Reed
Larry McDonald
Eddie Sides
Buddy Taylor
Tim Hyche
Robert Cagle
Rayford Herron
Kenny Pate
Tim Stockman

P & M Mine Rescue

Terrell Files
William Smith
Donnie Elliot
Dorsey Lawrence
Kevin Cosby
Eldon Sides
Steve Cannon
James Sands

USX Mine Rescue Unit

Greg Cox
Frank Elliott
Vincent Potoka
David Anderson
Kenneth Surlock

MSHA Mine Emergency

Ron Costlow
Joe O'Donnell, Jr.
Otis Matthews
Jerry Bellamy
Stanley Sampsel
Larry Meade
Jan Lyall
Ron Taylor
Virgil Brown
Ron Hixson
Jim Langley
Jeff Kravitz
Norman Page
John Pyles
Charles Pogue
Jim Poynter
John Mehaulic, Jr.
Tim Walkins
Gerald Cook, Jr.
Charles Thomas
Willie Spens
Ron Tulanowski
Robert Penigar
Steve Justice

Alabama State Mine Rescue

Randy Weekly
Gerry Kimes
Ben Jackson
Scott Miles
Larry Sides
Joe Weldon
Ricky McGuire
Bee Williams
Steve Gann
Vince Weeks
Tim Bynam
Ronald Soneff

Individuals Interviewed During Investigation of the September 23, 2002 Disaster

Listed below are the individuals who testified at investigation interview hearings conducted by the MSHA Investigation Team during the disaster investigation. This list contains the individuals who gave testimony in the so-called "official interview hearing process" listed in the order in which they testified.

Tony C. Key
John E. Puckett
Harry T. House
Dale Byram
Ricky K. Lewis
Michael C. Buchanan
Gregory V. Brown
Bruce A. Mabe
Jimmy L. Dickerson
Tom R. Connor
Lonnie R. Willingham
Alvin Bailey
Terry L. Latham
Benny E. Franklin
Larry McGiboney
Robert C. Howell
Ricky D. Rose
Stewart L. Sexton
Randy L. Jarvis
Isaac Smith III
George M. Corbin
Howard B. Duvall
Richard L. Cates
Tommy L. Spencer, Sr.
Mark A. Piper, Sr.
Jeffery D. Jarrell
Gary W. Toxey
Albert J. Dye, Jr.
Richard C. Parker
Eric A. Barnes
Kenneth R. Clements
Thomas E. McNider
Davis T. Thrasher
Douglas G. Robertson
Johnny O. Sealy
Christopher Key
David O. Terry
Robert L. Tarvin
Charlie L. Ogletree
Vonnie L. Riles
B. E. Hallman
Jerry L. Short
Robert L. Statham
Jessee E. Cooley
Charles F. Roubdioux
Thomas E. Willey
Steven A. Barnes
Terry D. Mabe
James W. Smith, Jr.
Scott A. Hannig
Donald J. Fowler
Will Tanniehill
James S. Piper
Morris W. Canterbury
Gregory V. Brown
Tony C. Key
James E. Woods
Randy J. Watts
Harry T. House
Leroy Harris
Arvie D. Key
Yvonne B. Waldon
William L. Denson
Jarvis F. Westery
Charles T. Langley
David O. Terry
Ronald S. Wright
Larry P. Jessee
Ralph D. Saddler
Lorenzo W. Bonner
Milton E. Wren
Robert C. Howell
Jessee E. Cooley
John C. Wallace, Jr.
Bruce A. Mabe
Howard B. Duvall

It must be noted that although UMWA International representatives were present at all voluntary interviews, questioning was controlled by MSHA.

MSHA added to the "official" interview list some names of miners who had information, which the Union believed, was pertinent to the investigation. Many other miners, however, were denied the opportunity to give statements in the "official" hearings conducted by MSHA as part of the official investigation. Following complaints, about the exclusion of other miners, MSHA created a new, separate and much more restrictive interview process. This second interview process was established as "confidential". MSHA interviewers referred three individuals to the "official investigation" process, but the testimony taken through the second process was not incorporated into the official investigations. MSHA retained these transcripts, and did not provide those to the UMWA.