Questions Asked by Family Members and Others  
During the Sago Public Hearings, May 2-4, 2006

Pre-Accident Inspections by MSHA

Did you evaluate Sago for “pattern of violations”? Why didn’t MSHA issue a “pattern of violation” notice to Sago?

Did a valid change of mine management at Sago affect your decision on the “pattern” review?

A review of Sago violations for 2005 indicates many repetitive conditions. Did you consider or take stronger enforcement action? Were “unwarrantable failure” orders used? Was the company cited for inadequate examinations due to conditions found?

Are there notes from the May 2005 meeting with ICG officials and MSHA? Have they been made available to investigators and will they be made available to the public?

Mr. Stricklin said that five “top level” meetings took place with ICG management. Who was there and are there notes from these meetings?

Meeting scheduled 12/15/05 with ICG concerning training supervisors on how to do examinations weekly and on-shift. Is this an indication of problem with supervisors?

What did you do to take a proactive approach to the problems you identified at Sago?

What system to you have in place to identify mines where problems or high numbers of violations are occurring?

Should mine inspectors be reassigned periodically to different mines to avoid a “buddy system” developing between mine inspectors and operators?

Pre-Accident Conditions

Can you elaborate on the safety conditions at the mine before ICG took over and after?

Did the Sago mine have problems with methane? If so, has anyone been injured because of it?

When mining took place in the old 2Left section, what was the quantity and quality of air in the last open breakthrough? Same question for the other active sections during the past year?
Did MSHA/WV-MSHT find evidence of the firebosses pre-shift inspection in all areas of the mine (North Main, 1 Left, 2 Left, Seals)? Is this information recorded and is it publicly available?

Is it normal practice to put glue or epoxy in methane liberating roof holes?

**Training**

Why did annual training of miners on escape and evacuation emphasize barricading more so than methods of escape?

**Notification**

If the explosion occurred at approximately 6:30 am, why was the Upshur County Communication’s center not notified until 7:50 am?

What was the message on John Collin’s answering machine concerning the “power”? Would the person who left this message describe what “power” he was talking about?

**Mine Rescue Plan and Procedures**

Why do mine rescue plans have to be submitted? Isn’t there a general plan in place?

Why was ICG allowed to take so long to submit a plan? Why didn’t MSHA take over and make a plan?

Why does the company come up with the plan, why not MSHA?

Once the K-order was issued, was it up to ICG to submit a plan, or was it up to MSHA to come up with a mine rescue plan?

Can MSHA or the State make recommendations to expedite a mine rescue instead of waiting for the mine operator to come up with a plan?

Who sets up the protocol for a mine rescue?

What time was the first plan submitted by ICG to the State and MSHA?

Were their plans submitted by ICG that weren’t approved?

Was there a verbal plan offered by ICG that was rejected by MSHA or State?

Did you (Mr. Hatfield) ever ask MSHA if you could send in rescue teams immediately? Did MSHA slow you down?
Who made the ultimate decision about when the mine rescue teams would enter the mine and how far they would go? Under what legal authority did this person make those decisions? What guidelines?

MSHA reports that they approved the mine rescue plan at 2:45 PM on Jan. 2, 2006. What time did ICG officials submit this plan to MSHA for approval?

**Mine Rescue Equipment (Seismograph, Blasting, Etc.)**

Does MSHA still have the seismic geophone system that has been used to listen for missing miners? Where is it maintained? Where was it on Jan 2, 2006? Was it dispatched to Sago? If so, when and on whose orders? Where the MSHA staff who know how to use this system dispatched to Sago?

How many seismograph units does MSHA have? Where are they located? Why was the seismograph not dispatched to the Sago mine? Who made that decision?

Does MSHA or the State have a device, other than a seismograph, to listen if miners are trapped and pounding on roof bolts?

MSHA indicated that they didn’t need the seismograph because they knew where the miners were located. But, if you had the seismograph, couldn’t you have heard the miners pounding on the roof bolts?

What type of “listening” devices are available and at what cost?

How complicated is the seismograph? Why do you rely on something so out-dated with technology as advanced as it is today? Maybe the seismograph needs to be scrapped as it is too complicated.

MSHA took the seismograph to the Aracoma mine with 1000 feet of cover, and at Sago there was only 250 feet of cover.

Why was there no signal from outside of the mine to answer the trapped miners who were pounding on the roof bolts to signal where they were? (X3)

If the procedure calls for setting off blasts on the surface, why it not followed?

**Barbour County Mine Rescue Team**

Are the Barbour County No. 1 and No. 2 mine rescue teams contracted and designated by ICG to provide mine rescue protection for Sago?
Were the Barbour County mine rescue teams and stations inspected prior to Jan. 2, 2006? If so, were they found to be fully trained, qualified and equipped in accordance with the regulations?

With the Barbour County team on-site at 9:30 am, [ready to go underground at 12:00 noon] why not send the Barbour County team to take over where Jeff Toler and others left off? Do you not have confidence that Barbour County is as qualified as Consol or Viper teams?

**Command Center**

Was the command center evacuated at any point during the rescue operation?

Who was in charge for MSHA until Kevin Stricklin arrived? Is that person here at the public hearing?

Does MSHA’s emergency response manual describes who should be in the command center? It sounds like everyone/anyone could go in and out of the command center.

Understanding that CO is a product of combustion and CH4 is explosive, at what point would you deploy a mine rescue team?

Who (or what group (i.e., ICG, MSHA or State) was in charge of the main decisions in the command center?

Who is responsible for calling the mine rescue team? Who contacted the teams?

Did the local regional hazmat team offer their personnel and/or equipment to the rescue effort, and it was denied?

Why were the surveyors called at 8:00 am and told they would be transported by helicopter or police escort and then called at 6:00 pm and told to drive up on their own?

Why were the CONSOL teams called to assist with the rescue, when they were going to need approval from their main office in Pittsburgh?

Why was it necessary to take people out of the mine before disconnecting power to the mine-wide monitoring system?

After Randal McCloy was removed from the mine, did mine rescue team members re-enter the mine with stethoscopes?
What is Chuck Dunbar's job title and what were his duties on Jan 2, 2006. Who was responsible for notifying the families about the disaster?

What did John Collins discuss with Fred Jamison when he arrived at the mine site? If the conditions were so bad, why did you let three paramedics go into the mine?

Why was the doctor who was on-site not allowed to go in and access our miners for life signs? Did Dr. Blake examine Randal McCloy underground?

Why did it take so long to go into the Sago mine for the rescue, and MSHA and the mine rescue teams went into the Alma mine so much quicker, and they knew it was on fire?

Is it MSHA or State policy to not identify the bodies underground as part of the recovery, but rather to refer to the miners as “items”?

Why didn’t you travel the intake where you knew you had good air?

**Decision Not to Start Rescue at the 57-58 Block**

Was Jeff Toler debriefed when he came out of the mine? Did anyone know how far he had gone into the mine without wearing an SCSR?

If we knew there was good air in so far into the mine, and the survivors had been in approximately 9,000 feet, why didn’t the rescue effort start at that point, instead of starting out front?

Inspector John Collins said he didn’t know why the rescue effort didn’t start at x-cut 58. Why didn’t it?

Did MSHA or the State deny a plan by ICG to begin the rescue at the 2 Left switch?

Why didn’t the rescue begin at the 58 block? Didn’t you already know what the conditions were up to that point?

Who can answer the question of why the rescue didn’t start at the 58 block?

Mr. Toler and the other men came out from 58 block. They knew there wasn’t a fire. Why didn’t you allow the rescue workers in?

Who made the decision to start the rescue teams at the portal instead of #58 crosscut?
Considering that the 12 miners and successfully escaped from 1st Left, and 5 ICG employees had successfully entered the mine to the mouth of 2nd Left, would that not make it incumbent to modify the 103(k) order to allow the available rescue team members to enter the mine to rescue the trapped miners?

Gas Readings During Mine Rescue

What equipment were you using to measure the gases coming out of the mine?

Would MSHA provide all gas readings taken at the return portals, including documented hand-held readings, infa-red readings, and gas chromatograph readings from the time sampling commenced on Jan 2, 2006 until the first mine rescue teams entered the mine?

What were the gas readings going out the return?

The families were told that hand-held devices only went up to 2000 ppm. How did MSHA get a reading of 2600 ppm?

Was there ever a gas reading of 125,000 ppm of CO, which would have been the explosive level?

Does CO alone indicate an explosion? What were the methane readings at all times during the rescue operation? Did those methane levels suggest that another explosion was likely?

Why were all decisions about the mine rescue based on gas levels? What about the fact that 13 men were trapped inside the mine?

Why do you think that the CO readings took such a dramatic hike within an hours time?

When did MSHA’s gas chromatograph arrive at the mine? (X2)

Why aren’t gas chromatographs required for every mine?

If the CO levels were so dangerous, why did they use a scoop to carry out the men? How did the operator fit in the deck of the scoop with the apparatus on?

103(k) Order

Who issued the 103(k) order and at what time? Can a 103(k) order be issued by phone or only on-site?
Considering that MSHA issued the 103(k) order, does that make them ultimately in charge of the rescue?

**Seal Construction (General)**

What does “curing” of the seals mean? Is it “curing” of the mortar? Curing of the blocks?

If the Omega blocks were sent to the mine before being cured and then taken underground, how much longer would it take for the blocks to cure completely?

Explain how the water trapped installed in the seal is supposed to work. Could methane have escaped through the water trap?

Should the water traps installed in the seals be “grounded” for electricity?

What is meant by the term “green” block? (Some of the men who built the seals testified about using “green” blocks.) Will you use “green” blocks be used in your future testing?

**Seal Construction at Sago**

Did ICG do a thorough analysis of the area to be sealed in order to determine the best design and method of constructing seals?

Who built the seals in the Sago mine?

Did Federal or State inspectors observe construction of the seals?

Was the rib chipped out to allow the Omega block to set inside the rib line?

Were the blocks mortared between joints and blocks, or just stacked and plastered? Has it been determined whether mortar was placed at all joints as specified in the approved plan?

Was a concrete “footer” poured for the construction of the seal? Was a concrete “footer” part of the approved plan?

Please explain pumping of water in the old 2 Left section prior to sealing. How much water was pumped and where was it pumped to? After the seals were built, what was the plan to take care of the water in the sealed area?

How many ventilation holes did you find in the sealed section surface?
What were the volumes of are ventilating the seals? 1 Left? And 2 Left?

What is your conclusion to whether the seal construction at Sago complied with the specifications which NIOSH found would meet MSHA’s 20 psi standard?

**Omega Blocks**

Are Omega block seals supposed to be built in dry areas, not damp?

Omega blocks seem to have cracks in them. Are those with cracks used to build seals?

How long does it take for each Omega block to cure?

How many occasions prior to the Sago mine explosion have Omega blocks been used to seal closed areas of mines?

Are you aware that Omega blocks failed in tests at 17.5 psi?

**20 PSI Standard**

Why does MSHA have a 20 psi standard for permanent seals when you know there have been explosions over 20 psi?

How did you conclude that the explosion was greater than 20 psi?

Were there any bolts, plates and pans that were blown directly out from the roof area, possibly showing the explosive force?

Was the wire mesh blown out as well in one area indicating the explosion site? I doubt they would have been pushed aside.

If the pie pans were bent in different directions, would it be possible that there were two explosions?

Mr. Sawyer reported a 60-92 psi on seal #6 and 25-60 psi on seals #4-#10. These are broad ranges. Can’t you determine a more narrow range of psi?

What is the highest psi recorded in a mine explosion?
NIOSH-MSHA Testing of Omega Blocks

During the NIOSH/MSHA testing, was the force of the blast sent across the front of the seals (rather than from behind the back of the seals such as the explosion that occurred at Sago)?

Why not test the blocks with direct force?

Are you testing the Omega block seals under the same mine conditions (22 days of wet, gases, etc.)

Has anyone checked to see what psi would it take to turn an Omega block to dust?

What is the psi of concrete block compared to an Omega block?

If the seals were built out of solid concrete blocks, would they have held through the explosion?  Or does it also have to do with the construction of the seals, that is how much does the actual construction play in stability?

Do you believe that Omega blocks are safe to use for permanent seals?

CO Monitoring

How often as Sago did they have defective CO monitors? Does Sago have records of those defective CO sensors?

What is the Sago management’s responsibility when CO monitors go off?

Is it possible that the lightning strikes made the CO monitor go off, by fault, since it went off line soon after?

Why did MSHA believe that power was off to the mine, and how was it that the CO monitor system was left on—a decision that cost rescuers hours?

Some of the gas detectors of the 2 Left crew had capabilities to print off reports. Has this been done?
**Ignition Source**

When the 1 Left crew flipped the switch, the explosion occurred immediately afterwards. Are you looking at that equipment as a possible cause of the explosion?

There were thousands of roof bolts on the travelway in the mine to the sealed area, combined with the roof bolts and butt ground on the electric pole, it should have bled the power off.

Could roof movement (not necessarily a collapse or fall) in the sealed area have sparked the methane? What magnitude of roof movement would be needed to create a spark?

Did you see a battery charging machine near the entrance to the 2 left section?

Did you see a welder where the maintenance shop was being built near the old track entry or anywhere near by?

What was the surface layer of coal mine dust at Sago when the explosion happened, or was it appropriately rock-dusted?

What is the evidence that the explosion came from inside the sealed area? Is it possible that it could have come from directly outside of the seals, or that there was more than one explosion?

Why was there a high enough oxygen concentration behind the seals to create an explosive environment?

Was there any ignition evidence whatsoever, either behind or in front (outby) the sealed area? If there is not evidence of ignition source, then can you rule out the 2 new roof falls as the ignition source based on soot?

Did flames reach the seals? Is there indication as to how much heat was generated from the blast?

If you are looking into the pump and wire mesh as an ignition source, should that have been removed from the section before sealing off the area?

Is there any significance in your analysis of the submerged pump in water in sealed area? What is it? Where was the other end of the pump cable? Did it extend to the other side of the seal? Did it contact the wire mesh?

Did it extend out of the water? Has it been examined? Does the pump work now if energized? Where was the water pump when it was operating? Outside? Other side of seal?
What is the relationship between the cable and the wire mesh?

**Lightning**

Novak reported that after the lightning strike, the current went both ways in the power lines. Did the French Creek substation also receive a power spike? Is there any sign of activity from the lightning strike at the French Creek substation? Or anywhere along the lines in that direction?

If lightning caused a charge in the electric distribution line, how many grounding systems failed between the point of initial charge from lightning and the point of ignition in the sealed area?

Were any transformers on the electrical poles damaged? Did any residents around this area report loss of power or damage?

Why didn’t the energy/power from the lightning trip the power breakers? Why didn’t the lightning knock off the power or blow fuses in the power centers?

Is the ground marked with some mark to prove there was a lightning strike?

Denver Wilfong testified that there were no lightning arresters on the trolley line. Did MSHA/State investigate this to be true?

With all the water in the sealed area, could there be a stream from surface to the mine floor that lightning could come in on?

Did you take water samples from the area where the pump was set inby the seal? If so, what were the results?

How would lightning travel into the sealed area?

Is there another possible conductor (besides the belt line) from the surface to the sealed area?

If the energy source traveled along the wire mesh, would it not dissipate at every bolt that is installed in the top? How would it get from one mesh to another, then travel approximately 20 blocks?
Questions for ICG's Consultants (Dr. Novak and Mr. Sawyer)

What formula did you use to justify current traveling approximately 4 miles without grounding out?

To cause the sparking in the wire mesh, what would be the force or the amount of current from the lightning into the sealed area?

You (Sawyer) produced a map with your report. How did you determine the direction of the forces rated on that map? Did you survey the entire area yourself?

The forces you spoke about bending the plates in two different directions, isn’t it possible that something else cause that, like a second explosion?

Your ground/soil resistivity measurements were for the surface and a few feet down, but the composition of the overburden changes as you go down to the coal. How do your measurements account for that?

When you did the soil tests, how deep were the test pegs driven into the ground? As you go deeper into the earth, would not the strata change, affecting the resistivity of the soil?

You stated that the soil over the seal area showed low resistivity and made it an easy path to conduct electricity from a lightning strike. However, in a previous paper you wrote with Thomas Fisher from NIOSH, you stated high resistivity soil was easy path for electricity. Which is it?

You stated that there was not a roof fall large enough to cause the ignition. Based on Mr. Novak’s description of how small a voltage source would be required to ignite methane at 8.5% concentration could a smaller roof fall generate that voltage?

On page 13 of Dr. Novak’s report “work still needs to be performed to verify that energy, sufficient to cause an ignition is capable of reaching the sealed area by this means.” What you’re saying is that you don’t know if your theory is even possible. (1) you do not know if the power could follow that path and/or (2) if an amount of power low enough not to trip the breakers could make it that far through gaps and resistance.

When were you hired and by whom? When did you communicate your opinion that it was lightning that caused the explosion? To whom did you communicate your opinion. Were you asked to write a written report? When did you submit your report?

Grounding

Did you ever inspect to see if electrical system was properly grounded?
MSHA reported some problems with grounding electrical systems at Sago. What were those problems?

Can MSHA provide a list of the grounding failures that were identified in the electrical system?

A theory was presented that the trolley line or phone line could have been one way that lightning traveled. Are these lines grounded? Were they grounded at the Sago mine?

What is the resistance value of the mine substation ground bed measured in ohms? Were they checked?

**Communication to Families**

Why did ICG tell the families at the church that the oxygen levels were fine inside the mine, when the oxygen was not fine?

Why the long delay in notifying the families at the church?

**SCSRs**

Why did the SCSR fail the miners in 2 Left?

Were the SCSRs at Sago tested every 90 days by mine management?

When was the last inspection of the SCSRs at Sago prior to Jan. 2, 2006?

When was the last training on SCSRs prior to Jan. 2, 2006?

Were there other miners interviewed that reported a failure in the SCSRs?

How many SCSRs recovered from Sago were actually tested by NIOSH and MSHA?

Can you provide us with the testing results on the SCSRs?

What is the serial #s and manufacture date of the SR-100s used by the Sago miners?

How do you know that the SCSRs weren’t activated before they were opened?
Can the chemicals inside the SCSRs be defective?

Was there any evidence that Terry Helms used his SR-100?

Explain the exact procedures used to test the SCSRs used by the Sago miners.

How many SCSRs have been completely used in an emergency underground?

What percentage of the SCSRs been used in the past?

**Bore Holes**

How many bore holes were drilled into the sealed area?

Why was the #1 hole capped? Why not left open?

Did the first attempt at a bore hole fail because the drill hit water?

Why wasn’t air pumped into the bore hole?

Did you have someone available to drill at 24” hole? If so, why was it not done instead of wasting time with a 6” hole?

When the camera was installed into the bore hole it didn’t pick up any movement. How far can the camera project?

**Robot**

Why could we wait 5 hours for the robot to come to Sago, but we couldn’t get a listening device from Beckley?

Why did you get the robot and not the seismograph?

What was the purpose of the robot?

**Roof Falls**

How do the investigators distinguish between “old” and “new” roof falls? How do you know when a roof fall occurs?

Please explain the history of roof falls (and the conditions in the roof) in the sealed areas prior to the explosion.
Were the roof falls in the sealed area documented?

Questions for Governor

Why didn’t you come to the church sooner to tell us that the miners had perished when you knew 2-2 ¼ hours earlier? Did you think you needed to have more law enforcement to protect yourself and mine officials?

What good is a bill to give miners 24 hours of oxygen, if it takes MSHA 40 hours or longer to rescue miners?

Why can’t you pass a law that mandates that companies drill a hole into old works to vent off methane build-up to avoid future explosions?

Hearing Procedures

Why didn’t the hearing panel subpoena all of the members of the command center so that the families could get answers from the people with first-hand knowledge.

Who made the decision not to allow Federal and State to answer questions directly? What is the basis for that decision? What is the objective of that decision?

Why is the Federal rep asking the Federal officials questions, and why is the State rep asking the State officials questions? I believe the already know the answers.

Why is the State inspector here at the public hearing answering questions, but not the federal inspector?

Documents

Please describe each plan that was submitted by ICG to MSHA once the 103(k) order was issued. Can we get copies of those for the hearing record?

Do we have the fan charts that were removed?

Are we sure the fan charts are the ones that were in at the time of the explosion?

Did the mine fan chart indicate an explosion at about 6:30 am? Did it indicate any other occurrence that would indicate a second explosion?

What kind of CH4 detectors were originally used to measure gas at the fan? Does this kind of detector read combustibles such as CO as CH4?
Can we obtain the fireboss records?

**Other Questions**

Does the investigation include issues concerning why the miners did not or could not walk out through the escapeways?

Who are the people on ICG’s investigation team? Were any superintendents, mine foremen or safety guys involved?

Are there any old gas wells or water wells that may be present in the area that pre-dated mapping?

Why did you come to think that the clocks needed to be calibrated?

Do we know the barometric pressure near the mine site on the day of the explosion?  Do we know the effect of barometric pressure on Omega block seals?

Were repairs made to the ventilation controls that were damaged after MSHA’s and State put the mine under a control order?  Isn’t it protocol to leave the damaged areas untouched until the mine rescue teams access the areas?  Not knowing what happened to the ventilation, any changes made could result in putting the miners inby, in more harms way by forcing or sending smoke and contaminated air into the area where the miners had barricaded or were attempting to escape.

Is medical oxygen normally stored underground?  Was it stored underground at Sago?

Were there any walkie-talkies found near the Sago victims?

How many relay points from the miners to the command center?  (answer: 6-7)

Why did ICG release information/findings before the entire investigation was completed?

Was it improper to release ICG’s press release dated March 14, 2006 stating it was a “finding” that lightning was the ignition source when Dr. Novak agrees it is only a “hypothesis.”

Why in a meeting with family members, did Mr. Hatfield say ‘this is the conclusion of our investigation.’
**Recommendations**

If this lightning theory is proven to be true, and it is proven that we had as high as 92 psi forces, what will be done to all of the existing seals in the mines today?

Can anyone tell us what happened with the ‘electromagnetic tracking device’ that was developed in 1970 by the BOM to locate miners in the events like the one at Sago. (This was developed after #9 blew up in 1968.) [Note: this report is entitled, Bureau of Mines. *An Electromagnetic System for Detecting and Locating Trapped Miners*, Bureau of Mines Report 8159, dated 1976.]

Is MSHA going to invest in some more high quality equipment (i.e., rather than the seismograph)?

Do inspectors and mine rescue personnel have recommendations on how mine rescue can be improved?

The Jim Walters report was several years ago. Why is ‘technology’ delaying implementation of better communication devices? Other countries have better communication systems.

Is there anything that MSHA or WV-MHST could have done differently that would have changed the outcome of this tragedy? If so, what?

What is the status of instituting text messaging for miners underground? How long before safe rooms are installed?

There should be rules to prohibit coal miners (a boss, miner, union or non-union) to work more than 15 hours. It is not safe for miners to work this many hours.

We don’t think the problem is how the mine rescue team members advance; the problem is allowing the mine rescue team members to enter the mine.

Mine rescue team members should carry stethoscopes.

What is the training process for rescue team members? EMT Training? How frequently do team members receive training? Are mine rescue team members trained in EMT?

Why doesn’t the State place a higher priority on mine rescue equipment and response?