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PUBLIC HEARING

ON THE

SAGO MINE DISASTER

May 2, 2006 - May 4, 2006

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May 3, 2006

* * * * *

West Virginia Wesleyan College
Rockefeller Physical Education Center
Buckhannon, West Virginia

* * * * *

REPORTER: Miranda D. Elkins

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1 A P P E A R A N C E S

2

3 DAVITT MCATEER,

4 Chair

5 BRIAN MILLS,

6 Inspector at Large, WVMHST

7 JOHN COLLINS,

8 District Inspector, WVMHST

9 KEVIN STRICKLIN,

10 MSHA District Manager, District

11 Three Office, Morgantown

12 RONALD HIXSON,

13 Mine Emergency Team Member

14 WILLIAM TUCKER,

15 Assistant Inspector at Large,

16 WVMHST

17 JOHN MEADOWS,

18 Surface Inspector, WVMHST

19 JOHN UROSEK,

20 Ventilation Expert, MSHA

21 ANN MEREDITH,

22 Daughter, James Bennett

23 JOHN HELMS,

24 Family Member, Terry Helms

25

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1 A P P E A R A N C E S

2

3 SARA JANE BAILEY,

4 Daughter, George Hamner

5 DELEGATE WILLIAM HAMILTON,

6 Delegate, WV

7 SENATOR DON CARUTH,

8 Senator, Mercer

9 SENATOR SHIRLEY LOVE,

10 Senator, Oak Hill

11 DELEGATE EUTACE FREDERICK,

12 Delegate, WV

13 DELEGATE MIKE CAPUTO,

14 Delegate, WV

15 SENATOR JEFFREY KESSLER,

16 Senate Judiciary Committee

17 CECIL ROBERTS,

18 Family Representative

19 PAM CAMPBELL,

20 Sister-In-Law, Marty Bennett

21 PEGGY COHEN,

22 Daughter, Fred Ware

23

24

25

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1 A P P E A R A N C E S

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3 EUGENE WHITE,

4 District Inspector, WVMHST

5 DOUGLAS CONWAY,

6 Former Director, WVMHST

7 JAMES DEAN,

8 Director, WVMHST

9 RAY MCKINNEY,

10 Administrator, MSHA

11 ED CLAIR,

12 Associate Solicitor, MSHA

13 BENNETT HATFIELD,

14 President/CEO, ICG

15 SAMUEL KITTS,

16 Senior Vice President, WV&MD,

17 ICG

18 DR. THOMAS NOVAK,

19 Department Head, Virginia Tech

20 DR. STEPHEN GERALD SAWYER,

21 Consultant

22 CHARLES DUNBAR,

23 General Manager, Buckhannon

24 Division, ICG

25

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1 P R O C E E D I N G S
 2 -----
 3 PRAYER RECITED
 4 PLEDGE OF ALLEGIANCE RECITED
 5 CHAIR:
 6 I want to make a special
 7 mention of the crosses that are here
 8 and above the photos of the miners.
 9 These were made by Justin Meredith, who
 10 is the grandson of Sago Miner James
 11 Bennett. He is an eighth grader at
 12 Philippi Middle School. There are
 13 2,200 Lego pieces in each cross,
 14 approximately three hours per cross.
 15 And there is one miner --- one cross
 16 for each miner, and one cross
 17 represents all miners, and Randal
 18 McCloy in the front. Thank you.
 19 We will start this
 20 morning with panel four. The
 21 presentation by the West Virginia
 22 Office of Miners' Health, Safety &
 23 Training and MSHA. And we will discuss
 24 --- be discussing the explosion and the
 25 mine rescue. The first presenter will

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1 be Brian Mills, inspector at large at
 2 the West Virginia Miners' Health,
 3 Safety & Training, who is accompanied
 4 by Doug Conaway, John Collins, Bill
 5 Tucker, Eugene White and John Meadows.
 6 Mr. Mills.
 7 MR. MILLS:
 8 Mr. Chairman, panel
 9 members, Sago Mine families and
 10 distinguished guests. Mr. McAteer
 11 alluded to the other members of this
 12 panel for the state. I'd like to add
 13 Mr. Tucker and Mr. White are members of
 14 the West Virginia Mine Emergency Team.
 15
 16 The Anker West Virginia
 17 Mining Company, Sago Mine, is provided
 18 with mine rescue coverage by the
 19 Barbour County Mine Rescue Association.
 20 This association staffs two fully-
 21 equipped teams. The mine rescue
 22 station is located near Route 119 at
 23 Volga, West Virginia. In addition to
 24 providing coverage for the Sago Mine,
 25 the association also provides coverage

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1 to ten other mines. Mr. Jeff Rice is
 2 vice president and trainer, and holds
 3 certifications with the State of West
 4 Virginia as a mine rescue instructor.
 5 Our records show that in
 6 2005, two miners received initial
 7 training and became members of the mine
 8 rescue team for Barbour. Twelve (12)
 9 miners make up two teams of six members
 10 each.
 11 Chapter 22(a) 135 of the
 12 West Virginia code addresses mine
 13 rescue teams. A brief summary of the
 14 portions of this is as follows. One,
 15 the operator has the responsibility to
 16 provide mine rescue coverage. Two
 17 teams must be available at all times
 18 while miners are underground.
 19 Available, means capable of being at
 20 the mine in a reasonable time after
 21 notification. Team members are
 22 considered available, even though
 23 performing regular work duties or while
 24 in an off-duty capacity.
 25 Ground travel time

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1 between any mine rescue station and the
 2 mine served shall not exceed two hours.
 3 A team consists of five members and
 4 one alternate. Each team member must
 5 receive 40 hours of refresher training
 6 annually. When engaged in rescue work,
 7 members are considered employees of
 8 that mine.
 9 For every two teams
 10 performing work, they shall have one
 11 six-member team stationed on the
 12 surface. Each rescue team performing
 13 work with a breathing apparatus shall
 14 be provided with a backup team of equal
 15 number stationed at the fresh air base.
 16
 17 On the morning of January
 18 the 2nd, 2006, at approximately 8:00
 19 a.m., Jeff Rice of Barbour County Mine
 20 Rescue Team was notified by mine
 21 management of the situation at the Sago
 22 Mine, and the request for their
 23 assistance was made. This team was en
 24 route to the mine at approximately 8:45
 25 a.m. and arrived at the mine at

1 approximately 10:45 a.m.
 2 Other rescue teams were
 3 notified and made aware of this
 4 situation, and asked to provide
 5 assistance at the mines. The names of
 6 those teams that responded were, the
 7 Tri-State Mine Rescue Association,
 8 ICG's Viper team, McElroy Coal Company,
 9 McElroy Mine team, and teams from
 10 Consol Energy, which were Blacksville
 11 Number Two, Robinson Run, Loveridge,
 12 Shoemaker, Bailey, Enlow and Eighty-
 13 Four. And please let me note that some
 14 of these teams also have more than six
 15 members.
 16 These teams began
 17 arriving at the mine in the afternoon
 18 on January the 2nd, 2006 and prepared
 19 mine rescue equipment for use.
 20 Notification was also made on the
 21 morning of January the 2nd, 2006 to
 22 representatives of the West Virginia
 23 Miners' Health, Safety & Training and
 24 MSHA Mine Emergency Response teams.
 25 Some members of these teams arrived at

1 the mine early morning, January the
 2 2nd. Other members and necessary
 3 equipment began arriving by afternoon,
 4 early afternoon.
 5 The Office of Miners'
 6 Health, Safety & Training Emergency
 7 Response team provided 11 persons
 8 during the rescue operation. A total
 9 of 19 employees of the West Virginia
 10 Office of Miners' Health, Safety &
 11 Training were involved during the
 12 rescue operation on January the 2nd,
 13 3rd and 4th, with a total of 79
 14 inspector shifts occurring these three
 15 days.
 16 Representatives of the
 17 Office of Miners' Health, Safety &
 18 Training in 2005 visited and inspected
 19 the Barbour County Mine Rescue
 20 Association station on four occasions.
 21
 22 At this time, I would
 23 like to turn our presentation over to
 24 Mr. Collins, who will review the mine
 25 rescue activities, and Mr. Meadows, who

1 will discuss the drilling operations.
 2 MR. COLLINS:
 3 Good morning. I'm John
 4 Collins. I'm the district inspector
 5 with the West Virginia Office of
 6 Miners' Health, Safety & Training. I
 7 was off-duty on holiday, January the
 8 2nd, 2006. I live very close to the
 9 Sago Mine. As the storm moved over, it
 10 awoke me at 6:30. I got up out of the
 11 bed and went downstairs and started
 12 drinking coffee and watching TV. At
 13 approximately 15 minutes 'til 8:00, my
 14 wife came in and said, are you talking
 15 to Johnny Stemple. And I said no, the
 16 phone didn't ring. She said, well, I
 17 never heard the phone ring, but I heard
 18 the answering machine pick up.
 19 And I went through the
 20 house, I heard the last few words of
 21 Johnny Stemple's message. So of course
 22 it recorded, and here's what the
 23 message said. Hey, John Collins, this
 24 is Johnny Stemple. It is about 15
 25 minutes 'til 8:00, Monday morning,

1 we've got a situation up at the Sago
 2 Mine where there are men underground
 3 that we have not been able to get ahold
 4 of, and it's been more than 30 --- I
 5 mean, more than 60 minutes. I tried to
 6 get ahold of Mark Wilfong, and no
 7 answer. I've tried to get ahold of
 8 Brian Mills, and the number I have for
 9 him is listed as disconnected, and you
 10 are next on my list.
 11 We don't know anything at
 12 this time, at 6:30, when the power went
 13 off, which is probably why I can't get
 14 ahold of you. Probably because your
 15 phone is out when the power went off.
 16 We have not been able to hold one of
 17 our crew --- get ahold of one of crew
 18 underground, so we are trying to get
 19 the crew right now. It has been more
 20 than 60 minutes. My home phone number
 21 is 457-4310.
 22 At that time, I picked up
 23 the phone, and I discussed this message
 24 with Johnny Stemple, who is the
 25 assistant safety director with ICG.

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1 Attempting to discuss the situation
2 with Johnny Stemple as to what may have
3 happened, he said he did not know what
4 had happened. He said that it may have
5 been a high voltage cable explode. It
6 may have been a roof fall. And that
7 sort of
8 --- we just --- I could tell I didn't
9 have any answers, so what I did, I
10 said, just to consider that the State
11 had been notified that there was an
12 emergency at that mine. And since I
13 live about four or five minutes from
14 the mine, that I was heading to the
15 mine.
16 So Mr. John B. Stemple,
17 assistant safety director, notified
18 John Collins, district inspector with
19 the West Virginia Office of Miners'
20 Health, Safety & Training of the
21 accident at 7:46 a.m. on January the
22 2nd, 2006. Again, there wasn't a lot
23 of information about what the event or
24 accident was.
25 After discussing the

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1 situation with Mr. Stemple for just a
2 few moments, I traveled to --- I told
3 Mr. Stemple that I was going to the
4 mine, and consider that the state had
5 been notified.
6 I phoned Mr. Brian Mills,
7 inspector at large, my supervisor. We
8 discussed what I knew, and Mr. Mills
9 asked if I thought he should call mine
10 rescue teams, and I said yes. And I
11 then left for the mine.
12 The first person I
13 discussed the event with once I arrived
14 at the mine, which was at 8:15 a.m.,
15 was Mr. Charles Dunbar. He told me
16 that he knew --- he told me what he
17 knew, and he asked what else they could
18 be doing. We discussed getting a list
19 of the people, of the names
20 underground, start contacting mine
21 rescue teams, obtain supplies from
22 other mines, prepare room for family
23 members, guards at the gate, and et
24 cetera.
25 Also, Mr. Crumrine, the

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1 mine foreman, came out of his office
2 about this time, and he said he was
3 heading underground. I discussed the
4 events some with Mr. Crumrine, and
5 asked him not to go into the mine at
6 this time, because we already had two
7 groups of people that we were unable to
8 communicate with. One group would have
9 been the Second Left crew, one group
10 would have been the five-group people
11 attempting in a rescue.
12 I asked a foreman, James
13 Scott, to go to the return and get me a
14 reading coming out of the fan. I then
15 went to the dispatcher's office and
16 asked some questions of the dispatcher.
17 I looked at the CO monitor, and signed
18 the record that the CO monitor was
19 making.
20 As I was coming out of
21 the dispatcher's office, I seen Mr.
22 Barry Fletcher and Mr. Jeff Bennett,
23 who are district mine inspectors with
24 the West Virginia Office of Miners'
25 Health, Safety & Training, and both are

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1 members of the mine emergency team. I
2 asked them also to get an air reading
3 at the return and ask for Mr. Bennett
4 to secure the pre-shift, on-shift
5 record books and to sign them.
6 I discussed the Second
7 Left pre-shift examination with Mr.
8 James --- Freddy Jamison, and attempted
9 to call Mr. Kenny Tenney with MSHA. At
10 this time, the First Left crew was
11 already outside, and we all know the
12 crew who was on the One Left crew. And
13 then also Mr. Patrick Boni, and Mr.
14 Nelson --- John Nelson Boni, and Mr.
15 Ron Grall also had arrived on the
16 surface of the mine. This was
17 approximately 7:30 when they got out.
18 I discussed what this
19 crew had encountered with Mr. Eric
20 Hess. I knew Eric quite a while, and
21 also knew that he was in a foreman's
22 training class, and I thought he would
23 be someone that would provide good
24 information. I talked with Mr. Eric
25 Hess. I recorded his comments, and I

1 talked with Mr. Gary Rowan.
 2 After receiving the first
 3 air reading out of the return, I'm
 4 finding out that a small amount of
 5 carbon monoxide was coming out of the
 6 mine. I issued a control order. Any
 7 presence of carbon monoxide is an
 8 indication of a mine fire or explosion.
 9 So I issued the control order under
 10 Title 36, series 19, section 7.1 of the
 11 West Virginia Administrative
 12 Regulations. And that is titled,
 13 Preservation of Evidence Following an
 14 Accident. And I, quote, 7.1. Unless
 15 granted permission by the Office of
 16 Miners' Health, Safety & Training, no
 17 operator may alter an accident site or
 18 an accident-related area until
 19 completion of all investigations
 20 pertaining to that accident, except to
 21 the extent necessary to rescue or
 22 recover an individual, prevent or
 23 eliminate an imminent danger, or
 24 prevent destruction of mining property.
 25 At 8:37 a.m. I briefed

1 Director Conaway of what I knew by my
 2 cell phone. And at 9:00 a.m. I called
 3 Brian Mills with an update, and I
 4 discussed the event with Mr. Mark
 5 Wilfong, assistant inspector at large,
 6 who had arrived at the mine. Mr. Mills
 7 arrived at the mine a little after
 8 10:00 a.m.
 9 Once I got to the mine, I
 10 learned that after the event that Mr.
 11 Jeffrey Toler, Mine superintendent, Mr.
 12 Denver Wilfong, superintendent of
 13 maintenance, and Mr. James Schoonover,
 14 safety director, and Mr. Vernon Hofer,
 15 maintenance foreman immediately entered
 16 the mine via a battery powered track
 17 mounted mantrip.
 18 These men traveled to
 19 Four track area of the mine where they
 20 stopped to use the phone, and the First
 21 Left crew that was in the intake
 22 escapeway, heard the mantrip, went over
 23 to the track and flagged them down. So
 24 they stopped, gathered that First Left
 25 crew up, and Mr. Wilfong and Mr. Hofer

1 transported the First Left crew and
 2 John Nelson Boni to the surface.
 3 Mr. Toler and Mr.
 4 Schoonover stayed in the mine with Mr.
 5 Owen Jones from the One Left crew and
 6 started assessing the conditions. Mr.
 7 John Patrick Boni, who was working at
 8 the Number Four belt conveyor drive,
 9 exited the mine by the intake
 10 escapeway, and Mr. James --- Fred
 11 Jamison, who was walking along the
 12 Number Two belt conveyor, exited the
 13 mine in the track entry.
 14 Upon arriving on the
 15 surface, Mr. Wilfong and Mr. Hofer, the
 16 First Left crew unloaded and came up to
 17 the mine office. Mr. Wilfong and Mr.
 18 Hofer loaded ventilation curtain,
 19 obtained additional detectors, perhaps
 20 another rescuer or two, I think a hard
 21 hat for Mr. Owen Jones, and they went
 22 back into the mine.
 23 They joined Mr. Toler,
 24 Mr. Schoonover and Mr. Jones along the
 25 Four belt conveyor and started

1 installing stoppings where stoppings
 2 had been damaged or blown out between
 3 the intake and the track entry. I
 4 believe they parked their mantrip at
 5 approximately block 43 of Four track.
 6 The crew installed ventilation curtains
 7 where stoppings had been knocked out
 8 between the track entry and the intake
 9 escapeways. The crew started at
 10 approximately block 37 and advanced to
 11 block 58 at Four track.
 12 They said that as they
 13 first started, they had enough air that
 14 --- this is the briefing that they give
 15 us when they came out, that they had
 16 enough air behind them that a couple
 17 guys could work on one open break,
 18 putting up a curtain. A couple more
 19 guys could move inby to the next one.
 20 Pretty soon they only had enough air to
 21 where they could work on one at a time,
 22 then after a while it got to where they
 23 would build one and wait, build one and
 24 wait. So at a point, they decided to
 25 send Mr. Jones and Mr. Hofer outby

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1 looking for additional damage to the
2 intake ventilation devices.
3 At 9:30 a.m. Mr. Jeffrey
4 Toler, mine superintendent, called
5 outside. I'm not sure who else he
6 talked with, but he asked to speak with
7 me. And at 9:30, Mr. Toler called me -
8 -- told me that they had made it to
9 block 58 of Four track, but had now
10 encountered heavy smoke and soot.
11 Their detectors had burnt up and there
12 was not enough air to move the smoke.
13 Mr. Toler stated that the
14 crew was coming outside by the intake
15 escapeway because the smoke and dust
16 had now traveled outby in the track
17 entry, and it covered up the mantrip at
18 block 43. Mr. Hofer and Mr. Jones had
19 already started outby in the intake
20 escapeway looking for damage to the
21 ventilation controls.
22 Mr. Toler, Mr. Schoonover
23 and Mr. Wilfong caught up with these
24 two men at 12 block of four track where
25 they were repairing an overcast that

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1 had been damaged during the explosion
2 and was allowing intake air to short-
3 circuit. The overcast was temporarily
4 repaired, and the men continued walking
5 the intake escapeway to the surface
6 area and arrived at 10:30 a.m.
7 At about this same time,
8 Mr. James Satterfield and Pat Vanover,
9 with MSHA, arrived at the mine. The
10 conditions found by these men and the
11 measures taken were discussed with
12 company, federal and state personnel.
13 At approximately 11:00
14 a.m., Mr. Doug Conaway, director,
15 arrived at the mine. We had installed
16 a map on the wall in the foreman's
17 office, and I reviewed what I knew with
18 him. We had been preparing a command
19 center, which was set up in the
20 superintendent's mine office. And
21 myself and Mr. Brian Mills was in that
22 office. Brian Mills asked me since
23 I've been inspecting the mine and knew
24 the mine, if I would begin representing
25 the State in the command center, and I

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1 did so.
2 I stayed in the command
3 center until --- along with others
4 until approximately 7:00 a.m. the next
5 morning. I went home from seven
6 o'clock until 1:00 p.m. that day, and
7 came back and stayed until the
8 completion.
9 Mr. Stricklin is going to
10 start his presentation at that time,
11 and then we'll cover the State part.
12 Thank you very much.
13 MR. STRICKLIN:
14 Thank you, Mr. Collins.
15 Before I get started, I'd like to
16 introduce a couple of the other people
17 up here on the MSHA committee. Sitting
18 two people down from me is Ron Hixson.
19 Ron Hixson is a member of the MSHA
20 Mine Emergency Unit. Ron was one of
21 the first people to go into the
22 barricade. And during our
23 presentation, if it's okay with you,
24 Mr. McAteer, we'd like for Ron to put
25 on an apparatus, just so everyone will

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1 get an opportunity to see what it looks
2 like and how he would wear it. And in
3 addition to Mr. Hixson, next to him is
4 Mr. John Urosek. John is the chief of
5 the ventilation division of our
6 technical support group, and both of
7 these individuals naturally were onsite
8 at the Sago Mine.
9 CHAIR:
10 That would be fine, Mr.
11 Hixson.
12 MR. STRICKLIN:
13 Do you want to put it on
14 now, or do you want to wait just a
15 couple minutes? Let me get started.
16 What I'm hoping to do
17 with this presentation is give an
18 overview of the rescue operations at
19 the mine after we received a call from
20 the mine operator at approximately 8:30
21 a.m. Later today the accident
22 investigation panel will present more
23 details on events directly related to
24 the accident specifically between 6:30
25 --- between six o'clock and 8:30 in the

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1 morning from their interview process.
2 Again, just going over
3 some of the points that we'll be
4 discussing during the presentation is
5 the mine portal location where the men
6 entered the mine, the One Left --- or
7 First Left and Second Left sections.
8 The Two north main seals and the area
9 that we'll be traveling between the
10 mine portals and the Two North main
11 seals or the One Left section.
12 At approximately 8:30
13 a.m., MSHA Bridgeport field office
14 supervisor, Jim Satterfield, was
15 notified of the accident by Johnny
16 Stemple. And Jim did issue a 103 (k)
17 order. At that time, Mr. Satterfield
18 knew that a situation existed at the
19 mine. At least nine people were
20 unaccounted for, and there were a
21 couple of stoppings out, and there had
22 been a lightning strike. So Jim did
23 the appropriate thing by issuing a (k)
24 order.
25 What a (k) order is, it's

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1 a tool that we use in MSHA that
2 basically protects the safety of the
3 miners. And what it --- it doesn't
4 prohibit anything other than the fact
5 that the mine operator is required to
6 submit a plan to MSHA, and we will
7 approve it if we feel that it doesn't
8 decrease the safety of the operation or
9 going back underground. So we
10 basically had the authority to deny a
11 plan or approve a plan in this
12 situation with the (k) order.
13 Jim got on the phone and
14 started contacting people. Again, we
15 were very similar to the state in that
16 it was a federal holiday. Jim was at
17 home, and Jim did get in touch with a
18 couple of inspectors, contacted them
19 and asked them to meet him in the
20 office, gather their gear together,
21 because we have a situation at the Sago
22 Mine.
23 They got into the office and traveled
24 to the mine, arriving at approximately
25 10:30 a.m.

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1 Shortly after they
2 arrived, as John Collins mentioned,
3 they were briefed, and they basically
4 started talking to people who were in
5 One Left, as well as talking to people
6 who may have been part of the initial
7 rescue attempt to get as much
8 information as we could.
9 I think it was shortly
10 after that time that we realized an
11 explosion and/or a fire had occurred.
12 That's based on the stoppings being
13 blown out, the amount of CO that we
14 saw, the discussions with the people
15 who were underground.
16 Mine rescue teams began
17 arriving at the mine at about 11:00
18 a.m., and continued to arrive
19 throughout the day. My understanding
20 is the first two teams that arrived at
21 the mine were the Barbour County teams,
22 arriving at about 11 o'clock, and they
23 felt they were prepared to go
24 underground at approximately 12:00
25 noon.

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1 Approximately at 11:30
2 a.m., the CO readings were 500 parts
3 per million, while the methane readings
4 had decreased to six-tenths at the
5 return entry in the pit. These
6 readings in conjunction with the damage
7 to ventilation controls indicated there
8 still was a hazard for another
9 explosion. However, at 12:00 noon, the
10 concentrations of CO dramatically
11 increased to 2,600 at the return entry.
12 And elevated CO levels
13 were detected in the office building,
14 where John had mentioned earlier, where
15 a command center was being set up.
16 Because of this and the concentrations
17 that were being seen in it, I think it
18 was mentioned yesterday that depending
19 on who you talked to, you get different
20 --- sometimes a little different
21 information. I've heard anywhere
22 between 130 parts per million of CO in
23 the building, up to 600 inside of the
24 building.
25 And it was our

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1 responsibility at that time to issue an
2 imminent danger and protect the safety
3 of not only the miners, but of all the
4 people that were in that area. And we
5 basically wanted to get everybody out
6 into a safe location so no one would be
7 injured by the concentrations of CO
8 that were very high, not only coming
9 out of the mine, but in the area of the
10 building.
11 There was a concern at
12 that time that the increase in CO,
13 again, was an indication that there may
14 have even been a possible second
15 explosion or a fire that was increasing
16 in intensity. It's very abnormal to
17 see concentrations increase that
18 dramatically. One of the things we try
19 to do is look at trends. It's not a
20 certain number that we're basically
21 tied into, as much as we want to know
22 if the area is stable or is decreasing
23 in concentrations.
24 That was one of the first
25 things that we wanted to do. I'm

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1 talking about our agency, I think, as
2 well as the mine operator in the State,
3 to start looking at trending and see
4 what kind of concentrations we have.
5 However, the concentrations that we
6 were looking at, no handheld detector
7 had the ability to measure exactly what
8 we had.
9 The instruments peg out -
10 -- they supposedly go up to 2,000,
11 sometimes they'll run a little higher,
12 and then the reading just goes blank.
13 So we basically knew that we had
14 greater than 2,000 parts per million,
15 however, we didn't know how high that
16 number actually was. We needed a
17 chromatograph or some type of
18 analyzation to help us determine just
19 how high that carbon monoxide
20 concentration was, and to also start
21 trending it with equipment, rather than
22 only using handheld equipment.
23 There's been a number of
24 second explosions at mines in the
25 recent past. According to mine

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1 management, they stopped their initial
2 rescue attempt early that morning
3 because of dense smoke and the
4 possibility of a second explosion.
5 I was part of the team
6 that investigated an explosion at the
7 Jim Walters Resources Mine in 2001.
8 There was one individual that was
9 caught in the mine after an initial
10 explosion. Twelve (12) additional
11 miners went in to rescue him. They
12 made a valiant effort. Unfortunately,
13 a second explosion occurred and we had
14 13 fatalities. That's something that
15 we're all aware of, and we realize the
16 possibilities of a second explosion.
17 And we have to look at that, and we
18 have to not only try to get in as
19 quickly as we can, but we have to
20 protect the mine rescue team members
21 that are actually going to go into the
22 mine to rescue people.
23 Work had already begun
24 over the surface area of Two Left to
25 have the area surveyed. A possible

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1 borehole location was already being
2 discussed at the Two Left belt
3 tailpiece. What needed to be done up
4 there was a GPS survey. Naturally, the
5 areas underground are surveyed, but the
6 surface area, while there are points
7 tied into the surface, exact points are
8 not pinpointed prior to something like
9 this.
10 You have the general area
11 of it that you don't know the exact
12 location. It's very important, because
13 there's more room for a borehole to go
14 into a pillar than it is into an open
15 entry. Approximately, at 3:00 p.m.,
16 Consolidation Coal Company arrived to
17 set up a gas chromatograph. And that
18 gave us the ability to analyze bottle,
19 which confirmed the handheld gas
20 readings from the pit mouth return.
21 At that time, we talked
22 about the (k) order. One of the first
23 plans approved in the (k) order was the
24 bottle samples would be taken at 15-
25 minute increments from the return air

1 course, and we would start trending
 2 those, get an idea of exactly where we
 3 were seeing the concentration of CO and
 4 methane, and then we were going to have
 5 a discussion as to when the rescue
 6 teams would be able to go underground.
 7 The increase in CO really
 8 did cause a concern, and it caused us
 9 to sit back and look at the numbers to
 10 see if we had a second explosion or if
 11 a fire was increasing in size. Well,
 12 at approximately 4:15, we trended five
 13 samples, and I believe the first sample
 14 taken came back at, I believe it was
 15 either 2,600 or 3,700 parts per million
 16 of CO. And the numbers did start
 17 indicating a downward trend.
 18 We got together with the
 19 company and the state, and we decided
 20 that it was time to try to get the
 21 teams underground. The situation still
 22 wasn't a very good situation, but we
 23 felt with a downward trend, that it was
 24 time to take a shot, to get in there
 25 right at that time.

1 This would be a good time
 2 for you to put that apparatus on.
 3 At 5:25 the first mine
 4 rescue team entered the mine. And
 5 basically, our intent wasn't to stop
 6 and do a whole lot of stuff, it was to
 7 move forward. We --- I know the
 8 question's been asked, were you
 9 following mine rescue procedures, and
 10 the answer is no. We basically didn't
 11 ask the teams to go over in the returns
 12 and measure things. We didn't ask them
 13 to go in all the entries like you
 14 typically would do with a rescue team.
 15 We asked them to stick their hand
 16 through the door in the return and
 17 actually take just a handheld reading
 18 with your hand through there to give us
 19 an idea of what was there.
 20 As Ron's putting on this
 21 apparatus, you can see it's a pretty
 22 bulky piece of equipment. It weighs
 23 about 40 pounds. In addition to what
 24 he's wearing, he would also wear
 25 methane detectors, a cap lamp and other

1 equipment that he may use. He's putting
 2 on the face piece, and I think what it
 3 will show you later is one of the
 4 reasons that the communication may not
 5 have been as clear as what we would
 6 have liked it to be, because the face
 7 piece that he's putting on, he's going
 8 to speak inside of it, and when Ron was
 9 at the face --- and we'll talk about it
 10 later, he's going to try to talk
 11 through a walkie-talkie outside of it.
 12 This type of apparatus
 13 was the type used by all the
 14 individuals that did go underground as
 15 far as the mine rescue team at the Sago
 16 Mine. When we initially went in the
 17 mine here, the men were not wearing the
 18 face pieces. They carried them on
 19 their back, but if they had to go over
 20 into the return, which they shortly
 21 did, because we had water in the return
 22 near the old seals that was blocking,
 23 that could
 24 --- it continued to build up, could
 25 have blocked airflow. So we had to go

1 over there and actually get the pump
 2 started.
 3 If you would, Ron, just
 4 as an example, if you could count from
 5 one to ten?
 6 MR. HIXSON DEMONSTRATES
 7 MR. STRICKLIN:
 8 As I mentioned earlier,
 9 water was encountered at the 21
 10 crosscut, and we basically had to go
 11 over there, and it was in agreement,
 12 and it was a plan that the company
 13 submitted. What we asked is, the
 14 company to submit a plan. And I know
 15 there's been some discussion on whether
 16 the submittal of plans held up the
 17 rescue operation. And the submittal of
 18 the plans, I don't think that it did.
 19 What we tried to do is
 20 look forward and look to issues that
 21 may be coming up in front of us. For
 22 instance, we knew we were going to come
 23 up to the One Left area and we talked
 24 about it earlier on whether we should
 25 bypass the One Left area. Did we think

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1 there was any reason to go in there?
2 Things were thought out
3 in advance to try to come up with ideas
4 and situations that, in the future,
5 when we came upon them, we wouldn't
6 surprise anybody. Basically, you tried
7 to put together a flow chart, and you
8 come up with what you think is going to
9 occur, and you try to cover all of the
10 bases to that flow chart as you're
11 exploring through the mine.
12 Exploration continued
13 through the remainder of the day and
14 evening with the regular exchange of
15 teams. I believe Mr. Collins said
16 there were 13 teams onsite. And in a
17 situation where it lasts a long time
18 like this did, you have to be able to
19 give teams a break. Pull them out and
20 let them rest for awhile.
21 Typically, a rescue team
22 will only advance about two hours, and
23 then they come back out of that
24 exploration mode, and they're used as a
25 back up. So you have to have enough

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1 teams together to keep them fresh as
2 you can. And as time goes on and as
3 days go on, it becomes tougher and
4 tougher for these people to be at their
5 best, physically.
6 I mentioned earlier that
7 a decision was made to put a borehole
8 into the mine. And the drill site that
9 was selected was pinpointed at the Two
10 Left tailpiece. And equipment began
11 drilling --- set up the drilling at
12 about 1:35 in the morning.
13 Unfortunately, there was
14 --- there was a --- it was an overcast
15 day and a number of the GPS equipment
16 that was used, I guess couldn't tie
17 into the satellites that you had ---
18 that you needed to tie in to pinpoint
19 this location on the surface.
20 The teams continued to
21 advance underground, and at 2:40 in the
22 morning, they came upon an area in the
23 belt entry where there was a red light
24 on. And they went over into the belt
25 entry, and it was determined at that

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1 time that that red light was a part of
2 the mine-wide monitoring system.
3 Up until that time, I
4 thought --- and I think most of the
5 people had thought that the power had
6 been disconnected from the mine. That
7 was one of the first questions that is
8 asked and one of the first things that
9 you typically do. Unfortunately, the
10 CO system still had power on it. Why
11 is that a concern? Because this is a
12 battery-powered piece of equipment,
13 there could be a spark given off from
14 this power, or from the battery back
15 up, that if it was located in an area
16 where an explosive mixture was located,
17 it could cause an explosion of itself
18 as well.
19 One of the frustrating
20 things that I found during this whole
21 operation was that we were basing every
22 decision we had on the concentrations
23 of CO that we were getting out of the
24 return air course, which is about two
25 and a half miles away. Unfortunately,

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1 there were no boreholes anywhere where
2 we could get a bottle sample or a
3 handheld reading closer than that to
4 see what we actually had.
5 In the concentrations we
6 were looking at this return air course,
7 the .6 methane, or higher at one time.
8 The 2,000 parts per million CO would
9 indicate, based on dilution and
10 stoppings being out, that the
11 concentrations had to be much higher
12 inby the area where --- somewhere where
13 the explosion occurred. And you have
14 to remember, at this time, we did not
15 know where the explosion occurred at.
16 We just knew it was somewhere inby the
17 Two Left switch.
18 Well, a decision was made
19 that we needed to pull the people out
20 of the mine before we could kick the
21 power to that CO system. As the people
22 were coming out of the mine, the
23 drilling begins for the borehole into
24 Two Left tailpiece area. It had 258
25 feet from the surface to go into the

1 mine.
 2 This just shows an area
 3 where the borehole was pinpointed at.
 4 As you can see by this picture, there's
 5 a lot more areas that are shown in
 6 black that are pillars of coal, and the
 7 open entries that are shown in white.
 8 And it's very easily
 9 --- and it sometimes occurs, even when
 10 you think you have the coordinates for
 11 a borehole to be sunk in and actually
 12 go into the solid block of coal. So it
 13 was pinpointed with the GPS survey
 14 exactly where the borehole needed to go
 15 in. It was fine-tuned, and the
 16 borehole went in with really good
 17 accuracy. The drilling company did an
 18 excellent job of pinpointing where the
 19 hole went in.
 20 The mine rescue teams
 21 reached the surface at about 3:40 in
 22 the morning, and the CO system was
 23 shortly thereafter de-energized. And
 24 the battery backup that would have went
 25 into effect was defeated and turned off

1 on the computer, so now we knew that
 2 there were no power sources in the
 3 mine.
 4 Another tool that we
 5 wanted to use, and it really didn't
 6 work out very well for us, but it
 7 didn't hold up the rescue at all was
 8 the use of a robot. We had been
 9 looking at the maps, and we were about
 10 4,000 feet away from where the end of
 11 the track would have been in Two Left.
 12 The robot has the ability to be moved
 13 up to 4,000 feet remotely. It has a
 14 camera on it, and it has detectors.
 15 Unfortunately, it didn't work for us in
 16 this case. It was disabled, but it
 17 didn't hold up the rescue efforts, as
 18 far as the rescue teams. They were
 19 already prepared and going back
 20 underground at that time.
 21 But the borehole rate was
 22 going down so fast that we made a
 23 decision outside as a group that we
 24 were going to hold the teams out until
 25 the borehole actually punched through

1 into the seam. And again, this is
 2 another possibility of if there's an
 3 explosive mixture in the area where
 4 this borehole went through because of
 5 the sparks, it could in and of itself
 6 cause an explosion. So a decision had
 7 already been made that everybody would
 8 have to be withdrawn from the area when
 9 the borehole actually entered into the
 10 coal seam.
 11 Well, all the persons are
 12 withdrawn from the pit area, at 5:35
 13 the hole punches through, and
 14 approximately 1,200 parts per million
 15 CO is detected with the handheld
 16 instrument.
 17 Shown on the map here in
 18 addition to the orehole location is the
 19 location of the barricade. It's shown
 20 in yellow, and it's basically about 300
 21 feet away from where the borehole
 22 entered the mine. What we did was, we
 23 shut down all the drilling equipment at
 24 that time in the hopes that someone
 25 that was in the area could come to the

1 bottom of the borehole and actually hit
 2 on the drill still.
 3 The mine rescue team
 4 shortly after that were sent back into
 5 the mine. And as they're coming into
 6 the mine, a camera was lowered into the
 7 Two Left borehole. The camera was
 8 located right over top of the belt
 9 feeder there, that we just showed a
 10 picture of. And there were no
 11 indications of explosive force in that
 12 area. And a shuttle car was sitting
 13 there. The section basically looked
 14 like it was ready to mine coal. And I
 15 think it caught some people by
 16 surprise, because I think there was
 17 some feeling that the explosion may
 18 have occurred toward the face of Two
 19 Left. It was typically --- you would
 20 expect an explosion to occur where
 21 people were actually at.
 22 As I mentioned earlier,
 23 the robot was disabled, a decision was
 24 made to bypass One Left. This, again,
 25 I think was a calculated risk, knowing

1 that a fire could have existed there.
 2 And one of the other concerns we had
 3 was, did we think Mr. Helms had left
 4 One Left. We know he had done his pre-
 5 shift in One Left, and we had been told
 6 that he was going to go toward the
 7 mouth of Two Left, and that's where he
 8 would start his shift at.
 9 And I know we did a lot
 10 of talking with a lot of people who had
 11 been underground and how he typically
 12 did his job. And a decision was made
 13 at that time to --- we felt that he
 14 probably would not be in One Left any
 15 longer and he would have moved toward
 16 Two Left.
 17 Approximately two o'clock
 18 p.m., the team arrived near the One
 19 Left section return entry, and we
 20 basically just checked to see what type
 21 of readings we had in that return. The
 22 mine operator had cordoned off the
 23 intake going into One Left with the
 24 canvas checks. And we were aware of
 25 that. And it was in his effort to try

1 to push more toward Two Left. We just
 2 wanted to make sure that there were no
 3 very bad concentrations of gas coming
 4 out of One Left, and gave us the
 5 ability to bypass it and go further
 6 into the mine.
 7 And they came up on the
 8 mantrip that was still seated right
 9 naturally on the track with the lights
 10 on, just how they had left it.
 11 A decision was made to
 12 establish a fresh air base at crosscut
 13 57. And the rescue teams completed the
 14 outby curtain work and set up the fresh
 15 air base at about 5:45 p.m. At that
 16 time, it was in one crosscut over, one
 17 entry over, that's when they found the
 18 body of Mr. Terry Helms in the track
 19 entry, between crosscuts 57 and 58.
 20 We then began advancing
 21 inby further, but we wanted to tie in
 22 the seals to make sure just before we
 23 went inby we wanted to make sure there
 24 was no explosive mixtures in this area.
 25 We really didn't know what we were

1 going to find, but we was going to
 2 touch base in that area.
 3 Well, we go over there,
 4 and I recall the mine rescue team
 5 calling outside that they were in the
 6 Number Ten entry, or maybe it's the
 7 Number Nine entry, and they were in an
 8 area that was very high. And I think a
 9 lot of people just looked at each
 10 other, and it was determined then that
 11 they had gone inby where the seal
 12 location was, into where the area had
 13 been bottom mined. And they basically
 14 worked their way across the entire set
 15 of seals where they were at and
 16 determined they were all blown in an
 17 outby direction, and that the
 18 concentrations of carbon monoxide
 19 ranged from 300 to 700, and methane
 20 ranged from five-tenths to 1.4.
 21 Again, this was an area
 22 that, I think, gave us an idea
 23 naturally at that time, it wasn't
 24 conclusive, but it kind of indicated
 25 that the explosion originated in this

1 sealed area.
 2 Well, when you look at
 3 the numbers, there was a very good
 4 chance that there could be an explosive
 5 mixture inby this area. And we didn't
 6 know what the ignition source was, and
 7 basically, I guess that's still up in
 8 the air as far as the investigation is
 9 concerned, but we made a decision again
 10 to bypass this area and allow the
 11 rescue teams to go inby, because we
 12 felt that was stable. We weren't
 13 changing the airflow coming from the
 14 sealed area. We weren't going to
 15 install any curtains in the area, and
 16 we basically was just going to try to
 17 evaluate Two Left and try to get in
 18 there now as quickly as we could,
 19 because we knew where the explosion had
 20 occurred at, and we were --- it was,
 21 again, a calculated risk, but we felt
 22 comfortable enough to send the people
 23 inby there.
 24 This just shows the
 25 picture of all the seals that were

1 blown out, as well as the stoppings
 2 that were on the outby side and to
 3 direct airflow up against the seals to
 4 ventilate them.
 5 Just shortly after seven
 6 o'clock the teams begin advancing
 7 through the mouth of Two Left and begin
 8 exploring the section. All the primary
 9 escapeway ventilation controls from the
 10 mouth of the section at crosscut 12
 11 were damaged.
 12 At approximately 7:27
 13 p.m. the Two Left mantrip was observed,
 14 and the teams advanced toward it. The
 15 mantrip was located at crosscut ten
 16 with no persons in it. The team
 17 traveled the track entry two crosscuts
 18 inby with no miners observed. And at
 19 that time, the report from the rescue
 20 teams out was there was evidence that
 21 the crew tried to use the mantrip to
 22 escape in the track entry.
 23 Well, the team advanced,
 24 as I said, a little further in past the
 25 mantrip, they came over into the

1 primary escapeway, and they discovered
 2 evidence at crosscut 11 where 12 SCSRs
 3 had been opened. That was the top and
 4 bottom parts to each of the canisters
 5 were opened in this particular area.
 6 And there were footprints observed from
 7 crosscut ten towards the mouth of the
 8 section before the footprints were
 9 lost.
 10 At that time, we're
 11 trying to tie in --- we have footprints
 12 coming outby, and we're trying to tie
 13 in all of the area of Two Left to see
 14 if these gentlemen may have barricaded
 15 in this area or may have somehow gotten
 16 turned around and was going into the
 17 area that had previously been sealed.
 18 And we talked to rescue teams as we
 19 debriefed them, and we were confident
 20 that they did not go into the
 21 previously sealed area after talking to
 22 rescue teams, as well as we were
 23 confident that we tied in all this
 24 outby area here.
 25 And a decision was then

1 made to travel toward the face. So
 2 between nine o'clock and 11:14, we
 3 started tying in all these areas as we
 4 advanced toward the face.
 5 About 11:32 the mine
 6 rescue team advanced to crosscut 15 in
 7 Two Left, and they were advancing up to
 8 the face at that time. And with that,
 9 I'm going to ask Ron Hixson, who was
 10 one of the first people into the
 11 barricade to basically just discuss his
 12 travel during this time period.
 13 MR. HIXSON:
 14 We were advancing in the
 15 Number Five track entry. We were
 16 moving at a very quick pace. We had
 17 already explored as far as 19 crosscut.
 18 We knew that our goal was to get to
 19 the faces. We thought for sure that's
 20 where the men would be, or we would
 21 just think that we would find the
 22 miners.
 23 Going up, we would have
 24 been traveling the Number Five track
 25 entry. When we got up to 25 crosscut,

1 to our left was a check curtain. The
 2 check curtain caught our eye. We
 3 thought it may have been a barricade,
 4 and we advanced on up to 26 crosscut,
 5 saw nothing in the face of Number Five
 6 entry, traveled across the crosscut 26,
 7 and at that point I went outby with
 8 another team member to check the
 9 backside of what we thought might ---
 10 may have been a barricade.
 11 The team captain and
 12 other men traveled through the crosscut
 13 towards what actually turned out to be
 14 the barricade. When I got down to 25
 15 crosscut, I found out that that was not
 16 a barricade.
 17 When we were in the
 18 crosscut, before we got to the first
 19 check curtain before the barricade, it
 20 was at that time we could hear Mr.
 21 McCloy trying to breathe. It was a
 22 real deep type snore, really working
 23 hard to breathe.
 24 Whenever I went through
 25 the barricade, the team captain had

1 already gone through. They already had
 2 Mr. McCloy lying flat and were working
 3 with him trying to get an SCSR on him,
 4 and they were hollering at him, trying
 5 to get him to talk. The rest of the
 6 miners were checked very quickly.
 7 We checked for a pulse,
 8 checked for any signs of breathing. We
 9 knew at that time we didn't have enough
 10 people with us to bring Mr. McCloy out,
 11 and I immediately left there and then
 12 went back to 23 crosscut, where the
 13 power center was. I ran back to use the
 14 walkie-talkie system that we were using
 15 for communications to call back to
 16 Number Nine crosscut to communicate
 17 that we needed --- we had all 12 guys
 18 accounted for, and that we had one man
 19 alive.
 20 I also told them that we
 21 needed help, and we needed help right
 22 away. From earlier, when we started
 23 exploration, one of the apparatuses had
 24 failed, so when we started in Two Left,
 25 we were one man short going in.

1 As this slide is showing
 2 also, at Number Nine crosscut, we had
 3 to drop a second man with a handheld
 4 walkie-talkie so that we would have
 5 communications as we traveled on inby.
 6 Typically, this is not how we do mine
 7 rescue.
 8 We would have went in
 9 1,000-foot increments and advanced our
 10 fresh air base so that our fresh air
 11 base and our backup team would have
 12 come up and been in fresh air and in
 13 good air. They could have been there
 14 barefaced, and then we would have
 15 explored the next 1,000 feet.
 16 Because of the
 17 concentrations of CO and the things
 18 that were happening, the decision was
 19 made to go to the faces using the
 20 handheld walkie-talkies.
 21 I got the stretcher, I
 22 returned to the barricade. I opened
 23 the stretcher, laid it flat on the
 24 ground. At that time, as I walked
 25 through, the men were being checked

1 again. We were hollering at Mr. McCloy
 2 telling him to breathe, telling him to
 3 work with us, anything that we --- any
 4 kind of response that we could get.
 5 I had then left the
 6 barricade again, come back to 23
 7 crosscut. At 23 crosscut I used the
 8 walkie-talkie again. I was talking to
 9 the men at Number Nine room. We were
 10 looking for medical oxygen, trying to
 11 find anything that we could get to help
 12 Mr. McCloy.
 13 All about the same time,
 14 the backup team had come in to help us.
 15 Got up to the load center, the power
 16 center at 23 crosscut where we were all
 17 at, at that time, myself, another team
 18 member, and we traveled back to the
 19 barricade.
 20 We went into the
 21 barricade area, they were still working
 22 with Mr. McCloy. They were trying to
 23 get him on the stretcher and get him
 24 secured to a stretcher for the trip
 25 out. Again, we checked everybody, made

1 sure we had everybody accounted for to
 2 make sure that we didn't have another -
 3 -- a weak pulse or something that we
 4 didn't pick up on the first two checks.
 5
 6 It was very shortly after
 7 we got in there that Mr. McCloy was
 8 ready to go, and the captain said let's
 9 get him out of here, and we started
 10 out.
 11 The carry of Mr. McCloy
 12 was a very difficult carry. We had
 13 three men on both sides of the
 14 stretcher, we had a fourth man at the
 15 head working the SCSR, trying to keep
 16 it in Randy --- Mr. McCloy's mouth. We
 17 were moving at a very fast pace.
 18 As we traveled down the
 19 track entry --- when we come past the
 20 load center, it was difficult for six
 21 men to carry the stretcher, so we had
 22 to basically tail off and go to two
 23 men, or whatever we needed to do to get
 24 by the power center and get by the
 25 supply cars.

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1 Everything was --- we
2 were doing --- we were doing it at a
3 fast pace, and we were doing it with
4 all of our gear on.
5 When the conditions down
6 along the track entry, there's a couple
7 locations where there's a lot of water,
8 knee-deep water, mud. There's the
9 rails, the gravel that they ballast the
10 track with. We got down more towards
11 the front of the section. There was
12 actually debris from the explosion
13 laying in the track entry. And as I
14 said before, it was a very difficult
15 travel --- or a carry.
16 As we had a couple extra
17 men with us, as one man would tire out,
18 he would scream out he needed relieved.
19 One of the men that was traveling
20 would jump in, he would take over, and
21 the other man would walk beside and
22 rest while we were still carrying. We
23 never quit carrying Randy --- Mr.
24 McCloy. We never quit moving with him.
25 About Number Nine

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1 crosscut, the apparatus that I just
2 showed you, my warning whistle went
3 off. I was out of oxygen, or low on
4 oxygen. I don't want to say I was out.
5 I was low on oxygen.
6 We continued to carry Mr.
7 McCloy down to the track switch at 59
8 crosscut. At that location, there was
9 men that were in fresh air that were
10 barefaced. They took Mr. McCloy, put a
11 BG-4 apparatus on him and continued
12 down the track entry to the mantrip to
13 get him outside.
14 We were basically
15 exhausted at that point. Speaking for
16 myself, my legs were like rubber. I was
17 just shaking. Some people wanted to
18 come and take my apparatus off, and I
19 told them no, they couldn't do that
20 yet. I had to sit down, and just sit
21 down and regroup. Other guys were in
22 the same condition. We were pretty
23 stretched out.
24 Communication-wise, if
25 you look at the page we have, starting

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1 from the mouth of the section, in the
2 intake entry at approximately 58
3 crosscut, we had a man sitting there,
4 and that was called our fresh air base.
5 At that location he had a telephone
6 system from himself to the outside. He
7 also had on him a headset, which is a
8 mine rescue headset that we normally
9 take underground, and that's where we
10 get the 1,000 foot distance from. That
11 reel gives a 1,000-foot reach.
12 But that headset that he
13 had on extended through the crosscut,
14 then up the track entry to the switch.
15 It didn't go inby the switch, it was
16 just at the mouth of the switch.
17 At that location we had
18 another man standing with the other end
19 of the headset and the other end of the
20 hardwire. We had a second man at that
21 location also, and he had a walkie-
22 talkie.
23 Anybody going inby that
24 area had to be under apparatus because
25 of the concentrations of CO. As

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1 we traveled up the entry from prior
2 exploration, we knew that we would not
3 be able to travel much past Nine
4 crosscut before dropping another man
5 off.
6 At Nine crosscut we
7 dropped off another man that had a
8 handheld radio, walkie-talkie also.
9 His job was to communicate with us, who
10 we were traveling inby, and then he
11 would relay the information back to the
12 track switch, then he would tell the
13 man that was sitting there with the
14 hardwire, who would then call it back
15 across to the fresh air base, who would
16 then call it outside.
17 When we traveled up the
18 track entry, when we were getting up
19 near the load center in that area, we
20 were getting real weak on
21 communications. If we left the track
22 entry --- the walkie-talkies are pretty
23 decent communication items, as long as
24 you're in direct line of sight. But
25 when we dropped out of the track entry,

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1 we lost communications with Nine room
2 and everybody else outby. So anytime
3 we left that area and went over to the
4 barricade, we did not have
5 communications.
6 At that point, as I told
7 you, I called back out --- the way it
8 would have worked is, when I come out
9 to 23, I called those messages out to
10 Number Nine. He, again, would call out
11 to 59 crosscut switch. He would relay
12 it to the guy on the hardwire, who
13 would then relay it to the guy at the
14 fresh air base, who would phone
15 outside.
16 Some of the issues that
17 we have with walkie-talkies and
18 stretching out are --- as you can see,
19 the two curves at the mouth of the
20 section where the track seems to ---
21 the entry seems to not be in a straight
22 line, that causes to have to drop a guy
23 off at Nine crosscut rather than extend
24 further in.
25 Had the faces been any

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1 deeper than 26 crosscut, we would have
2 not been able to reach them without
3 dropping another man off around the 23
4 crosscut area.
5 The walkie-talkies,
6 again, work well when they're fully
7 charged. This is at the end of the
8 shift. We're talking 11 o'clock, 12
9 o'clock. As the shift goes on, they
10 are wearing out, the batteries are
11 wearing down. The midnight shift
12 coming in would have brought new
13 batteries in so that any further
14 exploration would have been done with a
15 new set of batteries.
16 Other items that control
17 the distance that you can reach with
18 the walkie-talkies and the clarity
19 would be equipment located in those
20 entries. And we're in an entry now
21 with the power center. We're in an
22 entry with supply cars. And that type
23 of equipment distorts the message that
24 you're trying to send.
25 Lastly, in all of the

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1 excitement and everything that was
2 going on, if I don't hold the mic down,
3 the key button long enough and release
4 it too soon, the man at Nine crosscut
5 may be only hearing part of the
6 message. Again, if the man at Nine
7 crosscut keys in too soon, and he's
8 trying to answer me or talks to me, it,
9 again, takes the communications away.
10 If I may just say one
11 thing for myself and the mine rescue
12 team members involved. We apologize
13 for any of the problems, or heartaches
14 that miscommunications caused. That
15 was not meant to be.
16 CHAIR:
17 Thank you, Mr. Hixson.
18 MR. STRICKLIN:
19 At 11:46, as Ron
20 indicated, and this came from the log
21 outside, it was reported that the
22 command center thought we had 12 miners
23 alive. And we celebrated for about ten
24 seconds, and then we went into a
25 different type of mode. And it was

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1 pretty evident probably to the outside
2 world, even without anybody going ---
3 or making any phone calls, that things
4 had changed, because we were requesting
5 ambulances on the surface, 12
6 ambulances. Getting as much together
7 as we could to go underground as much
8 as stretchers, first aid supplies,
9 blankets. And we had changed our mode
10 of operation at that time, and was
11 trying to get everything we could
12 underground in that sense.
13 Well, at 12:18, I guess
14 at the fresh air base, there still
15 --- they were all still under the
16 impression that the teams were going to
17 come back and 12 persons would be
18 leaving the mine. Unfortunately, when
19 everybody that was helping to carry Mr.
20 McCloy out of the mine, got back to the
21 fresh air base, that's when it was
22 determined there was only one survivor,
23 and that was called outside to the
24 surface at that time.
25 And again, the thing I

1 remember the most is the only thing you
 2 could hear is a fan running. I mean,
 3 there was not a word being said at that
 4 time. It just went from a jubilation-
 5 type situation naturally with the
 6 rescue of the miners to having only one
 7 survivor.
 8 At one o'clock, the
 9 survivor was brought out of the mine
 10 and transported by ambulance to the
 11 hospital. And contrary to standard
 12 protocol, there was a group decision,
 13 the State, the company and MSHA made
 14 the decision that while we typically
 15 don't remove victims under oxygen, we
 16 felt in this case it was necessary to
 17 do so, because of the time involved,
 18 that it would have taken to re-
 19 ventilate Two Left. In addition, we
 20 had an area that we thought a second
 21 explosion was still possible in the old
 22 sealed area. And before we could
 23 really get into there, we were going to
 24 have to put boreholes into the mine to
 25 ventilate it.

1 The decision was made to
 2 go back in at that time and bring the
 3 victims to the surface. And they
 4 arrived at the surface at 9:55 a.m.
 5 And shortly after that, all the rescue
 6 teams were debriefed, and all the maps
 7 were gathered, and all the information
 8 was turned over to the command center.
 9 CHAIR:
 10 Thank you, Mr. Stricklin.
 11 And I'd like to ask Mr. Tucker if he
 12 wishes to add anything, because I know
 13 he was, as well, one of the first to
 14 find the miners?
 15 MR. TUCKER:
 16 I can only say that when
 17 we first went into the barricade I was
 18 with Jimmy Klug when we went to the
 19 left. And Ron and --- I think he had a
 20 couple guys with him and went toward
 21 the right. And when we tore down the
 22 corner of the barricade, we could see
 23 all the miners laying there.
 24 But as we started through
 25 the crosscut, Jimmy and I had stopped

1 because we had heard something. And
 2 then after we stopped, you know, we
 3 heard Randal moan again. And then we
 4 ran to the barricade and tore it down.
 5 And when we tore it down, we saw all
 6 the miners laying there, and some of
 7 them had visible signs --- you know,
 8 you could tell that they were dead when
 9 we saw them.
 10 I started screaming for
 11 help. Me and Jimmy was there, and the
 12 other guys went to the right just a
 13 break or so away. And I started
 14 screaming for help and saying they're
 15 over here, they're over here.
 16 I don't recall the exact
 17 words that I used, but --- and I didn't
 18 have a radio. I was just screaming out
 19 for help. And I think I said they're
 20 alive, and that may have been part of
 21 the communication error.
 22 In my mind, I knew that
 23 most of them dead at the point that we
 24 saw them, but again, as Ron said, you
 25 know, all the mine rescue members

1 involved, our heart goes out to the
 2 families and the pain that they
 3 suffered through that communication
 4 error.
 5 I did do an assessment on
 6 all of the other miners after we had
 7 pulled Randal down --- and I guess Ron
 8 and his buddy came back, because
 9 another one of the McElroy team members
 10 was there when we pulled Randal down
 11 and was laying him on his back and was
 12 breaking open rescuers trying to get a
 13 rescuer in Randal's mouth, because we
 14 were under air. We was in the
 15 respirable.
 16 Randal's mouth had
 17 already clinched real tight, and it was
 18 hard to even get the mouthpiece in.
 19 Jim Klug was the captain of the McElroy
 20 team, and he was trying to get the
 21 mouthpiece in Randal's mouth. We was
 22 hollering for, you know, somebody to
 23 get medical oxygen and some --- I don't
 24 know who went back to look for that,
 25 and I know Ron and --- I think he ended

1 up bringing the stretcher later.
 2 But after we got Randal
 3 laid down, and Jimmy was still working
 4 and talking to him and trying to get
 5 the --- keep the SCSR mouthpiece in his
 6 mouth, I did --- I went and did an
 7 assessment on all the other miners.
 8 And when I was going down the right rib
 9 there --- you know, I started on the
 10 right rib going down, when I shook one
 11 of them, I heard a slight sound of air,
 12 and at one point, I hollered we had
 13 another one. And just seconds later I
 14 realized that I was wrong. That, in
 15 fact, that miner was dead also. And I
 16 went on and checked every other
 17 individual.
 18 And as I came back, I
 19 guess one of the other McElroy team
 20 members had brought a radio, and he had
 21 laid it down. And I picked up the
 22 radio, and I hollered over the radio
 23 that we only had one.
 24 And then --- you know,
 25 after they brought the stretcher, we

1 tried to --- we was trying to secure
 2 Randal to the stretcher, and we didn't
 3 have --- we was trying to get something
 4 to tie him down with. We cut a strap
 5 off --- I can't recall if it was the
 6 bag or the strap on one of the rescuers
 7 that we cut off. And it wasn't long
 8 enough, and I taken Randal's bootlace
 9 out, and we tied it to that strap, and
 10 that's what we used to carry him out
 11 with.
 12 And I know that, you
 13 know, while we were securing him, that
 14 the other --- the backup team, who was
 15 at the fresh air base, they had gotten
 16 word, and they thought when they left
 17 that the miners were alive. And Eugene
 18 White, he was --- he's on the mine
 19 emergency team also, he was at the
 20 fresh air base as backup to the Massey
 21 team, which he can speak to that, but
 22 they ran up there thinking that the
 23 miners were alive.
 24 And when they got there,
 25 they also started doing assessments of

1 all the other miners, and there was a
 2 lot of people that checked the miners.
 3 All at the same time, we was preparing
 4 Randal to bring him out.
 5 And then Ron's pretty
 6 much covered the rest. I mean, from
 7 that point we --- it was non-stop. We
 8 carried him from the Number Three entry
 9 down to 43 crosscut. We stopped ---
 10 once we got to where we dropped the
 11 first guy off there in fresh air as
 12 part of the communications, we put a
 13 BG-4 on him, because he could get that
 14 constant flow then. He didn't have to
 15 worry about trying to breathe, because
 16 the SCSR 100, you have to breathe for
 17 it to work. So that gave him a
 18 constant flow at that point.
 19 I think it was Jim
 20 Bennett's rescuer, one of our state
 21 mine rescue members, rescuer that we
 22 put on him, and then we immediately
 23 carried him on down into the track and
 24 brought him outside.
 25 CHAIR:

1 Thank you, Mr. Tucker.
 2 Why don't we take a break before we
 3 begin questions.
 4 SHORT BREAK TAKEN
 5 CHAIR:
 6 We're going to start
 7 here. We have one further presentation
 8 --- pre-presentation about drilling,
 9 then we're going to have questions for
 10 the panel. Thank you. Ms. Elkins, I
 11 was permitted the request for you to
 12 swear the panel in. I would ask that
 13 you do that now. If you all would
 14 stand, please.
 15 -----
 16 WITNESSES SWORN EN MASSE
 17 -----
 18 CHAIR:
 19 Now, we're going to hear
 20 from John Meadows for the State of West
 21 Virginia, who will be speaking about
 22 the drilling efforts at the time.
 23 John.
 24 MR. MEADOWS:
 25 This description includes

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1 the drilling of the three boreholes at
2 Sago Mine. The drilling and planning
3 and operations of surface drills to
4 assist in the rescue response to the
5 Sago Mine disaster began at 12:15 p.m.
6 on January 2nd, 2006.
7 Mr. Doug Conaway,
8 director of West Virginia Miners'
9 Health, Safety & Training, directed
10 myself to contact Mr. Mike Ross of Mike
11 Ross, Incorporated to come to the mine
12 office for a meeting regarding the use
13 of surface drills to assist in the
14 rescue response.
15 At approximately 1:15
16 p.m. on January 2nd, 2006, Mr. Ross
17 arrived at the mine site with Mr. Jerry
18 Willett of SW Jack, and met with Mr.
19 Conaway and Mr. Joe Myers, chief
20 engineer of Anker West Virginia Mining
21 Company, regarding a situation in the
22 location where the drills --- where the
23 drill holes could be used to assist in
24 the rescue operation.
25 I was then directed by

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1 Mr. Ross to contact Mr. Jacob Huffman,
2 who lived near the mine that assessed
3 the handheld GPS system. At this time,
4 I was also directed to contact three
5 drilling companies. Power Drilling of
6 Rock Cave, West Virginia, and United
7 Drilling of Jane Lew, West Virginia
8 were contacted at this time. Both
9 companies have conventional truck-type
10 drills.
11 Mr. Brad Liggett and Mr.
12 Don Chinister (phonetic) of Phoenix
13 Drilling was also contacted at this
14 time regarding, and trying to obtain a
15 drill that was capable of drilling a
16 36-inch hole. Mr. Ross, Mr. Huffman,
17 Mr. Willet and myself left the mine to
18 determine where the first hole was to
19 be drilled on Tallmansville Road in
20 Upshur County.
21 The four men traveled to
22 the location where the number one hole
23 was to be drilled. At that time Mr.
24 George Racing (phonetic), landowner was
25 contacted and gave us permission to

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1 construct roads and drill into the
2 underground mine.
3 Near the drill site, four
4 men met Mr. Kermit Melvin, ICG
5 employee, who also had a handheld GPS
6 system. Both Mr. Huffman and Mr.
7 Melvin's handheld GPS systems were
8 used.
9 Due to weather conditions
10 or satellite locations, the accuracy of
11 the two GPS surveys was in question.
12 By this time, two dozers that were
13 provided by SW Jack Drilling and the
14 three drilling companies had contacted
15 the location to inform that the
16 equipment was en route.
17 A decision was made to
18 obtain Alpha Engineering Services,
19 Incorporated of Beckley, West Virginia
20 to survey or engineer the exact
21 location of the number one hole. The
22 depth of the number one hole will be
23 approximately 257 feet to the floor of
24 the mine, and would penetrate the
25 underground mine into Two Left section

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1 near the belt feeder on the section.
2 A dozer arrived at the
3 site at approximately 5:00 p.m. on
4 January 2nd, 2006 and was used to
5 construct a road in a tentative drill
6 site. Hyre Drilling provided the
7 drill, which was a hammer-type drill
8 with a six-and-one-quarter-inch drill
9 bit. We were stopping and had to wait
10 for the engineering crew to arrive and
11 complete the engineering survey.
12 The survey crew arrived
13 on the Tallmansville Road at
14 approximately 8:00 p.m. on January 2nd,
15 2006 and the survey began. The survey
16 was completed at approximately midnight
17 on January 3rd, 2006. The drilling
18 location was relocated approximately 30
19 feet. The drill was placed into
20 position, and drilling operations began
21 immediately. The drilling process was
22 stopped 20 feet above the underground
23 mine at approximately 5:02 a.m. on
24 January 3rd, 2006.
25 The drilling operation

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1 was under order to stop the drilling
2 process 20 feet above the mine and
3 obtain permission from the command
4 center before penetrating the
5 underground mine.
6 At approximately 5:07
7 a.m. on January 3rd, 2006, the drilling
8 restarted. The number one hole was
9 punched into the underground mine at
10 approximately 5:35 a.m. on January 3rd,
11 2006.
12 Prior to drilling into
13 the underground mine, light lamps, all
14 essential equipment and other ignition
15 sources were turned off. Non-essential
16 personnel were evacuated to a safe
17 location.
18 After penetration of the
19 mine, air readings were immediately
20 taken. The air readings showed 20.3
21 percent oxygen, .4 methane CO, 1,200
22 parts per million, 1,250 parts per
23 million, and it was stabilizing at
24 1,280 parts per million.
25 The drill was turned off

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1 with the drill still in the bit inside
2 the underground mine. At 5:42 a.m. to
3 5:52 a.m., silence was observed on the
4 location to see if a response or
5 tapping on the drill steel would occur,
6 with no response.
7 The drill steel was struck several
8 times from the surface with no
9 response.
10 At 5:52 a.m. on January
11 3rd, 2006, the drill steels began to be
12 removed from the hole, and this process
13 was completed at 6:12 a.m. on that day.
14 At this time, a camera was lowered
15 into a hole. A mixture of mud and
16 water covered parts of the lens, the
17 vision was obscured. The camera was
18 retrieved to the surface, re-adjusted
19 and cleaned, then lowered back into the
20 hole.
21 The coal breaker and pull
22 cord on the feeder, and the mine cable
23 could be seen with the cables hung on
24 the rib. Everything appeared normal
25 with no evidence of an explosion. The

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1 camera was then removed and a one-inch
2 outside diameter of metal line was
3 installed in the number one hole to
4 monitor conditions. The top of the
5 hole was sealed and capped.
6 During this time, site
7 preparation was taking place for the
8 number two hole. Old gas lines in the
9 area that could be affected by the
10 excavation that was taking place on the
11 road was being identified and marked by
12 KeySpan Production. At 6:50 a.m. on
13 January 3rd, the drilling began on the
14 number two hole. United Drilling,
15 Incorporated used a six and a quarter
16 inch bit and was operating the drill.
17 The depth of the hole
18 would be approximately 400 feet. The
19 goal was to penetrate the One Left
20 section. At 7:06 a.m. on that day, the
21 number two hole had drilled
22 approximately 20 feet. At that time
23 two Ingersoll Rand with 1,070 air
24 compressors that were mounted on lowboy
25 --- on a lowboy trailer that was parked

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1 near the number two hole. Waco Oil and
2 Gas provided the compressors.
3 The compressors could be
4 used to assist the conventional drills
5 or to operate the large drill that was
6 on standby and parked at Tennerton,
7 West Virginia or could supply air to
8 the underground mine.
9 At 2:25 p.m. on January
10 3rd, 2006, the number two hole reached
11 the depth of 360 feet. The drilling
12 process was stopped at this time and
13 awaited permission from the command
14 center to continue and penetrate the
15 underground mine. The number two hole
16 was restarted on January 5th, 2006,
17 when the decision was made to monitor
18 the air on the One Left section.
19 At approximately 11:00
20 a.m. on January 3rd, 2006, the site had
21 been located for the number three hole,
22 and excavation began. At 4:42 p.m.,
23 drilling began on the number three
24 hole. The drill from the number one
25 hole was moved to the location where

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1 the number three hole was to be
2 drilled.
3 The goal of the hole was
4 to penetrate the underground coal mine
5 at the Two Left track heading at four
6 block of the section belt. At 4:10
7 p.m. on January 3rd, 2006, the number
8 three hole had reached the depth of 170
9 feet. Instructions were given then to
10 stop the drilling at approximately 20
11 feet above the underground mine and
12 await instructions from the command
13 center before proceeding. A decision
14 was made not to finish the hole, not to
15 finish hole number three on January
16 5th, 2006.
17 CHAIR:
18 Thank you, Mr. Meadows.
19 We'll now have questions for the panel.
20 And let me begin with a few questions
21 first. Just a very few questions here,
22 then I'll turn it over to my colleagues
23 and to the families. I suspect this is
24 for Mr. Urosek. Was there an operable
25 gas chromatograph at the site at the

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1 time of the explosion? If not, where
2 was it, and how soon did one arrive?
3 MR. UROSEK:
4 MSHA maintains a gas
5 chromatograph in our Pittsburgh office
6 and also our Denver office. There was
7 not one onsite at the time of the
8 accident. We were notified at
9 approximately ten o'clock, 10:15, and a
10 request was made to get a chromatograph
11 to the scene.
12 We immediately began to
13 get our resources together, again, it
14 was a federal holiday, to respond to
15 the scene. Our chromatograph got
16 there, it was about five o'clock that
17 evening. Prior to that, the Consol
18 chromatograph had gotten there. They
19 are located much closer than we are and
20 were able to get there a little
21 quicker.
22 QUESTIONS OF PANEL FOUR
23 CHAIR:
24 Now, if you might explain
25 where the gas chromatographs are kept,

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1 and if I understood you correctly, you
2 said there was not one on the site, at
3 the mine, but it was located in
4 Pittsburgh?
5 MR. UROSEK:
6 Yes. We maintain that at
7 the technical support center in our
8 Bruceton facility. There's another one
9 located in Mt. Hope, West Virginia, and
10 there's another one located in Denver,
11 Colorado.
12 Yes, sir.
13 CHAIR:
14 And can you explain for
15 me, if you know, when --- how the gas
16 chromatograph from Consol was made
17 available and when it was made
18 available?
19 MR. UROSEK:
20 I'm not exactly sure of
21 how that occurred, how they were
22 notified and brought to the site.
23 CHAIR:
24 Okay. Perhaps we can get
25 that questions answered another way.

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1 Did the regional HAZMAT team
2 --- I guess this goes to Brian Mills
3 and Kevin. Did the local regional
4 HAZMAT team offer their personnel or
5 equipment for use with the rescue
6 efforts? Brian?
7 MR. MILLS:
8 I'm not sure what team
9 you're speaking about.
10 CHAIR:
11 Of the emergency --- the
12 county team, the emergency HAZMAT or
13 emergency preparedness teams.
14 MR. MILLS:
15 I'm not aware of that.
16 CHAIR:
17 Okay. Kevin?
18 MR. STRICKLIN:
19 I'm not aware of that, as
20 well.
21 CHAIR:
22 Let me go to the 103(k)
23 order for a moment. When the (k) order
24 is issued, how is the function after
25 that? How does the process go? Who

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1 makes --- who prepares the plan? And
2 if you can recall, what was the time
3 that the first plan was submitted under
4 the (k) order?
5 MR. STRICKLIN:
6 The way the Mine Act
7 reads is a 103 (k) order would be
8 issued to ensure the safety of all mine
9 personnel. And it gives the mine
10 operator the opportunity to submit any
11 plan to any MSHA with --- and also to
12 include the state when it's appropriate
13 in the approval of those plans.
14 I believe the first plan
15 that was approved was setting up a
16 system that bottle samples would be
17 taken every 15 minutes at the return
18 air course coming out of the mine.
19 CHAIR:
20 And to your recollection,
21 what time was that, if you may recall?
22 MR. STRICKLIN:
23 I believe it was
24 somewhere in the area of 2:45 p.m.
25 CHAIR:

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1 Mr. Collins, is that your
2 recollection as well?
3 MR. COLLINS:
4 I believe it was in the
5 area of 1:00 p.m. that we gave
6 permission to enter the return and
7 install the instrument.
8 CHAIR:
9 Perhaps, if we have an
10 opportunity during the break to check
11 the logs, we can get back on that and
12 try to find out some factual facts.
13 MR. COLLINS:
14 But we did not record the
15 first reading from that until 1445,
16 which I guess would be 4:45.
17 CHAIR:
18 Yes, sir.
19 MR. STRICKLIN:
20 That would be 2:45.
21 MR. COLLINS:
22 2:45.
23 CHAIR:
24 Now, let me ask the
25 families to ask you some questions.

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1 MS. MEREDITH:
2 First of all, on behalf
3 of the families and myself, I would
4 like to thank the mine rescue teams for
5 the ones who went inside and rescued
6 our miners. I'd like to say God bless
7 each and every one of you.
8 Mr. Stricklin, this
9 question is for you. Why did the game
10 change, and it sounds like it was
11 treated as a recovery instead of a
12 rescue and there was no urgency
13 whatsoever?
14 MR. STRICKLIN:
15 There was no change in
16 what we wanted to do. It was a rescue
17 operation until we actually found all
18 of the unaccounted for miners. What
19 changed was the concentrations of CO
20 that we had to evaluate to let teams go
21 in, but it was never a recovery
22 operation.
23 MS. MEREDITH:
24 MSHA issues stickers to
25 the miners that tell them what to do in

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1 case of an explosion or in case of an
2 emergency. Can you tell us what the
3 stickers say?
4 MR. STRICKLIN:
5 The sticker that you're
6 referring to would be a barricade
7 sticker that they wear in their hard
8 hats. And it's basically to notify the
9 miners what they would do if they were
10 unable to evacuate from the mine.
11 MS. MEREDITH:
12 Well, they donned their
13 SCSRs. They did that. They looked for
14 an escapeway also. They barricaded
15 themselves. And they beat on the roof
16 bolts also. They never heard the
17 blast. Is that what you tell your men,
18 just tell them just go ahead and
19 barricade and sit there and hope and
20 pray that someone will come and find
21 them?
22 MR. STRICKLIN:
23 Well, ma'am, we would
24 hope that barricading would be the last
25 resort.

1 MS. MEREDITH:
 2 Why do you train the
 3 miners to barricade, only for them to
 4 sit and wait and rescue?
 5 MR. STRICKLIN:
 6 I don't think we really
 7 trained the miners to barricade first.
 8 What we ask them to do is --- we asked
 9 in a plan submitted to us, is to
 10 discuss donning the SCSR and trying to
 11 evacuate if that is just
 12 --- if it cannot be done, and then at
 13 the last step it would be to barricade.
 14 MS. MEREDITH:
 15 They barricaded
 16 themselves thinking, you know, that's
 17 what they were trained to do, was to
 18 barricade, like you said, in the last
 19 resort, but them men, they sat there
 20 and they waited. They done what they
 21 were trained to do. And you guys
 22 didn't do what you told them. You
 23 failed these miners.
 24 Okay. You made in your
 25 statement that it was thought that the

1 miners had tried to use the mantrip to
 2 get out. Why would guys think that?
 3 MR. STRICKLIN:
 4 The rescue teams, when
 5 they were underground evaluating the
 6 area near the mantrip, felt that there
 7 was some blocks that were stuck under
 8 the mantrip, indicating that they hit
 9 these blocks on their way out, and they
 10 based that on the amount of dust and
 11 things that they saw on the rail track
 12 in that area.
 13 MS. MEREDITH:
 14 And you guys were
 15 satisfied with that?
 16 MR. STRICKLIN:
 17 That's something the
 18 investigation team got into a lot more
 19 depth. I was just explaining during
 20 the rescue operation why we felt that
 21 that was the case. I would think the
 22 investigation team could expand on
 23 that.
 24 MS. MEREDITH:
 25 All right. Mr.

1 Stricklin, why did you not bring these
 2 miners, which are our loved ones, out
 3 of the mines with respect, but instead,
 4 you guys piled them on a scoop and they
 5 were brought to the surface? Why did
 6 you not --- you guys brought Randal
 7 McCloy out on a stretcher, why could
 8 you not have brought out loved ones out
 9 on a stretcher? They may have been
 10 deceased, but you know, there's still
 11 respect that needed to be given to
 12 those gentlemen.
 13 MR. STRICKLIN:
 14 We agree with you. And
 15 we thought we were giving them the most
 16 respect we could under the
 17 circumstances. And based on the fact
 18 that these rescue teams had been
 19 underground for 36 hours ---.
 20 MS. MEREDITH:
 21 Putting them on a scoop
 22 is giving these men respect?
 23 MR. STRICKLIN:
 24 We didn't think that the
 25 rescue teams had the ability to carry

1 the people out on the stretchers. As
 2 Mr. Hixson mentioned, the carry with
 3 Mr. McCloy was very tiresome. We had
 4 rescue teams that had been working 36
 5 hours. They were under oxygen. What
 6 we, as a group, decided outside, was
 7 they could use a scoop, which in some
 8 areas is used as a man carrier, to move
 9 the miners back to the mantrip and put
 10 them into the mantrip for the trip
 11 outside.
 12 MS. MEREDITH:
 13 I understand your point
 14 there. As the rescue teams were tired,
 15 I understand. But my dad and these
 16 other miners needed the respect. Don't
 17 just throw a sheet over them and pile
 18 them on a scoop and bring them out.
 19 No.
 20 MR. STRICKLIN:
 21 We agree. Our other
 22 option was to ventilate and change the
 23 airflow, not only there, but we
 24 probably would've discussed not being
 25 able to get back underground until we

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1 ventilated the old Two Left area where
2 the seals were once located. And it
3 may have been possibly two to three
4 weeks before we would have had the
5 ability to go back underground.
6 MS. MEREDITH:
7 I'm not sure who this
8 question would go to. But were there
9 handheld walkie-talkies found with the
10 deceased miners?
11 MR. STRICKLIN:
12 That may be a question
13 that may be answered for the
14 investigation team.
15 MS. MEREDITH:
16 Being that Jeff Toler and
17 Dick Wilfong, Vern Hofer, Owen Jones,
18 James Schoonover were already inside
19 the mines, and you issued the (k) order
20 while they were still in there trying
21 to save the Second Left crew, did that
22 interfere with them helping with the
23 possibility of saving the Second Left
24 crew?
25 MR. STRICKLIN:

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1 Could you repeat the
2 question please, if it's toward me?
3 MS. MEREDITH:
4 It's towards whoever who
5 can answer it, actually. But seeing
6 how Jeff Toler and Dick Wilfong, Vern
7 Hofer, Owen Jones, James Schoonover
8 were already inside the mines, and you
9 all issued the (k) order while they
10 were trying to save the Second Left
11 crew, did that interfere with the
12 helping of Jeff Toler and the others
13 from possibly saving the Second Left
14 Crew?
15 MR. STRICKLIN:
16 I don't believe it had
17 anything to do with it. My
18 understanding is they came out of the
19 mine on their own, based on the fact
20 that there was dense smoke, and they
21 felt the possibility of a second
22 explosion.
23 MR. COLLINS:
24 Also, I would comment
25 from the State's point, that at no time

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1 were those men asked to come out of the
2 mine. Mr. Toler called me at 9:30 and
3 told me why he was coming out of the
4 mine. And the State order does not
5 prohibit to rescue people. So no, I
6 don't think that caused them to come
7 out, Ms. Meredith.
8 MS. MEREDITH:
9 Mr. Hixson, I have a
10 question for you. What was the
11 reasoning that they didn't want you, as
12 a rescue team, to bring out Mr. Helm's
13 body when you first found him? Why did
14 they want you just to leave him there
15 and cover him up?
16 MR. HIXSON:
17 That was a decision made
18 by the command center at the time. And
19 at the time, we still had the remaining
20 men unaccounted for. We had checked
21 Mr. Helms. We were sure that Mr. Helms
22 was not alive at that time. We felt it
23 was important to continue the
24 exploration to try to get in.
25 We moved the fresh air

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1 base into the opposite entry and tried
2 to keep all persons away from that area
3 with the remaining people underground.
4 And Mr. Helms was covered with a piece
5 of canvas in order for nobody to be
6 able to just look.
7 MS. MEREDITH:
8 Mr. Stricklin, back to
9 bringing the gentlemen out on a scoop.
10 Was there not any other people on the
11 outside that could have went in, like
12 other miners, and --- that could have
13 went in and carried them each out?
14 MR. STRICKLIN:
15 If the area would have
16 been ventilated, that's exactly what we
17 would have done, but because the area
18 was not ventilated and there was still
19 high concentrations of CO, for anyone
20 to be in that area, they had to be
21 under apparatus. So there was not
22 miners --- all the miners that were
23 trained were being used.
24 MR. HELMS:
25 I got a couple questions

1 for Brian Mills. When an emergency
 2 happens, is it the responsibility of
 3 the coal company to know what miners is
 4 out of the mines and what miners are
 5 still in the mines?
 6 MR. MILLS:
 7 Yes, sir. There's a
 8 check-in and check-out system at the
 9 mines.
 10 MR. HELMS:
 11 Are they supposed to have
 12 somebody to monitor when they have an
 13 emergency who comes out and who's still
 14 in there?
 15 MR. MILLS:
 16 I would imagine that
 17 would be a good idea.
 18 MR. HELMS:
 19 It's not a good idea. Is
 20 that a fact or not?
 21 MR. MILLS:
 22 When a miner comes out of
 23 the ground, it's his responsibility to
 24 take his tag off the check board.
 25 MR. HELMS:

1 Is there somebody
 2 assigned that makes sure that this is
 3 done when there's emergency procedures?
 4 MR. MILLS:
 5 I'm not familiar with
 6 that.
 7 MR. HELMS:
 8 Mr. McKinney, who did the
 9 (k) order?
 10 MR. MCKINNEY:
 11 I'm sorry, could you
 12 repeat the question?
 13 MR. HELMS:
 14 Who did the (k) order?
 15 MR. STRICKLIN:
 16 Were you referring that
 17 question to Mr. McKinney or myself?
 18 MR. HELMS:
 19 You, Mr. Stricklin.
 20 MR. STRICKLIN:
 21 The (k) order was issued
 22 by Jim Satterfield, who's the
 23 Bridgeport field office supervisor, at
 24 approximately 8:30 a.m.
 25 MR. HELMS:

1 Was that from his home?
 2 MR. STRICKLIN:
 3 Yes, sir.
 4 MR. HELMS:
 5 Did he know what was
 6 going on at that time, and there was 13
 7 men not accounted for?
 8 MR. STRICKLIN:
 9 He knew that a situation
 10 existed at the mine, and there were
 11 nine unaccounted for, a couple of
 12 stoppings were out and a lightning
 13 strike had occurred.
 14 MR. HELMS:
 15 So actually, he did not
 16 know what was really going on, that
 17 these 13 men was trapped underground,
 18 and this was stopping other rescue
 19 people to go in the mine; is that not
 20 correct?
 21 MR. STRICKLIN:
 22 His understanding was
 23 there was a team underground
 24 investigating what the situation was.
 25 MR. HELMS:

1 Who told him this?
 2 MR. STRICKLIN:
 3 I assume that came from
 4 the mine operator.
 5 MR. HELMS:
 6 When MSHA got to the
 7 mines, how long did it take ICG to have
 8 a plan to rescue these men?
 9 MR. STRICKLIN:
 10 The first plan that we
 11 approved, as I said, as part of the (k)
 12 order was at about 2:45 p.m.
 13 MR. HELMS:
 14 2:45.
 15 MR. STRICKLIN:
 16 I don't recall a plan
 17 coming to us prior to that time.
 18 MR. HELMS:
 19 Well, everybody knows
 20 that time is the most important part.
 21 These guys had an hour of air left, and
 22 we're already, what, into 2:45. So
 23 this is not very good timing; is it?
 24 How come --- did anybody consider where
 25 Mr. Toler was and his other guys that

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1 tried to rescue these men, how come we
2 didn't start at that point and save a
3 whole bunch of time to get in there?
4 MR. STRICKLIN:
5 As the command center
6 looked over the information, as I said,
7 the concentrations of CO grew a lot
8 higher as the day went on. And that
9 was one of the reasons, two other
10 reasons, as rescue teams advance in the
11 mine, you have to make sure that
12 there's nothing that they bypass that
13 could affect their health and safety,
14 as they move into the mine.
15 The two things that I
16 recall that did need to be addressed as
17 they're traveling in was the amount of
18 water that we saw in that return air
19 course, as well, is the power still on
20 the belt, mine-wide monitoring system
21 that needed to be de-energized. Those
22 are two examples of something that
23 could have caused another situation or
24 another explosion at the mine.
25 MR. HELMS:

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1 Was the CO coming out of
2 the mines as much as it's indicated,
3 that a fire was burning?
4 MR. STRICKLIN:
5 Could you repeat that,
6 please?
7 MR. HELMS:
8 The CO coming out of the
9 return airway, did it indicate that
10 there was a fire burning?
11 MR. STRICKLIN:
12 You need more than just
13 that one number, but the concentrations
14 were high enough that it was a
15 possibility.
16 MR. HELMS:
17 What about the methane?
18 Was the methane high enough that there
19 was a danger to the men?
20 MR. STRICKLIN:
21 Well, the methane
22 initially coming out of the portal was
23 about 1.5 percent, was my
24 understanding, and then it dropped down
25 to .6 percent. I was well aware, and I

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1 think most of the people were that we
2 had a lot of dilution taking place
3 because a stopping's knocked out and
4 there was the distinct possibility of
5 an explosive mixture in by in the Two
6 Left area, and the fact that the
7 instruments that were used underground
8 had burnt out.
9 MR. HELMS:
10 Due to the CO readings,
11 you said it was concentrating, it was
12 coming into the buildings. Did MSHA
13 and the command center stay in the
14 buildings while this --- use the order
15 to evacuate everything?
16 MR. STRICKLIN:
17 I was not on the
18 property, but my understanding is
19 everybody was removed from the
20 building.
21 MR. HELMS:
22 Okay. Was the first plan
23 to enter the mines rejected that ICG
24 gave you?
25 MR. STRICKLIN:

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1 I don't recall a
2 rejection, that I'm aware of. There
3 may have been something submitted, but
4 there were other points put into the
5 plan, either by the state requesting
6 information or MSHA requesting
7 information to the plan as we sat there
8 and discussed it, all three parties.
9 But I don't recall any plan that they
10 submitted being just totally rejected.
11 MR. HELMS:
12 Sir, what time did you
13 get to the mines?
14 MR. STRICKLIN:
15 I got to the mine at
16 approximately 1:30.
17 MR. HELMS:
18 1:30. Before that
19 time ---?
20 MR. MILLS:
21 Sir, I would like to make
22 a comment on plan submittals. I
23 believe there was a plan submitted,
24 plan number one. It dealt just with
25 pumping at Two head. Two head.

1 MR. HELMS:
 2 Why is that, Mr. Mills?
 3 MR. MILLS:
 4 There was concerns
 5 expressed by Carl Crumrine, mine
 6 foreman, that if we didn't get the
 7 pumps going as quick as possible, that
 8 we would compromise the return.
 9 MR. HELMS:
 10 And what time did you say
 11 this was?
 12 MR. MILLS:
 13 I don't believe there's a
 14 time on it, sir.
 15 MR. HELMS:
 16 I mean, in the morning,
 17 it was still in the morning, before
 18 noon, that Mr. Crumrine wanted to get
 19 the pump started?
 20 MR. MILLS:
 21 It was in the afternoon
 22 that took place.
 23 MR. HELMS:
 24 In the afternoon?
 25 MR. MILLS:

1 Yes.
 2 MR. HELMS:
 3 This explosion happened
 4 at 6:30. Why did it take so long to
 5 come up with a plan to enter the mines?
 6 MR. MILLS:
 7 Sir, I can't answer that.
 8 That would ---.
 9 MR. HELMS:
 10 Somebody needs to answer
 11 it. Mr. Stricklin of MSHA was there,
 12 Mr. Collins was there.
 13 MR. MILLS:
 14 That would be a plan
 15 submitted by ICG or Anker.
 16 MR. HELMS:
 17 Why did it take so long
 18 for them to come? Did they not discuss
 19 this with you all?
 20 MR. MILLS:
 21 There was discussion,
 22 yes, about pumping water and
 23 maintaining the integrity of the
 24 return.
 25 MR. HELMS:

1 But anything concerning
 2 about getting these guys, to go rescue
 3 the men? I mean, I'm sure ain't a
 4 little bit of water did fill up all the
 5 airways in these coal mines.
 6 MR. MILLS:
 7 There was concern that if
 8 they didn't get the pump running as
 9 soon as possible, that that could be a
 10 possibility.
 11 MR. HELMS:
 12 How was you going to get
 13 the pump running if nobody could go in
 14 the mines?
 15 MR. MILLS:
 16 The discussion about the
 17 pump wasn't to keep people out of the
 18 mines. That was the first plan they
 19 submitted. There were other steps that
 20 needed to be taken before we could
 21 allow that plan to be implemented.
 22 MR. HELMS:
 23 What was the steps you
 24 was going to do before anything?
 25 MR. MILLS:

1 The first plan approved
 2 was to monitor the return. And an
 3 additional plan, that first submittal
 4 is included. I'm not sure which
 5 number.
 6 MR. HELMS:
 7 And Mr. Collins had the
 8 monitor started; did he not? He was
 9 having the return monitored, the
 10 airway?
 11 MR. COLLINS:
 12 John, if I might comment
 13 on a couple things. When I first
 14 arrived at the mine at about 8:15, I
 15 met with Chuck Dunbar, I think I went
 16 over this earlier, but I asked him if
 17 anyone had been monitoring the return
 18 to see what we have. And he said, no,
 19 that no one had done that, so I knew a
 20 foreman that was standing outside, and
 21 I asked him to go to the return and see
 22 what we had coming out of the return.
 23 James Scott. And there was also
 24 another foreman with him, but I can't
 25 remember who it was.

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1 So while I was talking
2 with Carl Crumrine and --- James Scott
3 went to the return. He came back and
4 he told me that he had 47 parts per
5 million CO coming out the return, which
6 we knew the problem in the mine, John,
7 was more than two miles away from that.
8 So you would expect a lot of dilution.
9 So by getting 47 parts
10 per million, I did believe that there
11 was a fire in that mine. Your mine
12 foreman study guide and your gas books
13 all say, any presence of carbon
14 monoxide indicates a fire. However,
15 that is not enough CO to prevent people
16 from entering the mine.
17 And also, I'd like to
18 comment a little bit about Terry, John.
19 We sent a plan in to recover Terry,
20 and Terry was covered up. And then
21 when we decided to make a rush for the
22 Two Left face, because we believed that
23 some of those men were still alive, the
24 people that had went in to get Terry,
25 we changed them and used them as part

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1 of that rescue. He was not just left,
2 John.
3 And he was also not in
4 the entry where people were working or
5 passing, or anything like that, John.
6 CHAIR:
7 At this time, I
8 interject. I want to make the
9 suggestion that we make part of the
10 record, all of the plans that the
11 company submitted and that MSHA and the
12 state approved, as well as the logs
13 kept by the state, the federal agency
14 and ICG. And we'll make that a part of
15 the official record, which will allow
16 people to look at the progress of the
17 planning stage and how it progressed
18 through the day.
19 MR. HELMS:
20 One other thing. Why
21 wasn't there a seismograph at that
22 location, and where was it? I
23 understand there's one in Bridgeton,
24 which is right on the other side of
25 Cheat Lake, and one in Beckley. Why

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1 was that called?
2 MR. STRICKLIN:
3 Based on the information
4 that we had available to us, we knew
5 the general area the miners were
6 located. The seismic equipment is
7 normally used in an area that you don't
8 know where they're going to be ---
9 where they're at, and it's very time
10 consuming to set up. It basically
11 takes a long time to transport all of
12 the material you need to the site. A
13 road needs to be built, as well as you
14 need a GPS or a survey run to set up
15 your coordinates, and it takes up to
16 eight hours to set up the coordinates
17 of the seismic equipment.
18 MR. HELMS:
19 Well, you had this GPS
20 and everything down there while you was
21 trying to drill, so that could have
22 been incorporated with the same thing;
23 could it not have been?
24 MR. STRICKLIN:
25 Yes, sir. The GPS wasn't

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1 completed until about midnight, 11:00
2 p.m. or so the night of January the
3 2nd. By that time we felt --- we felt
4 more comfortable because rescue teams
5 were already underground to continue
6 operating in that way, rather than
7 using the seismic equipment, because we
8 knew the general area where they were
9 located at.
10 MR. HELMS:
11 Mr. Stricklin, you
12 drilled a hole --- if you was going to
13 barricade in the mines, will you
14 barricade around the feeder, or will
15 you barricade in a heading where they
16 barricaded at?
17 MR. STRICKLIN:
18 They would probably have
19 barricaded in a heading, unfortunately
20 we didn't have any idea which one. And
21 the other thing was that the company
22 felt most comfortable with putting the
23 borehole in based on their coordinates
24 in the belt entry.
25 If we went around the

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1 room in the command center and asked
2 where we thought the people were
3 barricaded, we would have came up with
4 a number of different answers.
5 MR. HELMS:
6 I guess a lot of coal
7 miners on the seismograph, which I've
8 worked in the coal mines for 37 years
9 and got these little stickers where it
10 said to barricade, beat on the roof,
11 help will come, I better throw them
12 away; hadn't we? We better come up
13 with some other plan.
14 MR. STRICKLIN:
15 I think we need to
16 re-evaluate that, yes, sir.
17 MR. HELMS:
18 Everything that's going
19 on, sir, I would recommend that nobody
20 barricade the mines. And your
21 equipment, checking with --- checking
22 on the CO coming out of the mines, once
23 your detectors cannot read that high,
24 why does the rest of your teams not
25 have that on-hand here, and we got to

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1 go to Pittsburgh or some far away
2 places to get this? Denver.
3 MR. STRICKLIN:
4 What a chromatograph is,
5 is it's a piece of equipment that can
6 analyze a bottle sample taken, which is
7 different than what a handheld reading
8 would be. And that chromatograph is a
9 lot more exact, and it can measure a
10 lot more of the concentrations that a
11 handheld cannot. And it measures a lot
12 of different gases than a handheld
13 reading cannot tell you.
14 MR. HELMS:
15 But Consol had one;
16 right?
17 MR. STRICKLIN:
18 Consol had one because
19 they've had a number of fires at their
20 Loveridge Mine, and they're continuing
21 to take bottle samples behind the
22 sealed area to ensure that the
23 atmosphere is not causing another fire
24 to develop.
25 MR. HELMS:

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1 Yes, sir. I'm well aware
2 of that. I work at Loveridge.
3 MS. MEREDITH:
4 According to the MSHA, a
5 rescue plan was approved at 2:45 p.m.
6 on January 2nd. What time did ICG
7 officials submit the rescue plan to the
8 MSHA for approval?
9 MR. STRICKLIN:
10 I don't know --- I don't
11 recall any submittal prior to 2:45 from
12 ICG. And the first entering of the
13 mine rescue teams was after we saw a
14 trend at the return air course,
15 indicating that the CO and methane were
16 stable, and a plan was submitted to let
17 a team enter the mine shortly after
18 that.
19 MS. MEREDITH:
20 Well, the first plan
21 should have been to go in there and
22 rescue 12 good men. Mr. Stricklin, why
23 did you call Consol when they weren't
24 sure if they were going to participate
25 in the rescue? Because they were

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1 waiting on approval from Pittsburgh.
2 Why did you not make them participate
3 if you were in charge?
4 MR. STRICKLIN:
5 I did not call Consol to
6 participate, and it was the mine
7 operator, whatever teams he wanted to
8 send. In fact, we had made
9 arrangements for the Barbour County
10 team to go in as well. It was whatever
11 teams were available that the company
12 chose to go in. Us and the State would
13 agree to.
14 MS. MEREDITH:
15 When did the Barbour
16 County teams enter the mines?
17 MR. STRICKLIN:
18 I don't know if they ever
19 did. But they were available to. And
20 I believe the first plan may have
21 discussed the Barbour County team
22 entering the mine. Then somebody made
23 the decision to let Consol go in
24 instead of the Barbour County team,
25 submitted to me as an MSHA

1 representative and the state, and that
 2 was another plan that was approved.
 3 MS. MEREDITH:
 4 Well, Barbour County, in
 5 their transcripts, the first day on
 6 January 2nd, the day of the explosion,
 7 all you guys had Barbour County rescue
 8 teams doing was going down and taking
 9 samples?
 10 MR. STRICKLIN:
 11 Well, initially we needed
 12 to have under apparatus to take samples
 13 based on the concentrations that we
 14 saw. So the first teams that arrived,
 15 that would have been one of the jobs
 16 that they would have probably done.
 17 MS. MEREDITH:
 18 If ya'll's belief that
 19 the miners were still alive, why didn't
 20 you send more people in to rescue them?
 21 MR. STRICKLIN:
 22 Well, you have to
 23 basically determine --- you can't ---
 24 since we were going in a mains area,
 25 there was only so many teams that could

1 advance at one time, and there needed
 2 to be a lead team, and there was a
 3 backup team, and there was a team
 4 outside, so you needed three teams as
 5 the first team advanced. When they got
 6 tired of carrying the apparatus, or we
 7 needed to change teams, then someone
 8 else was the lead team. But there were
 9 up to --- I think we had 11 to 13 teams
 10 onsite, but only one team could
 11 actually be in the lead.
 12 MS. MEREDITH:
 13 When you were saying
 14 about you were evacuating, you know,
 15 the people up on the surface and
 16 everything, do --- to thinking that
 17 maybe there's going to be another
 18 explosion, was the command center
 19 evacuated also?
 20 MR. STRICKLIN:
 21 Yes. I think
 22 arrangements were made to move the
 23 command center off the mine property
 24 over to another area. I had contacted
 25 an MSHA person that was onsite, and

1 they had talked about that at the mine
 2 site.
 3 MS. MEREDITH:
 4 So you're saying that the
 5 command center was evacuated?
 6 MR. STRICKLIN:
 7 That's my understanding.
 8 Again, I was not at the mine site at
 9 that time. I was over the phone with
 10 the people at the mine.
 11 MS. MEREDITH:
 12 Because in the
 13 transcripts that we, as the family got,
 14 the command center wasn't evacuated.
 15 CHAIR:
 16 Mr. Collins, if you could
 17 answer that, please?
 18 MR. COLLINS:
 19 I came out of the command
 20 center and went out into the parking
 21 lot. And I know that the Barbour Mine
 22 Rescue Team was beat --- working on
 23 their apparatuses, benching their
 24 apparatuses. I know they had to stop
 25 and move out of the bathhouse. Then

1 when I was in the parking lot, I
 2 noticed that people was still in the
 3 dispatcher's trailer, and so we went
 4 over and asked them --- the CO coming
 5 out of the return, by that being a box
 6 cut, kind of built up in that box cut
 7 with the barometer changing once the
 8 sky started clearing, then it seemed
 9 like it migrated up out of there.
 10 Finally, we learnt that
 11 if we would keep the doors shut to the
 12 office, then we never had a problem
 13 with CO inside the office.
 14 MS. MEREDITH:
 15 But there was a lot of
 16 traffic going in and out of the command
 17 center?
 18 MR. COLLINS:
 19 Yes. But the most CO I
 20 ever seen in the office was 60 parts
 21 per million.
 22 MS. MEREDITH:
 23 Whoever can answer this
 24 question. How do you make a protocol
 25 or programs for mine rescues for such a

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1 thing as a mine rescue?
2 MR. COLLINS:
3 Well, I'm the inspector
4 at the mine. And I want to answer any
5 question that I can answer for you, any
6 of the family members. I live in
7 Buckhannon, and any time is good.
8 We, as a state agency, do
9 have a manual that tells us what to do
10 in an event of an emergency or a mine
11 emergency. The first thing I do is
12 call my supervisor. And I did that.
13 And then, of course, he has
14 responsibilities to do. And when I go
15 to the mine, it's spelled out certain
16 things for me to do. And I think I did
17 those.
18 I started assessing what
19 happened, trying to get names of the
20 people that were still underground.
21 There was a whole lot of stuff done
22 there that day, that you're aware of,
23 you know about, but then based on the
24 information that you find, then is when
25 you make a plan. All of those plans

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1 aren't written, all those plans aren't
2 made in the command center.
3 You know, this command
4 center is not a group of people sitting
5 down. It's really --- really taking
6 control of everything that's there.
7 There's other people working on things.
8 There's other people suggesting
9 things, and I like that. But we do ---
10 and the State does have a procedure for
11 that.
12 So then on this day, when
13 --- until 9:30 --- and while I think
14 about it, I want to make the comment
15 also that I knew these people, and I
16 did not think they were dead,
17 especially when we found the seals blew
18 out in the mains, I thought for sure
19 that they would be up there. It did
20 worry me when we found Terry in the
21 track, because Terry would have come
22 over to the track just to talk to the
23 guys going by on the mantrip. Probably
24 say, when do you want me to start the
25 belt or something like that. So to me

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1 --- that indicated to me that the
2 mantrip should be pretty close.
3 But I did not think these
4 men were dead. But when Jeff Toler
5 called me from underground at 9:30, and
6 what he told me, and he was crying, and
7 he said that they had made it up to
8 there, but they had no air. And all
9 this --- at that time, this did turn
10 into a mine rescue event, and I relayed
11 that to my supervisors.
12 The Barbour County team
13 did show up, you know, shortly after
14 that. They did start getting ready. I
15 think they were ready to go in about
16 noon.
17 It was important to setup
18 the device in the return to get
19 accurate CO readings. I think
20 repairing the ventilation on the way
21 out fooled us. It started bringing
22 more CO out, making us think the
23 conditions were worse than what it was.
24 MS. MEREDITH:
25 It must have been pretty

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1 bad, because 12 men lost their lives
2 inside that mine.
3 MR. COLLINS:
4 I know that, ma'am. I
5 know that.
6 MS. MEREDITH:
7 If Barbour County was
8 onsite at 9:30, and yesterday in --- I
9 believe it was Johnny Stemple's little
10 thing that he did out there with the
11 SCSRs, he stated that they could last
12 possibly up to four hours at slow
13 breathing. Why didn't you guys send in
14 the Barbour County to take over where
15 Jeff, and Dick and the others left off?
16 Did you not have the confidence in the
17 Barbour County rescue team as being
18 qualified as Consol and the Viper team
19 was?
20 MR. COLLINS:
21 Again, I want to answer
22 anything that I can answer, and I want
23 you to know that I was there from the
24 beginning, other than going home a
25 little bit. I was in the command

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1 center. I did everything I could.
2 MS. MEREDITH:
3 Why did you go home?
4 MR. COLLINS:
5 I went home at seven
6 o'clock the next morning.
7 MS. MEREDITH:
8 Why? We didn't get to go
9 home as miners' families. We sat there
10 and we waited.
11 MR. COLLINS:
12 Well, because my
13 supervisor came to the --- came down
14 and took over for me while I went home
15 from 7:00 until 1:00. But I wasn't in
16 charge. I mean, they had four or five
17 supervisors there, but I did everything
18 I could do, or possibly help with. But
19 the decision as to why we didn't go to
20 block 58 and start, I think is a good
21 question for this panel, and I can't
22 answer that for you.
23 I did go over to the lamp
24 house when I knew we were going to
25 start from the outside, and a foreman,

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1 Mike Triplett, asked me, he said, why
2 are you not going to block 58, and I
3 said I have no idea why we're not going
4 to block 58.
5 MS. MEREDITH:
6 Thank you. If Barbour
7 County was there suited up with their
8 apparatus ready to go inside the mines
9 at 12:00 noon, these men were still
10 alive at 12:00 noon. I know for a fact
11 that they were still alive at 4:25, the
12 last entry my dad put on the note that
13 he left for us.
14 MR. HELMS:
15 I guess Mr. Stricklin or
16 Mr. Mills. Is there medical oxygen,
17 especially stored on the sections?
18 MR. MILLS:
19 I believe one of the
20 requirements for the EMT supplies,
21 second response unit is medical oxygen.
22 MR. HELMS:
23 Was there any on the Two
24 Left section?
25 MR. MILLS:

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1 I'm not sure at this
2 time, sir.
3 MR. COLLINS:
4 John, if I might handle
5 that. Medical oxygen is part of the
6 EMT kit required to be maintained at
7 that mine. State law allows them
8 --- requires them to maintain that
9 underground. State law allows for a
10 first response kit to be maintained on
11 each section, which is not --- does not
12 include medical oxygen. The medical
13 oxygen for these two crews was kept at
14 the mouth of One Left at block 49,
15 which it's not the best thing in the
16 world, but that is in compliance with
17 the law.
18 CHAIR:
19 Please, please, please.
20 It's a dignified operation. I would
21 ask, please have questions come through
22 the panel, as we've done. Thank you.
23 MR. HELMS:
24 Mr. Stricklin, would you
25 agree when you have lives in danger,

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1 you don't second guess in situations
2 like getting the CO monitors from
3 Pittsburgh or wherever, can that be
4 started right away when there is an
5 emergency such as this?
6 MR. STRICKLIN:
7 I believe we did --- as
8 soon as we found out about it, as far
9 as MSHA, we did start to call our tech
10 support to get the people onsite.
11 MR. HELMS:
12 And when these men were
13 found, was there a doctor available in
14 the mines?
15 MR. STRICKLIN:
16 My understanding, there
17 was a doctor that was underground.
18 MR. HELMS:
19 When they brought Mr.
20 McCloy out, why didn't the doctor go on
21 up to check these other men?
22 MR. STRICKLIN:
23 Again, that doctor would
24 not have been --- he would not have had
25 any training and knew how to wear a

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1 mine apparatus. And the concentrations
2 of CO that he was in would not have
3 allowed him to go up in that area
4 without protection for his breathing.
5 MR. HELMS:
6 Mr. Stricklin, it was all
7 right to run a scoop in the mines, but
8 you couldn't help this doctor put on a
9 rescue pack, which takes, what, how
10 many minutes to train him? Wouldn't he
11 be better qualified to see if these
12 other men was alive or dead?
13 MR. STRICKLIN:
14 Well, the training
15 required for someone to put an
16 apparatus on is 40-hour training. And
17 basically, based on everything that the
18 mine rescue personnel who were up in
19 that area have told us, they were ---
20 they were assured that there were no
21 survivors other than Mr. McCloy.
22 MR. HELMS:
23 With the people going in
24 and out of the coal mines, why wasn't
25 Terry Helms brought out when he was

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1 only --- he was the closest person to
2 the track? Why did he leave --- they
3 left him for the last person to be
4 brought out, and he was yet the
5 closest?
6 MR. STRICKLIN:
7 Again, the decision was
8 made because we still had 12 people
9 that we were looking for and were
10 unaccounted. We wanted to focus our
11 efforts on getting to where those
12 people may be. We had no particular
13 system as to who would come out of the
14 mine first.
15 MR. HELMS:
16 And I got another one,
17 which we need --- it's very unclear why
18 we didn't start at block 58. Was that
19 an MSHA concern, or MSHA, state, or
20 ICG, or who made this decision not to
21 go in the mines and start where Mr.
22 Toler left off?
23 MR. STRICKLIN:
24 It was a group decision.
25 It was a plan submitted that we all

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1 agreed to. And again, from my
2 perspective, I base my thought process
3 on the amount of CO that I had coming
4 out of that return. It was not
5 decreasing, it had increased.
6 MR. HELMS:
7 So it was your decision,
8 you was the top manager, who was in the
9 State, who was the State's top guy?
10 Mr. Mills, do you agree with that? Do
11 you agree we shouldn't start at block
12 58?
13 MR. MILLS:
14 Yes, sir, I do.
15 MR. HELMS:
16 What about ICG, did they
17 agree with you?
18 MR. MILLS:
19 That's a question you
20 need to direct to them.
21 MR. HELMS:
22 Okay. We will do that.
23 Okay, here's one. Why was number one
24 hole capped? How come it wasn't left
25 open? Is that Mr. Meadows? You were

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1 in charge of the drilling. Was number
2 one hole capped after it was drilled?
3 MR. MEADOWS:
4 Yes, sir, it was.
5 MR. HELMS:
6 And why? Why was it?
7 MR. MEADOWS:
8 I'd refer that to command
9 center. I was just told to cap it.
10 MR. STRICKLIN:
11 I'll give you my opinion
12 on it. While we had that amount of CO
13 coming out, we didn't want to change
14 the ventilation in the area, in case
15 the men were inby there, we didn't want
16 to change the airflow coming up to
17 where they may have been.
18 MR. HELMS:
19 Did the first attempt to
20 drill the hole get water, and it had to
21 be started over again, Mr. Meadows?
22 MR. MEADOWS:
23 On number one hole, not
24 that I'm aware of.
25 MR. HELMS:

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1 Okay. You was there all
2 the time; right?
3 MR. MEADOWS:
4 There was about a two-
5 hour gap there that I wasn't on the
6 number one hole. For the entirety of
7 everything else, yes.
8 MR. HELMS:
9 Let me see here.
10 MR. MEADOWS:
11 Excuse me. That would be
12 about a four-hour gap. It was like 10
13 o'clock or 11 o'clock there one
14 evening, and I came back --- I got back
15 to the drill site about 3:00.
16 MR. HELMS:
17 Okay. Mr. Tucker, when
18 you was carrying Randal --- when Randal
19 McCloy was being carried out, there was
20 other rescuers in there checking the
21 other miners; is this true, to see if
22 they was alive?
23 MR. TUCKER:
24 I can't say what happened
25 after we left with Randal. I was

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1 helping carrying him out, so I couldn't
2 answer that.
3 MR. HELMS:
4 You don't know if there
5 was other miners --- other rescuers
6 stayed in there, they all came out with
7 you?
8 MR. TUCKER:
9 I'm not sure. Like I
10 say, I know that while we were there
11 that there were other people checking
12 the miners before we left. What
13 happened after we left, I can't answer.
14 MR. HIXSON:
15 Sir, when we left the
16 barricade with Randal, everybody exited
17 at the same time. We all carried him.
18 It took all of us to get him down to
19 the track. When we got down there, we
20 basically exited the mine.
21 MR. HELMS:
22 So when you brought
23 Randal McCloy out, everybody left the
24 mines; is this not right?
25 MR. HIXSON:

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1 Yes, sir. We exited the
2 mine at that time.
3 MR. HELMS:
4 How many teams was in
5 there at that time? Could not another
6 team go up and check the other miners
7 or start bringing them out at that
8 time?
9 MR. HIXSON:
10 I'm not sure if the
11 command center made the decision to
12 remove us and bring us outside.
13 MR. HELMS:
14 Why did they do that, Mr.
15 Stricklin?
16 MR. STRICKLIN:
17 Again, we had two teams
18 underground at that time.
19 MR. HELMS:
20 Yes, sir.
21 MR. STRICKLIN:
22 And all those personnel
23 that were up at the barricade and
24 brought Mr. McCloy back, they needed to
25 be changed out, number one. And number

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1 two, based on the information that we
2 had, we felt we needed to regroup
3 outside and make a decision on whether
4 we were going to remove the victims
5 from the mine under oxygen or whether
6 we were going to re-ventilate.
7 That gave the command
8 center an opportunity to get our
9 thoughts together as what we wanted to
10 do, and that's when we came to an
11 agreement that we would try --- we
12 would remove the victims under oxygen,
13 rather than re-ventilate. And we sent
14 teams back underground to do that.
15 MR. HELMS:
16 How many teams was at the
17 mines, 10, 12?
18 MR. STRICKLIN:
19 The record will speak for
20 itself. I believe it was 13.
21 MR. HELMS:
22 Thirteen (13). Why
23 wasn't another team sent in while one
24 was coming out?
25 MR. STRICKLIN:

1 It typically was done
2 that way. This was the first time that
3 it was not done. Normally the team
4 that was going to go in and replace the
5 team was standing right there when the
6 other team quit exploring.

7 MR. HELMS:

8 Okay. Mr. Stricklin, why
9 did plans have to be submitted? Is
10 there not a generalized plan in place
11 when there's an emergency such as this
12 take place, or does each ---? I
13 understand that if a rescue team goes
14 500 foot, then you got to stop and
15 submit another plan; is this true?

16 MR. STRICKLIN:

17 No, sir. There was
18 nothing prohibiting more than a 500-
19 foot exploration. And the reason
20 being, every emergency is different,
21 and you need to keep a record of
22 everything you do as far as a rescue
23 operation. So we know each step that
24 we've taken along the way. And again,
25 the plans didn't hold up any

1 exploration. The plans were done in
2 advance of the teams actually moving
3 forward underground.

4 MR. HELMS:

5 How many people was in
6 the command center? Is it four, five,
7 ten?

8 MR. STRICKLIN:

9 It was a different number
10 on different occasions. There was at
11 least a recorder and an MSHA
12 representative, as well as the State
13 and the company. We also included a
14 representative of the Consol personnel,
15 because their rescue teams were
16 involved in the exploration, as well as
17 there were times when company people
18 were brought into the room to discuss
19 things underground that we thought may
20 be helpful to us as far as where things
21 were located at underground, such as
22 where would the battery equipment be
23 located at underground, things of that
24 nature.

25 MR. HELMS:

1 Why did we wait five
2 hours for the robot to come to the Sago
3 Mine, but we couldn't get a listening
4 device from Beckley? And what good did
5 a robot do us, if we waste time using
6 it?

7 MR. STRICKLIN:

8 As I mentioned in my
9 presentation, the robot did not hold us
10 up. We thought that it could help us.
11 Unfortunately, it did not.

12 MR. HELMS:

13 Why couldn't we get the
14 seismograph instead of the robot?
15 Didn't you --- on it's way. I still
16 don't understand why we didn't get the
17 seismograph set up or attempted to do
18 that.

19 MR. STRICKLIN:

20 As I mentioned earlier,
21 we basically --- we had an idea of
22 where the miners were located at, and
23 the seismic is to be used when you
24 don't have an idea of where they would
25 be located.

1 MS. MEREDITH:

2 This question is for Mr.
3 Collins. On page 31 of the transcript
4 of your testimony, you said you issued
5 an order to preserve the scene
6 following an accident.

7 MR. COLLINS:

8 That's correct, ma'am.

9 MS. MEREDITH:

10 But you, at that point,
11 figured out from the chart that it had
12 been changed. Can you explain that?

13 MR. COLLINS:

14 I'm sorry, I don't
15 understand your question.

16 MS. MEREDITH:

17 Let me read it to you
18 again.

19 MR. COLLINS:

20 Okay.

21 MS. MEREDITH:

22 On page 31 of the
23 transcript of your testimony, you said
24 you issued an order to preserve the
25 scene following the accident. But at

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1 that point, you figured out that the
2 fan chart had been changed. Can you
3 explain ---?
4 MR. COLLINS:
5 Yes. The order that I
6 issued at 8:30 is a procedural order
7 that prevents the operator from
8 changing anything or doing anything
9 other than rescue of people or preserve
10 property.
11 What I mentioned in there
12 then, is I found out later that the
13 operator had changed the fan chart.
14 MS. MEREDITH:
15 Okay. Is it not stated
16 in the emergency manual who should be
17 in the command center, because it
18 sounds like everybody --- or anyone
19 could go inside?
20 MR. COLLINS:
21 I believe that everyone
22 could go inside. I don't think the
23 doors was ever shut. Personally, I was
24 comfortable with a lot of people in
25 there for their ideas and thoughts.

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1 For the State of West Virginia we had
2 director Doug Conaway. We had deputy
3 director C.A. Phillips, not at all
4 times, but at different times. We had
5 Brian Mills, inspector at large,
6 assistant inspector at large, Mark
7 Wilfong.
8 MS. MEREDITH:
9 But are these the only
10 ones that were going in and out, or
11 could just anybody go in and out?
12 MR. COLLINS:
13 I believe anyone should
14 have went in and out. I know that
15 there was times when members of our
16 mine rescue team had questions, and
17 they came in. I see nothing the matter
18 with that. I think if someone wanted
19 to come in and say, you're doing that
20 wrong, or you need to change that, or I
21 think we should be able to do this, I
22 think they should have the opportunity
23 to do that.
24 MS. MEREDITH:
25 Mr. Stricklin, if you had

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1 an idea of where the miners were, why
2 were there no shots set off, because,
3 you know, the miners were in there.
4 They were pounding on the roof bolts,
5 using up on the oxygen that they had.
6 MR. STRICKLIN:
7 The shots are part of
8 that seismic equipment that would have
9 had to be brought to the site. And it
10 would have taken a long time for that
11 equipment to get there. If the shots
12 were set off, we still would not have
13 had a GPS system to tell us exactly
14 where these men were located at.
15 MS. MEREDITH:
16 Well, let me ask you
17 this. In the training that you give
18 the men, you train them --- you know,
19 you do what you can do, and if all else
20 fails to barricade. They're trained to
21 hit the roof bolts, whatever, to make a
22 sound to show where they're at. In
23 their training --- is it part of their
24 training that you can tell them there
25 was nothing available for us to send a

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1 shot off to find out where you were at?
2 MR. STRICKLIN:
3 I've not set in on any of
4 the training that ICG has put on for
5 their employees.
6 MS. MEREDITH:
7 Well, I think somebody
8 needs to, because, you know, these men
9 were trained, like I said, to pound the
10 roof bolts, thinking, you know, they
11 were going to hear shots, they were
12 going to be saved. It needs to be put
13 in your training exercises, you can
14 pound all you want, it may fail,
15 because the equipment's too far away
16 and we can't get it here.
17 Is there a way that you
18 can show us on the mine map where the
19 medical oxygen was stored?
20 MR. COLLINS:
21 Yes, I can. It was
22 stored at block 49 of Four track at the
23 mouth of One Left. I'm sure you're
24 aware of the One Left crew was at the
25 time of the explosion. The two bottles

1 of medical oxygen would be just in the
2 crosscut to the right of that. But I
3 can't see the map,
4 so ---.

5 MS. MEREDITH:

6 We seen it. Thank you.

7 If the condition of the mines was so
8 bad, why did you let three other
9 paramedics go into the mines, and also,
10 did Dr. Blake look at Randal under the
11 ground?

12 MR. WHITE:

13 Excuse me. I'm Eugene

14 White. I was with the crew of miners,
15 or rescuers that brought Mr. McCloy all
16 the way to the surface. I was also in
17 the barricade and helped carry Mr.
18 McCloy. I can tell you, and it's in my
19 transcript that Dr. Blake --- we was on
20 our way to the surface with Mr. McCloy.

21 We ran into, or we came up on a
22 mantrip coming underground with several
23 individuals on the mantrip. They were
24 on what we call a supply car.

25 We met them close ---

1 right at a switching point. And we
2 didn't know who they were. They were
3 blocking us from exiting the mines, so
4 we told them, you know, we had an
5 injured miner, that we needed to get
6 outside immediately. Their supply car
7 and motor would not switch into the
8 spur, so we had to switch our trip into
9 the spur track.

10 While we were in the spur
11 track, I don't know if it was me or one
12 of the rescuers in the mantrip,
13 hollered is there a doctor on the man -
14 -- on the ride. And this gentleman
15 came over, and I think it was Mr.
16 Blake. I'm not for sure. But he came
17 over, identified himself as a doctor,
18 and he did look in the mantrip at Mr.
19 McCloy. He did not physically touch
20 Mr. McCloy.

21 MS. MEREDITH:

22 Are the mine rescue
23 teams, is any of them --- are any of
24 you all's EMT trained or paramedic
25 trained?

1 MR. WHITE:

2 I think on the crew that
3 brought Mr. McCloy to the surface from
4 the end of the track. I think it was a
5 couple of the Viper team members, and I
6 understood that a couple of them either
7 were EMTs or paramedics. I'm not sure
8 on that.

9 MR. MILLS:

10 I'd like to add, too,
11 that Chris Lily from the Tri-State team
12 is a certified EMT. He was in the
13 barricade also.

14 MR. HELMS:

15 Okay. I got a card here.

16 Mr. Stricklin, you said you didn't
17 need the MSHA seismograph because you
18 knew where the miners were, but if you
19 had the seismograph, couldn't you have
20 heard the miners pounding on the roof
21 bolts?

22 MR. STRICKLIN:

23 There's a possibility
24 that we would have. By talking to the
25 experts, they weren't really sure if

1 they would be able to do that in that
2 area or not. I have with me, Mr.
3 Urosek, who may be able to expand on
4 that a little bit.

5 MR. UROSEK:

6 I can attempt to describe
7 a little bit about the seismic system.
8 It's operated by the technical support
9 arm of MSHA. Dr. Jeff Kravitz is an
10 expert in the seismograph system, and
11 has been since its inception.
12 It was originally
13 developed somewhere in the 1970s as
14 part of a mine rescue apparatus. And
15 one of the tools that was available to
16 MSHA throughout the years in the event
17 that an accident did occur, and to try
18 and locate trapped miners.

19 It was really designed as
20 part of a system. The system included
21 not only the seismic system, but a
22 large diameter drill. And it was set
23 up so that in the instance
24 --- for example, there was a large mine
25 explosion, and it was unsafe for teams

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1 to enter at any time. Possibly --- and
2 it was set up in the early '70s right
3 after the Farmington disaster. It was
4 set up where in that instance, there
5 were multiple explosions that continued
6 to happen. And in that case, they
7 didn't know where all the miners were.
8 So the system was set up
9 where you couldn't actually send people
10 into the mine, mine rescue teams,
11 because that's your first response and
12 your best response. But in that case
13 where you could not, you could set the
14 seismic system over areas of the mine
15 where you suspect there may be miners
16 and listen for them. And then through
17 the survey system, you could actually
18 try and locate the best area where you
19 may hear miners pounding.
20 MR. HELMS:
21 How long does it take to
22 set it up?
23 MR. UROSEK:
24 It's my understanding
25 that it would take anywhere between

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1 four to eight hours once it's onsite to
2 set up. And a lot of that's going to
3 depend on the actual surveying system.
4 MR. HELMS:
5 Well, you could have the
6 survey be done before it got here; is
7 that not true? By the time it got
8 here, the site could have been
9 prepared, the survey already done, the
10 equipment set, and be listening for
11 these men to pound, and then you could
12 have drilled your hole while the drill
13 was set in there and drilled exactly
14 where these miners was?
15 MR. UROSEK:
16 It's my understanding
17 that the survey wasn't for the drill
18 hole. They weren't able to complete
19 that until that evening, somewhere in
20 the neighborhood of 10 o'clock, 11
21 o'clock. So to actually set the
22 seismic up and be able to locate the
23 miners, it would not have been able to
24 do that prior to that.
25 MR. HELMS:

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1 Okay. We got just a few
2 more questions here. Let's see. Mr.
3 Conaway, you were in the command center
4 all this time?
5 MR. CONAWAY:
6 No, sir.
7 MR. HELMS:
8 Were you in the command
9 center at any time?
10 MR. CONAWAY:
11 On and off, yes.
12 MR. HELMS:
13 It says here, you did not
14 give any statements or answer any
15 questions, did they not ask you any?
16 Did you give any statements to anybody?
17 MR. CONAWAY:
18 No, sir.
19 MR. HELMS:
20 Why not, they didn't ask
21 you?
22 MR. CONAWAY:
23 I wasn't asked.
24 MR. HELMS:
25 Okay. I got Mr. Tucker.

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1 How many SCRs had to be open before -
2 -- that you have one that work on Mr.
3 Randal McCloy?
4 MR. TUCKER:
5 We ended up opening three
6 or four rescuers. Each one of them
7 worked. Randal, like I said, his jaws
8 was clenched, and Jimmy was having a
9 hard time even getting the mouthpiece
10 in his mouth. And with that rescuer,
11 you have to breath into it for it to
12 work. And I guess with the situation
13 with everything that was going on,
14 those rescuers, we was hoping to see
15 this bag showing a lot of indication of
16 coming in and out.
17 And it wasn't happening
18 simply because he was only taking a
19 breath, probably every five to seven
20 seconds. He would kind of like draw a
21 breath from that. So it wasn't that it
22 wasn't working, but in our attempt to
23 make sure that he was getting oxygen
24 from that, we ended up breaking open a
25 few other rescuers.

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1 And that's a reason also
2 why once we got him to a respirable
3 atmosphere that we took that self
4 rescuer away and put the apparatus on
5 him so he would have a constant flow of
6 oxygen. Then he had it right there at
7 his face, and then it didn't --- you
8 know, it was a constant flow, much
9 better than the SCSR.
10 MR. HELMS:
11 Okay. We're going to
12 finish up here due to time. But Mr.
13 Collins, I would like to thank you for
14 wanting to start at where Mr. Toler had
15 left off. And we want to thank the
16 rescue teams going in there and trying
17 to save our men. Thank you.
18 CHAIR:
19 Thank you. I just have
20 one question and that is for Mr.
21 Collins and Mr. Stricklin, and Mr.
22 Mills as well, I guess. The first plan
23 submittal from ICG to initiate the
24 rescue efforts, while we don't have the
25 dates, does this seem inordinately long

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1 to get that plan developed, or was it
2 done in your experience based upon
3 other accidents and other instances,
4 was that based upon --- was that a plan
5 within a reasonable period of time?
6 MR. MILLS:
7 Can I ask which plan?
8 CHAIR:
9 The first plan that they
10 undertook.
11 MR. MILLS:
12 Approved or submitted?
13 CHAIR:
14 What was submitted.
15 MR. MILLS:
16 And it deals with
17 pumping.
18 CHAIR:
19 The plan I have is dated
20 the 2nd of January, in a plan to
21 restore power to dewatering pump that
22 is located at the Number Two dewatering
23 pump, so as not to lose the return
24 airway opening.
25 MR. MILLS:

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1 And that is not signed;
2 correct?
3 CHAIR:
4 That is not signed. But
5 that was submitted and not approved?
6 MR. MILLS:
7 It was discussed.
8 CHAIR:
9 Okay. So the second plan
10 that I have is request number two, was
11 signed by yourself, Mr. Mills, and
12 James Satterfield for --- and that ---
13 there's an indication of 1300 right
14 above your signature, a 1300. I
15 presume that's hours.
16 But it's in your experience that that's
17 a lengthy time for a plan to be
18 submitted. Does that delay --- or how
19 is that compared to other instances?
20 MR. MILLS:
21 I got some experience in
22 Loveridge during the mine fire. And it
23 varies, depending on complexity of the
24 plan, what they want, what we need to
25 review, what we know.

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1 CHAIR:
2 Mr. Stricklin?
3 MR. STRICKLIN:
4 I think I heard the
5 comment yesterday from the company that
6 it was a chaotic scene, and I probably
7 tend to agree with that based on what I
8 had heard was occurring at the mine,
9 and that was just added to by the
10 concentrations of CO that was in what
11 we would call the command center. I
12 think that probably slowed some stuff
13 down, would be my guess at the site.
14 And I just happened to get there about
15 the same time that everything started
16 to clear up. So from what I saw, I
17 thought things started moving in an
18 orderly fashion with discussion between
19 the state, MSHA and the company
20 altogether, trying to work together.
21 There was --- I don't
22 want to say there was no disagreements,
23 but it seemed like we had the ability,
24 all three parties to work through those
25 disagreements, and we seemed to all be

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1 focused on the same thing.
2 MR. MILLS:
3 And I'd like to clarify
4 that, probably what you're seeing is
5 1/21/06. I never use military time.
6 CHAIR:
7 Go ahead.
8 MR. DEAN:
9 Yes. This question is
10 for Doug Conaway. It's from one of the
11 Board of Coal Mine Health & Safety
12 members. The question is why hasn't
13 the state placed a higher value on
14 having a State of the art mine rescue
15 capabilities and the equipment such as
16 geophones? And you may not be able to
17 answer that, but I wanted to ask that.
18 MR. CONAWAY:
19 Well, the way we've dealt
20 with mine rescue in the past, and
21 obviously everything's being looked at
22 in a different light for Sago. But
23 prior to that, there was a system in
24 place where the state would bring
25 certain equipment, to certain people

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1 into the equation. MSHA would bring
2 certain items, which is the geophones
3 and the chromatographs and the sampling
4 and so forth.
5 So up until that point,
6 as we trained and as we had exercises
7 together, that was the system that was
8 in place, Jim, and that was ---.
9 MR. DEAN:
10 Can you elaborate a
11 little bit, Doug, on how the decision-
12 making process occurred in the command
13 center? And I think we've heard it
14 from a couple other people, but maybe
15 get your thoughts on that.
16 MR. CONAWAY:
17 Well, the command center
18 structure, and my understanding --- it
19 was set up before I arrived, and as it
20 should have been. There was a state
21 representative there, there's an MSHA
22 representative there, and there's also
23 a representative of the company. And
24 that structure would take place in all
25 situations.

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1 There's also a recorder,
2 someone keeping track of all the events
3 and decisions that are being made. And
4 the structure, the way I see it
5 operate, is an issue is brought up, a
6 circumstance is confronted before the
7 group. They discuss it, and then
8 there's a decision made collectively by
9 the group as to how to proceed. And
10 then that order is carried out.
11 MR. DEAN:
12 Thank you.
13 MR. MCKINNEY:
14 This question is for
15 Brian Mills. During John Collins'
16 testimony, Brian, he indicated that he
17 had an initial conversation with you,
18 and there was some discussion about
19 contacting mine rescue teams, and you
20 said that, I guess you may do that.
21 Could you elaborate a little bit on
22 what you did as far as contacting the
23 mine rescue teams?
24 MR. MILLS:
25 Yes. Sometime during the

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1 early morning I spoke to John. I'm not
2 exactly sure what time. And I did make
3 a comment to him, or he made a comment
4 to me that we would probably need mine
5 rescue teams. So I proceeded to
6 contact Tri-State Mine Rescue
7 Association. I spoke to the gentleman
8 by the name of Joe Provola (phonetic),
9 informed him that we would need mine
10 rescue teams and asked for his
11 assistance.
12 I also spoke to a senior
13 safety representative with Consol early
14 that morning, and asked for Consol team
15 assistance.
16 MR. MCKINNEY:
17 Was there any indication
18 by any of the people you spoke with
19 they had already been contacted by
20 anybody from ICG or anybody else about
21 responding?
22 MR. MILLS:
23 No, sir.
24 MR. MCKINNEY:
25 Was there any discussion

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1 about the chromatograph with Consol?
2 MR. MILLS:
3 That may have occurred. I
4 worked with this gentleman on past
5 recoveries at Loveridge. And that
6 chromatograph was sent by Consol. It
7 arrived, I'm going to guess by 2:30
8 p.m. And we set it up in our state
9 mine rescue truck.
10 MR. MCKINNEY:
11 Thank you.
12 MR. CLAIR:
13 I have a question for Mr.
14 Tucker, or perhaps Mr. Hixson. And
15 that is, there have been reports that
16 the company had devised a code to
17 identify miners on the communication
18 system. Did you use a code in
19 referring to the miners?
20 MR. HIXSON:
21 I could answer for Mr.
22 Helms, the first miner. Although I was
23 never briefed on that system, the
24 captain and some other people I knew
25 were. They were to be called out as

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1 items, and to mark the location of the
2 item on the roof, or the rib, or the
3 bottom, however we found the miner. I
4 don't know about the other teams, how
5 they were trained, or how they were
6 given instructions after that. It
7 would have just been the Bailey and
8 Enlow team that was underground at the
9 time where we found Mr. Helms.
10 MR. CLAIR:
11 But the code was not used
12 for the miners who were found behind
13 the barricade?
14 MR. HIXSON:
15 We were at the face, and
16 whenever I called out, I did not say
17 items to transfer down the line. So I
18 did not do that, and I don't know what
19 they called out from on outby.
20 MR. CLAIR:
21 I have another question
22 for Mr. Stricklin, and that is that
23 yesterday Ty Coleman said that he had
24 asked MSHA for the seismograph, and he
25 mentioned the three MSHA employees that

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1 he had asked. And I believe you were
2 one of them, Mr. Stricklin. Did he ask
3 you for the seismograph, or use of the
4 seismograph?
5 MR. STRICKLIN:
6 No, he didn't ask me.
7 But I don't think he mentioned my name
8 yesterday. I believe he mentioned Mr.
9 Kravitz, Mr. Brown, and Mr. ---
10 possibly Mr. Satterfield.
11 MR. CLAIR:
12 And do you have any
13 information, whether he asked those
14 individuals?
15 MR. STRICKLIN:
16 I believe someone
17 contacted the individuals last evening,
18 and none of them recollect being asked
19 for seismic equipment.
20 MR. MCKINNEY:
21 This question will be for
22 Mr. Collins. I think the briefing that
23 you had with Mr. Toler when you came on
24 the property there was a discussion
25 about building or rebuilding a stopping

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1 out of brattice cloth, waiting and then
2 moving up and rebuilding and waiting.
3 That was the process, the methodical
4 process that they were using. Did you
5 glean or gather from that conversation
6 that they were working in smoke, in the
7 initial building process and waiting
8 for that to clear up?
9 MR. COLLINS:
10 Well, that wasn't when I
11 came on the property, but at 9:30, Mr.
12 Toler called me, and he said that they
13 had built stopping --- or check
14 curtains. Put check curtains where the
15 stoppings had been damaged or blown
16 out, and where they made it to it. And
17 at this time, they were out of air and
18 the dust was really thick, and that it
19 was just swirling.
20 Then later on, even with
21 Mr. Wilfong and Mr. Toler, discussions
22 at the mine, that was said, that that
23 first --- one of them be --- two of
24 them would be working on one, while two
25 more would go inby and work on another

1 one. And it got to where all of them
2 had to work on one, and it got to where
3 they would run up and build one with
4 smoke and wait 'til it cleared, and
5 then move to the next one. So it was
6 my belief when they got to block 58
7 that they could not get the smoke to
8 move at all. They did stay there some
9 time and tried to yell and scream and
10 anything else they could to try to
11 contact the miners.

12 MR. MCKINNEY:

13 Thank you.

14 MR. MILLS:

15 Mr. McKinney, I would
16 like to add, on my calls to mine rescue
17 teams, I also called Mike Crowley, he's
18 the state coordinator of the state mine
19 rescue team early that morning.

20 MR. MCKINNEY:

21 Thank you, Brian.

22 UNIDENTIFIED SPEAKER:

23 Ray, are you okay?

24 CHAIR:

25 I have a series of quick

1 factual questions just to develop.
2 Would the fan charts that were covered,
3 and are they made a part of the record?

4 Have they been made a part of ---?

5 MR. STRICKLIN:

6 Yes, sir.

7 CHAIR:

8 Okay.

9 MR. STRICKLIN:

10 I may want to add --- I

11 mean, there was some discussion on the
12 examination books, and like Mr. Collins
13 said, we collected those books the same
14 day, on January the 2nd, as well as the
15 detectors that were used underground by
16 this initial rescue, and there was some
17 opened SCSRs that we also collected,
18 and we made the mine operator aware
19 that we would be wanting all the
20 original records at that time.

21 CHAIR:

22 And have they complied

23 with that request?

24 MR. STRICKLIN:

25 Yes, sir.

1 CHAIR:

2 Was there a battery
3 charging station observed near the
4 entrance to the Two Left section? And
5 was there a portable welder in the
6 maintenance shop that was discussed
7 yesterday?

8 MR. STRICKLIN:

9 I think I'll --- well,

10 Mr. Urosek was on the investigation. I
11 think he would be better suited to
12 answer that.

13 MR. UROSEK:

14 Yes, there was, to both
15 items.

16 CHAIR:

17 And the battery charging
18 power station was on the Two Left
19 Section, where was the portable welder?

20 MR. UROSEK:

21 I'm not sure of the exact
22 location of it. I do remember as we
23 were going through the area, mapping
24 the area, we did see it. It was
25 somewhere, and this is from

1 recollection, near the track entry at
2 one of the crosscuts.

3 CHAIR:

4 Maybe we can preserve
5 that question to the investigative
6 panel as well, because they'll have
7 ---. With regard to the --- Mr.
8 Urosek, with regard to the listening
9 devices, what's the age of that system?

10 MR. UROSEK:

11 That system was
12 originally designed in the early '70s,
13 and they did do some upgrades to it in
14 the '80s to improve --- and I guess
15 really improve the computer part of the
16 system.

17 CHAIR:

18 And how long does it take
19 to establish that system on the ground
20 if you have clear ground and readily
21 accessible ground?

22 MR. UROSEK:

23 My understanding is, it
24 takes anywhere between four to eight
25 hours to do that.

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1 CHAIR:
2 And if you don't have
3 clear ground, how long does it take?
4 MR. UROSEK:
5 Well, that even makes it
6 more difficult because the
7 --- actually locating the geophones
8 from where you have to have the central
9 computer location, it's very difficult,
10 because it's a radio signal back to
11 them, and it can take much longer.
12 CHAIR:
13 And are you familiar with
14 any foreign-type countries, other
15 countries that have devices that are
16 more modern or newer than this?
17 MR. UROSEK:
18 I'm not familiar with
19 that.
20 CHAIR:
21 You're not familiar with
22 the Israeli systems or any of the other
23 systems?
24 MR. UROSEK:
25 I'm not. Mr. Kravitz may

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1 be, but I'm not.
2 CHAIR:
3 There is, if I might, for
4 the record, indulge the chair, there is
5 an Israeli system that's available
6 that's much more expeditious and
7 smaller and easier to set up. I know
8 we looked into that.
9 Mr. Collins, would you
10 please repeat the phone message you
11 received from ICG, specifically with
12 regard to, quote, the power, unquote?
13 MR. COLLINS:
14 Yes. Actually, because I
15 never answered the phone, I never heard
16 the phone ring, Johnny Stemple's first
17 message was left on my answering
18 machine. And again, my wife came out
19 and said, are you talking to Johnny
20 Stemple, and she said well, no, he's on
21 the phone.
22 So this is the message
23 that John left. Hi, John Collins, this
24 is Johnny Stemple. It is about 15 'til
25 8:00, Monday morning. We have got a

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1 situation at Sago Mine where we have
2 men underground, that we have not been
3 able to get ahold of, and it's been
4 more than 30 --- I mean, more than 60
5 minutes.
6 I've tried to get ahold
7 of Mark Wilfong, and no answer. I've
8 tried to get ahold of Brian Mills, and
9 the number I have for him is listed as
10 disconnected, and you are next on my
11 list. We don't know anything at this
12 time, at 6:30 when the power went off,
13 which is probably why I can't get ahold
14 of you, probably because your phone is
15 out. When the power went off, we have
16 not been able to get ahold of one of
17 our crew underground, so we are trying
18 to get that crew right now, and it has
19 been more than 60 minutes. My home
20 phone number is, and he left his
21 number.
22 I immediately called him
23 back. We talked for just a little bit.
24 He said that he wasn't sure what
25 happened, but there was an event, and

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1 he reconfirmed that they couldn't get
2 ahold of the crew. He started talking
3 that maybe it had been a high voltage
4 cable exploded, and I can pretty ---
5 I've known Johnny a long time, and I
6 could tell that he didn't --- as far as
7 I could tell, he did not know what had
8 happened. So I just told him consider
9 us notified and I was going to the
10 mine.
11 CHAIR:
12 Thank you, Mr. Collins.
13 Would MSHA provide all of the gas
14 readings taken at the return portals,
15 including the documented handheld
16 readings, infrared readings and gas
17 chromatograph readings and make those a
18 part of the record?
19 MR. STRICKLIN:
20 Yes. We will do so.
21 CHAIR:
22 Was the ventilation cut
23 off at any time at the mine? Mr.
24 Collins?
25 MR. COLLINS:

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1 As far as the fan?
2 CHAIR:
3 The fan.
4 MR. COLLINS:
5 To my knowledge, the fan
6 was never stopped.
7 CHAIR:
8 Okay.
9 MS. MEREDITH:
10 Mr. Stricklin, if the CO
11 levels were dangerous, why did they use
12 a scoop to carry the men out with, and
13 how did they operate it --- how did the
14 operator fit inside the deck to operate
15 that with his apparatus on?
16 MR. STRICKLIN:
17 The atmosphere to operate
18 the scoop while we had CO, we didn't
19 have an explosive mixture of methane,
20 and we didn't know that actually until
21 we got into the area.
22 The operator would have
23 still tried to --- he still would have
24 had to keep his apparatus on while he
25 was operating that scoop. He would

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1 have had to lean hard against the
2 apparatus. There was no time that
3 anybody could be in that area without
4 having their apparatus on.
5 MS. MEREDITH:
6 And so you sent him in
7 that with the 100 percent guarantee
8 that there would be another explosion
9 from taking the scoop in the mines?
10 MR. STRICKLIN:
11 At that time, based on
12 the readings that we had underground in
13 that area, I did not think the scoop
14 would cause an explosion.
15 MS. MEREDITH:
16 Is there anything that
17 MSHA could have done differently that
18 would have changed the outcome of this
19 tragedy?
20 MR. STRICKLIN:
21 You know, I thought about
22 --- just as everybody else has relived
23 the moment, I've looked over all the
24 numbers, and I basically --- based on
25 what I knew at the time, I think we

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1 made the right decisions as far as what
2 we knew and the possibility of a second
3 explosion or of a fire.
4 MS. MEREDITH:
5 Mr. Mills, the same
6 question would apply for you, but in
7 the State's role. If there was
8 anything that could have been done
9 differently, and that you could have
10 changed?
11 MR. MILLS:
12 As far as I'm concerned,
13 ma'am, no. The only possible thing we
14 could have did was maybe put the mine
15 rescue team members at a greater risk
16 by sending them in earlier, or until we
17 were sure that it was okay to start in.
18 MS. MEREDITH:
19 In a mine emergency, or
20 in a rescue situation, can MSHA or the
21 State make recommendations to expedite
22 the rescue mission instead of waiting
23 for the mine operator to come up with a
24 plan?
25 MR. STRICKLIN:

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1 The way I saw it
2 happening is, we all sat down and
3 talked about decisions before they came
4 --- they would come up. And we
5 discussed as a group what the next
6 thing should be, and the operator had
7 some ideas, and the State had some
8 ideas, and we had some ideas that we
9 all worked through to come up with
10 that. So I think everybody had an
11 opinion on what needed to be done.
12 MS. MEREDITH:
13 Is it MSHA or State
14 policy not to identify the bodies
15 underground as part of the recovery
16 plan, but rather to refer to the miners
17 as items?
18 MR. MILLS:
19 No, ma'am. That was a
20 request made by ICG or Anker early on.
21 That situation would occur that we
22 would refer to these victims as items,
23 not by name.
24 CHAIR:
25 Mr. Mills, can you

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1 explain why --- to your recollection,
2 why they would make such a request?
3 MR. MILLS:
4 The request was made by
5 Pat Coleman. And my basic
6 understanding was that there was a lot
7 of communication going on outside of
8 the command center. There was
9 telephone --- I mean, television
10 cameras, satellites everywhere that we
11 didn't want the wrong information ---
12 he didn't want the wrong information to
13 get out. So instead of identifying a
14 person as a victim or by name, that we
15 would just use the term item.
16 CHAIR:
17 Okay. Mr. Collins, the
18 message from ICG said the power was
19 off. Do you know what power he was
20 referring to?
21 MR. COLLINS:
22 An official from ICG said
23 the power was off?
24 CHAIR:
25 The message that you just

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1 read, as I understood it, said the
2 power was off.
3 MR. COLLINS:
4 Oh, yes. Okay. In
5 Johnny's message, he did say the power
6 was off. I know from the investigation
7 now that the power was off from Two
8 head inby, but the power was not off
9 Number One belt. The power was not off
10 the fan or the surface area.
11 CHAIR:
12 Mr. Urosek, can you
13 explain, if you know, what happened to
14 the electromagnetic tracking device
15 that was developed in the 1970s by the
16 Bureau of Mines to locate miners in
17 events like the one at Sago?
18 MR. UROSEK:
19 I'm sorry, I don't know.
20 CHAIR:
21 For the record, the chair
22 doesn't know either. There were 13 men
23 trapped. There is no reason it took so
24 long to submit a plan, and why wouldn't
25 rescue plan

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1 --- why wouldn't a rescue plan be the
2 first plan to be submitted? Mr.
3 Stricklin?
4 MR. STRICKLIN:
5 Well, I think there was
6 some ground work that needed to be done
7 as far as --- we've been talking about
8 the pumping of water would be something
9 that needed to be done to allow rescue
10 teams to go in, as well as this
11 trending of gas concentrations that
12 needed --- before we could all agree
13 the rescue teams could enter the mine
14 at that time.
15 CHAIR:
16 Is it true that the
17 submission by ICG and these items here,
18 are elements in a rescue plan?
19 MR. STRICKLIN:
20 Yes, sir. Basically that
21 would be --- and I think those would be
22 the first steps of the plan, as you go
23 progressively further in that, you'll
24 find that three or four, whatever,
25 talks about people entering the mine.

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1 CHAIR:
2 Is that your
3 understanding as well, Mr. Mills?
4 MR. MILLS:
5 Yes. I would agree that
6 the plans were submitted depending on
7 what we find as we go along, and what
8 is needed to get us started.
9 CHAIR:
10 If I'm understanding you
11 correctly then, these are elements that
12 sort of build toward a rescue plan, you
13 kind of deal with problem A, B and C in
14 sequence so that you can, in fact, put
15 rescue teams underground?
16 MR. STRICKLIN:
17 Yes, sir. The whole
18 intent was to get the teams
19 underground, but just A and B needed to
20 be done to ensure the safety of those
21 personnel before they went in.
22 CHAIR:
23 And you answered, I
24 believe, that this was a cooperative
25 plan. The question is, what did the

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1 company --- why wouldn't MSHA come up
2 with a plan, or the state agency come
3 up with a plan to conduct a rescue?
4 MR. STRICKLIN:
5 I don't believe that it
6 was our plan. It was something that we
7 approved and we discussed as a group.
8 I accepted it as a plan of all three
9 agencies that signed it.
10 CHAIR:
11 Is that the system that's
12 been in place in the agency, and to
13 your knowledge, Mr. Mills, through your
14 knowledge in the State of West
15 Virginia, for a period of time?
16 MR. MILLS:
17 My experiences, although
18 they're limited, is that's the way
19 they're handled. Plans are submitted,
20 discussed and approved.
21 MR. STRICKLIN:
22 Yes, sir. That's the way
23 we typically are involved in rescue
24 operations as well.
25 CHAIR:

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1 I think that's all the
2 questions I have. Any other questions?
3 MR. CLAIR:
4 Mr. McAteer, I just have
5 one further question for Mr. Urosek.
6 And that is in the over 30 years that
7 this seismic equipment has been
8 available, has it ever contributed to a
9 successful rescue of any miner?
10 MR. UROSEK:
11 My understanding is that
12 it has not.
13 MR. CLAIR:
14 Okay. Thank you very
15 much.
16 CHAIR:
17 Okay. Let's take a five-
18 minute break and come back, please.
19 SHORT BREAK TAKEN
20 CHAIR:
21 Let me begin. This
22 afternoon, we've had the Panel revisit
23 us here as we re-assemble. I have ---
24 however, I would like to read a brief
25 statement for the record that I've been

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1 asked to read by the families. And it
2 is as follows.
3 It has come to my
4 attention that as a result of this
5 morning's session, news reports may
6 convey the impression that a particular
7 mine rescue team member was responsible
8 for the tragic miscommunication to the
9 surface that led to the belief that all
10 the miners at Sago had been saved. By
11 now, I think it should be clear to all
12 of us that the miscommunication was a
13 systemic problem, and not the result of
14 individual error or carelessness.
15 Clearly, it had more to do with the
16 limitations of equipment,
17 communication's equipment, and speaking
18 while under apparatus than with the
19 limitations of human beings. It
20 would be extremely regrettable in my
21 view if the burden of sorrow that the
22 mine rescue team members already carry
23 is made even harder to bear by being
24 misidentified in the media as the
25 source of the miscommunication. I know

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1 the families appreciate what the mine
2 rescue team members tried to do for
3 their loved ones. We all owe them our
4 gratitude.
5 If I have anything to say
6 about it, no one will be scapegoated
7 here for what happened in the stress of
8 the mine rescue effort underground.
9 Thank you.
10 Thank you very much. We
11 have a few questions remaining, I
12 believe, for the Panel and then we'll
13 move along. John, you want to start?
14 MR. HELMS:
15 Okay. You can hear me
16 okay? One more time, Mr. Stricklin,
17 why we didn't start at 58 block is
18 because of your concern for the CO and
19 the methane coming out of the mines.
20 Is that your concern why we didn't go
21 in and start there from the get-go?
22 MR. STRICKLIN:
23 Yes, sir.
24 MR. HELMS:
25 Okay. Why didn't we put

1 off three shots, even though we could
 2 put off three shots of dynamite or to
 3 note that we kind of knew where these
 4 guys were underground? Could that
 5 possibly have been done?
 6 MR. STRICKLIN:
 7 Well, the three-shot
 8 equipment would have been with the
 9 seismic equipment itself. And none of
 10 that, as we discussed earlier, was
 11 brought to the mine site.
 12 MR. HELMS:
 13 There is no other way you
 14 could have made three loud booms to
 15 tell these guys that, yes, we think we
 16 know where you're at?
 17 MR. STRICKLIN:
 18 If we would have put off
 19 three shots --- we didn't have the
 20 equipment available or set up that we
 21 could have determined where they were
 22 located at or to hear them pound on the
 23 roof.
 24 MR. HELMS:
 25 Let see what else here.

1 Okay. One other thing. How far can
 2 the camera that was dropped down in the
 3 borehole --- Mr. Meadows, how far can
 4 it project, see clearly?
 5 MR. MEADOWS:
 6 I'm not a hundred percent
 7 sure what the total capability of the
 8 camera is, but it
 9 --- what I saw --- and I was unfamiliar
 10 with the mine, of course, it was a
 11 clear picture. We could see --- we saw
 12 the hole almost center the feeder and
 13 we could clearly see the rib from that
 14 point. Now, I don't know how far that
 15 is.
 16 MR. HELMS:
 17 Ten feet, 18 feet, 20
 18 feet or what do you --- 100 feet?
 19 MR. MEADOWS:
 20 I don't know the distance
 21 between the feeder and the rib.
 22 MR. HELMS:
 23 Did you not turn it
 24 around and kind of look around?
 25 MR. MEADOWS:

1 Yeah, you can do the 180
 2 with it. It was a good clear picture.
 3
 4 MR. STRICKLIN:
 5 If Mr. Meadows doesn't
 6 mind, maybe Mr. Urosek could shed some
 7 more light on that.
 8 MR. UROSEK:
 9 I was present at the time
 10 that we did drop the camera. You can
 11 typically see 20 to 30 feet. It's more
 12 limited on the light, the light source
 13 that you have. Now, as to how far you
 14 could see. It's about as far as you
 15 could see with a cap lamp.
 16 MR. HELMS:
 17 Okay. And one other
 18 question I got. When you found my
 19 brother, Terry Helms, did anybody look
 20 to see what his name was? I knew my
 21 family and I waited 40 hours to find
 22 out if he was alive or dead, and that
 23 should not have happened.
 24 MR. HIXSON:
 25 When we found Mr. Helms,

1 we did not turn him or did not move him
 2 in any way to find out what his tag was
 3 on his belt. And his hardhat was ---
 4 I'm not sure if that was his hardhat,
 5 but we found a hardhat approximately
 6 100, 200 feet down the track entry, and
 7 we did look on that, and we couldn't
 8 find a name on that hat. But we did
 9 not turn him at that time to look for a
 10 name.
 11 MR. HELMS:
 12 Okay. That's all I got.
 13 Thank you.
 14 MS. MEREDITH:
 15 Did any one of the mine
 16 rescuers have a stethoscope on them to
 17 check for a heartbeat on the miners
 18 once you entered into the barricade?
 19 MR. TUCKER:
 20 No. We didn't have a
 21 stethoscope.
 22 MS. MEREDITH:
 23 Mr. Stricklin, is it a
 24 normal practice to put glue or epoxy on
 25 methane-liberating roof bolts?

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1 MR. STRICKLIN:
2 Could you repeat the
3 question, please?
4 MS. MEREDITH:
5 Is it normal practice to
6 put glue or epoxy in methane-
7 liberating roof holes (sic)?
8 MR. STRICKLIN:
9 It would be normal if a
10 roof bolt was installed with the glue.
11 MS. MEREDITH:
12 Who sent in a mantrip
13 knowing that an injured miner was on
14 his way out?
15 MR. STRICKLIN:
16 I believe the mantrip
17 --- I can't answer that question, but
18 my guess is the mantrip had started in
19 prior to the mantrip starting out with
20 Mr. McCloy in the mantrip.
21 MR. COLLINS:
22 Yes, ma'am. The trolley
23 phones were out because the power was
24 off. And the trip that met them was
25 the doctor and stuff that was going

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1 inside. Until that point, they still
2 believed that everyone was alive.
3 MS. MEREDITH:
4 Why was there a doctor
5 going inside if you couldn't go on into
6 where the men had barricaded themselves
7 due to the fact of him putting on a
8 self-rescuer?
9 MR. COLLINS:
10 When the doctor left from
11 outside, he thought we had 12 people
12 alive. And that the mine rescue team
13 would walk them, the ones they could,
14 down to where he could have gotten to
15 them. But he also took some staff with
16 him. That was the group that was going
17 in and there was no way to call them
18 and stop them once they had left
19 outside.
20 MR. HELMS:
21 That's all we got, Mr.
22 McAteer.
23 CHAIR:
24 Okay. Any other
25 questions?

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1 MR. HELMS:
2 We got one more.
3 CHAIR:
4 Okay.
5 MS. MEREDITH:
6 Do any of you inspectors
7 or investigators have any
8 recommendations on how mine rescue can
9 be improved for the procedures leading
10 up to the rescue?
11 MR. COLLINS:
12 Well, I know seven years
13 ago, the State of West Virginia
14 Legislature reduced the requirements of
15 mine rescue teams. It used to be every
16 mine with more than 50 people had to
17 have a mine rescue team. So I think
18 more mine rescue teams readily
19 available would be good.
20 MS. MEREDITH:
21 That's all, Mr. McAteer.
22 CHAIR:
23 Thank you. Coal mine
24 dust, that's always been one of the
25 culprits in mine explosions. Can we --

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1 - this actually should go to the
2 investigative team. What was the
3 surface layer of dust at Sago when the
4 explosion occurred? I think the mine
5 rescue investigation team Panel may be
6 better equipped to answer that. Any
7 others? I think that's all the
8 questions we have. Thank you very
9 much, gentlemen, for your efforts and
10 for your presentation here today.
11 If I could ask if the ICG
12 Investigation and Initial Findings'
13 Panel could come forward, please?
14 CHAIR:
15 Mr. Hatfield, when you're
16 prepared and ready.
17 MR. HATFIELD:
18 Mr. Chairman, Panel
19 members, miners and family members,
20 with me today on this Panel are Sam
21 Kitts, our Senior Vice-president of
22 Operations for West Virginia/Maryland
23 Region, Gene Kitts, our Senior
24 Vice-president for Mining Services,
25 Chuck Dunbar, General Manager of

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1 Buckhannon Division, Dr. Tom Novak, a
2 consultant with emphasis in electrical
3 and effects of lightning from the
4 College of Engineering of Virginia
5 Tech, and Dr. Steve Sawyer, Ph.D. and
6 professional engineer, a consultant
7 with emphasis in directional forces.
8 We have assembled this
9 group to explain, to the extent
10 permitted within this timeframe and
11 under these circumstances, the initial
12 findings of ICG's investigation into
13 the cause of the explosion. Our work
14 is ongoing and there may be some areas
15 that we are not prepared to address
16 today for this reason. However, we are
17 confident that to this point, we have
18 eliminated many possible causes and
19 have identified several key factors
20 contributing to the cause of this
21 tragic event. We are here to share
22 that information with you, the
23 families, the industry, the regulators
24 and the public, with the belief and
25 hope that this information will aid in

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1 providing some closure and means of
2 making our industry a safer one for
3 miners.
4 Much of this information
5 was released to the families and to our
6 miners when we announced our initial
7 findings prior to resuming operations
8 on March 15, 2006. We made the
9 decision to announce those initial
10 findings because it was simply
11 unacceptable to send our miners back to
12 work without comment or explanation.
13 MSHA and the State have the ability to
14 modify their closure orders without
15 commentary implicitly affirming that
16 the mine is safe to operate. However,
17 our company could not, in good
18 conscience, restart the Sago Mine
19 before our independent investigation
20 had achieved a reasonably high level of
21 confidence on the cause of the
22 accident, and we had shared that
23 information with our employees and the
24 families that lost loved ones. Our
25 employees and their families deserve

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1 timely answers. With both MSHA and the
2 State predicting that their final
3 investigative reports were three to
4 nine months from completion, waiting
5 was simply not an option.
6 ICG's independent
7 investigation utilized a diverse theme
8 of mining, electrical and combustion
9 consultants. The knowledge of Doctors
10 Novak and Sawyer was deemed to be the
11 most significant to reporting on the
12 findings made to date, and that is why
13 they are here. In the interest of time,
14 I will provide the following brief
15 overview of the findings and then have
16 Sam Kitts, who is integral to our
17 investigation, discuss the arduous
18 investigation process. Sam will be
19 followed by brief presentations from
20 Dr. Novak and Dr. Sawyer. Questions
21 may then be posed to the Panelists.
22 Subject to ongoing
23 verification and analysis, we have made
24 ---.
25 CHAIR:

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1 I'm sorry. I apologize.
2 Could I ask Ms. Elkins to swear the
3 Panel in? It's my error. Please
4 stand.
5 -----
6 WITNESSES SWORN EN MASSE
7 -----
8 MR. HATFIELD:
9 Subject to ongoing
10 verification analysis, we have made
11 these initial findings. The explosion
12 was ignited by lightning and fueled by
13 methane that naturally accumulated in
14 an abandoned area of the mine that had
15 recently been sealed. The lightning
16 ignition appears to be verified by
17 three independent events that occurred
18 concurrently at 6:26 a.m. on January
19 the 2nd. Number one, an unusually
20 large lightning strike of roughly three
21 times the normal strength was measured
22 near the Sago Mine by an independent
23 weather monitoring service. Number
24 two, a seismic event at the Sago Mine
25 was detected by a Morgantown area

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1 U/S/G/S seismic station. And Number
 2 Three, the Sago Mine Atmospheric
 3 Monitoring System signaled a combustion
 4 alarm due to presence of carbon
 5 monoxide. The precise route by which
 6 the lightning electrical charge
 7 traveled from a surface to strike
 8 location to the sealed area remains
 9 under investigation.
 10 Our investigation ruled
 11 out other potential causes. There was
 12 no energized equipment located in the
 13 sealed area. There was no evidence of
 14 any new roof falls that could have
 15 caused an ignition. Monitoring
 16 indicated no methane generation from
 17 gas wells in the facility. There was
 18 no power source in the sealed area. No
 19 track or conveyor belt extended from
 20 the active areas of the mine into the
 21 sealed area to serve as a conduit for
 22 electrical energy. Steel wire mesh,
 23 which was installed to protect against
 24 roof falls, had been appropriately
 25 removed in the area of the seals. Coal

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1 or flow dust in either of the active
 2 workings or the sealed area did not
 3 appear to provide fuel for the
 4 explosion and did not propagate the
 5 explosion within the active areas of
 6 the mine.
 7 In the area of the seals
 8 particularly, every indication is that
 9 the area was more than sufficiently
 10 rock dusted. The seals constructed of
 11 Omega block under a plan approved by
 12 MSHA and designed to withstand forces
 13 of 20 pounds per square inch, or psi,
 14 were essentially obliterated by the
 15 explosion. Calculations indicate that
 16 the explosive forces experienced at
 17 each seal were greater than 20 psi.
 18 More specifically, the forces at roof
 19 line were as high as 25 psi at all the
 20 seals and possibly as high as 90 psi at
 21 some of the seals. The seals were
 22 completely destroyed by the explosion.
 23 In only one place, the Number One
 24 seal, were there any significant
 25 remnants of the Omega blocks used to

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1 build the seals. Many of the seals,
 2 indeed, were completely pulverized by
 3 the explosion. Also, wood block crib
 4 structures constructed at the seals, as
 5 contemplated by the MSHA-approved plan,
 6 were also destroyed. And debris from
 7 those cribs within the sealed area may
 8 also have contributed to the
 9 destruction of the seals.
 10 NIOSH built a seal at its
 11 Lake Lynn testing facility similar to
 12 the seal built at Sago after testimony
 13 had been taken concerning the mine's
 14 construction methods. That seal
 15 withstood the test explosion exceeding
 16 20 psi. Additionally at Sago, a plus
 17 1,500-pound battery charger sitting
 18 outby the seals was hurled a hundred --
 19 - approximately 120 feet by the
 20 explosion. In the NIOSH test, the
 21 battery charger was moved only 21 feet.
 22
 23 None of the citations
 24 issued at the Sago Mine during the
 25 accident investigation or prior to the

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1 accident, during 2005, were linked to
 2 the explosion in any way. Each
 3 citation has been promptly remedied.
 4 The company will
 5 continue with data review and testing
 6 to verify the findings and will
 7 continue full cooperation with the
 8 ongoing State and Federal
 9 investigations.
 10 I will now ask Sam Kitts
 11 to outline the accident investigation
 12 process.
 13 MR. S. KITTS:
 14 Thank you, Ben. I am
 15 Senior Vice-president of West
 16 Virginia/Maryland operations for ICG.
 17 I've been coordinating our internal
 18 investigation with the assistance of
 19 others, which continues as we are here
 20 discussing our preliminary findings. I
 21 have coordinated ICG's investigation
 22 with the State and Federal authorities,
 23 the Sago mine representatives and the
 24 UMWA participating.
 25 To repair damage from the

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1 explosion, more than 80 employees
2 worked underground for weeks. Over 50
3 ventilation controls, including
4 stoppings and overcasts were
5 reconstructed. Now, for an overview of
6 the investigation process. In order to
7 fully appreciate the scope of the
8 investigation, I will provide a general
9 overview of the investigation
10 activities that have taken place since
11 the accident.
12 The first step was to
13 establish a breathable atmosphere
14 throughout the mine. Before sending
15 mine rescue teams inside to begin
16 repairing the damaged ventilation
17 controls, the CO and methane was
18 flushed out of the mine. Between
19 January 5th and January 20, three
20 boreholes were drilled into the head
21 end of old Two Left area to allow the
22 water to be pumped down and air
23 circulated to a ventilation shaft.
24 This allowed the air to be pushed by
25 the mine fan at the portal, through the

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1 previously-sealed area and then to the
2 surface.
3 Mine rescue teams entered
4 the mine on January 20th to establish
5 temporary ventilation controls. This
6 process involved installing curtains
7 with foam sealant around the edges in
8 place of the block walls that were
9 destroyed in the explosion. The teams
10 completed the work on or about January
11 25th.
12 The (k) order was then
13 modified by MSHA to allow the
14 investigation teams to re-enter the
15 mine and explore it. The underground
16 investigation began January 26th, 2006
17 and continued through February 10th,
18 2006. Although various
19 follow-up investigatory work was taking
20 place since that time, particularly in
21 the area inby the seals.
22 Five separate entities
23 participated in the underground
24 investigation, MSHA, the State, ICG,
25 the UMWA and the Sago mine

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1 representatives. More than 100 people
2 were inside the mine on a daily basis
3 at this time. Participants were
4 organized by specialties, which were:
5 Mapping, mapping teams were
6 responsible for surveying and
7 documenting any items related to the
8 explosion. These items included the
9 documentation of damage of each
10 ventilation control down to the
11 distance the individual block fragments
12 were displaced. Six mapping teams,
13 each with a representative from one of
14 the participating parties, combed the
15 entire mine from the portal to the face
16 of each section and the area behind the
17 seals. Each team had at least five
18 people and as many as eight. During
19 the height of the underground
20 investigation, 40 to 50 people were
21 documenting their findings in the mine
22 on a daily basis. The results of their
23 efforts provide the basis of the
24 detailed mine maps that have been
25 shared with MSHA and the State.

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1 Another specialty was
2 rock dust sampling. Similar to the
3 mapping effort, four teams comprised of
4 three to six people collected rock dust
5 samples. Beginning at the mine portal,
6 the samples were collected throughout
7 the mine, including in the sealed area.
8 We do not yet know the results of
9 MSHA's analysis of these samples.
10 However, because the explosion did not
11 propagate, we believe that those
12 samples will confirm that the mine had
13 been adequately rock dusted.
14 The electrical teams
15 examined every electrical device inside
16 the mine, at the surface of the mine
17 and even as far away as a substation
18 that feeds power to the mine two miles
19 away.
20 A flames and forces' team
21 mapped the direction of the flames and
22 directional forces from the explosion
23 utilizing such evidence as bent roof
24 support materials, belt hangers, blocks
25 from damaged stoppings, debris from the

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1 seals, equipment locations, debris from
2 cribs used to support the roof on
3 either side of the seals and other
4 physical evidence. By documenting this
5 evidence in great detail, the probable
6 origination of the explosion can be
7 estimated. The origination area and
8 the directional forces are depicted on
9 the flames and forces map.
10 The evidence team was
11 also a separate team in the
12 investigation. In addition to the
13 materials and information collected by
14 the teams described above, MSHA and the
15 State took possession of and removed
16 from the mine other materials,
17 including a battery charger, a segment
18 of the belt structure, pallets of Omega
19 blocks, the SCSR tops and bottoms found
20 in the barricade and in other areas of
21 the mine, gas detectors, Omega block
22 remnants from the seals. The
23 documentation of the result of those
24 tests has not yet been --- has not been
25 released by the regulatory agencies for

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1 every item.
2 The 103(k) order that was
3 put in place on January 2nd restricts
4 access to the mine without the
5 permission of MSHA or the State. We
6 have sought to preserve the integrity
7 of the data that has been collected
8 within this constraint.
9 The work of the
10 investigation teams in the active
11 portions of the mine was substantially
12 completed by February 9th. The (k)
13 order was again modified to allow the
14 removal of debris and the construction
15 of permanent ventilation controls. The
16 (k) order remains in effect for the
17 previously-sealed area where further
18 investigation activities continue to
19 this day. Over four weeks later, on or
20 about March 14th, MSHA and the State
21 modified the (k) order approving the
22 mine repairs and allowing production to
23 resume.
24 Before resuming
25 production, ICG conducted communication

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1 meetings with the families and all of
2 the Sago miners to explain in detail
3 the steps that had been taken to ready
4 the mine for production and to answer
5 any questions. We shared our initial
6 findings based on the information
7 available at that time concerning the
8 cause of the accident. We believe
9 lightning ignited methane that had
10 accumulated behind the seals to cause
11 the explosion. We arrived at this
12 preliminary conclusion by a process of
13 elimination of other possible ignition
14 sources and independently documented
15 evidence that clearly correlates the
16 time of the explosion to the
17 particularly fierce lightning strike.
18 ICG continues to
19 investigate the cause of the accident
20 and specifically determine the manner
21 in which the lightning entered the
22 mine. We are currently pursuing
23 sophisticated geophysical measurement
24 methods in conjunction with MSHA and
25 the State involving electromagnetic and

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1 resistivity surveys.
2 The efforts of the
3 individuals involved in the
4 investigation are greatly appreciated.
5 It is a testament to the skill and
6 professionalism of all those involved
7 that not one person was injured during
8 the thousands of man hours logged
9 inside the mine in very difficult
10 conditions during this investigation.
11 Gratefully, we believe
12 that we ruled out a variety of
13 potential causes that have narrowed our
14 focus through these efforts of many to
15 reach our initial conclusions. Our
16 work is not finished and we will
17 continue our efforts to analyze and
18 refine our views until we are
19 completely satisfied that we have done
20 all that is possible to find the cause
21 and develop a means to prevent a
22 reoccurrence.
23 I will now turn the
24 presentation over to Dr. Novak.
25 DR. NOVAK:

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1 Thank you, Sam. Good
2 afternoon. As Ben said, I am the ---
3 can you hear me okay?
4 CHAIR:
5 A little louder.
6 DR. NOVAK:
7 Okay. Let me pull it a
8 little closer. As Ben said, my name is
9 Tom Novak, I'm the department head and
10 a professor of Mining and Minerals
11 Engineering at Virginia Tech. I have
12 been doing research in the area of
13 lightning propagation and possibility
14 of methane ignitions in sealed areas
15 for a number of years. And for that
16 reason, I was asked to come on as a
17 consultant for this project. Before I
18 get started, I would like to extend
19 sympathy to the families of the
20 victims. And as Sam said, I hope we
21 come up with information in the course
22 of this investigation that will prevent
23 such a tragedy from occurring in the
24 future.
25 I would like to start my

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1 presentation. I'm going to be using
2 PowerPoint, so you may want to refer to
3 the screen as we go by. I first want
4 to talk a little bit about the ignition
5 requirements for methane. And as you
6 all know and you've probably heard many
7 times, that you need a --- for the
8 methane air mixture to be explosive, it
9 must be within the range of 5 to 15
10 percent, but you also need at least 12
11 percent oxygen. Now, the key here is
12 that you only need a very, very small
13 amount of energy to cause an ignition.
14 And in science and scientific terms,
15 this has been determined by the U.S.
16 Bureau of Mines to be .3 millijoules of
17 energy for an 8.5 percent mixture.
18 The general consensus is
19 that the explosion has occurred ---
20 did occur in the sealed area. And a
21 couple points to make, and I think Ben
22 had already made these, is that the
23 sealed area was essentially void of any
24 potential source of energy. Secondly,
25 there were no metallic objects, such as

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1 track cable or belt conveyor structures
2 that extended from the active areas of
3 the mine into the sealed area.
4 Okay. So what are the
5 possibilities that an explosion can
6 occur in a sealed area when there's
7 essentially nothing back there? Well,
8 there's three things that immediately
9 would come to mind. The first being
10 frictional energy from roof falls. The
11 second one being chemical energy from
12 spontaneous combustion and the third
13 being electrical energy from lightning.
14
15 Okay. If we take a look
16 at frictional energy from roof fall,
17 the sealed area was actually accessible
18 after the roof fall --- excuse me, I
19 should say explosion. That's a mistake
20 on my part. Was accessible after the
21 explosion. And the investigators could
22 not find any evidence that the roof
23 fall that --- that a roof fall was an
24 ignition source.
25 Spontaneous combustion?

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1 There is no history of spontaneous
2 combustion at the Sago Mine, and no
3 evidence was found to support
4 spontaneous combustion as an energy
5 source for the ignition during the
6 course of the investigation.
7 So what are we left with?
8 Lightning. And on the morning of the
9 explosion, there was a severe and
10 somewhat rare lightning storm for that
11 time of the year that passed through
12 the area of the mine. And as a result,
13 there's a tremendous amount of evidence
14 in support of lightning. If we read
15 through here and then pointed these
16 out, but I'll
17 re-emphasize it here, because this is
18 very strong evidence that just can't be
19 ignored as a mere coincidence. The
20 probability of these three independent
21 events occurring at the exact same time
22 is astronomical.
23 So if we read through
24 here, there was a --- regional seismic
25 network recordings were independently

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1 analyzed and revealed that a seismic
2 event occurred at the location of the
3 Sago Mine within a four-second interval
4 centered at 6:26:38 a.m. Now, this ---
5 there was a report written by Dr.
6 Chapman, who's an assistant professor
7 of geology at Virginia Tech, who I had
8 no idea that, you know, he was even
9 doing this. And after I got in the
10 investigation, he called me one day and
11 sent over a copy of this report.
12 Vaisala, which is a lightning-
13 monitoring service that's located in
14 Tucson, Arizona reported that there
15 were two lightning strokes that
16 occurred at 6:26:35 a.m., within a
17 five-mile radius of the Sago Mine
18 portal. Okay. And they're illustrated
19 there. One of them, the closer one,
20 was a larger one having a peak value of
21 right around 101 kiloamperes, where the
22 second one was around 38.79
23 kiloamperes.
24 The third piece of
25 evidence that fits in with all of this

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1 is that the clock for the mine's CO
2 monitoring system indicated that CO was
3 detected at the exact same time of
4 6:26.
5 A little bit about the
6 lightning-detection network. There's
7 always questions when you get data.
8 Vaisala is a company that interprets
9 data from the U.S. National Lightning
10 Detection Network and prepares reports
11 that gives the magnitude, polarity and
12 location of each detected lightning
13 flash that occurs within a defined area
14 and time period. They estimate that
15 their --- that they have a 80 to 90
16 percent detection efficiency for
17 flashes with peak currents above five
18 kiloamperes. Okay. But this still
19 leaves open the possibility that not
20 all the lightning flashes that occurred
21 in the vicinity of the Sago Mine were
22 detected at the period --- at the time
23 of the explosion. So we have to keep
24 that in the back of our minds.
25 This is a map that

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1 Vaisala gives with their report. And
2 I'll point here to the portal of the
3 Sago Mine that's located here. This is
4 the large 101 kiloampere lightning
5 strike that occurred to the north of
6 the portal, and to the south of the
7 portal was the smaller 39 kiloamp
8 stroke. There were two other strokes
9 in the periphery and you can see one
10 located down here, as well as one up
11 here. This is a five-mile radius, this
12 circle that encloses the area. These
13 circles, or the ellipses around each of
14 the lightning strikes indicates, that
15 there's a 99 percent probability that
16 the lightning strike occurred within
17 that area.
18 Okay. So the lightning
19 stroke data was then taken and
20 superimposed upon a contour map, which
21 also has the layout of the mine. And
22 just to show the reference, the
23 locations of the lightning strike in
24 terms of the different areas of the
25 mine. Okay. And if you look here,

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1 here's the strike that occurs here, the
2 road that goes out of the mine runs
3 right up alongside of it. Okay. And
4 the mine is located here with the mine
5 entrance being in this area, the sealed
6 area, all the way up here. Okay. The
7 second lightning stroke was further
8 south in this area. And we did find
9 evidence this one actually hit a tree,
10 so we were actually able to determine
11 the exact location of that lightning
12 strike. Never did find a trace or
13 evidence as to where this strike
14 actually occurred.
15 Just to give you --- put
16 this into perspective, to give you some
17 idea of the distances from the
18 lightning flash to the different
19 portions of the mine, the distance from
20 the straight to the sealed area is
21 approximately two miles, which is a
22 significant distance. Okay. Also from
23 the strike to the mine entrance is on
24 the order of a mile. These are
25 approximate numbers. And the --- the

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1 one key thing is that the flash
2 occurred within 300 feet of the power
3 line that connects --- that feeds the
4 Sago Mine from the French Creek
5 Substation. The length of the power
6 line from the lightning flash to the
7 mine entrance is approximately two
8 miles.
9 This is a graph which
10 shows an average lightning stroke. Now,
11 there's different types of lightning
12 strokes and you may have noticed that
13 there was a positive sign and a
14 negative sign. And all that indicates
15 is if it's positive, is that a positive
16 charge is transferred from the cloud to
17 the earth. A negative sign indicates
18 that a negative charge was transferred
19 from a cloud to the earth. But there
20 is a difference in the characteristics
21 of these. Ninety (90) percent of all
22 lightning flashes are negative. Okay.
23 The two that occurred within the five-
24 mile radius of the Sago Mine are
25 positive. Now, it's not uncommon to

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1 have positive flashes during the winter
2 months. That's generally when they
3 more frequently occur.
4 Another point that is
5 worth mentioning is that the average
6 peak current of a lightning strike is
7 on the order of 31 kiloamps and is
8 illustrated in the slide that I have
9 here. And just to do a comparison, I
10 want to show you the 101 kiloamp stroke
11 that occurred and is the one that is
12 under consideration the most. And
13 also another important point to mention
14 is that the rise time, which is the
15 time it takes to go from zero to its
16 peak value is much less for a negative
17 strike, whereas the positive strike, it
18 takes much longer to go from zero up to
19 its peak value. And also as it decays,
20 it has a very long tail. So these
21 positive strikes have a tendency of
22 doing more damage, such as starting
23 fires and things of this sort, than as
24 compared to a negative strike.
25 Okay. The question still

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1 remains. Okay. We know lightning hit.
2 How did it get from where it hit to
3 the sealed area of the mine in order to
4 ignite the explosion? Okay. There's
5 two methods for which lightning can
6 propagate into a mine. It can be
7 conducted through metallic structures
8 which extend from the surface into the
9 mine, such as cables, conveyor
10 structures, water pipes and borehole
11 casings. The second method is through
12 the earth itself, propagating down
13 through the overlying strata in a
14 radial fashion. And if there are
15 geological faults, those can even lower
16 the resistivity and provide more of a
17 conductive path into the earth.
18 Okay. Let's talk about
19 the first one, the conduction through
20 metallic structures. Okay. If we look
21 at the point where the 101 kiloampere
22 lightning stroke occurred, it did hit
23 this tree, which was convenient because
24 it made it easy to find. Okay.
25 Unfortunately, it probably will kill

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1 the tree. But this tree is located
2 approximately 300 feet from the 12.4 kv
3 power distribution line that feeds ---
4 is the primary feed to the mine, as
5 well as further down for the
6 preparation plant.
7 Now, you might say, well,
8 it didn't hit the line, okay, so you
9 know, how could it have affected
10 anything? Well, lightning doesn't have
11 to strike something directly. Okay.
12 Whenever a lightning strike occurs, it
13 produces electric and magnetic fields,
14 which I want to illustrate here as
15 shown. And it sends out a very strong
16 magnetic field. And the strength of
17 that field, it's going to be --- this
18 is the electric field. It's going to
19 be dependent upon the magnitude of the
20 strike. In addition, it also has a
21 magnetic field. Now, if these fields
22 intersect with a metallic object,
23 they're going to induce voltages and
24 currents in those objects.
25 Okay. I want to use this

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1 illustration just to demonstrate this
2 to you. Here's one of the poles that
3 are located in the 12.47 kv
4 distribution line. And if we have a
5 lightning stroke that extends down, we
6 have an electric and a magnetic field.
7 Now, these actually occur
8 simultaneously, but for the purposes of
9 illustrations ---. Now, these
10 Institute of Electrical and Electronics
11 Engineers actually has an equation to
12 estimate the maximum amount of voltage
13 that you can induce in a conductor when
14 this occurs. And this is a phenomenon
15 that's quite common and well-known to
16 utility engineers or power-distribution
17 engineers. And I don't want to ---
18 didn't want to bring the equation out,
19 but I did the calculation and it
20 indicated that it could induce a pulse
21 up to 392 kv into that line without
22 even --- without a direct strike.
23 Okay. This shows the --
24 - essentially, the layout of the
25 distribution system. At the top here,

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1 you have two grounded neutral
2 conductors. These are essentially a
3 ground potential. They tie into the
4 neutral of the transformer at the
5 French Creek Substation and it feeds
6 the mine. And they're also located at
7 the top of the poles to act as shields
8 for --- to protect against lightning.
9 At the same time, down here are your
10 power conductors, your three phase
11 conductors, Phase A, Phase B and Phase
12 C, which are carrying the current for
13 doing the work and running the
14 machinery at the mine.
15 Now, the interesting
16 thing is, if we look at this, this
17 --- these grounded neutral conductors
18 extend for the entire distance of that
19 utility line. And when you get to the
20 mine, those same grounded conductors
21 are tied into the station ground bed
22 and the equipment at the mine
23 substation. They're also --- and you
24 can't see it here very well, but
25 there's a pole here and then there's an

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1 underground feed that goes to the
2 conveyor structure that's located here.
3 So those same grounding conductors
4 that are on top of those utility poles
5 coming into the mine are also tied
6 directly into the conveyor system.
7 Now, the conveyor system
8 extends for approximately two miles
9 from the mine entrance back to the One
10 Left and Two Left sections. And for
11 its entirety, for safety purposes in
12 terms of immediate roof control, ICG or
13 the Sago Mine uses a wire mesh that is
14 bolted directly to the roof. Okay.
15 And if you look at a side view of that
16 same belt entry, you also have your
17 conveyor structure, which is supported
18 to the roof by means of these chain
19 supports. The wire mesh runs right
20 along between the interface of the
21 bearing plate of the bolts and the roof
22 surface.
23 So now, essentially you
24 have a parallel path, okay, through the
25 structure of the belt, as well as

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1 through the wire mesh that is there to
2 support the immediate roof along the
3 belt. So you have this continuous path
4 that extends --- which I'm going to
5 draw here if you follow the diagram.
6 It will start near the lightning
7 stroke, and this is --- these are the
8 neutral grounding conductors that
9 extend from where the --- 300 feet from
10 within the lightning stroke to the
11 entrance of the mine. Okay. Now, from
12 that point, your continuous structure
13 is now picked up by the --- or the
14 continuous metallic conductor becomes
15 the belt structure itself, as well as
16 the wire mesh that is mounted to the
17 roof. So now you have a continuous
18 metallic path or conduit, as we say,
19 from the lightning --- from within 300
20 feet of the lightning strike, all the
21 way back to within a few feet of the
22 seals.
23 Okay. At the seals, you
24 are not allowed to have any metal
25 extending from the active workings into

1 the sealed area. So Sago Mine, as it
 2 should have, according to Federal
 3 regulations, severed the screen in
 4 order to install the seal in this
 5 location. So there is a gap in this
 6 metallic path across here. However,
 7 when we went into the mine, I made some
 8 resistance measurements from this side
 9 of the screen to this side of the
 10 screen, and it's extremely low, on the
 11 order of three ohms, which is extremely
 12 low. Now, a couple other people were
 13 with me at the time, and you know, in
 14 talking about it, we thought, well,
 15 maybe the carbon that was deposited on
 16 the surfaces of the roof and the floor
 17 and the walls could have contributed,
 18 because carbon is somewhat of a --- is
 19 a semi-conductor and could have lowered
 20 that resistive path.
 21 So MSHA went in and did
 22 some studies. And I wasn't --- I
 23 didn't participate in that study, but
 24 Larry Dean from ICG did. In which
 25 case, they actually drilled into the

1 roof and inserted pins so that the
 2 carbon coating on the roof would not
 3 contribute to it. And they, too, found
 4 comparable measurements across this
 5 seal in the belt entry.
 6 Okay. Now, this is the
 7 location of the mesh throughout the
 8 entire sealed area. Okay. These
 9 darkened lines here, these are the
 10 entries. This point right here ---
 11 well, just to orient you, this ellipse
 12 encircles the seals. Okay. So beyond
 13 this point, this is the sealed area
 14 back here, this is going into Two Left
 15 up here, and that's where the conveyor
 16 belt goes. So the wire mesh was mapped
 17 from the area of the end of the main
 18 conveyor belt back into the sealed
 19 area. And as you can see, there's
 20 nearly continuous paths that go back
 21 there. Okay. You do have the gap here
 22 at the seals, as is required, okay, but
 23 it's almost continuous. You have some
 24 small gaps. And, again, MSHA made
 25 resistance measurements across these

1 and came up with some very, very low
 2 values.
 3 So what's the point I'm
 4 trying to make? Is that there is
 5 essentially an extremely low resistance
 6 path from within 300 feet of the
 7 lightning strike up into the sealed
 8 area. Okay. Now, to --- just to show
 9 a simple diagram, here's the lightning
 10 strike here and this is the --- this is
 11 the resistive path that it takes, okay.
 12 This lightning strike is going to
 13 induce voltage onto the conductors and
 14 the power system. Some of it is going
 15 to head back in this direction, towards
 16 the French Creek Substation, while
 17 other is going to head this way.
 18 Now, there are periodic
 19 paths to ground where you bleed off
 20 some of the energy associated with that
 21 induced voltage. Okay. The poles have
 22 butt grounds where their conductor goes
 23 down alongside the wooden pole and it's
 24 coiled at the bottom of the pole in the
 25 --- within the earth where it's

1 installed. This is also tied to the
 2 station ground bed, which is at the
 3 mine. Okay. Then when you go in where
 4 you tie into the belt structure, the
 5 green represents the belt structure and
 6 the wire screen, extends back this way.
 7 And you're going to be bleeding off
 8 through the roof bolts up into the
 9 roof. And then you're going to pass
 10 into the sealed area where you have
 11 just solely the wire screening that
 12 will conduct the material and again, it
 13 will pass.
 14 Now, you know, keep in
 15 mind that the current from the
 16 lightning strike is trying to get to,
 17 what we refer to as, infinite earth the
 18 easiest way it can. And it will take
 19 all possible paths, but the majority of
 20 its current is going to be confined to
 21 a path of the lowest resistance.
 22 Okay. Well, let's talk
 23 about this and then I'll come back to
 24 that. The second method that we have
 25 to consider for the sake of

1 completeness --- I mean, you want to
 2 look at all possible things. There are
 3 a lot of gas lines located in the area
 4 of the Sago Mine. There's distribution
 5 lines that run ---. There's one that
 6 runs right across the gob area. And
 7 I'll show you on the map. There's gas
 8 wells located in the area. There's
 9 actually a gas well that's located
 10 within a hundred feet of the gob area,
 11 so --- not gob area, but the sealed
 12 area. Okay. But the gas lines do not
 13 provide a direct conductive path into
 14 the sealed area. Okay. The well gets
 15 close to it, but it doesn't go into
 16 it. Okay. The shortest --- and also
 17 the shortest distance between the
 18 lightning strike and the gas line is
 19 approximately 1,700 feet. And I think
 20 it was --- Monte Hieb from the State,
 21 essentially created this map and marked
 22 the gas lines all over. And I've gone
 23 over them again with a heavier line
 24 just so that they show up a little
 25 better. The mine is just a shadow

1 here. This is the sealed area. I
 2 meant to change this color. It doesn't
 3 show up too well. Okay. But here's
 4 the lightning strike that we're talking
 5 about. And the shortest distance is,
 6 let's say, from here to here for
 7 coupling purposes. So at this point,
 8 you know, it's hard to tell. There's
 9 work that still needs to be done in
 10 terms of simulations, and that's true
 11 for all the cases to see whether or not
 12 these scenarios are feasible. Okay.
 13 The way this would work
 14 is that the strike hits the ground, you
 15 create a potential gradient as the
 16 currents move down through the earth.
 17 If a gas line is in the area of
 18 influence of this pressure --- it's not
 19 pressure, but voltage gradient, then
 20 you're going to induce a voltage or
 21 couple a voltage onto that gas line
 22 which will induce currents flowing
 23 through it. These currents can flow
 24 for extremely long distances, even
 25 though all surfaces of the gas line is

1 in intimate contact with the earth
 2 around it. Here shows an example of a
 3 horizontal distribution line tied into
 4 a well. And a mine opening nearby, and
 5 you can get a propagation path in this
 6 direction. Again, this is just shown
 7 for the sake of completion as to how,
 8 you know, the possibility for this to
 9 occur.
 10 Okay. Now, our final
 11 scenario is to look at lightning
 12 actually propagating through the earth.
 13 Now, for that to occur, though, you
 14 pretty much have to have a lightning
 15 strike directly over the sealed area.
 16 As of now, there is no evidence to
 17 indicate that a lightning strike
 18 occurred there. However, one of the
 19 residents who lives across the street
 20 from the sealed area, you know, made a
 21 verbal statement to us that he was
 22 awake and had his dog --- let his dog
 23 out at almost exactly the time of the
 24 explosion and he saw a very bright
 25 flash and an instantaneous thunder.

1 Now, what does that mean?
 2 It means the lightning strike would
 3 have had to have been very close.
 4 Okay. Because if it were a mile away,
 5 it would take on the order of --- it if
 6 were two miles away, it would take on
 7 the order of nine seconds for the
 8 thunder to get there after the flash
 9 occurred. All right. Let's just assume
 10 that we did have a strike in that area.
 11 And the way it would occur is if it
 12 hit the ground, again, the potential
 13 gradient would be a setup from the
 14 current slowing down through the earth,
 15 and depending upon the soil resistivity
 16 --- excuse me, depending upon the soil
 17 resistivity of the overburden, you can
 18 get relatively high voltages down here.
 19
 20 From previous work that I
 21 have done, I'll give you an example,
 22 and I think it's in one of my papers.
 23 Using an 84 kiloamp lightning stroke, I
 24 was able to get scalar potentials or
 25 voltages on the order of 12,000 volts

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1 at a depth of 600 feet with a soil
2 resistivity of around 400, ohmmeters.
3 Now, it turns out the soil resistivity
4 in that area actually is quite low over
5 the sealed area. We went out and made
6 measurements using an instrument, the
7 AMC Model 4500 digital ground
8 resistance measurement. And the
9 separation of these probes dictates the
10 average --- dictates the depth of the
11 soil that you're determining the
12 average resistivity for. Okay. So we
13 separated them at 250 feet, you know,
14 which would coincide with what the
15 approximate depth of the overburden is
16 at the --- at the sealed area. And
17 this gives you an indication. This is
18 actually the sealed area out here. And
19 we took two sets of measurements. One
20 along a direction like so. One not
21 perpendicular. You'd like to get it
22 perpendicular, because --- but because
23 of the road and some of the other
24 interference, we weren't able to. But
25 we ended up with 200 ohmmeters along

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1 this line and also 120 ohmmeters along
2 this line, which indicates that it is a
3 very low soil resistivity. Now, the
4 difference between the two is probably
5 because of the gas line that runs
6 through this area caused some
7 variation.
8 Now, in conclusion, the
9 agreement in the timing associated with
10 the lightning data, the seismic
11 analysis, and CO monitors offer
12 extremely strong evidence that
13 lightning provided the ignition source.
14 The lack of any evidence in support of
15 other potential sources further
16 strengthens this argument. I mean, I
17 haven't found or I haven't heard of
18 anything other than lightning. I mean
19 --- yeah, as being a potential source.
20 However, the definitive mechanism in
21 which lightning penetrates ---
22 penetrated the seals has not been
23 determined. There's still work that
24 has to be done. And it's --- you can't
25 do experimental work when you're

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1 working with lightning, okay. I mean -
2 -- so what I have to rely on are
3 computer simulations and that's going
4 to be the next step of the
5 investigation. Thank you for your
6 time.
7 CHAIR:
8 Thank you.
9 MR. HATFIELD:
10 Mr. Sawyer?
11 DR. SAWYER:
12 Hi. My name is Steve
13 Sawyer. I worked for the Mine Safety &
14 Health Administration from 1970 until I
15 retired in 1999. And in fact, Mr.
16 McAteer was my boss. I'm a structural
17 engineer by education. I got my
18 professional engineering license in
19 structural engineering in 1971. Now,
20 working for MSHA, one of my jobs were
21 to design and be the construction
22 manager on their facilities. Mr.
23 McAteer had me design the multi-purpose
24 building down at Beckley, where it
25 stores MSHA's mine emergency equipment,

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1 the fire training center down there
2 where a lot of the mine rescue teams
3 trained. I designed that and
4 constructed that. And before I
5 retired, Mr. McAteer had me going up to
6 our approval and certification center
7 in Wheeling and just totally revamp
8 that whole facility, some of which I
9 originally designed in 1982. In
10 designing those buildings and
11 facilities as a structural engineer, I
12 used the same equations and courses
13 that my daddy did. He was a structural
14 engineer. And those principles have
15 been around for a long time. My daddy
16 used a slide rule, I used a computer.
17 That was the fun part of
18 my job, designing and building
19 buildings. But being --- as a
20 structural engineer, when there were
21 mine fatalities, mine disasters, mine
22 explosions and things were damaged, I
23 was called in because those same
24 equations, those same theories that you
25 use to design buildings for certain

1 forces, you use in investigating damage
 2 that's been done.
 3 I was called in by ---
 4 called up by ICG and asked if ---
 5 they'd like me down here to take a look
 6 at what happened in the mine, and if I
 7 could tell them what forces the seals
 8 had seen. Said they were all
 9 destroyed. And my answer was yes,
 10 sure.
 11 I went underground, spent
 12 a lot of time underground. You know,
 13 as a structural engineer, I spent my
 14 time around those seals. And what I'm
 15 looking for are things made of metal
 16 that have been deformed. They can be
 17 small or they can be large. And the
 18 two prevalent items that I found around
 19 the seals were, around all of them
 20 inby, is a roof pan with a roof bolt
 21 plate on it. And that goes up against
 22 --- up against the roof. Many --- is
 23 that still on?
 24 Many of these were
 25 deformed. I took measurements on those

1 and ran calculations to determine what
 2 force --- what force would cause those
 3 deflections. In track entry Number
 4 Five G, where Number Six seal was, they
 5 had these belt hangers. And if you
 6 remember Dr. Novak's slide, he showed
 7 the conveyor belt. You can see a chain
 8 hanging down from the mine roof. This
 9 is what they connect the chain to.
 10 Inby and outby seal Number Six, the
 11 majority of these things were bent in
 12 the outby direction. I had measured
 13 them. Monte Hieb, from the State of
 14 West Virginia, did a very good job
 15 measuring those items inby and outby
 16 and provided a nice drawing of those.
 17 And I agreed with what he obtained.
 18 I analyzed these
 19 structurally to find out what force or
 20 what pressure would cause the
 21 deformation that I saw. Each one of
 22 these items can be considered as a
 23 pressure gauge that permanently records
 24 the pressure to which it had been
 25 subjected. From the belt hangers ---

1 CHAIR:
 2 Wait a second. They
 3 can't hear you. Here.
 4 DR. SAWYER:
 5 What I had determined
 6 from the calculations were that those
 7 belt hangers that were visibly bent had
 8 seen a minimum pressure of 60 psi.
 9 That was using a simple beam equation
 10 that my father used and structural
 11 engineers used. Then I used one of the
 12 modern tools called finite element
 13 analysis. I analyzed that. I got 62
 14 psi.
 15 Then I took samples of
 16 the belt hanger and physically loaded
 17 them up to various pressures, and those
 18 tests showed 63 psi, which start to
 19 bend those. And the highest pressure
 20 that they could record before they
 21 completely flopped over were 92 psi.
 22 Analyzing the root plates for the
 23 various configurations again, using
 24 what is known as the beam equation, I
 25 calculated that the pressures that

1 would cause that to permanently move
 2 would be between 11 psi and 25 psi.
 3 Now, inby the seals, there were many of
 4 these that were completely flopped
 5 over.
 6 So what can I say from
 7 what I've done to date as a structural
 8 engineer? I will mention to you that I
 9 plan to do load deflection tests on
 10 these, and that's really going to be
 11 the proof of the pudding. But from
 12 what I have done to date, I can say and
 13 certify to you, as a structural
 14 engineer registered in the State of
 15 Pennsylvania and West Virginia, that
 16 seal Number Six saw a minimum deep
 17 pressure of 60 psi, that could have
 18 been as high as 90 psi. All the other
 19 seals, I can say and tell you saw at
 20 least 25 psi. That's all I can say as
 21 an engineer at this point in time. I
 22 can also tell you that the explosion
 23 took place behind the seals. I don't
 24 know where it took place or how it took
 25 place. That's not my --- that's not by

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1 bailiwick. But it took place there,
2 from the way all these items had been
3 deformed.
4 Not speaking as a
5 professional engineer but just as a
6 person to you all, I'll tell you what
7 my gut feeling is. My gut feeling is
8 seals Number Four to Ten saw well above
9 25 psi and as high as 60 psi. My work
10 is continuing. MSHA and NIOSH are
11 conducting full-scale explosion tests
12 down at Lake Lynn. They're sharing that
13 information with me. And that work
14 will continue. My work will continue,
15 but as of today, that's all I can tell
16 you. Thank you.
17 MR. HATFIELD:
18 Thank you, Dr. Sawyer.
19 Mr. Chairman, we're now prepared for
20 questions.
21 QUESTIONS OF PANEL FIVE
22 CHAIR:
23 Thank you, Mr. Hatfield.
24 If I could ask a few introductory
25 questions and then turn it over to

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1 Panels and the folks. Dr. Novak, if I
2 understand you correctly here, your
3 conclusion is that by virtue of a
4 negative hypothesis excluding other
5 possibilities?
6 DR. NOVAK:
7 No.
8 CHAIR:
9 No?
10 DR. NOVAK:
11 Well, I mean, that enters
12 into the equation. That's one of the
13 factors. But the three corroborating
14 pieces of evidence with the exact piece
15 of time that are totally, you know,
16 obtained independent of each other, to
17 me provides overwhelming evidence. And
18 then if you throw in, well, what other
19 possibility could it be, that just
20 further strengthens the argument.
21 CHAIR:
22 Have there been other
23 lightning strikes in the mine in this
24 country that you're aware of?
25 DR. NOVAK:

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1 Yes.
2 CHAIR:
3 And could you describe
4 those?
5 DR. NOVAK:
6 Those are actually
7 different than this scenario. This is
8 the first one that I've encountered
9 where a steel-cased borehole did not
10 extend from the surface above a gob
11 area directly into a gob.
12 CHAIR:
13 What about in other
14 countries, have you examined --- have
15 you examined directly ---?
16 DR. NOVAK:
17 No, I haven't.
18 CHAIR:
19 That for me was a
20 difficult thing to try to --- we've
21 never had this experience before. And
22 I don't rule it out. I'm simply
23 saying, it's peculiar.
24 DR. NOVAK:
25 Let me back up on that.

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1 There is literature in South Africa.
2 When I first got into this, probably
3 about seven or eight years ago ---.
4 There is well-documented literature
5 that indicates that lightning had
6 propagated into shallow mines. And
7 when I say shallow, 300 feet in depth.
8 They use 100 meters. And they have
9 even identified it as propagating
10 through the strata into the mine itself
11 without coming through on an electrical
12 conductor.
13 CHAIR:
14 One of the questions,
15 though, that has come up is the
16 families have asked if there's any way
17 to get paper copies of your PowerPoint
18 presentation?
19 DR. NOVAK:
20 Yeah, I think we can make
21 arrangements for that. Sure.
22 CHAIR:
23 Thank you.
24 DR. NOVAK:
25 Uh-huh (yes).

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1 CHAIR:
2 The other question in my
3 mind is, you haven't ---. In other
4 words, you have not come to a
5 conclusion as to the --- of the three
6 theories that you're currently
7 espousing, ---
8 DR. NOVAK:
9 Correct.
10 CHAIR:
11 --- I guess, you have not
12 come to one conclusion over another?
13 DR. NOVAK:
14 That's correct. In my
15 mind, I probably have a higher
16 probability for one versus others, but
17 until I actually have some scientific
18 data to back me up, I don't want to go
19 out on a limb and say that.
20 CHAIR:
21 And what does this have
22 to do --- what impact do you think this
23 has for other mines in the country who
24 have sealed areas?
25 DR. NOVAK:

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1 That's a very good
2 question right now. I'm just trying to
3 figure out what the cause was. And
4 once we can identify that with a high
5 degree of probability, then we need to
6 really start taking some serious looks
7 at what we can do to at least minimize
8 the possibility of that of occurring.
9 MR. HATFIELD:
10 Mr. Chairman, if I may
11 jump in on that point of Dr. Novak's
12 comments? I believe the Sago incident
13 clearly demonstrates that the old rule
14 --- old rules of sealed areas and how
15 we manage sealed areas have failed us.
16 The regulatory requirements don't
17 address the kind of unusual event that
18 we have seen at Sago. So I think it
19 certainly calls for a re-examination of
20 the risk imposed by sealed areas.
21 Should we consider something such as
22 nitrogen injections, commonly done, as
23 you know, in Australia and some areas
24 even in New Mexico? Should we consider
25 an inert gas injection that immediately

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1 makes a sealed area safe? Don't know
2 those answers yet, but I think this
3 certainly tells us that we've got to
4 re-examine the old assumptions.
5 CHAIR:
6 I don't disagree and
7 applaud your suggestion that we look at
8 these alternatives. The difficulty I
9 have, and I'm not saying this in an
10 argument way, you know, we've been
11 mining in the country for a hundred
12 years and this is the first time, I
13 mean, that we've ---.
14 DR. NOVAK:
15 Well, it may be. It may
16 not be. It could happen without people
17 even knowing about it. I'll give you,
18 you know, a classic example. When I
19 first got into this was in a mine in
20 Alabama. And the mine was operating at
21 the time when the explosion occurred.
22 Now, the area that was sealed was, you
23 know, probably a couple miles away from
24 it underground and the people working
25 at the time didn't even know that the

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1 explosion occurred and they continued
2 to work. And they didn't even find out
3 about it until the next day when the
4 fire boss made his mine examiner run
5 and found that the seals, or the
6 concrete blocks, were lying on the
7 ground where the seals had been blown
8 out. So ---.
9 CHAIR:
10 But again, correct me if
11 I'm wrong, that was a case where there
12 was a conduit?
13 DR. NOVAK:
14 There was a --- yeah.
15 CHAIR:
16 And that's what I'm
17 asking. This really, truly is an
18 inquisitive question as ---.
19 DR. NOVAK:
20 Well ---.
21 CHAIR:
22 I mean ---.
23 DR. NOVAK:
24 I think the one element
25 that exists here that hasn't existed in

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1 --- that doesn't exist in a lot of
2 mines is the wire mesh. Okay. And I
3 think if you can get enough energy
4 propagating through the earth ---. And
5 this is for shallow --- this would have
6 to for shallow mines. Okay. For deep
7 mines, you know, you're going to need
8 some sort of a metallic conduit in
9 order to conduct the necessary energy
10 to that depth. Okay. But essentially
11 if you can couple currents to wire mesh
12 and if you can picture where the wire
13 mesh overlaps each other, you're going
14 to have somewhat of a discontinuity.
15 And where you have discontinuity, you
16 have a tendency of having a little bit
17 of resistance between it. And any time
18 you get current flowing through there,
19 you're going to get sparking and
20 arcing. Okay.

21 CHAIR:
22 Yeah.

23 DR. NOVAK:
24 It's sort of similar to
25 when you go to jump your battery on

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1 your car, if you don't have the clamps
2 on as tight, you know, as they probably
3 should be, you'll see sparking that
4 occurs. And I think, --- because
5 there is that discontinuity between the
6 terminal and the clamp itself.

7 So, you know, you have to have -
8 -- well, think of this also. I mean,
9 you have to have a number --- when you
10 have a catastrophe --- catastrophe like
11 this, it's usually just one --- not one
12 thing that occurred. There's multiple
13 events that have to fall in place.
14 Okay. You know, it has to be in that
15 right concentration of methane. You
16 have to have the lightning strike. The
17 lightning strike has to hit at the
18 exact point. Okay. And I don't ---
19 this is a rare occurrence. Okay. It
20 has happened before and I think we've
21 noticed it. You know, well, in the
22 last ten years, I know of two cases in
23 Alabama. There may have been a third
24 one even in Alabama and then one in
25 West Virginia down around Beckley.

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1 CHAIR:
2 Yeah, Beckley. Yeah.

3 MR. DEAN:
4 Yes, sir. Mr. Novak,
5 could you explain how you have
6 essentially ruled out roof falls as a
7 potential cause?

8 DR. NOVAK:
9 I didn't rule it out. I
10 mean, that's not my --- that wasn't
11 within my area of investigation. The
12 other areas of the investigation team
13 had total access, or pretty much
14 access, of the sealed area. And I
15 don't know. Sam, maybe you can address
16 it. Were there any new roof falls that
17 were detected in the area there?

18 MR. S. KITTS
19 Yes. The other members
20 of the team have --- that have
21 knowledge of the type of roof fall
22 generally associated with longwalls and
23 having a massive fall occur at one
24 particular moment where you get a
25 frictional force that actually creates

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1 the spark. This particular area was a
2 Roman-pillared area with no second
3 mining. And upon investigation in by
4 the seals, there was no falls found
5 anywhere near that magnitude.

6 MR. DEAN:
7 Mr. Novak, are you aware
8 of any reports of lightning causing
9 roof falls?

10 DR. NOVAK:
11 No, I'm not.

12 MR. DEAN:
13 When you talked about the
14 seismic event within a
15 four-second interval, would you expect
16 that a roof fall would cause that
17 seismic event to be recorded?

18 DR. NOVAK:
19 I think a large enough
20 roof fall could create a seismic event,
21 certainly. Yes.

22 MR. DEAN:
23 Could you explain what
24 protection devices would be on the
25 distribution network? I believe it was

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1 a 12.4 kv power lines, that would
2 prevent the transmission. And I forge
3 the exact number, but about 394 kv ---
4 DR. NOVAK:
5 Yeah.
6 MR. DEAN:
7 --- charge from
8 propagating down that line?
9 DR. NOVAK:
10 Well, you've got to keep
11 in mind, when it induces currents, it
12 will induce it into all of them. Okay.
13 Now, what you protect or what the
14 utility company protects, or any
15 company protects, the phase conductors.
16 All right. But those grounding
17 conductors were also mounted on the
18 pole, acting as shielded --- as shield
19 conductors against lightning. It's
20 kind of ironic, but that's why they
21 were there. When the power conductors
22 become --- if you get a high pulse of
23 voltage induced with them, you
24 generally have lightning arrestors or
25 surge arrestors mounted periodically

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1 along the line that should act, okay,
2 in order to dissipate that overvoltage
3 to the ground. Okay. Which is where
4 the shielded lines are connected.
5 Okay.
6 So you can't use, like, a
7 surge arrest or on a grounding
8 conductor because the grounding
9 conductor's already a ground potential.
10 You know, there's no ---where are you
11 going to connect it to? I mean, it's
12 already at ground. And the thing is,
13 even though it's at ground potential,
14 it's still capable of carrying a
15 tremendous amount of current through
16 it, because it is a low impedance path,
17 particularly to the low frequencies
18 associated with the lightning.
19 When you have a lightning
20 striking, as I showed on there, you get
21 a pulse. And I don't want to try to
22 get technical here, but that pulse is
23 made up of all sorts of frequencies.
24 That's why if you have an AM radio, it
25 gives you static and everything else.

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1 And certain frequencies, the conductor
2 has a high impedance, too, but with
3 the low frequencies, it will conduct it
4 for extremely long distances.
5 MR. DEAN:
6 Well, I think I heard
7 you, and based on my knowledge of
8 electricity, which is not a great deal,
9 but electricity does try to go to
10 ground; is that correct ---
11 DR. NOVAK:
12 No.
13 MR. DEAN:
14 --- to say that?
15 DR. NOVAK:
16 No. It tries to --- it
17 tries to get back to the source that it
18 came from. You know, if it's a
19 --- let's say if it's a battery and it
20 leaves the positive terminal, it's
21 trying to get back to that negative
22 terminal. Okay. But in the case of
23 lightning, you have to think of
24 lightning as a --- I guess the best
25 analogy is a huge capacitor. Okay.

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1 You have a positive --- well, positive
2 or a negative charge. But in the case
3 of the lightning strike that we're
4 talking about, the clouds are just a
5 big positive charge. The earth is this
6 negative charge, and you have an
7 insulator between them, a dielectric.
8 Okay. And once the electric field is
9 greater than the strength of the air,
10 what ends up happening, it starts
11 sending down what they refer to as
12 leaders, okay, which are ionized paths.
13 And when it gets close to the ground,
14 the earth actually sends up a streamer.
15 And when those two meet, that provides
16 a very low impedance path for the
17 discharge of the cloud directly into
18 the earth.
19 Now, what ends up
20 happening is, because those charges in
21 the cloud are positive, they're going
22 to flow into the earth, trying to find
23 electrons and --- electrons the easiest
24 way it possibly can in order to
25 neutralize itself.

1 So in answer to your
2 question, with lightning, yes, it's
3 always going to flow into the earth.
4 Okay. With other sources, it doesn't
5 have to. It could, depending upon the
6 range mode of the system.
7 MR. DEAN:
8 I guess that kind of
9 leads into another question. How many
10 of the butt ground --- you mentioned
11 that these poles are butt-grounded.
12 DR. NOVAK:
13 Yeah.
14 MR. DEAN:
15 And I believe that's also
16 attached to the overhead ground wires;
17 is that correct?
18 DR. NOVAK:
19 Yes. They're connected.
20 They're just bare conductors that are
21 connected to the overhead neutral
22 grounded conductors and they extend
23 down the side of a pole. And they're
24 just a coil that are placed in the hole
25 before the pole is inserted there. And

1 to be honest with you, I don't know the
2 exact number of them. I asked that
3 question. I didn't walk the lines.
4 They were walked before I got there.
5 And I spent my time in some other
6 areas. But they weren't --- all poles
7 were not butt grounded, I'll put it
8 that way. It was just sort of sporadic
9 and intermittent butt-grounding
10 that occurred.
11 MR. DEAN:
12 You also had a diagram
13 there that --- again, going down the
14 mine distribution system that voltage
15 was induced there.
16 DR. NOVAK:
17 Right.
18 MR. DEAN:
19 And then went over onto
20 the roof screen to potentially reach
21 the area outside the seals. And you
22 also had the roof bolts showing there
23 as, again, additional sources to
24 ground; is that correct?
25 DR. NOVAK:

1 That's correct. That's
2 correct.
3 MR. DEAN:
4 I mean, what I'm
5 struggling with, Mr. Novak, is how many
6 of those roof bolts and opportunities
7 for that potential source of energy to
8 go to ground from the mine mouth all
9 the way to the top of Two North mains
10 was there? And how do you explain how
11 that electricity would have went all
12 the way to the seals and bypassed all
13 these opportunities to go to ground?
14 DR. NOVAK:
15 Yeah. And that's a very
16 good question, and I can't give you an
17 answer for it. And I don't --- and
18 to be honest with you, I don't know if
19 we can. That's why I'm saying I need
20 to do the next step now, once I explain
21 a possible scenario, to see if enough
22 energy is able to propagate the length
23 of that conductive path.
24 MR. DEAN:
25 The other one, I guess

1 with the gas line, you know, the
2 opportunity for that energy to follow
3 that gas line. Again, in one of your
4 slides you showed energy dissipating
5 out into the ground.
6 DR. NOVAK:
7 Right.
8 MR. DEAN:
9 And you mentioned
10 modeling that. I mean, how would you
11 try and arrive at how much energy would
12 be dissipated?
13 DR. NOVAK:
14 We can model that. We
15 have software to --- I can model that
16 in a couple ---. I don't know if you
17 got the copies of my papers, but I did
18 a couple papers. And it's interesting,
19 the questions that you're asking me
20 right now are the same questions that I
21 asked when I first got into this.
22 Okay. When that incident in Alabama
23 occurred, I said, there's no way that
24 enough energy can go down that borehole
25 for 1,200 feet, because it's in

1 intimate contact with the earth, okay,
 2 that it would have enough energy by the
 3 time it got to the bottom. Well, it
 4 turns out I was dead wrong. Okay. The
 5 amount of energy --- and again, it
 6 depends upon the --- you know, how
 7 close the strike hits, if it's a direct
 8 hit or whatever. But you can get a
 9 tremendous amount of energy flowing
 10 along ---. You will get current that
 11 bleeds off as it goes down into the
 12 earth, but keep in mind that steel is a
 13 much better conductor than earth is, so
 14 ---.

15 MR. DEAN:

16 I'm sorry, can you repeat
 17 that?

18 DR. NOVAK:

19 I said steel is a much
 20 better conductor than earth.

21 MR. DEAN:

22 Thank you. Well, I guess
 23 --- you know, that's the part I'm
 24 struggling with. And again, maybe, you
 25 know, trying to take your figure, I

1 think you also had it here of where the
 2 lightning struck the tree, and again
 3 going two miles and then down, down the
 4 borehole to the sealed area, the amount
 5 of that leakage and well ---.

6 DR. NOVAK:

7 For the gas lines you
 8 mean? Yeah, I agree with that. That's
 9 a stretch. And I don't know. I
 10 included that in there for --- you
 11 know, for completeness as a
 12 possibility, just because those gas
 13 lines do exist. Now, whether or not
 14 that could actually occur, I don't
 15 know. Okay.

16 Now, again, we said that

17 --- I mentioned that the lightning
 18 reports that we got from Vaisala have
 19 80 to 90 percent detection efficiency.
 20 So there's always that question in the
 21 back of your mind, well, did it miss
 22 one? All right. And would it miss one
 23 that actually would have put it in the
 24 position that it could have caused
 25 that, okay, if it were much closer than

1 the one at 1,700 feet away? Or could
 2 it have hit right above the sealed
 3 area?

4 And we --- you know, we
 5 scoured that area. We looked at it,
 6 not only myself, Sam, I know, had
 7 people going all over looking for
 8 --- we even brought in a forester ---
 9 because we thought we had found a tree
 10 that was struck by lightning. And it
 11 turns out it was because of a late fall
 12 --- or early fall snowstorm that caused
 13 it to snap, instead of the lightning
 14 itself. But we looked through that
 15 whole area, trying to find any little
 16 bit of evidence that we can. But
 17 lightning does not always leave
 18 evidence either, so ---.

19 MR. DEAN:

20 And we've also looked
 21 that area over very well. And another
 22 question, was roof screen present from
 23 the mains into One Left section, to the
 24 best of your knowledge?

25 DR. NOVAK:

1 Pardon me again?

2 MR. DEAN:

3 Was the roof screen
 4 present in to the One Left section
 5 ---

6 DR. NOVAK:

7 In to the One ---

8 MR. DEAN:

9 --- belt entry?

10 DR. NOVAK:

11 --- into the One Left
 12 section? I think pretty much --- Sam,
 13 can you help me with that?

14 MR. S. KITTS:

15 Sure.

16 MR. DUNBAR:

17 Yes, it was.

18 MR. DEAN:

19 Okay.

20 DR. NOVAK:

21 Pretty much along the
 22 belt?

23 MR. S. KITTS:

24 I can't guarantee you
 25 there's no breaks in it, but the entire

1 belt entry is screened.
 2 MR. DEAN:
 3 I guess back to Mr.
 4 Novak, if I could, Mr. Chairman?
 5 Again, I'm trying to understand the
 6 projected path that you've put upon the
 7 electricity. Why would that not go out
 8 to One Left section? That would appear
 9 to be a lower resistance path.
 10 DR. NOVAK:
 11 It probably did. I mean,
 12 you've got to think of it as like a
 13 sheet of current that's going in all
 14 directions. Okay. It probably did.
 15 But there wasn't a methane mixture
 16 there that would cause ignition.
 17 MR. DEAN:
 18 And I guess those areas
 19 outby, are you aware of any additional
 20 breaks in the roof screen that would
 21 have prevented a continuous path?
 22 DR. NOVAK:
 23 Not that I'm aware of,
 24 but again, I can't say that. You know,
 25 if I'm going to do the simulations now,

1 I would want to walk that area or at
 2 least have somebody walk it to verify
 3 that it's a continuous path, yes.
 4 MR. DEAN:
 5 We're also working on
 6 that right now.
 7 DR. NOVAK:
 8 Okay. Who are you with?
 9 CHAIR:
 10 He's with the State.
 11 DR. NOVAK:
 12 The State, okay.
 13 CHAIR:
 14 While Jim's taking a look
 15 here, just two other factual questions.
 16 Is it my understanding that the power
 17 line post takes the power to the
 18 preparation plant first before going to
 19 the mine?
 20 DR. NOVAK:
 21 No, it branches off. If
 22 I could --- do you want me to put the
 23 picture up?
 24 CHAIR:
 25 Fine.

1 DR. NOVAK:
 2 Near the mine --- you
 3 know, before it makes a --- as it comes
 4 down, it heads over to the mine, then
 5 it goes straight down to the prep
 6 plant.
 7 CHAIR:
 8 And the other question
 9 is, the larger lightning strike, the
 10 one you were most suspicious of, is
 11 that across the river from the mine?
 12 DR. NOVAK:
 13 Yes, it is.
 14 CHAIR:
 15 Okay.
 16 DR. NOVAK:
 17 Uh-huh (yes).
 18 CHAIR:
 19 And would you
 20 characterize your finding here as more
 21 of a hypothesis than any conclusions?
 22 DR. NOVAK:
 23 Preliminary. I'd say
 24 it's a little strong, but yeah, okay,
 25 it could be, yeah, a hypothesis until I

1 back it up with some ---
 2 CHAIR:
 3 Sure.
 4 DR. NOVAK:
 5 --- simulations.
 6 MR. MCKINNEY:
 7 Just to clear up a couple
 8 things for me, Mr. Novak. I apologize.
 9 I got your report late and I only had
 10 a moment this morning to glean through
 11 it, so if the question seems simple ---
 12 .
 13 DR. NOVAK:
 14 I can hardly hear you,
 15 Ray. I'm sorry.
 16 MR. MCKINNEY:
 17 Can you hear me now?
 18 DR. NOVAK:
 19 Yeah.
 20 MR. MCKINNEY:
 21 Okay. We talked about
 22 the butt grounds a moment ago. The
 23 purpose of those, is that to dissipate
 24 electrical charges that may come into
 25 the neutral by accident?

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1 DR. NOVAK:
2 Say this again now.
3 MR. MCKINNEY:
4 The butt grounds that are
5 on the utility poles, is the purpose of
6 that ground to dissipate electricity
7 that may be on the neutrals?
8 DR. NOVAK:
9 Yeah. If it happens to
10 be struck by lightning, it is a path
11 for it to divert, to go to ground. That
12 is correct.
13 MR. MCKINNEY:
14 So the utility companies
15 do have something in place ---
16 DR. NOVAK:
17 Oh, yeah.
18 MR. MCKINNEY:
19 --- to address that?
20 DR. NOVAK:
21 Correct. Correct.
22 MR. MCKINNEY:
23 And I want to make sure
24 I'm following what you said earlier. It
25 was a lightning strike. Which was

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1 nothing direct. There was a magnetic
2 field that went over and charged the
3 neutrals of a power line, which in
4 turn, went to the mine. It's got into
5 the belt structure, which then went
6 into the hangers, which then went into
7 the roof bolts, which then went into
8 the screening and then went through the
9 roof over the seals, back into the
10 screening again and then into the
11 explosive mixture? Is that pretty much
12 it?
13 DR. NOVAK:
14 That's it.
15 MR. MCKINNEY:
16 Is this theory based more
17 on the timing of the seismic event ---?
18 DR. NOVAK:
19 No. This is --- yeah,
20 I've done numbers of simulations like
21 this. And I wouldn't be surprised if
22 there --- you know, if there was more
23 than enough energy that was able to get
24 back there. I mean, it surprises me
25 sometimes as to how much energy will

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1 propagate, particularly when you have a
2 conductor involved like that.
3 MR. MCKINNEY:
4 The scenario that we just
5 spoke of, is that the most likely of
6 the three you put on the screen?
7 DR. NOVAK:
8 Until I do simulations, I
9 don't --- I would really not like to
10 assign any probabilities to it, but ---
11 .
12 MR. MCKINNEY:
13 When it came to the mine
14 portals and, I guess, was conducted to
15 the belt structure, would that have
16 occurred if all the requirements, the
17 arrestors, the grounding fields,
18 everything required by the National
19 Electric Code and all the other
20 particular guidance and policies --- it
21 would have happened?
22 DR. NOVAK:
23 Yeah. It was done right.
24 I mean, it was done correctly. I
25 mean, you know, the belt structure

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1 needs to be grounded. And it is usually
2 grounded by the power supply that comes
3 up to it. And --- yeah.
4 MR. MCKINNEY:
5 Okay. On page 17 of your
6 report, you indicate that there will be
7 a future investigation considered to
8 evaluate the soil resistivity and the
9 properties of the pipes. When will
10 that report be finished?
11 DR. NOVAK:
12 Page what now?
13 MR. MCKINNEY:
14 Seventeen (17), I think,
15 is what I jotted down.
16 DR. NOVAK:
17 When it will be finished?
18 That's hard to say. I mean, I --- you
19 know, I do this part-time. I have a
20 real job. So, you know, I would say by
21 the end of --- it's a possibility that
22 it could be done by the end of summer.
23
24 MR. MCKINNEY:
25 And that's one of your

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1 three theories, though; right?
2 DR. NOVAK:
3 What's that?
4 MR. MCKINNEY:
5 That is one of your three
6 theories that you put up?
7 DR. NOVAK:
8 Yeah. And I'm still
9 having a hard time --- one of my three
10 ---?
11 MR. MCKINNEY:
12 Theories.
13 DR. NOVAK:
14 Which one, the one for
15 the ---.
16 MR. MCKINNEY:
17 Which one will be done in
18 the summer?
19 DR. NOVAK:
20 Okay. You know, I'm
21 hoping all three of them actually. By
22 the end of --- end of the --- or early
23 fall.
24 MR. MCKINNEY:
25 Would there be any way

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1 that the power company could confirm or
2 validate some of the assertions you've
3 made as far as the surge that may have
4 been on those grounds? You indicated
5 that it would have went toward the mine
6 and would have went in other
7 directions.
8 DR. NOVAK:
9 You mean, would they have
10 any data to indicate ---
11 MR. MCKINNEY:
12 Yes.
13 DR. NOVAK:
14 --- that that happened?
15 Probably not, because that's the way,
16 that's generally what it's supposed to
17 do. Okay. Under a normal
18 circumstance. Let's say that did not
19 feed the mine, let's say it fed the
20 prep plant or whatever and these
21 voltages were induced in the
22 conductors. Now, the phase conductors
23 are going to be elevated, and potential
24 also. They have surge arrestors on
25 them. The poles have a certain

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1 critical flashover rating associated
2 with that. And if that doesn't exceed
3 that, then there's not going to be a
4 short circuit that occurs. So the
5 circuit breaker won't trip, okay, it
6 will just divert those to ground and
7 eventually, the lightning surge would
8 bleed off through any mechanism that it
9 could find to get the ground, including
10 the butt grounds, and if it's connected
11 to ground back at the substation.
12 MR. MCKINNEY:
13 So would you opine that
14 the butt grounds are what the utility
15 companies depend upon to dissipate that
16 energy?
17 DR. NOVAK:
18 Would I what?
19 MR. MCKINNEY:
20 Would you --- would it be
21 your opinion that the butt grounds are
22 what the utility companies depend upon
23 to dissipate any energy that may come
24 into those neutrals?
25 DR. NOVAK:

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1 Yeah. And there also
2 grounded at the termination points,
3 okay. You know, it's at the mine.
4 Okay. You know, you have --- if you
5 tie into some substation, okay, you're
6 going to tie that ground into the
7 station ground. I mean, that's also
8 the --- that's also the station ground
9 for the mine substation, too.
10 MR. MCKINNEY:
11 Is there any physical
12 evidence at the mine site of where the
13 lightning may have entered the mine?
14 DR. NOVAK:
15 Any physical evidence?
16 MR. MCKINNEY:
17 Any charging or ---
18 DR. NOVAK:
19 Of any burning or
20 anything?
21 MR. MCKINNEY:
22 --- burning?
23 DR. NOVAK:
24 No.
25 MR. MCKINNEY:

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1 Anything like that?
2 DR. NOVAK:
3 No, I did not find that,
4 no. No.
5 MR. MCKINNEY:
6 Is there any surface
7 evidence of that at the mine site,
8 other than the tree and power line?
9 DR. NOVAK:
10 The tree is the only
11 thing.
12 MR. MCKINNEY:
13 You may not be able to
14 answer this question, but I think we
15 discussed the elimination of ignition
16 sources. We talked about roof falls
17 and I thought I heard somebody say that
18 there was no new roof falls in the
19 general area, therefore, that potential
20 ignition source, I guess, was at least
21 pushed farther down on the list of
22 priorities. Have you also considered
23 the possibility of a roof fall in
24 another area and the waking of a
25 methane concentration to this area?

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1 MR. S. KITTS:
2 Yes, we have. We mapped
3 the entire area inby the seals looking
4 for roof falls. And let me clarify it,
5 there are some falls that occurred
6 after the area --- after they stopped
7 traveling the area, and those haven't
8 been mapped, but none of them are what
9 you would call a massive fall.
10 MR. MCKINNEY:
11 Mr. Sawyer, your map that
12 I saw in your report defines primary
13 and secondary forces throughout the
14 sealed area. And I guess my question
15 would be, were you physically in all of
16 those areas that are defined on the
17 mine map?
18 DR. SAWYER:
19 My primary area where I
20 was --- was up near the seals. All
21 right? Now, I did go back into the
22 other part of here. But as a member of
23 the flames and forces' team, did I
24 track the entire gob area? No, sir, I
25 didn't. No. Only at the area of the

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1 seals could I say that the pressure
2 came down those entries and hit those
3 seals. I knew the direction at the
4 seals, but as far as, you know, how to
5 bounce around back there, no, I can't -
6 -- you know.
7 MR. MCKINNEY:
8 Was the map that
9 accompanied your report that we
10 received then, is it inaccurate or is
11 it not your submission? Because
12 there's a map inside that report that
13 has a legend that talks about primary -
14 -- or indicates ---
15 DR. SAWYER:
16 Primary and secondary
17 forces.
18 MR. MCKINNEY:
19 --- and secondary forces
20 ---
21 DR. SAWYER:
22 Yeah.
23 MR. MCKINNEY:
24 --- and they're shown
25 throughout the sealed area in their

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1 direction.
2 DR. SAWYER:
3 Correct. I mean, if
4 that's what the map says, yes, sir.
5 MR. S. KITTS:
6 If I might interject,
7 Ray? Other people were involved in
8 mapping those forces than Dr. Sawyer.
9 MR. MCKINNEY:
10 Okay. Let me change my
11 question then. The other people than
12 Mr. Sawyer that mapped that, were they
13 physically in that area of the mine
14 that the forces are indicated on the
15 mine map?
16 DR. SAWYER:
17 To my understanding, yes.
18 MR. MCKINNEY:
19 Okay. As I just gleaned
20 over your report, it appeared to me
21 that much of your work and analysis is
22 based upon the deflection of the plates
23 and the five pizza pans that you talked
24 about a while ago. So you're looking
25 at yield utensil strength. Is that

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1 something that you've used in the past
2 to make determinations about pressures
3 after mine explosions?
4 DR. SAWYER:
5 Yeah. For example, at
6 Blacksville Number One in 1991
7 where we had a --- if you're
8 familiar with that, an explosion
9 that had taken place there. And
10 the shaft had --- which was
11 reinforced concrete had
12 shattered out. And Clete
13 Stephan, who was working for me
14 at the time, and Steve Luzic
15 were out there. And of course,
16 you know, they came back and
17 said, boy, this looks like this
18 was very high and this is what
19 we have. Could you take a look
20 at this? And I did. And ran
21 through, you know, the
22 structural calculations and you
23 know, determined the pressure
24 that had taken place there. And
25 it was a --- it was a static.

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1 Initially, it was a static
2 analysis. Then the question, of
3 course, came up, what about ---
4 what about the dynamic analysis.
5 And, you know, that case
6 dragged on for years. And in
7 1995, I did a dynamic analysis
8 of, you know, that particular
9 explosion. Now, what I've
10 done here can be considered a
11 static analysis in the sense
12 that here's the key, we have
13 these structures that were
14 deformed. All right. What
15 pressure that you applied on
16 that, statically, would cause
17 the deformation? All right.
18 Our regulations for seals,
19 MSHA's regulations --- our
20 regulations for seals talked
21 about a 20 psi static pressure.
22 All these --- the belt hangers
23 and the pie pans --- they don't
24 know whether the force that they
25 felt was truly dynamic or

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1 static. The effective force
2 let's take along the belt
3 hangers --- was, you know, 63
4 psi applied to it statically
5 would cause that deformation.
6 Now, I guess, you know, you're
7 asking, well, what about ten psi
8 dynamic, would that cause the
9 same deflection? All right.
10 Well, any dynamic force, sure.
11 You know, just to explain the
12 difference between, you know,
13 dynamic and static, say you have
14 your bathroom scale and you put
15 a brick on it. It says one
16 pound. All right. You take
17 that brick and maybe you drop it
18 four feet, the scale says, let's
19 say, ten pounds. All right.
20 That's the difference between --
21 -
22 CHAIR:
23 You're okay. Keep going.
24 DR. SAWYER:
25 --- between dynamic and

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1 static. All I'm saying, all right, is
2 that you take that belt hanger, you put
3 63 psi static pressure on it, you're
4 going to deform it like you've seen in
5 the mine, up to 92 psi.
6 MR. MCKINNEY:
7 I think I understand what
8 you said. I guess my question
9 --- and I apologize, I didn't phrase it
10 very well.
11 DR. SAWYER:
12 Oh.
13 MR. MCKINNEY:
14 Other than Blacksville,
15 have you ever used the type of
16 methodology that you used at Sago to
17 make determinations about underground
18 forces in a coal mine? I'm talking
19 about using belt hangers, deflection,
20 tensile, yield strength, like pizza
21 pans, roof bolt plates. Is there some
22 record, document that you have in the
23 past that we could look at?
24 DR. SAWYER:
25 If you look in --- if you

1 got my preliminary report, I've got
 2 references in there, all right, on
 3 where I've used this same technique.
 4 MR. MCKINNEY:
 5 So is the answer to my
 6 question, yes, you've done this in this
 7 same situation before?
 8 DR. SAWYER:
 9 This is the first time
 10 I've been in a gob of an underground
 11 mine.
 12 MR. MCKINNEY:
 13 Okay.
 14 DR. SAWYER:
 15 I've never --- after an
 16 explosion. I've never seen or been
 17 asked to look at, you know, pie pans in
 18 the past, no.
 19 MR. MCKINNEY:
 20 Mr. Novak, can you hear
 21 me?
 22 DR. NOVAK:
 23 Yeah.
 24 MR. MCKINNEY:
 25 A moment ago, I think

1 Davitt asked you a question about South
 2 Africa, and I want to make sure I
 3 understood your answer.
 4 DR. NOVAK:
 5 Right.
 6 MR. MCKINNEY:
 7 You said there was some
 8 literature ---
 9 DR. NOVAK:
 10 Right.
 11 MR. MCKINNEY:
 12 --- propagating through
 13 the soil and going into the mine?
 14 DR. NOVAK:
 15 Correct.
 16 MR. MCKINNEY:
 17 Was that directly over
 18 the mine?
 19 DR. NOVAK:
 20 To the best of my
 21 knowledge. And it's been a number of
 22 years since I read those papers, but
 23 yes.
 24 MR. MCKINNEY:
 25 I guess this question

1 goes to Mr. Hatfield. When do you
 2 think your report will be finalized?
 3 MR. HATFIELD:
 4 I don't think we can
 5 provide a precise time, other than the
 6 general feedback you've heard thus far.
 7 Dr. Sawyer has ongoing testing and Dr.
 8 Novak's doing some modeling on the
 9 various alternatives of possible entry
 10 into the sealed area that we talked
 11 about, but we're generally anticipating
 12 by the end of the summer, we'll have a
 13 lot more information and we will share
 14 that with you.
 15 MR. MCKINNEY:
 16 Thank you.
 17 DR. SAWYER:
 18 You know I would add to
 19 that from my perspective, the work that
 20 MSHA and NIOSH are --- have done and
 21 probably will continue to do at Lake
 22 Lynn is going to be very, very
 23 enlightening. And I --- you know, I
 24 would not want to complete my report
 25 until they are done, because that's

1 going to shed a lot of light on the
 2 situation. And I don't know when ---
 3 you know, how your work's going to
 4 progress. I know it's got to be slow
 5 and methodical.
 6 MR. MCKINNEY:
 7 This question also goes
 8 to Mr. Hatfield, maybe it's a
 9 clarification. I think initially in
 10 your opening statement, you indicated
 11 that MSHA had not issued any citations,
 12 either post or before, at the mine that
 13 would indicate there were problems
 14 associated with the electrical system,
 15 I guess pertaining to your conclusions
 16 here. Was that the statement you made?
 17 MR. HATFIELD:
 18 I believe my statement
 19 was that the citations that were issued
 20 to the mine during 2004, and the
 21 citations shared with us thus far in
 22 the investigation, have not been
 23 identified as contributing to the
 24 accident.
 25 MR. MCKINNEY:

1 Okay. That's what I
 2 wanted to clarify. So really, the
 3 agency's posture would be contributing
 4 violations won't be issued until the
 5 investigation is finished? Do we
 6 understand that?
 7 MR. HATFIELD:
 8 Yes. It's my
 9 understanding that if there is a
 10 contributing violation, we haven't seen
 11 it and we don't know about it. I can't
 12 represent what you know, obviously.
 13 MR. MCKINNEY:
 14 Well, yeah. I mean, you
 15 would expect that to happen when the
 16 investigation is finished?
 17 MR. HATFIELD:
 18 I'm not sure what your
 19 procedure is.
 20 MR. MCKINNEY:
 21 Okay. That's the
 22 procedure.
 23 MR. HATFIELD:
 24 Okay.
 25 MR. CLAIR:

1 Just one or two
 2 questions, Dr. Novak. Did you examine
 3 the grounding systems into the mine
 4 from the --- from the portal at the ---
 5 ? Under your theory, the charge came
 6 in through the belt conveyor?
 7 DR. NOVAK:
 8 Station ground beds?
 9 MR. CLAIR:
 10 Yeah.
 11 DR. NOVAK:
 12 Measurements were taken,
 13 yes. But offhand, I don't know what
 14 they are. But yes, resistance
 15 measurements were taken, both of the
 16 safety ground bed, as well as the
 17 station ground bed.
 18 MR. CLAIR:
 19 So at this point, you
 20 don't have an opinion as to whether the
 21 system was properly grounded or if ---?
 22 DR. NOVAK:
 23 Oh, it was properly
 24 grounded. It met the requirements of,
 25 you know, a minimum resistance that is

1 required for ground beds, so yeah, it
 2 was properly grounded.
 3 MR. CLAIR:
 4 And just to clarify, were
 5 lightning arrestors in place at the
 6 time you looked at it?
 7 DR. NOVAK:
 8 At the substation itself?
 9 MR. CLAIR:
 10 Yeah.
 11 DR. NOVAK:
 12 Yes.
 13 MR. CLAIR:
 14 Okay. And Dr. Sawyer, I
 15 think you said that this was the first
 16 time that you had been involved in an
 17 underground investigation in looking at
 18 the physical deflections of the various
 19 metallic structures?
 20 DR. SAWYER:
 21 I don't think I said
 22 that. I said that this is the first
 23 time I've been in a job after a mine
 24 explosion.
 25 MR. CLAIR:

1 That's right.
 2 DR. SAWYER:
 3 You know, just about all
 4 the work I did for the Mine Safety &
 5 Health Administration was one time,
 6 Blacksville, first and only time,
 7 analyzed the shaft, line power,
 8 explosion-proof enclosure, rollover
 9 protection. You know, each one that
 10 you --- each one is different. Yeah,
 11 this is the first time I've analyzed
 12 pie pans and belt hangers.
 13 MR. CLAIR:
 14 Okay.
 15 DR. SAWYER:
 16 The first time I've seen
 17 that.
 18 MR. CLAIR:
 19 Okay. But you've come to
 20 the conclusion that the forces were up
 21 to 90 psi, 60 to 90 psi. Is that
 22 consistent with the kind of damage that
 23 you saw outside --- outby --- excuse
 24 me, yes, outby the seals? And is it
 25 consistent with the fact that the crew

1 from One Left safely exited the mine?
 2 I mean, those are extraordinary forces
 3 that you've ---.
 4 DR. SAWYER:
 5 They absolutely are. And
 6 that is out of my bailiwick. I mean, I
 7 can tell you that those belt hangers
 8 inby the seal, seal Number Six, and
 9 directly outby seal Number Six saw the
 10 equivalent of static pressure of 60
 11 psi.
 12 MR. CLAIR:
 13 Is there --- did you rule
 14 out other potential methods for
 15 deforming those belt hangers and fans?
 16 For example, the removal of the
 17 screens, or other activity that might
 18 have taken place prior to the
 19 explosion?
 20 DR. SAWYER:
 21 Well, there's always a
 22 lot of possibilities. Now, the miners
 23 reported to me that before the
 24 explosion, all those belt hangers were
 25 at 90 degrees. All right. Well, to

1 the visual eye. After the explosion,
 2 inby and outby, significant
 3 deformation. Now, what can cause that
 4 deformation? You could have flying
 5 objects that would hit them. All
 6 right. But then at the roof line, high
 7 objects being accelerated to hit them
 8 and to hit them all could be a
 9 possibility, but probably not probable.
 10
 11 But let's assume the case
 12 that all those belt hangers got hit by
 13 debris along with the pressure from the
 14 explosion. Those belt hangers --- they
 15 didn't know whether there was debris in
 16 the air or how much of it was a
 17 compressive wave, how much of it was
 18 the velocity. They felt 60 psi. And
 19 the seals in front of it, they felt 60
 20 psi.
 21 If you're asking me
 22 whether that was from static force, the
 23 dynamic force or, you know, other
 24 material that would become airborne, I
 25 can't answer that question. I don't

1 know. All I know is those belt hangers
 2 saw the equivalent of a static pressure
 3 of 60 psi.
 4 MR. CLAIR:
 5 And you are basing that -
 6 -- relating that to the explosion event
 7 based on information that was provided
 8 by the company that they were all in a
 9 90-degree vertical position prior to
 10 the explosion?
 11 DR. SAWYER:
 12 Sure. Yeah, that plays a
 13 role, yes.
 14 MR. MCKINNEY:
 15 Mr. Sawyer, looking at
 16 the seals --- and I just made one trip
 17 through there and you spent much more
 18 time than I did, which seal would you -
 19 -- seal only, which seal would you
 20 think received the most pressure?
 21 DR. SAWYER:
 22 I couldn't tell you that,
 23 but I would say that certainly around
 24 seal Number Six, either at the left or
 25 right of that saw, you know,

1 significant pressure.
 2 MR. MCKINNEY:
 3 More than seal Number
 4 Ten?
 5 DR. SAWYER:
 6 I wouldn't --- probably I
 7 couldn't categorize that at this point
 8 in time.
 9 MR. MCKINNEY:
 10 I guess I'll ask a
 11 question, maybe, to help me better
 12 understand. If you can use the tensile
 13 yield strength to make those decisions
 14 about seal Six, could you do the same
 15 thing for seal Ten?
 16 DR. SAWYER:
 17 No. And the problem is
 18 that seal Number Six is the only one
 19 that had those belt hangers there. And
 20 again, you can think of those belt
 21 hangers as a pressure gauge. That's a
 22 pressure gauge that will record the
 23 pressure between 60 and 90 psi. It's
 24 like a scale. If the pressure of the
 25 explosion was 30 psi, they'd still be

1 sitting there. If it was 150 psi,
2 you'd see the same deformation. Now,
3 seal Number Ten didn't have a belt
4 hanger in front of it. I mean, none of
5 the other seals did. They had those
6 pie pans. Now, you could think of
7 those pie pans as, again, a pressure
8 gauge. But the limit on that pressure
9 gauge is, let's say, from only 11 to 25
10 psi, depending on how it was bent.
11 That's the limitation.

12 MR. MCKINNEY:

13 So that's the reason you
14 used seal Number Six, is you used the
15 belt hangers as your --- to make that
16 decision?

17 DR. SAWYER:

18 Sure. And that's the
19 only one I can, you know, as an
20 engineer.

21 CHAIR:

22 We'd like to hear now
23 from --- questions from the Panel.
24 Sara Bailey, daughter of Junior Hamner,
25 George 'Junior' Hamner, has a statement

1 to make. And then I'd suggest that we
2 take a few --- short break, and then
3 we'll come back for questions from our
4 Panel. Sara?

5 MS. BAILEY:

6 Hi. I'm Sara Jane
7 Bailey. Junior Hamner was my father.
8 Shortly after the explosion, my mother,
9 Debra Hamner, asked the United Mine
10 Workers to represent us in this
11 investigation. My mother and I, along
12 with many other families who are here,
13 have decided Cecil Roberts should
14 represent us in asking questions at
15 this time. The families have done
16 questioning ourselves up until this
17 point in the hearing, but Panel Five is
18 ICG's investigation. ICG has announced
19 that the explosion was caused by a
20 lightning strike in an attempt to
21 influence public opinions before MSHA
22 and the State completed their
23 investigation. The issue of the cause
24 of the explosion and whether it was due
25 to a lightning strike is very

1 technical, and we need a speaker with
2 more expertise. As set forth in the
3 Notice of Public Hearing, printed in
4 The Federal Register on April 13th,
5 2006, we are designating Cecil Roberts
6 as our representative to ask questions
7 of this Panel on our behalf. Thank
8 you. CHAIR:

9 Take a short break,
10 please. And then we'll come back and
11 try to get the questions. Thank you.

12 SHORT BREAK TAKEN

13 CHAIR:

14 Thank you. If we could
15 get started. I think there are a
16 legislator or two there coming down the
17 hall. If I could ask --- I'm sorry,
18 Mr. Dean. Mr. Dean is coming.

19 MR. DUNBAR:

20 If I could ask just two
21 technical questions, and then Mr.
22 Hatfield has a statement to make. Dr.
23 Novak, if you could answer, if it's
24 appropriate, or Dr. Sawyer, what is the
25 resistance value of the mine substation

1 ground bed, and is that measured in
2 ohms or what is the measurement in
3 ohms, and were they checked?

4 DR. NOVAK:

5 It is measured in ohms.
6 And I specifically --- for the safety
7 ground bed for the mine?

8 MR. DUNBAR:

9 Yes, sir.

10 DR. NOVAK:

11 And I --- according to
12 MSHA regulations, it has to be less
13 than five ohms, if I'm not correct
14 --- if I'm correct. And I think the
15 state is actually lower than that, if
16 I'm not --- I thought it might like be
17 three ohms ---

18 MR. DUNBAR:

19 Okay.

20 DR. NOVAK:

21 --- in West Virginia.
22 I'm not as familiar with West Virginia.
23 But from what I remember, when the
24 resistance measurements were made, that
25 it met the criteria of the regulations.

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1 CHAIR:
2 And then finally, was
3 there any evidence of the lightning
4 strike on the French Creek substation
5 anywhere along the line that you found
6 in the other direction, away from the
7 mine?
8 DR. NOVAK:
9 The report that we got
10 only went for a certain distance, so no
11 --- that's a good question, though.
12 That may be something to look for if
13 it's a ---
14 CHAIR:
15 Thank you.
16 DR. NOVAK:
17 --- if there's something
18 further out, yeah.
19 CHAIR:
20 Mr. Hatfield?
21 MR. HATFIELD:
22 Thank you, Mr. Chairman.
23 I would just like to briefly respond
24 to Ms. Bailey's statement. Quite to
25 the contrary, our release of the

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1 initial findings in mid-March was not
2 an effort to influence public opinion,
3 but frankly an effort to get some much-
4 needed answers out there to our
5 employees and their families. The
6 alternative would simply be to wait
7 until we have a final federal or final
8 state report. And by the
9 acknowledgment of the panel members in
10 front of me, that may be as late as the
11 first quarter of 2007. I don't think
12 anyone believes that that's an
13 appropriate delay time or it's a
14 reasonable time to wait for answers. So
15 we simply wanted to share the
16 information we have with our miners,
17 with their families, and we think that
18 was very much the appropriate step. We
19 do not believe that we had all the
20 answers or we didn't say we did. And
21 we never said that we stopped the
22 investigation. Our efforts are
23 continuing, and we will continue to
24 support all efforts to get answers.
25 With respect to Mr.

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1 Roberts being designated as the
2 representative for the families at this
3 particular hearing, and we recognize
4 that the protocol allows that
5 designation, and we will field
6 questions from Mr. Roberts, but I want
7 to clarify for the record that Mr.
8 Roberts and his organization do not
9 represent the miners and Sago. They
10 have never. Indeed, the miners'
11 representative for Sago, as affirmed by
12 93 percent of our hourly workforce, is
13 Craig Newsome (phonetic), who is
14 sitting beside of Mr. Roberts. So 93
15 percent of our workers chose someone
16 else to speak for them, and I just want
17 to make sure that's clear on the
18 record. Thank you.
19 CHAIR:
20 Thank you, Mr. Hatfield.
21 Senator Kessler. Delegate Hamilton,
22 please.
23 DELEGATE HAMILTON:
24 All right. Thank you. I
25 think this would probably be directed

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1 to Dr. Novak, I guess, as well.
2 Doctor, you indicated there's three
3 possibilities that you examine. One, I
4 guess, would be friction from roof
5 falls. Secondly would be chemical.
6 And third would be electrical, from a
7 lightning; is that correct?
8 DR. NOVAK:
9 That's correct.
10 DELEGATE HAMILTON:
11 And again, I think as
12 reiterated, I guess, by Mr. Hatfield,
13 these are very --- and I think as
14 confirmed in your response to Davitt
15 McAteer, this is merely a hypothesis
16 that you're throwing out there? It's
17 by no means intended to be a definitive
18 conclusion as to the cause of the
19 explosion on January 2nd?
20 DR. NOVAK:
21 It's ways of describing
22 how I perceive the lightning could have
23 penetrated into the sealed area, hoping
24 to follow it up with --- you know, I
25 didn't pick the date of this hearing,

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1 so I would like to have had more
2 information. So all I can report to
3 you right now is what I have. That's
4 correct.
5 DELEGATE HAMILTON:
6 And at this point, you
7 see that as just a possible scenario or
8 a hypothesis, but it's nothing you're
9 ready to stand by as a definitive
10 conclusion; correct?
11 DR. NOVAK:
12 No, I'm not going to
13 --- it's not a definitive conclusion,
14 that's correct.
15 DELEGATE HAMILTON:
16 And you know, because as
17 I understood, the sequence of events
18 that had to have occurred or would have
19 had to have lined up as nearly a
20 perfect storm in order to have this
21 scenario occur in the manner that it
22 did?
23 DR. NOVAK:
24 That's not correct.
25 DELEGATE HAMILTON:

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1 No. I mean, they're
2 there. I mean, everything that I
3 stated was fact. I mean, there's a
4 continuous metallic path from 300 feet
5 from within the lightning strike to the
6 --- you know, to the conveyor belt back
7 to the sealed area.
8 DELEGATE HAMILTON:
9 So then it had to leap
10 over the sealed area to the ---?
11 DR. NOVAK:
12 But we measured that, and
13 that's pretty low resistance.
14 DELEGATE HAMILTON:
15 But there was no metal
16 conductor between the two areas; is
17 that correct?
18 DR. NOVAK:
19 No, that's --- that is
20 correct.
21 DELEGATE HAMILTON:
22 Additionally, when you
23 get to the roof falls, to rule out roof
24 falls, did you actually do an
25 examination of that? Did you actually

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1 go in the mine and go in behind the
2 sealed area?
3 DR. NOVAK:
4 I was in the mine behind
5 the sealed area, but not for the
6 purpose --- I'm not a roof mechanics
7 person. That's not my area of
8 specialty, no.
9 DELEGATE HAMILTON:
10 So your ruling out of a
11 roof fall is not based on any
12 independent expertise that you had,
13 it's just by relying on information
14 that ---?
15 DR. NOVAK:
16 By other experts.
17 DELEGATE HAMILTON:
18 Provided to you or by the
19 company that it was, in fact, not a
20 roof fall?
21 DR. NOVAK:
22 Well, not necessarily the
23 company, but whoever, you know,
24 participated in the investigation.
25 DELEGATE HAMILTON:

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1 Was that in conjunction
2 with state officials? Did they provide
3 information?
4 DR. NOVAK:
5 I don't want to say
6 specifically, but you talk among each
7 other a lot when you're doing an
8 investigation.
9 DELEGATE HAMILTON:
10 Was there somebody from
11 the state or from MSHA that you dealt
12 with to rule out the roof fall?
13 DR. NOVAK:
14 I was under the
15 impression that the general consensus
16 for everybody who investigated that,
17 and I may be wrong, that a roof fall
18 was not the cause of it.
19 DELEGATE HAMILTON:
20 Well, I guess what I'm
21 getting at is, did you have any
22 confirmation from the investigatory
23 state or federal officials that it was
24 not a roof fall ---
25 DR. NOVAK:

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1 Direct ---.
2 DELEGATE HAMILTON:
3 --- in order to ---
4 DR. NOVAK:
5 No.
6 DELEGATE HAMILTON:
7 --- reach your conclusion
8 that a roof fall did not cause it?
9 DR. NOVAK:
10 No. Did I have somebody
11 from MSHA come and say definitely was
12 it a roof fall or from the state? No.
13 DELEGATE HAMILTON:
14 And you were aware that
15 the area behind the sealed area --- are
16 you aware why it had been closed and
17 sealed?
18 DR. NOVAK:
19 Why it had been closed
20 and sealed? Because of the --- I
21 understand they stopped mining there
22 because of the roof conditions, if
23 that's what you're getting at.
24 DELEGATE HAMILTON:
25 That it had a propensity

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1 or had some significant roof falls in
2 the past that led to its closure ---
3 DR. NOVAK:
4 Correct.
5 DELEGATE HAMILTON:
6 --- and the reason it was
7 ultimately sealed?
8 DR. NOVAK:
9 Correct.
10 DELEGATE HAMILTON:
11 So you didn't have an
12 opportunity to look at anything that
13 would document the condition of the
14 area that was sealed, the roofs, prior
15 to January 2nd and subsequent to
16 January 2nd to see if any additional
17 falls had occurred or roof falls had
18 occurred?
19 DELEGATE HAMILTON:
20 No. And again, that's
21 not my area of expertise.
22 MR. S. KITTS:
23 But that's part of an
24 investigation, sir.
25 DELEGATE HAMILTON:

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1 And that may be directed
2 to --- and I tried to go down that
3 line, I guess, yesterday. Was there
4 any type of supporting documentation
5 that would indicate the areas where the
6 falls had been a problem prior to the
7 sealing of the mine?
8 MR. S. KITTS:
9 Yes. The certified mine
10 map does indicate where the falls are
11 prior to the explosion. And after the
12 explosion, the entire area in by the
13 seal has been mapped, and those areas
14 have been documented as well.
15 DELEGATE HAMILTON:
16 Are there any additional
17 falls that have occurred during ---
18 that are documented that did not exist
19 prior to the closure and sealing of it?
20 MR. S. KITTS:
21 I believe there is, yes.
22 DELEGATE HAMILTON:
23 How many?
24 MR. S. KITTS:
25 I might defer to Chuck

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1 Dunbar to see if he has a better feel
2 for the exact number.
3 MR. DUNBAR:
4 There were two new falls
5 and a continuation of one old fall.
6 But the soot and the dust patterns that
7 were documented on the new falls
8 indicated that the ignition did not
9 occur at those locations.
10 DELEGATE HAMILTON:
11 And that's been
12 documented and shared with the
13 investigatory authorities; is that
14 correct?
15 MR. S. KITTS:
16 Yes.
17 DELEGATE HAMILTON:
18 I think that's all I have
19 at this time. Does anyone else ---
20 Senator Caruth?
21 SENATOR CARUTH:
22 Mr. Novak, in your report
23 I've noticed that you have mentioned a
24 four-second interval in terms of your
25 lightning analysis. I think your

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1 statement is ---.

2 DR. NOVAK:

3 For the seismic data I

4 think you're talking --- is that what

5 you're referring to?

6 SENATOR CARUTH:

7 Yes. The seismic network

8 recordings were independently analyzed,

9 that a seismic event had occurred in

10 the location of Sago Mine within a

11 four-second interval.

12 DR. NOVAK:

13 Yeah, that's the accuracy

14 of the instrumentation and their method

15 of analysis, you know. That's the

16 amount of air that they allow for, plus

17 or minus four seconds.

18 SENATOR CARUTH:

19 That is statistical

20 rather than some --- been a result of

21 some finding of fact that you made?

22 DR. NOVAK:

23 No. I didn't do that.

24 That was independently done by a

25 geology professor at Virginia Tech.

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1 SENATOR CARUTH:

2 In terms of your

3 analysis, the lightning flashes I think

4 you noticed were both at 6:26, at that

5 35 seconds, and also that the CO

6 monitoring system, as you suggested,

7 that the CO was detected at 6:26,

8 although you don't have the particular

9 seconds down in your report.

10 DR. NOVAK:

11 Right.

12 SENATOR CARUTH:

13 Is it your understanding

14 or your belief that the occurrence of

15 the lightning and the occurrence of the

16 indication of CO or the carbon monoxide

17 was simultaneous or near simultaneous?

18 DR. NOVAK:

19 Well, not simultaneous. I

20 mean, certainly the lightning had to

21 occur first, but it's --- you know,

22 electricity travels at close to the

23 speed of light, and you know, you have

24 to have time for the ignition to occur

25 before the CO monitors will detect it.

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1 Now, I don't know exactly. I guess we

2 can delve into that to determine the

3 delays that you can expect within a

4 certain degree of accuracy. They will

5 probably be plus or minus some seconds

6 involved with that also.

7 SENATOR CARUTH:

8 You actually anticipated

9 my question, whether there was ---

10 whether sort of a temporal analysis of

11 how long it would take electricity

12 under any of the different theories

13 that you proposed.

14 DR. NOVAK:

15 It would almost be

16 instantaneous for it to reach --- you

17 know, once a conductor becomes

18 energized --- let's say that grounded

19 conductor was energized, it would

20 almost be instantaneous. You could

21 think of the entire system, the

22 potential being elevated at the same

23 time. It's not like it's moving down

24 the line.

25 SENATOR CARUTH:

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1 Would that make --- would

2 the temporal aspect of this make any

3 one of your theories more likely than

4 the other in terms of the electrical

5 lines as opposed to simply conduction

6 through the ground?

7 DR. NOVAK:

8 Well, through the ground

9 --- okay. Through the ground, I could

10 not use the existing lightning strike.

11 I mean, I would have to --- and this

12 is why I'm not relying on it too

13 heavily because there is no hard

14 evidence to say that a lightning strike

15 occurred above the sealed area. I'm

16 just saying the efficiency of detection

17 for the lightning detection network is

18 80 to 90 percent of strikes above five

19 kiloamps. So all I'm saying is that

20 there's a possibility that a strike

21 could have occurred. And I'm not

22 assigning any probability to it. I

23 actually included it in there for the

24 sake of completeness.

25 SENATOR CARUTH:

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1 Did you go into the
2 previously-sealed section underground?
3 DR. NOVAK:
4 Yes, I did.
5 SENATOR CARUTH:
6 Did you make any notes or
7 have any recollection of any indication
8 of an ignition area that would be
9 compatible with electrical ignition?
10 DR. NOVAK:
11 Well, the forces people
12 or investigators are the ones who
13 determine where the ignition occurred
14 rather than me, in particular. The
15 ignition, if it did enter, and the way
16 I feel that it was probably ignited by
17 a spark along that wire mesh screening
18 that's supportive to the roof. It
19 could have occurred anywhere, anywhere
20 that that screen exists within the
21 seals. Now, the forces people, after
22 they mapped the forces, get a very good
23 idea of the general vicinity as to
24 where the ignition actually occurred.
25 SENATOR CARUTH:

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1 My follow-up question
2 then is either by your own observations
3 or by something that was told to you,
4 is there any particular area in there
5 where you believe the ignition took
6 place, in the previously-sealed area?
7 DR. NOVAK:
8 Not particularly. I feel
9 --- you know, I guess I would rely more
10 on the people doing the mapping of the
11 forces to determine where it
12 originated. And if it corresponded to
13 an area where there was screen that was
14 present, then it would make sense to
15 me. But you know, technically, based -
16 -- looking at it strictly from my
17 perspective, the ignition could have
18 occurred anywhere that the screen
19 existed within the sealed area.
20 SENATOR CARUTH:
21 Either for you, Mr.
22 Novak, or perhaps Mr. Kitts, your
23 statement was that the CO --- that the
24 mine's monitoring system detected
25 carbon monoxide at 6:26. Was that at a

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1 particular monitoring station?
2 MR. S. KITTS:
3 Yes. It was recorded on
4 the computer located there at the mine
5 site.
6 SENATOR CARUTH:
7 Can you tell from that
8 reading or from that recording where it
9 was that --- which monitor, which area
10 of the mine was having that occurrence
11 of carbon monoxide at that particular
12 time?
13 MR. S. KITTS:
14 Yes.
15 SENATOR CARUTH:
16 And was that close in
17 proximity to the seals?
18 MR. S. KITTS:
19 I believe it was, but it
20 was recorded --- the CO monitoring
21 system is computerized and records the
22 data. So that information has been
23 turned over to MSHA and the state.
24 SENATOR CARUTH:
25 Following up with you,

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1 Mr. Kitts, there have been some
2 questions about it, but it's my
3 understanding --- is my understanding
4 correct that in the area which was
5 sealed there were no boreholes or no
6 holes to the outside of any type?
7 MR. S. KITTS:
8 That is correct.
9 SENATOR CARUTH:
10 Were there seams of coal
11 above the seam that was being mined?
12 MR. S. KITTS:
13 Yes.
14 SENATOR CARUTH:
15 And were any of them
16 particularly --- if you know,
17 particularly volatile or high-methane
18 seams?
19 MR. S. KITTS:
20 The upper Kittanning
21 seam, in that area, has been known to
22 produce gas. The extent of which right
23 there at Sago, I couldn't say at this
24 time.
25 SENATOR CARUTH:

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1 Had it ever been a
2 concern or had you had any experience
3 in the past with some sort of bleeding
4 or migration of that methane from that
5 other seam into the seam being mined?
6 MR. S. KITTS:
7 No, I don't have any
8 recollection of that seam being exposed
9 to the seam that was actively being
10 mined. Chuck, have you any
11 information?
12 MR. DUNBAR:
13 No, there's not been any
14 exposure, no connection between the two
15 seams.
16 MR. S. KITTS:
17 So then I think the
18 answer is no.
19 DELEGATE HAMILTON:
20 Mr. Sawyer, please, just
21 one question. You indicated with the -
22 -- your investigation there were
23 certain patterns around the sealed area
24 on the pans. Was there any evidence on
25 the roof bolts themselves, the bottom

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1 of the bolts, in terms of blast
2 indication?
3 DR. SAWYER:
4 Well, you know, there
5 were several roof bolt plates that had
6 been bent also. As far as roof bolt
7 heads, you know, being bent, no, I did
8 not see that, and generally probably
9 wouldn't expect it because when they
10 insert those fully-grounded roof bolts,
11 the roof bolter pushes it up there
12 until the glue sets. So it is very,
13 very tight. And the pressure to shear
14 the roof bolt would be just, you know,
15 humongous compared to what I've
16 calculated. No, I've found no damage
17 on the roof bolts from a structural
18 end.
19 DELEGATE HAMILTON:
20 Was there any evidence --
21 - from your observation in the areas of
22 the seal, any evidence whatsoever that
23 would suggest any blast ignition outby
24 the seals?
25 DR. SAWYER:

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1 No, sir. No, sir. No.
2 No. I should have mentioned it first.
3 I had put together a preliminary
4 report, and it was in yellow. After I
5 published that --- I published that,
6 finalized that and had it run off, I
7 noticed three typographical errors. So
8 I redid the report, and it has a
9 revision date on it, May 1st. And all
10 the changes I made in there I got in
11 italics, and one of which was right on
12 the cover. I misspelled Kelly, and you
13 know, the SpellCheck didn't pick that
14 up. So I added my Curriculum Vitae to
15 that also. And in the section where I
16 had the testing reports from Pittsburgh
17 Testing Laboratory, in the
18 yellow-colored report there were not --
19 - the pictures that they took of the
20 samples, I included that in the revised
21 report, which made it thicker.
22 And I think one thing
23 that Mr. McKinney had asked me and
24 stated that the forces map, I thought I
25 understood him, he said something to

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1 the effect it was as part of my report.
2 Well, it wasn't physically in there.
3 But if you look on that flames and
4 forces map, at the seals, you know,
5 from the seal around five to ten, the
6 plans and forces, you know, the team
7 has said that in that area it looked
8 like there was pressure piling. And I
9 agree with that. Yeah, I agree with
10 that. But you know, as a structural
11 engineer, looking at the physical
12 evidence, the only thing from my
13 perspective in those other seals, the -
14 -- I mean, all indications are of where
15 the forces went, and they all, you
16 know, piled up there. But inby,
17 there's just those plates. And at this
18 point in time, they're my pressure
19 gauge, and as high as it will go is
20 essentially 25 psi.
21 You know, after the
22 break, someone said to me, said, is
23 this the first time you've been at a
24 coal mine. And I said, well, where did
25 that come from. I've been in a lot of

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1 coal mines. I did make the statement
2 that this is the first time I've been
3 in a gob after an explosion. And I bet
4 this is the first time for a lot of
5 people. One thing with Sago, and we're
6 going to learn a lot from it, is that
7 we're able to go back in the gob for
8 the first time, to my knowledge, I
9 might be wrong, and we can see that
10 physical evidence and, you know, --- so
11 yeah, that's the first time I've been
12 in a gob after an explosion. But I'll
13 bet there's been a lot of other people
14 ---.
15 MR. S. KITTS:
16 By gob, he means inby the
17 sealed area.
18 DR. SAWYER:
19 So I just wanted to
20 clarify that. And I've been in a lot
21 of coal mines.
22 MR. S. KITTS:
23 Excuse me. Senator
24 Caruth, ---
25 SENATOR CARUTH:

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1 Yes.
2 MR. S. KITTS:
3 I'd like to clarify. You
4 asked a question if any damage was done
5 to the roof bolts regarding the
6 explosion. I think Dr. Sawyer took
7 your question to mean the actual bolt
8 itself.
9 SENATOR CARUTH:
10 No, actually I was
11 talking about the head of the bolts and
12 the area of the seal.
13 MR. S. KITTS:
14 The head of the bolt?
15 SENATOR CARUTH:
16 Uh-huh (yes).
17 MR. S. KITTS:
18 There was extensive
19 damage to the plates.
20 SENATOR CARUTH:
21 Consistent with the
22 pattern that you described earlier, Mr.
23 Sawyer?
24 DR. SAWYER:
25 What did he say? What

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1 did you just say?
2 MR. S. KITTS:
3 He asked the question if
4 there was damage to the roof bolts. He
5 said, no, but there was extensive
6 damage to the roof bolt plates.
7 DR. SAWYER:
8 Oh, that's correct. Oh,
9 yeah. Roof bolt plates, yes. All was
10 still there.
11 SENATOR CARUTH:
12 But again, consistent
13 with your prior testimony about ---?
14 DR. SAWYER:
15 Oh, sure. Sure. Yeah.
16 SENATOR CARUTH:
17 Thank you.
18 SENATOR LOVE:
19 I'll direct my question
20 to Mr. Novak. And this probably
21 couldn't happen to you, Mr. Novak. I
22 live out in the country. But a few
23 years ago, lightning hit some power
24 lines down the way, about a mile or so
25 away, and all the way down the line

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1 folks that didn't have any surge
2 protectors or lightning arresters, they
3 either had their computers or their TVs
4 burn out, like myself. Well at least
5 two electrical systems at Sago were not
6 equipped with lightning arresters
7 similar to a surge protector. That's
8 according to the mine's chief
9 electrician, he told investigators in
10 the sworn testimony. And inspectors,
11 after the January 2nd explosion, they
12 found similar violations on three other
13 electrical systems, according to
14 records from the United States Mine
15 Safety and Health Administration.
16 Now, Denver Wilfong, the
17 Sago maintenance foreman, he testified
18 that the mine did not have arresters on
19 parts of its carbon monoxide monitoring
20 system. And also Mr. Wilfong testified
21 that Sago had not installed arresters
22 on its trolley cable. That's a line
23 that typically is used to run power for
24 underground equipment. But at Sago I
25 think it was being used as a phone

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1 line. Mr. Wilfong said that they
2 should have in there, but it wasn't.
3 Now, my question to you, could it have
4 been possible that electrical energy
5 entered the mine, traveling perhaps
6 along the conveyor belt structure from
7 a power pole that supplied power to the
8 mines and eventually igniting a buildup
9 of methane in that sealed area? And if
10 not possible, tell me how it would be
11 impossible.
12 DR. NOVAK:
13 I'm not sure I follow
14 your question. Okay. I heard you say
15 that, okay, they didn't have surge
16 arresters on the telephone lines;
17 correct?
18 SENATOR LOVE:
19 I think according to MSHA
20 and according to the sworn testimony.
21 Two other citations were listed by
22 MSHA, incidentally. This was six weeks
23 later. MSHA inspectors handed Mr.
24 Wilfong three citations that alleged
25 violations of lightning arrester

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1 requirement.
2 DR. NOVAK:
3 Yeah, one was --- I think
4 one was for a pump.
5 SENATOR LOVE:
6 And two other citations
7 were listed by MSHA as significant and
8 substantial and reasonably likely to
9 cause injuries, each concerning the
10 lack of lightning arresters or power
11 conductors conducted to that
12 underground mine. Again, my question
13 to you is, could it have been possible
14 that electrical energy entered the
15 mine, just like it did a lot of homes,
16 and I was talking about traveling
17 perhaps along the conveyor belt
18 structure from a power line that
19 supplied power to the mines, eventually
20 igniting a buildup of methane in the
21 sealed area?
22 DR. NOVAK:
23 I'm not sure what the
24 connection is between the surge
25 arresters on the phone lines or the

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1 ---.
2 SENATOR LOVE:
3 If there was no lightning
4 arresters or surge arresters, this
5 means that lightning could go down the
6 line ---.
7 DR. NOVAK:
8 But it would have damaged
9 --- it more than likely would have
10 damaged the --- the surge arresters are
11 there to protect the equipment.
12 SENATOR LOVE:
13 Not necessarily. Not
14 necessarily. It only burned my TV out.
15 It didn't burn my refrigerator
16 downstairs. Didn't burn anything else
17 out. It just happened to go that way.
18 Why couldn't it go in the mines from
19 the same telephone pole is what I'm
20 saying? I just want to know if you
21 think it's possible.
22 DR. NOVAK:
23 From what I understand,
24 the location of those, one pump was
25 coming in from the --- the 120-volt

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1 line was coming in from the fan house,
2 if I'm not mistaken, and it didn't have
3 surge arresters on. The telephone line
4 didn't have surge arresters on.
5 Okay. The lightning
6 strike, in the proximity of ---.
7 SENATOR LOVE:
8 I think you've already
9 established that there was various
10 lightning strikes, whether it was
11 tremendous or light. I mean, it could
12 have ---
13 DR. NOVAK:
14 Right.
15 SENATOR LOVE:
16 --- hit like this
17 building here. If we have a
18 thunderstorm, it could be down the road
19 ---
20 DR. NOVAK:
21 But the phone line ---.
22 SENATOR LOVE:
23 --- and knock a breaker
24 off.
25 DR. NOVAK:

1 But neither of these
 2 lines went back into the sealed area.
 3 I'm not sure I understand your
 4 question.
 5 SENATOR LOVE:
 6 Well, I can't explain it
 7 any better, I don't think. Again, Sago
 8 was cited for various violations for
 9 not having ---.
 10 DR. NOVAK:
 11 Yeah, I understand that.
 12 I understand that.
 13 SENATOR LOVE:
 14 Now, why do you put
 15 lightning arresters on a line? To keep
 16 a surge of electricity coming in;
 17 right?
 18 DR. NOVAK:
 19 Right. And they were on.
 20 They were on the power lines coming
 21 into the line.
 22 SENATOR LOVE:
 23 They didn't go out and
 24 take a pair of pliers and snap the
 25 lines in two. That's what you have, I

1 presume, lightning arresters or surge
 2 protecters to keep that surge from
 3 going in.
 4 DR. NOVAK:
 5 If the strike ---.
 6 SENATOR LOVE:
 7 Why do they cite them?
 8 Let's put it this way. Why did MSHA or
 9 why did they cite the mine for not
 10 having them?
 11 DR. NOVAK:
 12 But they weren't there
 13 and they're required by law.
 14 SENATOR LOVE:
 15 But why, by law, should
 16 they be there?
 17 DR. NOVAK:
 18 Because everything ---
 19 any conductors entering into the mine
 20 have to be protected by surge
 21 protectors.
 22 SENATOR LOVE:
 23 Couldn't have lightning
 24 gone through that, from that power pole
 25 into the mines and somehow ---?

1 DR. NOVAK:
 2 I would say it's
 3 unlikely. Compared to the other
 4 alternatives, I think it's unlikely.
 5 SENATOR LOVE:
 6 Your theory is if it
 7 comes from up above, why can't it ---
 8 why couldn't it come through those
 9 lines? You had a direct line with
 10 this. I mean, ---.
 11 DR. NOVAK:
 12 No. No, you don't. I'm
 13 not sure how the phone gets its power
 14 source, okay. You go through
 15 --- okay. You have a 120-volt source.
 16 You have step-down transformers. Each
 17 transformer has a surge arrester on it
 18 before --- you know, on the primary of
 19 the surge --- on the primary of the
 20 transformer.
 21 SENATOR LOVE:
 22 Well, I'm not the expert,
 23 so I'll change my question. I thought
 24 maybe you knew but that's okay.
 25 DR. NOVAK:

1 Well, to be honest with
 2 you, I just found out of those
 3 citations this week. And I don't know
 4 the specifics of them, so I can't give
 5 you an intelligent offer
 6 --- answer. But my initial opinion is
 7 that it didn't have a bearing on the
 8 ignition source.
 9 SENATOR LOVE:
 10 We'll go to --- I'll just
 11 change my question.
 12 DR. NOVAK:
 13 Yeah. And I'll be happy
 14 ---.
 15 SENATOR LOVE:
 16 Any of you gentlemen can
 17 answer this one. Winter months seem to
 18 trigger more methane mine explosions
 19 than the summer months, and more
 20 vigilant inspections I guess should be
 21 made during those
 22 cold-weather months. Now, coal dust
 23 has always been one of the biggest
 24 culprits in mine explosions. What was
 25 the surface lawyer of dust at Sago when

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1 the explosion occurred and maybe how
2 many citations has the mine been cited
3 for this particular violation in the
4 past couple of years?
5 MR. S. KITTS:
6 Since the explosion?
7 SENATOR LOVE:
8 Well, in the last couple
9 years, what was --- how many citations
10 for that particular ---?
11 MR. S. KITTS:
12 Well, speaking to the
13 rock dust question, the entire mine was
14 sampled after the explosion. The
15 results of those samples have not been
16 received. Or if they're out there, I'm
17 not aware of it. Maybe MSHA or the
18 state could speak to that. But we
19 haven't gotten the results of the rock
20 dust sampling that was done.
21 Prior to the explosion,
22 there were some rock dust citations.
23 That was one of the priorities when ICG
24 got involved in the management of the
25 mine. Additional rock dusting

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1 capability was added in the form of
2 equipment. And that was one of the
3 issues that we were working with the
4 regulatory agencies to address to
5 improve.
6 DELEGATE FREDERICK:
7 At the mine, did you have
8 more cold-weather inspections, so to
9 speak, in your winter months, when it's
10 more vulnerable to methane gas to
11 trigger explosions than you do in the
12 summer months? Do you have that ---?
13 MR. S. KITTS:
14 No. We get a lot of
15 inspections at Sago. Since adding the
16 second section, there's been a lot of
17 inspection activity. I wouldn't call
18 it seasonal.
19 SENATOR LOVE:
20 Thank you, sir. That's
21 all.
22 MR. HATFIELD:
23 For clarification, I
24 would also remind the panel that we
25 heard extensive testimony earlier from

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1 John Collins, who spoke specifically to
2 the point about how well the mine had
3 been rock dusted in the time of recent
4 months, particularly prior to the
5 explosion.
6 DELEGATE FREDERICK:
7 My first set of questions
8 is for Dr. Sawyer. In the Number Six
9 entry, in the sealed area, and that's
10 the belt --- I want you talking about
11 the belt hangers now, that's my
12 question. You said they were bent, I
13 think I heard you say, maybe from 25 up
14 to 90 psi of static pressure. Now,
15 were all of the hangers --- here's my
16 question. Were they all bent in one
17 direction or were they bent in
18 different directions or could you speak
19 to that?
20 DR. SAWYER:
21 Within an area, if you
22 look at Monte Hieb's drawing is an
23 excellent drawing, but 60 feet inby and
24 60 feet outby, I would say the majority
25 of the --- there might have been one to

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1 two that were like at 90 degrees.
2 There might have been one at 89
3 degrees. But by and far, all those
4 belt hangers were bent in the outby
5 direction, and some of them up to 176
6 degrees.
7 DELEGATE FREDERICK:
8 All right. The second
9 question now. From one to ten on roof
10 bolt plates, not the roof bolt, were
11 they all bent in the same direction or
12 were there different directions for the
13 roof bolt plates only?
14 DR. SAWYER:
15 Roof bolt plates, there
16 were very few that were bent at all.
17 And the reason for that is the roof
18 bolt plate is flush up against the pan
19 and it's flush up against the mine
20 roof. And you know, the pressure is
21 coming horizontally. It can't get
22 under the roof bolt plate, therefore
23 it's not going to bend the roof bolt
24 plate. The only place where roof bolt
25 plates were bent is where you had the

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1 square roof pan that --- because of the
2 irregularity of the roof, that dipped
3 down, and when the pressure wave came
4 it took the top of the roof pan, bent
5 it down. And in some cases, it also
6 bent the roof bolt plate. But the belt
7 hangers, they're horizontal. There's
8 no doubt they get hit with the pressure
9 from an explosion.
10 DELEGATE FREDERICK:
11 You've come partly to my
12 third question. The roof bolt pan,
13 what direction were they going, all in
14 the same direction or different
15 directions?
16 DR. SAWYER:
17 The roof bolt pans were -
18 -- many of them were bent in both
19 directions. Now, from looking at the
20 roof bolt pans, you know, you can tell
21 from the overlapping pattern where the
22 explosion first came from. And we see
23 this on several occasions. Let's say
24 the explosion is coming from the
25 audience's left to right and here is a

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1 roof bolt pan. What then happens is
2 the portion on the left bends and in
3 some cases will bend all around. And
4 then if there is a returning way, the
5 other side will bend over and overlap
6 the first side. Now, from that evidence
7 I could tell where the first wave came
8 from and where the second wave came
9 from.
10 Now, when you have a mine
11 explosion, you'll feel initially a
12 pressure. Let's say you were standing
13 out in the entry. You will feel a
14 pressure. That's called a compression
15 wave in front of the flames. So you'll
16 feel a push that will --- let's say if
17 it's coming from the seal, you'll feel
18 a push that will push you outby.
19 That's called a compression wave. That
20 is followed by what is known as an
21 expansion wave, like a negative
22 pressure. So if you're standing out
23 there, you get pushed one way and you
24 get pushed back and then you get ---
25 it's like an inside the soil type

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1 thing.
2 I haven't determined
3 where I see the primary pressure always
4 went to the seals, that's where it came
5 from first, haven't decided why you saw
6 a reflected wave, okay. One of two
7 things could have happened. It could
8 have been a rebound of the compression
9 wave off the seal that came back, which
10 would have meant the seal had helped.
11 Or it could have been the expansion
12 wave that follows the compression wave,
13 and the compression wave took the seal
14 out of there, then there is the
15 expansion wave or a negative pressure
16 which bends the other side of the
17 plate. I mean, that's a possibility.
18 DELEGATE FREDERICK:
19 Thank you. Moving on to
20 Dr. Novak. Earlier conversation was
21 about the shallow depths of your ---
22 some of what you were talking about in
23 three different areas, and I heard you
24 say that possibly by the end of the
25 summer you will do an analysis to

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1 better determine maybe what happened.
2 How deep would it have to be where none
3 of these three theories that you talk
4 about would probably not occur with
5 reference to an ignition?
6 DR. NOVAK:
7 I don't think --- with
8 the first case, the depth really has
9 nothing to do with it. You know, if
10 there's a conductive path into the
11 mine, you know, ---.
12 DELEGATE FREDERICK:
13 Let me qualify. I should
14 have put that into the question. No
15 conductive path coming into the mine,
16 same question.
17 DR. NOVAK:
18 Okay. That one depends -
19 -- there's other factors involved.
20 Soil resistivity plays a role in it. So
21 I don't think you can give a definitive
22 answer. You could come up with a ---
23 sort of a series of curves or whatever,
24 in which case you could say anything
25 above this is safe, anything below this

1 is safe, but I don't think there's a --
 2 - you know, I couldn't say like, well,
 3 anything at 500 feet, below 500 feet,
 4 would be safe. And again, it depends
 5 if you have wire mesh on the roof. You
 6 know, if you don't have wire mesh, then
 7 it may be safe at a relatively shallow
 8 area.

9 DELEGATE FREDERICK:
 10 Could you say that, more
 11 than likely, the deeper, the less
 12 likelihood of this?

13 DR. NOVAK:
 14 Oh, yes. Yes. It's a,
 15 you know, inverse square relationship.
 16 As you get deeper, you know, the
 17 influence is going to keep decreasing
 18 the deeper you get away from it.

19 DELEGATE FREDERICK:
 20 Thank you. My last set
 21 of questions is for you, Mr. Chairman.
 22 ICG has kind of given us an update of
 23 where they are. And I think talking
 24 about completing, my question would be,
 25 and I hope we hear it, whether it's

1 today or tomorrow, when will the state
 2 and MSHA give us their conclusions on
 3 the initial findings, and when will
 4 they complete their studies and let ICG
 5 speak for it also. I'm very interested
 6 in getting to the cause of the
 7 accident, whatever it takes to get
 8 there. Will they report on that to us
 9 before we leave here today or tomorrow?

10 CHAIR:
 11 Panel six is MSHA and the
 12 West Virginia Office of Miners' Health,
 13 Safety investigative panel that deals
 14 with the explosion. And we'll get to
 15 that next.

16 DELEGATE FREDERICK:
 17 I read it that way, but I
 18 wanted to be sure that I got that point
 19 in.

20 CHAIR:
 21 Yes, sir.

22 DELEGATE FREDERICK:
 23 Thank you.

24 CHAIR:
 25 You're welcome.

1 DELEGATE CAPUTO:
 2 I guess my first question
 3 is to you, Mr. Novak. You was very
 4 specific when you ruled out some
 5 things, such as spontaneous combustion.
 6 And you said there is no history of
 7 spontaneous combustion at the Sago
 8 Mine. Is there a history of
 9 spontaneous combustion at other mines?
 10 I mean, why was you so specific?

11 DR. NOVAK:
 12 Absolutely. I mean,
 13 there are mines out west, and I think
 14 Mr. Hatfield alluded to it, that must -
 15 -- that they have large nitrogen
 16 generation plants that they have to
 17 pump into their gob areas in order to
 18 keep spontaneous combustion from
 19 occurring. So yeah, with western
 20 mines, it's not an uncommon occurrence.

21 DELEGATE CAPUTO:
 22 What about eastern mines?

23 DR. NOVAK:
 24 Eastern mines --- I've
 25 seen problems in Alabama with --- in

1 gob areas where --- when it wasn't so
 2 much spontaneous combustion with coal,
 3 but where the floor would heave and
 4 expose pyrite to oxygen, which would
 5 cause oxidation and generate heat that
 6 was sufficient enough to cause a fire.

7 DELEGATE CAPUTO:
 8 You also talked about, to
 9 support your lightning strike theory,
 10 that the CO indicator went off at 6:26.
 11 You also cited that as evidence; is
 12 that correct?

13 DR. NOVAK:
 14 That's correct.

15 DELEGATE CAPUTO:
 16 What about the CO monitor
 17 going off at 6:10? Did we forget about
 18 that?

19 DR. NOVAK:
 20 I have heard that that
 21 was a malfunction.

22 DELEGATE CAPUTO:
 23 You had heard it was a
 24 malfunction?

25 DR. NOVAK:

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1 That's correct.
2 DELEGATE CAPUTO:
3 And Mr. Sawyer, you
4 stated that the explosion took place
5 behind the seals; correct?
6 DR. SAWYER:
7 Yes, sir.
8 DELEGATE CAPUTO:
9 There was a lot of
10 testimony about methane coming from the
11 seals. And I'm not sure if anything is
12 on the record to say the seals were
13 leaking. But there is testimony that
14 there was two-tenths methane on the
15 fresh air side of the seals, so I guess
16 the new side of the seals. Could that
17 have acted as a
18 --- I guess for lack of a better term,
19 a wick kind of if the ignition took
20 place out there, carried the source
21 behind the seals and then exploded? Is
22 that a possibility?
23 DR. SAWYER:
24 Well, you're asking the
25 wrong person.

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1 DELEGATE CAPUTO:
2 Well, you're the one that
3 stated that it exploded behind the
4 seals. That's why I'm asking you.
5 DR. SAWYER:
6 Yes. From the direction
7 the seals were blown and from the
8 direction that those metal items that
9 I'm missing, showed it was going. I
10 mean, it happened behind the seals,
11 from a structural point of view.
12 DELEGATE CAPUTO:
13 Can you rule out that it
14 started --- the source initially began
15 in front of the seals? Can that be
16 totally ruled out, in your opinion?
17 DR. SAWYER:
18 Well, that's for an
19 expert on methane and, you know,
20 migration into behind the seals. You
21 know, I can't answer that. But I can
22 tell you, when the pressures reached
23 the seals, they were coming from in the
24 gob, and they were big.
25 DELEGATE CAPUTO:

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1 Mr. Novak, could that be
2 totally ruled out?
3 DR. NOVAK:
4 Methane will not ignite
5 at that --- you're talking about .2
6 percent?
7 DELEGATE CAPUTO:
8 No. I said that it was
9 determined that there was some methane,
10 two-tenths at times, in front of the
11 seals.
12 DR. NOVAK:
13 Okay.
14 DELEGATE CAPUTO:
15 Could there have been an
16 ignition source in front of the seals
17 if there was a leak, carried behind the
18 seals to what we're referring to as the
19 gob area, the sealed portion of the
20 mine, which created the explosion? I
21 mean, it makes as much sense as
22 lightning coming through the ground to
23 me. I mean, I don't know.
24 DR. NOVAK:
25 Well, you're wrong.

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1 DELEGATE CAPUTO:
2 Well, I'm just telling
3 you, that's my opinion. I just share
4 it ---.
5 DR. NOVAK:
6 Lightning flows through
7 the ground very easily. I mean, I
8 --- you're --- you know, it ---.
9 DELEGATE CAPUTO:
10 Well, could it happen?
11 DR. NOVAK:
12 If you had a layer ---
13 you're saying if you had a layer of
14 methane along the roof, okay, which
15 would have been pure methane, let's
16 say, in which case --- and there was
17 some form of ---.
18 DELEGATE CAPUTO:
19 If there was a leak and
20 the methane was coming from behind the
21 seals.
22 DR. NOVAK:
23 And it layered in ---
24 well, no. Probably --- well, you have
25 the returns that pass right in front of

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1 the seals. And there's a significant
2 amount of air that is moving by those
3 seals that are going to dilute that
4 methane. So I mean, you're bound ---
5 it's not uncommon to get leakage,
6 whether it's methane or whatever.
7 Changes in atmospheric pressure will
8 cause air to move through the seals in
9 either direction, okay. And that's the
10 reason why you don't run intake air
11 along the sealed area, is --- you know,
12 it gets diluted by the return air and
13 then is transported out of the mine.
14 In answer to your
15 question, I would say no, because it's
16 a --- you know, in the active area, you
17 have --- that is well ventilated,
18 you're going to have a significant
19 amount of air moving through that entry
20 that's going to keep it below --- it's
21 going to keep it from layering, for one
22 thing. You have to have like a laminar
23 flow, which is very, very --- very,
24 very low-velocity air before you can
25 get a layering of methane near the

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1 ceiling. Now, any --- just a small
2 amount of air movement will cause it to
3 dilute. And the amount of air that
4 would be coming through that return I'm
5 sure would have diluted that air.
6 DELEGATE CAPUTO:
7 Thank you. Mr. Hatfield,
8 I just have one more question. And I
9 wanted to ask you this yesterday, but
10 we kind of wrapped up a little early.
11 I think it's clear that we had huge
12 communication problems. And I think
13 it's clear that the mine rescue
14 response time maybe wasn't what it
15 should have been, not taking away
16 anything from mine rescue efforts. I
17 think they were tremendous. I'm
18 talking about response time. And I
19 think the amount of oxygen, everybody
20 agrees, was probably not adequate. And
21 according to Mr. McCloy, there were
22 units that failed. There is a large
23 question about the Omega-type blocks.
24 I would just like to ask you, on behalf
25 of ICG, would you be willing to go on

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1 the record endorsing stronger
2 regulations that would allow these
3 problems to be fixed with the use of
4 safety chambers, more oxygen, mine
5 rescue teams employed at the mine and
6 tracking devices on miners underground?
7 MR. HATFIELD:
8 I'll be glad to respond
9 to that. It's certainly a reasonable
10 question. With respect to the response
11 time of the rescue teams, I believe
12 regulatory requirement is two-hour
13 driving distance. And certainly the
14 contract service that we were using at
15 Sago was within that time frame.
16 Having said that, no, I'm not satisfied
17 as CEO of this company with the
18 response time. So it's our
19 determination at our company we are
20 going to have at larger mines a rescue
21 team at each location and cease relying
22 on contract services. I can only speak
23 for what our company's commitment is.
24 I believe that's an area that we can
25 improve in.

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1 With respect to oxygen
2 storage in rescue chambers, I think we
3 can do better than what's in place now.
4 I'm really not smart enough to tell
5 you exactly what the right answer is.
6 I don't think the answer is to put 15
7 or 16 more of these
8 CSC-100s per man in the mine. I don't
9 think that gets us where we need to be.
10 I think there's a better answer.
11 First and foremost, as
12 we've talked about multiple times,
13 we've got to make sure that any time
14 there's an opportunity, the miners are
15 heading to the outside because that's
16 where they're safe. They don't get
17 safe by staying in the coal mine. And
18 the barricading and just like the
19 rescue chambers is always the
20 alternative of last resort. So we
21 don't want to change the methodology of
22 the training to encourage people to
23 stay in an environment where they're
24 surrounded by fuel and could be killed
25 in a second explosion. So I think that

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1 area needs more study by people that
2 understand the issues more, but we
3 certainly will want to participate in
4 that and encourage further discussion
5 on it.
6 With respect to the units
7 that failed, as I shared with the
8 families earlier, I believe the
9 technology is outdated on the
10 CSC-100s. I believe we can do better
11 than that. We, as an industry, haven't
12 really stepped up there in more than
13 ten years, so I think there's probably
14 a better animal out there that will
15 give us more air for longer. And I
16 think that's a big piece of the
17 solution here. We have already ---
18 since Sago, just our own company team
19 has met with people who are talking
20 about readily available supplies that
21 may last three, four or six hours and
22 even longer. So I believe the
23 technology is out there to make a big
24 step-up there, and I think that's
25 something that should be pursued.

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1 With respect to Omega
2 blocks, I think what the testing that
3 NIOSH conducted shows is they meet the
4 standard. They seem to meet the 20 psi
5 standard. The real question is, is
6 that standard what it should be? I
7 think the answer is probably not. I
8 think the standard needs to be re-
9 examined.
10 DELEGATE CAPUTO:
11 Tracking devices was my
12 last ---.
13 MR. HATFIELD:
14 With respect to tracking
15 devices, I think they're a good idea
16 when we can be sure they work. I think
17 it's certainly something that will add
18 value and save lives. When you're in a
19 crisis, you certainly have to know
20 where your people are to get in there
21 safely. I'm not convinced that the
22 technology works great right now, but I
23 am convinced that we're within a matter
24 of months, in my assessment, of being
25 to the point where we can rely on

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1 tracking devices.
2 DELEGATE CAPUTO:
3 So you do support efforts
4 in stepping up in all of these areas
5 that we've talked about?
6 MR. HATFIELD:
7 Yes, I do.
8 DELEGATE CAPUTO:
9 Mr. McAteer, Mr.
10 Chairman, one thing. I know that maybe
11 some of my colleagues here, and I don't
12 know how many folks out there have ever
13 even seen an Omega block. You know,
14 coming from the industry, I certainly
15 have. And I know Mr. Frederick has.
16 But maybe, if it could be possible, if
17 we're here tomorrow, if we don't wrap
18 up, if one could be brought to the hall
19 for those who want to view it and pick
20 it up and just kind of see what it
21 looks like and feels like, I would
22 certainly appreciate that.
23 CHAIR:
24 Mr. Hatfield, the mine
25 being located nearby, if you could

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1 ---.
2 MR. HATFIELD:
3 Mr. Chairman, we'd be
4 glad to bring in Omega blocks, too, for
5 the benefit of the legislators and
6 family members looking at them. We
7 actually shared a few models with the
8 family members during our individual
9 meetings, but we'll arrange to have
10 some here tomorrow morning.
11 CHAIR:
12 Thank you, sir.
13 SENATOR LOVE:
14 A question to a
15 follow-up with Delegate Caputo
16 concerning the mine rescue team
17 response. The Commonwealth of Kentucky
18 has the state broken into divisions,
19 with a state-maintained rescue station
20 in each. Now, this is actually like
21 having, I guess, paid emergency medical
22 technicians available for quick
23 response. And I suppose the person
24 tower would come from the ranks with
25 the state and the state mine inspector

1 boards, probably ending up more state
 2 inspectors, which I think would be a
 3 good thing. Do you have any objection
 4 to that type of legislative change?
 5 MR. HATFIELD:
 6 Your question is aimed at
 7 whether Kentucky should have more
 8 inspections?
 9 SENATOR LOVE:
 10 No, Kentucky has it. The
 11 Commonwealth of Kentucky, they have the
 12 state broken into divisions, with a
 13 state-maintained rescue station in each
 14 of those divisions, which gives quicker
 15 response, that you didn't have at Sago.
 16 Now, like I say, this would be ---
 17 it's like having a paid medical
 18 technician available, the same sense.
 19 I mean, you pay him. You have to pay
 20 him. You probably have to go with more
 21 mine inspectors, which would be a good
 22 thing, but how many lives would you
 23 save in a --- let's say you had this in
 24 force when this explosion happened at
 25 Sago. You wouldn't have had to have

1 been looking for a second or a third
 2 backup team to go under. They would
 3 have been here. They could have gone
 4 in. They would have backed any team
 5 you had up or took precedence over your
 6 team.
 7 MR. HATFIELD:
 8 But to speak to your
 9 point, we weren't really looking for a
 10 team. We were covered up with help.
 11 We had people from all corners of the
 12 industry offering their help as soon as
 13 they knew we were in distress. Consol,
 14 in particular, was remarkably generous.
 15 So I don't think we were at a
 16 shortage, per se, of rescue people.
 17 SENATOR LOVE:
 18 Well, no disrespect, why
 19 did it take so long to get in there
 20 then and get these teams going?
 21 MR. HATFIELD:
 22 These people were waiting
 23 at the mine. We had a team on site at,
 24 I believe, about 10:30 that morning.
 25 But there simply wasn't a safe

1 environment for them to enter the mine.
 2 The command center, working with MSHA
 3 and the state and the company, the
 4 decision was made that we should not
 5 enter the mine until the trend
 6 analysis, confirming that there's no
 7 mine fire, had been completed. So the
 8 hold-up was not the availability of
 9 rescue teams, it was confirmation that
 10 the mine environment was safe.
 11 SENATOR LOVE:
 12 Maybe I was looking at it
 13 in a different respect. So many of
 14 those miners walked out. I thought if
 15 you walked out, somebody else could
 16 have walked in very quickly.
 17 MR. HATFIELD:
 18 There's a larger issue,
 19 though. And your question is fair.
 20 There's a larger issue as to whether
 21 the rescue should have started at 57
 22 block or should have gone straight in
 23 as opposed to starting from the
 24 outside. And I'm sure that's going to
 25 be talked about in one of these panels.

1 But I don't think the issue was
 2 availability of rescue teams.
 3 SENATOR LOVE:
 4 With no disrespect, since
 5 it worked in Kentucky, I just thought
 6 I'd pass it along to you. And I'm sure
 7 other states possibly have better
 8 methods than West Virginia has or even
 9 Kentucky has, that maybe the State of
 10 West Virginia or mine owners throughout
 11 West Virginia should look at for the
 12 future.
 13 MR. S. KITTS:
 14 If I could, sir, I think
 15 while we're talking about improving and
 16 upgrading our communication systems,
 17 then when those communication systems
 18 get put inside the mine, one component
 19 of those systems or one capability
 20 needs to be the availability to survive
 21 an explosion of whatever psi these
 22 gentlemen think it needs to survive so
 23 that in this instance in the future the
 24 people on the surface who have to make
 25 that call between risking the lives of

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1 a mine rescue team and saving the lives
2 of its employees, friends and family
3 will have better data available to them
4 to make that decision.
5 DELEGATE HAMILTON:
6 I just have a follow-up
7 in examining the report of Dr. Novak. I
8 know that he indicated, and I think
9 it's been documented and mentioned
10 throughout, that the lightning strikes
11 apparently were at 6:26 a.m. that
12 morning. Two lightning strikes hit in
13 that area and that the CO monitors went
14 off apparently, which you're relying on
15 to help confirm the existence of smoke
16 or fire in the mine at that point; is
17 that correct?
18 DR. NOVAK:
19 Correct.
20 SENATOR KESSLER:
21 And I do know, is that
22 the same CO monitor whose time, I
23 believe, was adjusted, if I'm not
24 mistaken? That probably goes to the
25 company official.

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1 MR. HATFIELD:
2 That's correct.
3 SENATOR KESSLER:
4 Do you know --- what was
5 the actual reading on the clock before
6 it was adjusted?
7 MR. HATFIELD:
8 I believe we testified
9 earlier that the adjustment was four
10 minutes and 57 --- 56 seconds, four
11 minutes and 56 seconds. And that was
12 done by the West Virginia Office of
13 Miners' Health, Safety and Training,
14 calibrated with an atomic clock.
15 SENATOR KESSLER:
16 And was that done --- do
17 you know when that was done?
18 MR. HATFIELD:
19 It was done during the
20 accident investigation, several weeks
21 after the explosion. I really couldn't
22 tell you the exact date. It was done
23 by state personnel.
24 SENATOR KESSLER:
25 Was the clock running

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1 fast or slow? I guess did it actually
2 read 6:21 or did it read 6:31?
3 MR. HATFIELD:
4 It read 6:31 when it
5 should have been reading 6:26.
6 DELEGATE HAMILTON:
7 Mr. Novak, you indicated
8 that the ignition was lightning and the
9 fuel was methane. Did I understand you
10 correct?
11 DR. NOVAK:
12 Correct.
13 DELEGATE HAMILTON:
14 If we removed lightning,
15 what other sources could have ignited
16 that methane? What's the other
17 possibilities?
18 DR. NOVAK:
19 Well, I think I mentioned
20 them in there, the three possibilities
21 of spontaneous combustion and the roof
22 fall. And from what I understand ---
23 well, you know, from being --- post-
24 explosion investigation, those have
25 pretty much been eliminated.

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1 DELEGATE HAMILTON:
2 Okay. It's been --- I
3 believe yesterday we asked how many
4 battery-charging stations there were
5 and where they were located. Is it a
6 possibility that a battery-charging
7 station could have been an igniter?
8 DR. NOVAK:
9 What would have caused it
10 to ignite is something --- I mean, a
11 battery sitting there by itself or
12 being charged, you know, it would have
13 to generate a spark of some means. And
14 also, the explosion occurred within the
15 sealed area, from all indications, and
16 the
17 battery-charging station would be in
18 the active area.
19 DELEGATE HAMILTON:
20 Well, I'm not a mining
21 expert, but I believe hydrogen will
22 leak from ---.
23 DR. NOVAK:
24 It's a very small amount
25 of hydrogen. And when you charge

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1 batteries, generally they vent it
2 directly to the return. But it doesn't
3 take much air to dilute hydrogen. And
4 you're certainly not going to produce
5 the amount of hydrogen that's going to
6 cause an explosion anywhere near what
7 occurred at the Sago Mine.
8 DELEGATE HAMILTON:
9 A spark with two pieces
10 of metal hitting together couldn't have
11 ignited methane?
12 DR. NOVAK:
13 Sure.
14 DELEGATE HAMILTON:
15 You mentioned that the
16 lightning, there was --- you can't find
17 a conduit from the surface to the
18 sealed area; is that ---?
19 DR. NOVAK:
20 Correct. Directly from
21 the surface above the sealed area down
22 to the sealed area, that's correct.
23 DELEGATE HAMILTON:
24 Is there a possibility
25 there could be a metal substance in the

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1 overlying strata above the sealed area?
2 DR. NOVAK:
3 There could be a
4 geological fault. That's why the
5 company is commissioning a geophysical
6 study, survey of the area, just to
7 either confirm that or rule it out as a
8 possibility if there is some metallic
9 objects in the overburden.
10 DELEGATE HAMILTON:
11 You mentioned there was
12 three lightning strikes.
13 DR. NOVAK:
14 Correct.
15 DELEGATE HAMILTON:
16 When we were in session
17 and we had our weekly meeting with Mr.
18 McAteer, I'm not sure if I --- I don't
19 have my notes with me from those --- a
20 couple of those meetings, but you
21 mentioned one lightning strike was at
22 the French Creek Substation?
23 DR. NOVAK:
24 No. No.
25 DELEGATE HAMILTON:

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1 Okay. Where was that?
2 DR. NOVAK:
3 The two that I mentioned,
4 one was north --- the one that we were
5 talking about, the hundred --- I can
6 pull up the --- let me see. If you
7 look at the Vaisala map, okay, these
8 were the two --- these two right here,
9 because of their proximity to the mine,
10 okay.
11 DELEGATE HAMILTON:
12 Which of those two was
13 closest to the portal?
14 DR. NOVAK:
15 Closest to the portal?
16 DELEGATE HAMILTON:
17 Yes, sir.
18 DR. NOVAK:
19 This one here, which was
20 the larger one.
21 DELEGATE HAMILTON:
22 And which of those three
23 was closest to the sealed area?
24 DR. NOVAK:
25 The same one.

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1 DELEGATE HAMILTON:
2 The same one. Okay.
3 Thank you. Now, you mentioned in your
4 theory that the lightning had occurred
5 closest to the portal, that it ran in -
6 -- possibly could have ran in on the
7 belt line?
8 DR. NOVAK:
9 Correct.
10 DELEGATE HAMILTON:
11 Okay. Is there any
12 residue, like from scorching or --- on
13 the belt line that would show that that
14 lightning ran in on that?
15 DR. NOVAK:
16 No, but it doesn't always
17 --- it frequently does not show up.
18 DELEGATE HAMILTON:
19 Okay. And was that ---
20 is there anything that could have been
21 put on that belt line that would have
22 been an arrester that would have kept
23 that lightning from running in on the
24 belt line?
25 DR. NOVAK:

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1 No, not really because
2 it's in contact with the earth. I
3 mean, you can think of possibly putting
4 a piece of insulation between the two -
5 -- you know, one side and the other
6 side. But more than likely, it would
7 go around it the same way, up through
8 the roof bolts, into the roof, in the
9 same fashion that it did --- that it
10 would have around the sealed area where
11 the mesh was removed.
12 DELEGATE HAMILTON:
13 There was no lightning
14 strikes near the sealed area?
15 DR. NOVAK:
16 Not that were reported.
17 Not that were reported by the ---
18 Vaisala, the lightning detection
19 company.
20 DELEGATE HAMILTON:
21 It would have been east
22 or maybe northeast of the sealed area?
23 DR. NOVAK:
24 Yeah. Here's --- okay.
25 MR. HATFIELD:

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1 It may be helpful to
2 explain what magnitude the weather
3 service can track and what magnitude
4 they can't.
5 DR. NOVAK:
6 Vaisala, anything below
7 five kiloamperes they don't record,
8 okay. So generally if there is a
9 strike that occurs and they miss it,
10 it's generally because it's a
11 low-level strike.
12 SENATOR KESSLER:
13 For your report, the
14 preliminary report on the ignition
15 source, are you or your educational
16 institution being compensated by
17 anybody for this report?
18 DR. NOVAK:
19 Am I being compensated?
20 SENATOR KESSLER:
21 Yes, sir.
22 DR. NOVAK:
23 Yes. I'm a hired
24 consultant. Yes.
25 SENATOR KESSLER:

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1 Thank you.
2 MR. ROBERTS:
3 Mr. Chairman, is it my
4 imagination or is this mic not as clear
5 as those over there? If I'm wrong
6 about that, that's ---. Can I borrow
7 the base for this because I'm going to
8 be a few minutes?
9 First of all, let me, as
10 humbly as I can, express my
11 appreciation to the families that have
12 asked me to speak for them today. I
13 must say, though, after listening to
14 the questions posed by the families
15 yesterday and today, I'm not sure you
16 need anyone to help you. You've done a
17 marvelous job. And I just want to also
18 say that I've watched these families,
19 first of all, on television. I didn't
20 know them at the time. And then I've
21 come to know many of them personally.
22 And I am totally convinced that they
23 want two things. And I hope that
24 everyone in this room wants the same
25 thing, regardless of which side people

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1 perceive us to be on here. They want
2 answers to what happened here. And I
3 think momentarily here I'm going to try
4 to help with that. And I think even
5 more than that, they don't want any
6 other family to have this happen to
7 them. And I think we should unite
8 together to see that that objective is
9 met. I've listened to these families
10 on Capitol Hill. I've watched them in
11 both the United States House of
12 Representatives, United States Senate,
13 give testimony. They're appealing to
14 their elected leaders to make things
15 better. And you're to be commended for
16 that.
17 I want to thank Davitt
18 McAteer. I jokingly told him earlier
19 that no matter what happens here, he
20 and I are still going to be friends,
21 and I realize how difficult and how
22 hard this is to try to bring all the
23 parties together collectively to speak
24 to this difficult, hard reality. But I
25 also think the Governor should be

1 commended for seeing that this
 2 happened. And I also want to say to
 3 our legislators who are with us and
 4 those who are not with us that they did
 5 respond, and they did it in a 24-hour
 6 period, in order to try to make things
 7 better for the coal miners in West
 8 Virginia. And I think sometimes we lose
 9 sight of that.
 10 Twenty-six (26) coal
 11 miners have lost their jobs --- not
 12 their jobs, but their lives this year,
 13 and this is the first of May. This
 14 should give all of us pause and all of
 15 us alarm, I would hope. At 11:15 today
 16 two miners were trapped in Tennessee,
 17 but the end result of that was much
 18 better. I've gotten word that both of
 19 these miners are now safe and with
 20 their loved ones. But we came very
 21 near of having two more miners lost.
 22 I want to just begin, if
 23 I might --- and this is only in
 24 response, Mr. Hatfield, to the comment
 25 that you made to Mrs. Bailey when she

1 spoke. Did I understand you correctly
 2 that the only reason that ICG released
 3 this report when you did is to inform
 4 the miners that worked for you what you
 5 had found and that the mine was safe
 6 and they could feel comfortable coming
 7 back? Is that what you said?
 8 MR. HATFIELD:
 9 We made a commitment, as
 10 you'll recall, to the press in front of
 11 the whole world on January 4th or 5th
 12 that the mine would not be restarted
 13 before we had answers and we would not
 14 send our people back into Sago until we
 15 knew, to the extent we'll ever know,
 16 what created this terrible tragedy.
 17 And in keeping with that commitment, we
 18 determined we had enough information
 19 and we could share it and should share
 20 it with the families and our employees
 21 in mid-March.
 22 MR. ROBERTS:
 23 You did share it with the
 24 families and the employees. But isn't
 25 it true you also shared it with the

1 world?
 2 MR. HATFIELD:
 3 We did a press release,
 4 as you do with most messages that you
 5 want to communicate, yes.
 6 MR. ROBERTS:
 7 That's true. When I'm
 8 trying to achieve a goal, I do that.
 9 This press release, I believe, was
 10 March the 14th of 2005 (sic)?
 11 MR. HATFIELD:
 12 I believe that's correct.
 13 MR. ROBERTS:
 14 Can I ask you a --- you
 15 and I have known each other vaguely for
 16 many years. How long have you been in
 17 this industry?
 18 MR. HATFIELD:
 19 About 26 years.
 20 MR. ROBERTS:
 21 I've been in this
 22 industry 35. Can you cite any other
 23 time in your memory where a company
 24 released a result of their
 25 investigation in front of federal and

1 state agencies?
 2 MR. HATFIELD:
 3 I can't cite one. But I
 4 also can't cite any prohibition on
 5 doing so. As you well know, there are
 6 three organizations that are required
 7 by statute to do an investigation, that
 8 being the federal mine regulators, the
 9 state mine regulators and the company.
 10 So we have an obligation to do an
 11 investigation and issue a report. And
 12 I'm not aware of anything in the Code
 13 that tells us when we should do it or
 14 when we should talk about it.
 15 MR. ROBERTS:
 16 I didn't ask if it was in
 17 the Code. I just asked, in your 26
 18 years in this industry, can you cite
 19 any other company that ever did this?
 20 MR. HATFIELD:
 21 In my recent memory, I
 22 don't recall any.
 23 MR. ROBERTS:
 24 How about your 26 years?
 25 At any time in 26 years, do you know

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1 of any time that this has happened?
2 MR. HATFIELD:
3 I can't speak with
4 certainty, but I don't recall any, as
5 I've said.
6 MR. ROBERTS:
7 Okay. This panel is
8 informing the families and the public
9 about the findings of your
10 investigation, which --- up to this
11 point. And I assume that would include
12 what you determined as far as what led
13 to the January 2nd problem, what
14 occurred around and on January 2nd in
15 the course of those difficult couple
16 days when the recovery and the attempts
17 to save these miners was ongoing. And
18 I just want to see if your --- your,
19 being ICG, information would be what
20 our perspective is on this.
21 We've done a lot of
22 talking here on this panel in the last
23 couple of hours and a lot of questions
24 about the cause of the ignition. Can
25 you tell me, in your opinion, how many

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1 miners were killed as a result of
2 explosion?
3 MR. HATFIELD:
4 I may be missing some
5 aspect of your question, but I don't
6 think there's any question as to how
7 many people were killed in this
8 accident. There were 12.
9 MR. ROBERTS:
10 No, that's not my
11 question. How many miners did this
12 explosion kill?
13 MR. HATFIELD:
14 I don't understand your
15 question.
16 MR. ROBERTS:
17 The force of the
18 explosion killed one miner. Do you
19 disagree with that?
20 MR. HATFIELD:
21 Okay. You're going into
22 the --- you're referencing the cause of
23 death most likely being Terry Helms
24 died at the point of the explosion and
25 the others died in the barricade. I

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1 follow you now.
2 MR. ROBERTS:
3 And since we spent so
4 long talking about the explosion, I
5 think there is a distinction between
6 the cause of the explosion and the
7 cause of death here. And I assume,
8 with all the experts that you've used
9 and the expertise that you have and
10 others, that you've come to some
11 conclusions with respect to that, that
12 I would guess is very similar to what
13 we have concluded and the state and
14 federal agencies have concluded. We had
15 survivors here for a period of time.
16 When I say survivors, I mean people who
17 did not die as a result of the initial
18 explosion. Do you agree with that?
19 MR. HATFIELD:
20 I believe we would agree
21 that one person probably died at the
22 point of the explosion and the other 11
23 died after that.
24 MR. ROBERTS:
25 And would the evidence,

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1 Mr. Hatfield, indicate that these
2 miners were alive, I would say well,
3 but any time you're underground in a
4 situation like this it would be
5 probably improper to say well, but they
6 certainly were alive, knew the
7 predicament they were in, tried to do
8 something about the situation they were
9 in; would you agree with that?
10 MR. HATFIELD:
11 Yes.
12 MR. ROBERTS:
13 The evidence that we have
14 --- and I'm already laying some ground
15 work. I want to make sure we're all
16 starting at the same place. If you read
17 the Bible, you got to start in Genesis.
18 You don't jump over the Revelation,
19 like we've been doing here for a few
20 minutes. So these miners lived, based
21 on the notes that were left and these
22 family members have testified to so
23 passionately, it's hard to determine
24 the total length of time, but we know
25 Randal McCloy survived somewhere around

1 41 hours underground. We know that by
 2 virtue of the notes, that miners were
 3 alive probably ten hours and, more than
 4 likely, longer. Do you disagree with
 5 that?
 6 MR. HATFIELD:
 7 I think I agree with what
 8 you've described thus far.
 9 MR. ROBERTS:
 10 Do you disagree that,
 11 based on everything we know, that these
 12 miners who survived perished because of
 13 lack of oxygen and breathing
 14 contaminated air, carbon monoxide?
 15 MR. HATFIELD:
 16 I believe it's common
 17 knowledge that carbon monoxide
 18 poisoning was the cause of death for
 19 the people in the barricade.
 20 MR. ROBERTS:
 21 And only Randal McCloy
 22 survived this?
 23 MR. HATFIELD:
 24 Yes.
 25 MR. ROBERTS:

1 Based on Mr. McCloy's
 2 statement and I believe the evidence
 3 that the mine rescue teams' members
 4 came across, these miners did what they
 5 were taught to do, and that's pound on
 6 the roof, roof bolts. Do you believe
 7 they did that?
 8 MR. HATFIELD:
 9 I believe these were
 10 well-trained miners that did exactly
 11 what they believed was the right thing
 12 to do and exactly in compliance with
 13 their training, yes, sir.
 14 MR. ROBERTS:
 15 So you don't have any
 16 doubts that they were --- tried to
 17 signal? You had no reason ---?
 18 MR. HATFIELD:
 19 No. The physical
 20 evidence is right there in the
 21 barricade.
 22 MR. ROBERTS:
 23 That was actually my
 24 question.
 25 MR. HATFIELD:

1 I seen the pounding, yes.
 2 MR. ROBERTS:
 3 These miners did not have
 4 access to additional supplies of oxygen
 5 on the section; is that correct?
 6 MR. HATFIELD:
 7 That is generally
 8 correct. They were relying on their
 9 individual self-rescuers.
 10 MR. ROBERTS:
 11 When you say generally
 12 correct, is there something we need to
 13 know?
 14 MR. HATFIELD:
 15 No. I would only speak
 16 to what's apparent in the mapping and
 17 has been talked about in different
 18 forums. There was an oxygen tank on
 19 the section, for instance, that wasn't
 20 utilized. We don't know why. I'm just
 21 trying to be accurate in my response.
 22 But they were primarily relying on
 23 their self-rescuer.
 24 MR. ROBERTS:
 25 Sago did not have oxygen

1 stored on the section?
 2 MR. HATFIELD:
 3 No. I'm talking about
 4 oxygen for use in the acetylene torch
 5 applications.
 6 ATTORNEY ROBERTS:
 7 Sago Mining did not have
 8 a mine rescue team of its own?
 9 MR. HATFIELD:
 10 That's correct. We
 11 relied on a contracted service.
 12 MR. ROBERTS:
 13 I'm not sure that
 14 throughout this testimony or in the
 15 papers did I know who did you contract
 16 with.
 17 MR. HATFIELD:
 18 That was the Barbour
 19 County Rescue Team.
 20 MR. ROBERTS:
 21 What time did they get
 22 there? You apparently called them at
 23 some point in time. They arrived
 24 ---.
 25 MR. HATFIELD:

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1 I believe the call to
2 them was about 8:04 that morning. They
3 arrived around 10:30 on site.
4 MR. ROBERTS:
5 Which team went
6 underground first?
7 MR. HATFIELD:
8 I believe it was the
9 Consol team, one of the Consol teams,
10 that went underground first.
11 MR. ROBERTS:
12 Why is it that the team
13 that you contracted with didn't go
14 underground?
15 MR. HATFIELD:
16 The team we contracted
17 with was ready and available to go
18 underground. At that point, when we
19 actually went underground, we had a
20 multiple number of teams to choose
21 from. And I believe the consensus in
22 the command center was to put the most
23 experienced team underground first.
24 MR. ROBERTS:
25 And that most experienced

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1 team was one of the Consol teams?
2 MR. HATFIELD:
3 I believe that's correct.
4 MR. ROBERTS:
5 Do you know where they
6 were from?
7 MR. HATFIELD:
8 Not specifically.
9 MR. ROBERTS:
10 Have you spoken to any of
11 the mine rescue team members?
12 MR. HATFIELD:
13 I've talked to nearly all
14 of them. I was there throughout the
15 rescue effort.
16 MR. ROBERTS:
17 Since the disaster, we
18 took the opportunity to --- we, at the
19 union, to write a letter to every
20 member of the mine rescue teams that
21 attempted to save the Sago miners,
22 whether they were union or non-union,
23 whether they were company or some other
24 position, and thanking them for their
25 courageous efforts. Has Sago, by

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1 chance, done that?
2 MR. HATFIELD:
3 We sent a letter directly
4 to Consol's CEO the day after the
5 rescue ended and asked him to share
6 that correspondence with all the Consol
7 teams. We then sent letters to all the
8 rescue teams, under my signature, and
9 also the other various emergency
10 services that provided help throughout
11 that period.
12 MR. ROBERTS:
13 The miners found
14 themselves in the working section of
15 this mine, and evidence would indicate
16 they attempted to leave but couldn't.
17 We lost communications with them. When
18 I say we, the industry, the agencies.
19 We were unable to speak with them; is
20 that correct?
21 MR. HATFIELD:
22 That's correct.
23 MR. ROBERTS:
24 The failure of the
25 ability to communicate with them, would

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1 you say that that played some role or a
2 significant role in this?
3 MR. HATFIELD:
4 I think we've
5 acknowledged many times that if not for
6 the fact that the explosion wiped out
7 the only line of communication between
8 us and the trapped miners, we could
9 have steered them, by communication, to
10 a safe route of exit. That is
11 certainly the most tragic aspect of
12 this entire event.
13 MR. ROBERTS:
14 Has this experience and
15 your investigation and the discussions
16 the company has had, led you to believe
17 that --- and I think I heard you say
18 this on TV, that you were going to get
19 your own mine rescue team?
20 MR. HATFIELD:
21 That's true.
22 MR. ROBERTS:
23 Have you started that
24 yet?
25 MR. HATFIELD:

1 Yeah. We've actually
2 ordered all the equipment for four new
3 mine rescue teams and have been coming
4 up for volunteers, Sago miners,
5 Sentinel miners. We have a wide number
6 of volunteers anxious to serve on the
7 team, and that training effort is
8 underway now.

9 MR. ROBERTS:

10 I'm glad to hear that. So
11 we --- I think you and I are in
12 agreement that a lack of oxygen
13 contributed to this terrible event.
14 Communications was a contributing
15 factor, or lack thereof. And your
16 actions of getting your own mine rescue
17 team would lead us to believe that you
18 feel that that would be helpful in the
19 future and you need your own team?

20 MR. HATFIELD:

21 Yes. That's a decision
22 we made as a company, that we want to
23 be able to contribute in the future and
24 not be relying on others, although we
25 did have a tremendous amount of help

1 from competitors and contract services
2 across the coal fields.

3 MR. ROBERTS:

4 That generally happens
5 when there's an emergency. As you well
6 are aware, that a number of UMW mine
7 rescue team members did make their way
8 there.

9 Let's talk about this

10 sealed area for a minute. It's the
11 --- I want to ask you about the Omega
12 blocks, if I might. Would you
13 describe, please, what an Omega block
14 really is?

15 CHAIR:

16 Mr. Roberts, if I might,
17 since we're switching topics, if we
18 might take a short break. There's a
19 request for a break, if that's all
20 right, and then we'll come back to
21 this, since you're in a new topic.

22 Thank you.

23 SHORT BREAK TAKEN

24 CHAIR:

25 Since everyone's back,

1 perhaps I'll make an announcement with
2 regard to the rest of the hearing.
3 What I would propose is that we
4 complete the questioning today of this
5 panel and open with panel six tomorrow
6 morning at nine o'clock to complete our
7 efforts here. But if we could go
8 through the questions, since we're
9 pretty close. And I would ask that we
10 follow a rule of germaneness as to the
11 questions and follow a rule and try not
12 to repeat questions. I know people are
13 tired. These chairs are lovely and
14 it's good to sit in them long periods
15 of time. It builds character. So if
16 we could try to get to the points that
17 we need to make and get to those
18 questions so we don't repeat questions,
19 that would be helpful. And then we
20 could close this part of it up and then
21 go to tomorrow. Mr. Roberts?

22 MR. ROBERTS:

23 Thank you. In the
24 interest of time, I'll try to wrap up
25 with Mr. Hatfield quickly. I was just

1 trying to establish that regardless of
2 the ignition source, the other problems
3 with respect to the Sago Mine
4 contributed to these fatalities. And I
5 think we've established that.

6 MR. HATFIELD:

7 Actually, no, I don't
8 think we've established that at all.

9 MR. ROBERTS:

10 So you're saying the
11 lightning killed these 12 people?

12 MR. HATFIELD:

13 We believe, based on what
14 we know to this point, that lightning
15 was the ignition source that caused the
16 methane mixture behind the seals to
17 explode. And that's what brought us
18 where we are today. That's what the
19 evidence to this point demonstrates.
20 That doesn't mean we've quit looking.
21 That doesn't mean we've stopped our
22 investigation. We continue to look for
23 answers. That's all we know at this
24 point.

25 MR. ROBERTS:

1 I don't want to be
 2 argumentative. It's somewhat late in
 3 the day, as the Chairman has pointed
 4 out. But we had an ignition source and
 5 we have established that these miners
 6 lived a considerable period of time.
 7 And the fact that they didn't have
 8 oxygen, you acknowledge that if they'd
 9 had additional oxygen, perhaps we could
 10 have saved their lives. I don't think
 11 you dispute that?
 12 MR. HATFIELD:
 13 I don't dispute that. In
 14 hindsight there are lots of things that
 15 can be done different to make not only
 16 the Sago Mine safer but all coal mines
 17 safer. And that's part of the reason
 18 we're having these hearings today.
 19 MR. ROBERTS:
 20 And you have additional
 21 oxygen in the mine?
 22 MR. HATFIELD:
 23 Yes, we do, in compliance
 24 with the new West Virginia law.
 25 MR. ROBERTS:

1 To move over to establish
 2 our questioning of Mr. Novak, your
 3 press release saying that lightning was
 4 the cause of this ignition, you put
 5 that out first in March of this year,
 6 March 24th or 25th, I believe; is that
 7 correct? I'm asking you, Mr. Hatfield?
 8 MR. HATFIELD:
 9 I'm sorry. I thought the
 10 question was directed to Mr. Novak.
 11 Would you repeat it?
 12 MR. ROBERTS:
 13 You first stated publicly
 14 the theory, espoused by the company on
 15 March 14th, that lightning was the
 16 ignition source?
 17 MR. HATFIELD:
 18 I believe March 14th was
 19 the date we released our initial
 20 findings.
 21 MR. ROBERTS:
 22 And Mr. Novak has
 23 established that he is being paid by
 24 you. And I assume --- did you hire
 25 him?

1 MR. HATFIELD:
 2 Our law firm actually
 3 hired a group of consultants that are
 4 helping with the investigation.
 5 MR. ROBERTS:
 6 So the entity that
 7 contacted Mr. Novak were lawyers;
 8 correct?
 9 MR. HATFIELD:
 10 Yes. They retained
 11 expertise, as we described to them
 12 would be needed in this investigation.
 13 MR. ROBERTS:
 14 Would you mind, just for
 15 the record, letting us know who that
 16 was?
 17 MR. HATFIELD:
 18 Our law firm?
 19 MR. ROBERTS:
 20 Yeah.
 21 MR. HATFIELD:
 22 Jackson Kelly.
 23 MR. ROBERTS:
 24 Okay. Mr. Novak, how are
 25 you today?

1 DR. NOVAK:
 2 Just fine. Thank you.
 3 MR. ROBERTS:
 4 You are currently
 5 employed by Virginia Tech University;
 6 is that correct?
 7 DR. NOVAK:
 8 That's correct.
 9 MR. ROBERTS:
 10 Were you not employed
 11 prior to that at the University of
 12 Alabama?
 13 DR. NOVAK:
 14 That's correct.
 15 MR. ROBERTS:
 16 So you were in Alabama at
 17 one point in time and then moved to
 18 Virginia Tech; is that correct?
 19 DR. NOVAK:
 20 That's correct.
 21 MR. ROBERTS:
 22 In your testimony, and I
 23 think you may have even mentioned it in
 24 some of the documents, you allude to an
 25 ignition in Alabama, at one of the

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1 mines there?
2 DR. NOVAK:
3 Correct.
4 MR. ROBERTS:
5 Now, that ignition was
6 not caused by lightning going through
7 the earth; right?
8 DR. NOVAK:
9 No.
10 MR. ROBERTS:
11 It was caused by a
12 casing; is that correct?
13 DR. NOVAK:
14 There was a steel case
15 borehole that extended from the surface
16 to the gob, that's correct.
17 MR. ROBERTS:
18 Do you recall the name of
19 that mine, where it was?
20 DR. NOVAK:
21 Oak Grove Mine.
22 MR. ROBERTS:
23 Are you aware that there
24 was more than one ignition at this
25 mine?

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1 DR. NOVAK:
2 That's correct. I said
3 there were two. And I read somewhere
4 that there were three, which I wasn't
5 aware of the last one.
6 MR. ROBERTS:
7 Are you aware that the
8 federal government took a look at this
9 situation, that over a period of time
10 there were three lightning strikes at
11 one coal mine in Alabama, at the Oak
12 Grove Mine? Are you aware that the
13 government has looked into that?
14 DR. NOVAK:
15 That's correct.
16 MR. ROBERTS:
17 Do you know what branch
18 of government looked into that?
19 DR. NOVAK:
20 MSHA.
21 MR. ROBERTS:
22 Would you be surprised if
23 it was also NIOSH, National Institute
24 of Occupational Safety and Health? Are
25 you aware of that?

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1 DR. NOVAK:
2 No, I wasn't aware of
3 that.
4 MR. ROBERTS:
5 Okay. Are you aware that
6 they put out a report in 2001 with
7 respect to the Oak Grove Mine?
8 DR. NOVAK:
9 I may have.
10 MR. ROBERTS:
11 Were you in Alabama in
12 2001?
13 DR. NOVAK:
14 No.
15 MR. ROBERTS:
16 When did you leave
17 Alabama?
18 DR. NOVAK:
19 Well, I was in --- yeah.
20 I moved in the summer of 2001.
21 MR. ROBERTS:
22 So for a period of time -
23 -- it was a six-year period that there
24 were seven explosions of methane or
25 coal dust occurring in worked-out

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1 sealed areas of gob in U.S. coal mines,
2 and so NIOSH took a look at this
3 situation. And you knew MSHA did, but
4 you didn't know that NIOSH took a look
5 at this; correct?
6 DR. NOVAK:
7 No.
8 MR. ROBERTS:
9 Are you aware that of
10 those three explosions at the same coal
11 mine in Alabama, that there were no
12 fatalities?
13 DR. NOVAK:
14 That's correct.
15 MR. ROBERTS:
16 Are you aware that the
17 mines in Alabama are much deeper than
18 the mines here in West Virginia?
19 DR. NOVAK:
20 That's correct.
21 MR. ROBERTS:
22 Are you aware they're
23 about 2,000 feet deeper?
24 DR. NOVAK:
25 Well, ---.

1 MR. ROBERTS:
 2 Or not 2,000 deeper,
 3 they're 2,000 deep.
 4 DR. NOVAK:
 5 The mines in the Blue
 6 Creek seam I'm assuming is what ---
 7 because there's other mines that don't
 8 mine the Blue Creek seam and that
 9 aren't that deep. But in the Blue
 10 Creek seam, the deepest would be around
 11 2,000, and that's more like the Jim
 12 Walters. I'd say Oak Grove is maybe
 13 1,500. I'm guessing in that range.
 14 MR. ROBERTS:
 15 They're much deeper than
 16 the mines here?
 17 DR. NOVAK:
 18 Absolutely. Yes. Well,
 19 --- yeah.
 20 MR. ROBERTS:
 21 Well, let's just do the
 22 Sago Mine. Is Sago Mine ---?
 23 DR. NOVAK:
 24 It's pretty shallow.
 25 MR. ROBERTS:

1 Correct. I just want to
 2 see what kind of points of agreement we
 3 have here.
 4 DR. NOVAK:
 5 Okay.
 6 MR. ROBERTS:
 7 So with respect to the
 8 mines in Alabama, are you familiar with
 9 them?
 10 DR. NOVAK:
 11 Pardon me?
 12 MR. ROBERTS:
 13 Are you familiar with the
 14 mines in Alabama?
 15 DR. NOVAK:
 16 Yes.
 17 MR. ROBERTS:
 18 Are you aware that these
 19 mines in Alabama liberate more methane
 20 than any coal mine in the United States
 21 of America? Would you agree with that?
 22 DR. NOVAK:
 23 Specific ones, yes. JWR-
 24 5 is one of the highest producers of
 25 gas, that's correct.

1 MR. ROBERTS:
 2 My point is ---.
 3 DR. NOVAK:
 4 The Blue Creek seam is --
 5 - okay. I know what you're getting at.
 6 And the Blue Creek seam is probably
 7 one of the gassiest coal seams --- it
 8 probably is the gassiest coal seam,
 9 although the Pocahontas seam in
 10 Virginia, too, is also very gassy.
 11 MR. ROBERTS:
 12 The Oak Grove Mine had
 13 three explosions over a few-year period
 14 of time, blew out the stoppings. Not
 15 one fatality.
 16 DR. NOVAK:
 17 Correct.
 18 MR. ROBERTS:
 19 And these mines, as you
 20 have stated, and I think the record
 21 would reflect this, liberate much more
 22 methane than any mine perhaps in West
 23 Virginia --- perhaps in North America?
 24 DR. NOVAK:
 25 That's probably correct.

1 MR. ROBERTS:
 2 Do you find it --- what
 3 would you state as the reason for
 4 having three ignitions behind the seals
 5 in Alabama, in much more gassy mines,
 6 than you do here in West Virginia,
 7 particularly at Sago, and not having
 8 any fatalities or any injuries? Could
 9 you help us with that?
 10 DR. NOVAK:
 11 The location of the
 12 sealed area versus the working section.
 13 MR. ROBERTS:
 14 So you're saying that
 15 these ignitions took place where no one
 16 was working?
 17 DR. NOVAK:
 18 Exactly.
 19 MR. ROBERTS:
 20 Would you --- if I told
 21 you that these ignitions, explosions if
 22 you will, were a lot less violent than
 23 the one we saw at Sago, would you agree
 24 or disagree with that?
 25 DR. NOVAK:

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1 I don't know for sure.
2 MR. ROBERTS:
3 Do you know what kind of
4 seals they used in Alabama?
5 DR. NOVAK:
6 The ones that were
7 initially --- and I was more involved
8 with the first explosion at the Oak
9 Grove Mine, were concrete block seals.
10 MR. ROBERTS:
11 Concrete block. In
12 addition to the concrete block, how
13 thick are these seals?
14 DR. NOVAK:
15 Offhand, I don't know.
16 MR. ROBERTS:
17 If I told you they were
18 five-feet thick, using steel and mortar
19 or cement, would you be surprised?
20 DR. NOVAK:
21 No. And I wouldn't
22 disagree with you.
23 MR. ROBERTS:
24 And this report that I'm
25 talking about we've known about now for

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1 five years?
2 DR. NOVAK:
3 Uh-huh (yes).
4 MR. ROBERTS:
5 I mean, this is common
6 knowledge. I mean, what I have here,
7 the coal industry can have, MSHA has.
8 MSHA put out bulletins. NIOSH put out
9 this bulletin. So since 2001, there's
10 been directives given and suggestions
11 made with respect to how to build
12 seals, particularly if there's methane
13 buildup behind those seals, and what
14 steps should be taken. Do you disagree
15 with that?
16 DR. NOVAK:
17 Did you ask me a
18 question?
19 MR. ROBERTS:
20 Well, you're the one I'm
21 talking to, yes, sir.
22 DR. NOVAK:
23 I didn't --- I'm sorry.
24 MR. ROBERTS:
25 Do you disagree that

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1 there's information that's been
2 available since 2001 with respect to
3 construction of seals and with buildup
4 of methane behind those, and
5 particularly, as you alluded to in your
6 testimony, ---
7 DR. NOVAK:
8 Uh-huh (yes).
9 MR. ROBERTS:
10 --- at mines in Alabama,
11 which are more gassy and arguably more
12 dangerous, but do you disagree that
13 this information has been available?
14 DR. NOVAK:
15 I don't disagree that it
16 was available. I don't know for sure.
17 I don't follow the construction of
18 seals. That hasn't been an area that I
19 have followed.
20 MR. ROBERTS:
21 Well, you follow
22 lightning; don't you?
23 DR. NOVAK:
24 I follow lightning,
25 that's correct.

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1 MR. ROBERTS:
2 You're our lightning
3 person here. In the history of coal
4 mining in North America, United States
5 of America, Canada, Mexico, can you
6 cite one single incident where
7 lightning has struck the ground,
8 without going through conduit of some
9 type, such as metal pipe, one, in the
10 history of coal mining, where that
11 lightning strike caused an explosion?
12 DR. NOVAK:
13 No, I can't.
14 MR. ROBERTS:
15 But you come today
16 suggesting that that's what happened at
17 Sago; is that correct?
18 DR. NOVAK:
19 That's correct.
20 MR. ROBERTS:
21 You would --- as you went
22 through your presentation, you
23 suggested to us that all these things
24 that occurred on the morning of January
25 2nd just couldn't --- these

1 coincidences just couldn't happen, but
 2 you do want us to believe with your
 3 testimony today that this is the only
 4 time in the history of coal mining that
 5 this has happened, that we should
 6 accept that as the ignition source?

7 MR. HATFIELD:

8 Mr. Chairman, just for
 9 clarification, I think the record shows
 10 pretty clearly that Mr. Novak
 11 --- Dr. Novak outlined three possible
 12 conduits and didn't say he knew which
 13 one had caused it. That's clear.

14 MR. ROBERTS:

15 In fairness, I think Mr.
 16 Novak is a --- comes in here as a
 17 learned person with great expertise,
 18 and you bring him here as the expert on
 19 lightning, and he's already answered
 20 that question. I was going to go to
 21 the other two points, but I think Mr.
 22 Novak is very capable of answering
 23 these questions.

24 CHAIR:

25 Mr. Roberts, if you

1 wouldn't mind, we do have --- it is
 2 late in the day ---
 3 MR. ROBERTS:
 4 Okay.
 5 CHAIR:
 6 --- and Mr. Novak has
 7 testified, has given three points, and
 8 I think he's said that these are
 9 hypotheses. He intends to pursue them
 10 further. He did not say he's come to a
 11 final conclusion on any one of these
 12 points. There is --- I think it's a
 13 legitimate question to say, you know,
 14 there are other --- have there been
 15 other strikes. But just finally, we
 16 have conducted this two-day hearing in
 17 the spirit of cooperation and no
 18 antagonism and no --- Mr. Novak --- Dr.
 19 Novak is here to answer questions. So
 20 if we can just try to get to the
 21 question, and that would be great.

22 MR. ROBERTS:

23 I think that's fair.

24 Thank you. The other two theories that
 25 you expounded upon is the possibility

1 that there was some kind of metal pipe.
 2 And I think in your testimony, and you
 3 tell me if you're wrong, that you could
 4 not find any metal pipe that would have
 5 been a conduit for the lightning.

6 DR. NOVAK:

7 I said the area of the
 8 mine has a considerable number of gas
 9 distribution lines. However, the
 10 distance from the detected strike is
 11 such that, you know, it would be
 12 questionable. But for the sake of
 13 completeness, I would want to look at
 14 it.

15 MR. ROBERTS:

16 Okay. I think we
 17 understand your position with respect
 18 to it. I want to ask, given the fact
 19 that this is Sago Mining's position,
 20 Mr. Hatfield, you have other seals, not
 21 only at the Sago Mine but other mines;
 22 is that correct?

23 MR. HATFIELD:

24 That's correct.

25 MR. ROBERTS:

1 Given your theory that
 2 lightning caused this ignition --- and
 3 I assume that you used Sago block at
 4 these other locations; would that be
 5 fair?

6 MR. HATFIELD:

7 We use a mixture. Some
 8 mines use the Omega block. Some do
 9 not.

10 MR. ROBERTS:

11 If you have a lightning
 12 storm again, are you going to evacuate
 13 the mine, given your theory that
 14 lightning caused the ignition?

15 MR. HATFIELD:

16 If we have a fuel area
 17 that has an explosive mixture behind
 18 it, the answer is yes.

19 MR. ROBERTS:

20 How will you know that?

21 MR. HATFIELD:

22 We will know that because
 23 it will be a newly-sealed area because
 24 the established seal areas that have
 25 been established for sometime have

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1 already gassed off, so to speak. And
2 you know how that works. They have an
3 inert environment because the oxygen is
4 low, the methane is high behind the
5 seals. So those are not areas of
6 concern. But any new area is certainly
7 an area of high focus that we will pay
8 close attention to going forward.
9 MR. ROBERTS:
10 So as you seal off these
11 areas, if over the course of a three-
12 week period, after sealing them off and
13 there's a lightning storm, are you
14 going to evacuate the mine?
15 MR. HATFIELD:
16 Specifically at Sago,
17 we're not going to have any sealed
18 areas until we know more answers. And
19 right now, what we're looking forward
20 to is the possibility of using nitrogen
21 injection, if we can confirm that to be
22 practical and feasible. We believe
23 that's the ultimate solution.
24 MR. ROBERTS:
25 Have you shared your

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1 theories with the rest of the industry
2 in any kind of publications where folks
3 in Alabama or Pennsylvania or, for that
4 matter, all across the United States
5 might understand what you believe
6 happened here at Sago with respect to
7 the ignition source?
8 MR. HATFIELD:
9 Indeed, part of the
10 reason for the press release is to let
11 the industry know what our concerns
12 are, that we believe we had an unusual
13 event here. So that was, indeed, part
14 of the benefit of letting that
15 information be known.
16 MR. ROBERTS:
17 Okay. Are you still
18 using Omega block? I think you said
19 there's a mixture of that; is that
20 correct?
21 MR. HATFIELD:
22 At Sago, we're not doing
23 any seals.
24 MR. ROBERTS:
25 At some point in time you

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1 apparently will; is that correct?
2 MR. HATFIELD:
3 I'm not sure that there
4 will ever be another seal at Sago.
5 MR. ROBERTS:
6 How about your other
7 operations? Are you using Omega block
8 at those other operations?
9 MR. HATFIELD:
10 I believe we continue to
11 use the established practice, but
12 that's an area under current review.
13 MR. ROBERTS:
14 Let me switch now, if I
15 might. Mr. Sawyer, quickly, as the
16 Chairman has reminded me three times
17 now, and I'll try to get to that point,
18 did anyone --- we just received this
19 today, by the way. And the families
20 received it. The union got it at
21 lunchtime. And obviously, this
22 document is about an inch thick. Did
23 you prepare this alone? I'm a little
24 bit confused about it. Did you prepare
25 this document alone or did others help

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1 you put this document together?
2 DR. SAWYER:
3 That particular document
4 I put together myself. And I say in
5 the document the preliminary
6 conclusions that I've drawn are based
7 upon my visit underground and the
8 calculations and tests that I have
9 made.
10 MR. ROBERTS:
11 In your report, in the
12 conclusions, you indicate that you felt
13 that at different points along the way
14 with respect to the seals that there
15 was a 60 psi to 90 psi at the Number
16 Six seal, and then you make reference
17 to structural damage in the other
18 locations of the seals. Did I
19 understand correctly whenever you were
20 testifying on Direct that you had not
21 visited all of the locations that were
22 referenced in the document?
23 DR. SAWYER:
24 Oh, no.
25 MR. ROBERTS:

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1 You did?
2 DR. SAWYER:
3 I was on those seal
4 lines, yes, sir.
5 MR. ROBERTS:
6 So you visibly saw
7 everything that is in this report?
8 DR. SAWYER:
9 Oh, yeah. Yeah.
10 Uh-huh (yes).
11 MR. ROBERTS:
12 Just one question that's
13 somewhat confusing. The seal number
14 one area, the roof pan is bent in both
15 directions up to 30 feet. Can you
16 explain for us why those roof pans
17 might have been bent in both
18 directions?
19 DR. SAWYER:
20 In fact, on that
21 particular one, the roof bolt plate was
22 also bent. If you went inby there, you
23 will notice all the roof pans were bent
24 in the outby direction. At 30 feet in
25 there, you find two of them that are

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1 flopped right in half. Inby that,
2 there's two flaps. You can tell which
3 one was first, was going in to old Two
4 Left, and which one came second. At 30
5 feet in, they both met where --- they
6 were equal, the pressures that caused
7 it at that instance was equal. So
8 that's what I'm referring to.
9 MR. ROBERTS:
10 Okay. Thank you. You
11 mentioned earlier that you're not the
12 person we should talk to about
13 ignitions or explosions.
14 DR. SAWYER:
15 No. No. I'm a
16 structural engineer. You show me
17 something that's damaged and they say,
18 Sawyer, how much is this? And I've
19 done that for MSHA for 35 years.
20 MR. ROBERTS:
21 In the interest of time,
22 just yes or no. Would you agree that -
23 -- well, in an explosion there's heat
24 generated; is that correct?
25 DR. SAWYER:

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1 That's right.
2 MR. ROBERTS:
3 When there's heat
4 generated, I know for instance when we
5 weld or cut in the mines, we heat
6 something to bend it. Could that have
7 any bearing with respect to --- did you
8 take that into consideration with
9 respect to the amount of heat that
10 might have been generated by the
11 explosion, with respect to the damage
12 to the roof bolts?
13 DR. SAWYER:
14 That's a nice question.
15 MR. ROBERTS:
16 Thank you.
17 DR. SAWYER:
18 The tests that we have
19 run so far have essentially been at
20 room temperature. Now, we know --- you
21 know, when you design a building, you
22 have to design a building to withstand
23 a certain heat. And we know the
24 properties of steel when they are
25 heated and how long it takes to heat

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1 them up. From what has been done with
2 the time of the explosion and the
3 flame, which was a
4 passing-type thing, according to all
5 the work that's been done on
6 fireproofing steel, bare steel, it
7 would not have had an effect on the
8 yield and on the tensile strength.
9 However, we have planned tests to
10 --- I mentioned I took those belt
11 hangers and we loaded them up at room
12 temperature and we saw how they
13 performed. Well, we've got that in a
14 little chamber. We have plans to heat
15 up that chamber and run that other
16 test. So that's --- go ahead.
17 MR. ROBERTS:
18 So you have not done the
19 tests?
20 DR. SAWYER:
21 No, sir, I have not done
22 that.
23 MR. ROBERTS:
24 And so we can look
25 forward --- all the parties can look

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1 forward to your report, what you do to
2 heat generate a source?
3 DR. SAWYER:
4 Sure.
5 MR. ROBERTS:
6 That's good. And the
7 other thing, you are awaiting the test
8 results by NIOSH down at the --- what
9 is it East Lynn or ---?
10 DR. SAWYER:
11 Oh, Lake Lynn.
12 MR. ROBERTS:
13 Lake Lynn.
14 DR. SAWYER:
15 They are generating very
16 variable --- very, very valuable data.
17 And as in the past, I'm sure that
18 we'll share it with them --- with me.
19 And I'm sure there's going to be many
20 more tests.
21 MR. ROBERTS:
22 And the long and short of
23 your report is it's a preliminary
24 report, that you're not finished with
25 this report?

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1 DR. SAWYER:
2 What was that?
3 MR. ROBERTS:
4 This is a preliminary
5 report, and you're not finished with
6 your investigation?
7 DR. SAWYER:
8 Well, I think as I ---
9 you know, as I mentioned in there, as a
10 professional engineer, I can certify to
11 those things that I conclude at this
12 point in time. My testings continue.
13 And my final report I'm sure is going
14 to be bigger and there's going to be a
15 lot more in there. And there's going
16 to be testing by NIOSH and MSHA, very
17 valuable data. And I've got to receive
18 that, and I will, and take that into
19 consideration.
20 MR. ROBERTS:
21 My only point is you're
22 still working on this?
23 DR. SAWYER:
24 I certainly am. But what
25 I've stated in that report, I can

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1 certify as a registered professional
2 structural engineer at this point in
3 time.
4 MR. ROBERTS:
5 I'm not arguing that.
6 You have not done the heat-generated --
7 -?
8 DR. SAWYER:
9 No, I have not done that.
10 And as I mentioned, I haven't done the
11 load deflection test on those pipe
12 ends. It could be very removed.
13 MR. ROBERTS:
14 Believe it or not, I
15 think you and I are saying the same
16 thing, we're not done yet, you're doing
17 some more testing, and you're also
18 waiting on the report from NIOSH?
19 DR. SAWYER:
20 That's correct.
21 MR. ROBERTS:
22 In the interest of time,
23 Mr. Chairman, I'll yield to the
24 families to continue this.
25 MS. CAMPBELL:

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1 I wish I'd had liked
2 science more now. So you're just going
3 to have to bear with me, because I
4 hated it. Mr. Dunbar, ---
5 MR. DUNBAR:
6 Yes, ma'am.
7 MS. CAMPBELL:
8 --- we haven't heard a
9 thing from you, and I have a couple
10 questions.
11 MR. DUNBAR:
12 Yes, ma'am.
13 MS. CAMPBELL:
14 What was your job ---
15 what is your job title?
16 MR. DUNBAR:
17 I'm the general manager
18 of the Buckhannon division.
19 MS. CAMPBELL:
20 And what was your duties
21 on January 2nd?
22 MR. DUNBAR:
23 On January 2nd, I arrived
24 at the mine site at a little after
25 eight o'clock, about the same time that

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1 Carl Crumrine and Mr. Collins arrived.
2 And from that point, we started
3 ensuring that the proper people were
4 being called. I spoke with Johnny
5 Stemple several times. Mr. Collins and
6 I started a discussion about monitoring
7 the gases coming out of the portals,
8 and we initiated that. Family members
9 started arriving at the mine site. I
10 spoke with a couple of those, and tried
11 to contact our chief engineer, who was
12 not on site. Initiated surveying and
13 mapping duties. And also talked to
14 Senator Ross, Mike Ross, about drilling
15 at that point. Then as the command
16 center was established that morning, I
17 was in the command center with Mr.
18 Coleman and Mr. Collins, and Mr.
19 Halassa (phonetic), with MSHA, and
20 other folks that were in there.
21 MS. CAMPBELL:
22 Did you set up the
23 command center or was that someone else
24 who set that up?
25 MR. DUNBAR:

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1 That was a joint effort
2 with the agencies and ICG. As I said,
3 I was on the phone with several people,
4 contacting drillers and doing those
5 things.
6 MS. CAMPBELL:
7 Our family was never
8 notified of this disaster or the
9 explosion. We were never called. We
10 learned from a scanner. My brother
11 heard it on a scanner. And Mr. Mike
12 Heim (phonetic) said that they didn't
13 have our phone number. Can you tell us
14 why the families were not notified?
15 MR. DUNBAR:
16 No, ma'am, I cannot
17 answer that. We were under the
18 impression that the families were being
19 notified. And I was not aware that the
20 members were not being notified.
21 MS. CAMPBELL:
22 Thank you, Mr. Dunbar.
23 Mr. Sawyer, did I understand you to say
24 that you had worked with MSHA for many
25 years?

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1 DR. SAWYER:
2 Yes. From 1970, after
3 the --- shortly after the passage of
4 the Federal Mine Coal Safety Act, until
5 1999, when I retired.
6 MS. CAMPBELL:
7 And as a structural
8 engineer --- I kind of know what a
9 structural engineer is, but could you
10 kind of just explain that to me?
11 Structural engineer, does that mean
12 like building things or ---?
13 DR. SAWYER:
14 Sure. Building
15 buildings, building small little
16 things, big little things, you know,
17 laboratory equipment. And you know, in
18 my work --- I started in roof control
19 and had to investigate fatalities where
20 rollover protective structures failed.
21 That was, you know, a medium-sized
22 structure. I was --- you know,
23 evaluated, as I mentioned before, in
24 the Blacksville Mine explosion. The
25 ventilation shaft broke up ---.

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1 MS. CAMPBELL:
2 So when you --- I'm
3 sorry, when ---.
4 DR. SAWYER:
5 I'm sorry. Structural
6 engineering is anything that you make
7 that you have to design for certain
8 loads, be it a building or, you know,
9 anything small, like a rotor on a car,
10 axle on a car.
11 MS. CAMPBELL:
12 So those little pie pans
13 ends that they say they put on the
14 roof, is that like a load-bearing
15 thing?
16 DR. SAWYER:
17 That is a structure.
18 It's a structure made out of steel.
19 And you can analyze that. If you see
20 bends in it, you see how it's deformed,
21 you can determine by the same method
22 you would design the beams in this
23 building. They apply to whether you
24 have something big or something small.
25 They can be applied to that, by which

1 you can determine what force bent those
 2 to the configuration that you see it.
 3 That's what a structural engineer does.
 4 MS. CAMPBELL:
 5 Thank you. Mr. Novak, --
 6 -
 7 DR. NOVAK:
 8 Yes.
 9 MS. CAMPBELL:
 10 --- when did you
 11 communicate your opinion that it was a
 12 lightning strike that happened at Sago?
 13 DR. NOVAK:
 14 I'm trying to think. It
 15 was probably about a month or so ago.
 16 We were supposed to have a meeting.
 17 And it turns out my son was scheduled
 18 for surgery, so I had to call in on my
 19 cell phone on a conference call while
 20 they were having the meeting. But I
 21 think it was on the order of about a
 22 month ago.
 23 MS. CAMPBELL:
 24 Who was that conference
 25 call with?

1 DR. NOVAK:
 2 With the people sitting
 3 here at the table.
 4 MS. CAMPBELL:
 5 Were you asked to write a
 6 written report on that?
 7 DR. NOVAK:
 8 No.
 9 MS. CAMPBELL:
 10 Could you tell me what
 11 formula you used to justify current
 12 traveling approximately four miles with
 13 as many grounds as there was?
 14 DR. NOVAK:
 15 What formula?
 16 MS. CAMPBELL:
 17 What formula you used to
 18 justify that current can travel
 19 approximately four miles?
 20 DR. NOVAK:
 21 Well, the software that I
 22 --- which I haven't done yet, okay. I'm
 23 just ---.
 24 MS. CAMPBELL:
 25 So you haven't done it?

1 DR. NOVAK:
 2 No. That has --- I said
 3 that I have to simulate that. But the
 4 software that --- I can tell you that
 5 the software that I use is based on
 6 Maxwell's equations.
 7 MS. CAMPBELL:
 8 On page 13 of this little
 9 report that we have ---
 10 DR. NOVAK:
 11 Uh-huh (yes).
 12 MS. CAMPBELL:
 13 --- you made a statement,
 14 work still needs to be performed to
 15 verify that energy sufficient to cause
 16 an ignition is capable of reaching the
 17 sealed area by this means.
 18 DR. NOVAK:
 19 Which page is that?
 20 MS. CAMPBELL:
 21 Thirteen (13).
 22 DR. NOVAK:
 23 Okay. Is that for the
 24 first method? Yes. Yes. Uh-huh
 25 (yes).

1 MS. CAMPBELL:
 2 So what you're saying is
 3 that you don't really know if this here
 4 is even possible? I mean, ---.
 5 DR. NOVAK:
 6 No, no. Absolutely. And
 7 I said --- and if you read the title of
 8 this report it says Preliminary Report.
 9 It's not finished.
 10 MS. CAMPBELL:
 11 Right. I know what
 12 preliminary means.
 13 DR. NOVAK:
 14 But I think you're
 15 expecting ---.
 16 MS. CAMPBELL:
 17 I taught six-graders.
 18 DR. NOVAK:
 19 I know, but --- I don't
 20 mean to sound like that. I apologize.
 21 But I guess the point that I'm trying
 22 to make is that, yeah, I mean, I would
 23 have liked to have had this hearing,
 24 you know, three months from now. Okay.
 25 At this point, all I can report ---

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1 when I was asked to do a report for
2 this hearing, and I said, well, you
3 know, it's not --- the results are not
4 totally ready. Just give us what you
5 have. And essentially, that is what
6 I've done, so ---.

7 MS. CAMPBELL:
8 So one of your theories
9 was propagation through the earth?

10 DR. NOVAK:
11 That's a possibility --
12 - I mean, yeah. For sake of
13 completeness, I try to list the three
14 mechanisms --- you know, three
15 different mechanisms that, you know,
16 there was a possibility associated with
17 that.

18 MS. CAMPBELL:
19 Correct me if I'm wrong
20 on this. I understood you to say that
21 a neighbor's recollection of a
22 lightning strike nearby?

23 DR. NOVAK:
24 That's correct.

25 MS. CAMPBELL:

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1 As a scientist, do you
2 usually rely on this kind of evidence
3 for ---?

4 DR. NOVAK:
5 No, I don't. And I'm not
6 relying on it. You know, I'm just
7 saying ---.

8 MS. CAMPBELL:
9 You said it. I didn't.

10 DR. NOVAK:
11 Yes.

12 MS. CAMPBELL:
13 So I'm just asking.

14 DR. NOVAK:
15 I'm just reporting.

16 MS. CAMPBELL:
17 So which of your three
18 theories do you prefer to go with on
19 this, or are you ready to say that?

20 DR. NOVAK:
21 I'm really not ready to
22 say that.

23 MS. CAMPBELL:
24 Mr. Hatfield, you made
25 the statement that you were sure that

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1 this was lightning. Your expert just
2 told me that he was not ready to ---.

3 MR. HATFIELD:
4 No, I think he answered a
5 different question. He said he can't
6 tell you exactly what the conduit was
7 that went from the lightning strike to
8 the sealed area. But I don't think
9 there's any disagreement that lightning
10 was the source.

11 MS. CAMPBELL:
12 So based upon his
13 findings --- or his preliminary
14 findings, are you still willing to go
15 with the theory that you told us on
16 March --- was it March 14th, ---

17 MR. HATFIELD:
18 It was thereabouts, yes.

19 MS. CAMPBELL:
20 --- that lightning was
21 definitely the cause of this accident?

22

23 MR. HATFIELD:
24 I think what I said was
25 all the evidence that we have received

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1 to this point points to lightning as
2 the cause of the ignition. Nothing
3 we've found since then changes that
4 assessment. That continues to be the
5 most likely cause of the accident.

6 MS. CAMPBELL:
7 Well, in our family
8 meeting you told us that this is the
9 conclusion of your investigation, that
10 it was lightning. Conclusion to me,
11 and maybe Mr. Novak wants to tell me
12 what conclusion means, but that means
13 that you have concluded that you feel
14 that it's lightning.

15 MR. HATFIELD:
16 No. Actually, I think
17 what I said was when we reached some
18 preliminary conclusions, we had ruled
19 out multiple possibilities of
20 alternative ignition sources, that the
21 most likely clearly appears to be
22 lightning.

23 MS. CAMPBELL:
24 Oh, so that's
25 preliminary. I forgot that word, okay.

1 That one's getting me today. Sorry
 2 about that.
 3 Mr. Hatfield, you said
 4 that you did not want to send miners
 5 back into the Sago Mine on March 15th
 6 without knowing what caused the
 7 accident. Maybe I just asked you this,
 8 but based on this information that you
 9 have now, what have you done at Sago
 10 Mine to make sure that there's not
 11 another explosion like this at this
 12 mine?
 13 MR. HATFIELD:
 14 First and foremost, we
 15 changed the ventilation plan and, with
 16 MSHA and the state's concurrence,
 17 eliminated the seal area so that that
 18 area is being vented to the surface and
 19 does no longer pose a risk.
 20 MS. CAMPBELL:
 21 Is there any sandstone in
 22 Sago Mine? Can any of the ---?
 23 MR. DUNBAR:
 24 Yes, there is sandstone
 25 in the roof and the floor.

1 MS. CAMPBELL:
 2 Do you think that maybe
 3 sandstone or something like that could
 4 have caused an ignition, hitting
 5 together, if there was methane?
 6 MR. S. KITTS:
 7 That's a possibility, and
 8 it's being investigated. There are
 9 detailed geological
 10 cross-sections being developed that
 11 will link the mine itself over to where
 12 the lightning strikes were. We're not
 13 prepared to talk about that yet, but
 14 it's --- that's a theory that's
 15 underway, that's being investigated.
 16 MS. CAMPBELL:
 17 What do you mean you're
 18 not prepared to talk about it?
 19 MR. S. KITTS:
 20 It's not done.
 21 MS. CAMPBELL:
 22 So we have more than one
 23 theory here. We still have a theory
 24 that methane was in that mine. And it's
 25 a possibility that, you know, two

1 pieces of sandstone could have hit
 2 together and caused an ignition. And
 3 we also know that two bolts hitting
 4 together, if there's methane in there,
 5 it could have caused an ignition;
 6 correct?
 7 MR. S. KITTS:
 8 Yes.
 9 MS. COHEN:
 10 Okay. Mr. Kitts, can you
 11 tell me how you can tell --- you said
 12 there was some roof falls. How do you
 13 determine if those are old roof falls
 14 or recent roof falls?
 15 MR. S. KITTS:
 16 If they're covered in
 17 dust. There was a tremendous amount of
 18 soot that was generated through the
 19 explosion. So if you go in behind
 20 those seals and find an area where
 21 there is a roof fall and it's all
 22 coated in soot, then that tells you
 23 that that was there before the
 24 explosion.
 25 MS. COHEN:

1 Have you ever had a
 2 problem with methane in the Sago Mine
 3 before?
 4 MR. S. KITTS:
 5 Not that I'm aware of.
 6 MS. COHEN:
 7 And is it true that there
 8 was a crack in the seal that was
 9 leaking methane and it was repaired
 10 with epoxy previous to the explosion?
 11 MR. S. KITTS:
 12 Carl Crumrine testified
 13 that he went up and investigated that
 14 seal the day after Mr. Boni's report of
 15 finding .2 percent methane. And I
 16 trust Carl Crumrine's judgment that the
 17 seal was in acceptable condition.
 18 MS. COHEN:
 19 Who were the key people
 20 on your investigative team? I know
 21 yourself and Mr. Hatfield. Who else
 22 was included? Was there any mine
 23 foremen or --- on your team?
 24 MR. S. KITTS:
 25 We had a huge

1 investigation team. During the
 2 underground phase of the investigation,
 3 we probably had somewhere on the order
 4 of --- correct me if I'm wrong, Chuck,
 5 but I would think 40 to 50 ICG
 6 employees participating.
 7 MR. DUNBAR:
 8 Right. That's correct.
 9 MR. S. KITTS:
 10 The main people were
 11 myself and clearly Chuck Dunbar. As I
 12 pointed out in my written statement
 13 given here today, the team was --- the
 14 group was broken down into teams by
 15 specialty.
 16 MS. COHEN:
 17 The dispatcher, Mr.
 18 Chisolm, testified that all the
 19 communications went down at the mine at
 20 6:30, and the CO monitor alarms went
 21 off as well, and that belt Four stopped
 22 between 6:31 and --- Dr. Novak, are you
 23 suggesting that it took from 6:26 to
 24 6:31 for the lightning to cause the
 25 explosion?

1 DR. NOVAK:
 2 Wait a minute. Repeat
 3 the facts again.
 4 MR. HATFIELD:
 5 I think the point of
 6 confusion there is the five-minute
 7 correction on the clock ---
 8 DR. NOVAK:
 9 Yes.
 10 MR. HATFIELD:
 11 --- that we talked about
 12 earlier. Four minutes and 56 seconds
 13 was the correction applied by state
 14 officials to the computer clock.
 15 MS. COHEN:
 16 How did you guys come up
 17 with the conclusion that the clock at
 18 the mine was off?
 19 MR. HATFIELD:
 20 We didn't. The state
 21 officials did. They did the
 22 calibration to determine it.
 23 CHAIR:
 24 And just for
 25 clarification, I know Mr. Hieb is

1 prepared to discuss tomorrow the
 2 outline of how he went about looking at
 3 these clocks and to try to correct them
 4 to the atomic clock. So I think he'll
 5 be able to answer those questions.
 6 MS. COHEN:
 7 The lightning strike,
 8 where it hit to the seal, how much
 9 distance is that?
 10 DR. NOVAK:
 11 From the lightning strike
 12 to the seal would probably be a total
 13 of about four miles.
 14 MS. COHEN:
 15 And the tree that it
 16 struck, how did you determine that was
 17 a new lightning strike or an old one?
 18 DR. NOVAK:
 19 It was --- the
 20 coordinates that we got from Vaisala,
 21 the lightning detection company, will
 22 give you the proximate coordinates.
 23 And it was very close to being on. And
 24 you can tell by looking at the tree
 25 that it's fresh wood, where the bark

1 has been stripped off of it.
 2 MR. S. KITTS:
 3 We also had a forester
 4 look at that tree and another tree that
 5 was damaged by last fall's early snow.
 6 So that tree was ruled out by the
 7 forestry as being lightning related.
 8 MS. COHEN:
 9 Was there any marks on
 10 the ground around the tree?
 11 DR. NOVAK:
 12 The one that was struck
 13 by lightning?
 14 MS. COHEN:
 15 Yes, sir.
 16 DR. NOVAK:
 17 You can see right at the
 18 bottom just a small mark. No. I mean,
 19 it wasn't like there was a hole or
 20 anything of that sort.
 21 MS. COHEN:
 22 Where exactly is the tree
 23 located? Is it on the Sago Road? Is
 24 that my understanding? Is that
 25 correct?

1 MR. S. KITTS:
 2 Yes. It's --- well,
 3 Chuck lives there. Maybe you can
 4 explain it.
 5 MR. DUNBAR:
 6 It's back toward Route
 7 20. It's about halfway between Sago
 8 Mine and Route 20, up on the hillside,
 9 away from the road and the river. It's
 10 kind of hard to describe the exact
 11 location without taking you right to
 12 it.
 13 MS. COHEN:
 14 I live out there. I grew
 15 up out there, so I ---. And Mr. Novak,
 16 can you explain to me how that would
 17 have traveled under the river or over
 18 the river if it's on the opposite side
 19 of the mine? How would that be
 20 possible?
 21 DR. NOVAK:
 22 You mean in terms of what
 23 --- which technique, which ---?
 24 MS. COHEN:
 25 You're saying that

1 lightning caused the explosion. Can
 2 you explain to me how it could have
 3 traveled under the river?
 4 DR. NOVAK:
 5 It's 300 feet away from
 6 the distribution --- electrical
 7 distribution lines which cross the
 8 river. And I'm saying that it induced
 9 voltage in the neutral grounding
 10 conductors of the distribution line,
 11 which crosses the river and goes
 12 directly to the entrance of the mine.
 13 MR. S. KITTS:
 14 If I could follow up to
 15 that. The eyewitness account that Dr.
 16 Novak steadfastly refuses to
 17 incorporate into his data indicates
 18 that there was a flash and a boom right
 19 overtop of the Sago Mine works. We are
 20 currently attempting to find a
 21 consultant who can come in and conduct
 22 a survey that might give us some
 23 indication, through some pretty
 24 sophisticated means that Dr. Novak can
 25 explain much better than I can, but

1 from a layman's perspective, there are
 2 methodologies out there that could
 3 possibly allow us to determine if
 4 lightning would be --- it would be a
 5 high probability that lightning could
 6 enter the mine, more so than when we
 7 have for today's hearing.
 8 MS. COHEN:
 9 So I guess I'm a little
 10 confused. I thought that's what you
 11 guys hired Mr. Novak, was to be the
 12 expert on the lightning. Did I
 13 misunderstand something somewhere?
 14 MR. S. KITTS:
 15 What it boils down to is
 16 he needs more data. He's talking to
 17 you today about what he knows at this
 18 point. And I don't pretend to speak
 19 for him, but he needs more data to firm
 20 up his conclusions.
 21 MR. HATFIELD:
 22 And the data he's talking
 23 about is geophysical testing,
 24 resistivity testing and magnetometer
 25 surveys. So it requires more talent

1 than he can do himself.
 2 MS. CAMPBELL:
 3 So you cannot sit over
 4 there and tell me that this was a
 5 lightning strike because you are not
 6 finished with your report; correct?
 7 You can tell me --- you can say, I
 8 think it is, ---
 9 DR. NOVAK:
 10 That's correct.
 11 MS. CAMPBELL:
 12 --- but you can't sit
 13 over there and tell me that this was
 14 definitely lightning because you ---
 15 right here in your report you say you
 16 need more data. Mr. Kitts just said
 17 the same thing.
 18 DR. NOVAK:
 19 What I said is based upon
 20 --- and like Bennett tried to point out
 21 a little while ago, that it's two
 22 different questions. There's a
 23 question of did lightning cause it and
 24 then how did it cause it, okay. And
 25 the evidence --- the circumstantial

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1 evidence in terms of the agreement of
2 the times associated with the seismic
3 data, the time of the lightning strike
4 and the CO monitoring point, in my
5 opinion, and I'm not a statistician,
6 but to extremely high probability that
7 lightning was the source of the
8 ignition.
9 MS. CAMPBELL:
10 So if lightning did hit
11 something, why didn't it knock the
12 breakers or, you know, why didn't it --
13 -?
14 DR. NOVAK:
15 Well, it didn't hit the
16 line directly, okay. And the way it
17 traveled in was on the grounding
18 conductors, as well as the frame ---
19 the metal frame of a conveyor system,
20 so the breakers wouldn't see that.
21 Now, if it hit the line directly,
22 absolutely. If there was a direct hit
23 to the line, you would have flashover,
24 meaning a short-circuit across the
25 insulators that support the lines on

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1 the poles, and that would cause a
2 short-circuit, which would trip the
3 circuit-breaker.
4 MS. CAMPBELL:
5 How did it get through
6 the seals? Do you know that?
7 DR. NOVAK:
8 Through the --- by means
9 of the screen and then the screen is
10 separated probably about, I'm guessing,
11 maybe eight feet from where the seals
12 were located. A section was cut out.
13 Then it's roof bolted at that point.
14 And the resistivity of the roof in that
15 area is very low, in which case when we
16 measured the resistance across there,
17 it was very low for the current to
18 travel through --- up to that point,
19 through the screen, and then bridge
20 across that gap through the low
21 resistivity of the roof and coupled
22 back up to the screen on the other
23 side.
24 MS. CAMPBELL:
25 So you're saying that it

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1 jumped?
2 DR. NOVAK:
3 No, it didn't jump. It
4 didn't arc, if that's what you're
5 saying. It just flowed.
6 MS. CAMPBELL:
7 I mean, you said there's
8 a section in the screen that's cut out.
9 DR. NOVAK:
10 That's correct.
11 MS. CAMPBELL:
12 Did you say eight feet or
13 four feet?
14 DR. NOVAK:
15 Eight feet, let's say, I
16 would guess.
17 MS. CAMPBELL:
18 So if it hit the screen,
19 then at that end of that screen, where
20 did it go from there?
21 DR. NOVAK:
22 Through the roof bolt,
23 into the roof, okay, and coupled up to
24 the other side of the screen.
25 MS. CAMPBELL:

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1 Why was the markings on
2 the roof approximately 20 blocks behind
3 the seal?
4 DR. NOVAK:
5 That's something totally
6 different, what you're talking about.
7 MS. CAMPBELL:
8 Well, I thought --- Mr.
9 Hatfield, do you know the anomaly thing
10 that we're talking about, that thing on
11 the roof that nobody can explain what
12 that is? I thought that was an
13 indication on someone's part that that
14 was part of the lightning strike.
15 MR. HATFIELD:
16 We referred to that area
17 as the anomaly because there is some
18 unusual markings on the ceiling, the
19 roof of the mine. We don't really know
20 what created those markings. There's
21 just something unusual there. We can
22 tell that that's the location where
23 essentially the explosion was sourced
24 because of the directional forces
25 emanating from that area outward. The

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1 mapping of the forces, the roof bolt
2 plates bending and the debris moving
3 and things like that tells us
4 essentially how the explosion went.
5 MS. CAMPBELL:
6 This is what I'm talking
7 about, Mr. Novak, in case you haven't
8 seen it.
9 DR. NOVAK:
10 No, I've seen it. I have
11 pictures of it.
12 MS. CAMPBELL:
13 So this is just a ---?
14 MR. HATFIELD:
15 That's something that we
16 don't know that just happens to show up
17 at the same place where the ignition
18 occurred.
19 MS. CAMPBELL:
20 Is this going to be
21 something that your next expert can
22 maybe figure out?
23 MR. HATFIELD:
24 We have people that are -
25 -- including state regulators have some

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1 people looking at that as well.
2 MS. COHEN:
3 So can you tell me why
4 when we got this picture in the mail
5 none of these pie pans or roof bolts
6 looked damaged?
7 DR. NOVAK:
8 That's because that's
9 where the location of the explosion
10 started. The damage goes from there
11 outward, not at that specific location.
12 MS. CAMPBELL:
13 Mr. Novak, I hate to keep
14 coming back to this, but when lightning
15 hits at my house, the electricity goes
16 off.
17 DR. NOVAK:
18 Uh-huh (yes).
19 MS. CAMPBELL:
20 The electricity didn't go
21 off.
22 DR. NOVAK:
23 Right.
24 MS. CAMPBELL:
25 So was this just a strike

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1 that --- what, it just didn't shut
2 anybody's electricity off? Because
3 nobody around lost --- did you lose
4 your electricity?
5 DR. NOVAK:
6 No, neither did the mine
7 lose their electricity on that date.
8 MS. CAMPBELL:
9 So if it was that bad of
10 a lightning strike --- I mean, like I
11 said, I did not like science.
12 DR. NOVAK:
13 Uh-huh (yes).
14 MS. CAMPBELL:
15 But you know, lightning -
16 --.
17 DR. NOVAK:
18 I have my problems with
19 it, too, but ---.
20 MS. CAMPBELL:
21 I think you do. Sorry.
22 But lightning causes your electricity
23 to go off. The mines did not lose
24 electricity.
25 DR. NOVAK:

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1 Right.
2 MS. CAMPBELL:
3 They would have lost some
4 power somewhere.
5 DR. NOVAK:
6 It was not a direct
7 strike to the power line. It was 300
8 feet away from the power line. And the
9 voltages induced in the power line
10 would be nowhere near what you would
11 expect if the volts --- if the strike
12 hit directly to the power lines. In
13 that case, yes, it would have taken out
14 the electricity. There's no question
15 about it. It would have flashed over
16 the insulators, and it would have been
17 a direct short-circuit to ground, and
18 it would have tripped the circuit
19 breaker.
20 MS. CAMPBELL:
21 Well, I just got this
22 note that says there isn't any screen
23 in the entry with the markings, so if
24 anybody knows what ---.
25 DR. NOVAK:

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1 There isn't any ---?
2 MS. CAMPBELL:
3 There isn't any screen in
4 the entry with the markings.
5 DR. NOVAK:
6 That's correct.
7 MS. COHEN:
8 Can you tell me how you
9 came up to think that the clock needed
10 calibrated?
11 MR. HATFIELD:
12 From our perspective, we
13 didn't suggest the calibration. Again,
14 I think it was part of the state's
15 routine investigation as they're trying
16 to confirm the time line of this entire
17 sequence of events to check the timing
18 on the key instruments.
19 MS. COHEN:
20 Dr. Novak, ---
21 DR. NOVAK:
22 Yes.
23 MS. COHEN:
24 --- could any roof
25 movement at all in this section cause a

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1 spark in the methane and cause the
2 explosion, not necessarily a roof fall,
3 but ---?
4 DR. NOVAK:
5 I'll pass on that one,
6 not being a rock mechanics expert. I
7 would think that it would be unlikely,
8 but I can't say with a hundred percent
9 certainty that it wouldn't.
10 MS. COHEN:
11 And then earlier you said
12 something about mesh overlapping.
13 DR. NOVAK:
14 Correct.
15 MS. COHEN:
16 Our understanding was the
17 mesh was removed from the sealed area;
18 is that correct?
19 DR. NOVAK:
20 Yeah, just that eight-
21 foot section that we were just talking
22 about right across --- you know, the
23 mesh comes directly up to the seal,
24 okay, within a few feet, then they
25 removed it when they put the seal in,

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1 but the mesh that existed on the other
2 side was left intact.
3 MS. COHEN:
4 Okay. Well, yesterday I
5 thought they were saying that the mesh
6 was removed.
7 DR. NOVAK:
8 No, that's not correct.
9 MR. HATFIELD:
10 It was removed across the
11 seals. I think that's been verified by
12 various witnesses, just where the
13 actual seal was built, about an eight-
14 foot section.
15 MS. COHEN:
16 And Mr. Novak, if you're
17 conducting this investigation --- or
18 helping them, I should say, why did you
19 not --- you said you didn't walk the
20 power lines or look at those areas.
21 What ---?
22 DR. NOVAK:
23 No, I --- okay. Go
24 ahead. I'm sorry.
25 MS. COHEN:

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1 I just don't understand
2 how you wouldn't go and look at
3 everything before you could come up
4 with ---.
5 DR. NOVAK:
6 Well, there's only so
7 much time you have in a particular day,
8 and the amount of time that you can
9 spend at a given situation. The lines
10 were walked by one of the contractors
11 who works for ICG, as well as MSHA, and
12 I think there was a representative from
13 the state that walked the lines. I did
14 go up to the area where the lightning
15 had struck and, you know, looked at the
16 tree that was struck, as well as the
17 location of the power line and
18 vicinity, as well as spent a lot of
19 time in the --- over the gob --- well,
20 excuse me, the sealed area on the
21 surface, conducting soil resistivity
22 measurements. And you know, at some
23 point you just have to rely on
24 information from other people. You
25 just don't have the time to gather it

1 all yourself. If you ask and they say,
 2 yeah, there's something of particular
 3 interest here or if there's something
 4 that's worth considering, then you go
 5 look at it.
 6 MS. COHEN:
 7 Well, you know what, my
 8 dad is dead. I think you need to make
 9 the time if you're going to come up
 10 with these conclusions that it was
 11 lightning. And 11 other good men are
 12 dead.
 13 MS. CAMPBELL:
 14 I just have two last
 15 questions for Mr. Hatfield. Did you
 16 ever ask MSHA, Mr. Hatfield, to send
 17 rescue intermediately?
 18 MR. HATFIELD:
 19 If you don't mind, I'll
 20 ask Sam Kitts to respond to that
 21 because he was there at the point those
 22 discussions were being had on the
 23 morning of January 2nd.
 24 MR. S. KITTS:
 25 Actually, it will be more

1 of a composite of what I've learned
 2 since then since I didn't arrive until
 3 about quarter 'till 12:00. What I have
 4 understood is that when Jeff Toler and
 5 the rest of the men came outside, they
 6 were debriefed. And during that
 7 debriefing, Dick Wilfong was ---
 8 expressed his opinion that there was no
 9 significant fire, that he had been in
 10 mine fires, he had witnessed the
 11 effects of a mine fire and what he said
 12 was there was very little evidence of
 13 flame or significant amounts of heat.
 14 And in his opinion, he wanted to go to
 15 58 break and start.
 16 MS. CAMPBELL:
 17 Mr. Hatfield, ---.
 18 MR. S. KITTS:
 19 If I could finish?
 20 MS. CAMPBELL:
 21 I'm sorry. I thought you
 22 were finished.
 23 MR. S. KITTS:
 24 Well, obviously I
 25 answered your question.

1 MS. CAMPBELL:
 2 Well, no. I just --- go
 3 ahead and finish, Mr. Kitts. I'm
 4 sorry. It's been a long day.
 5 MR. S. KITTS:
 6 Well, you folks certainly
 7 don't need any help asking questions.
 8 I can tell you that. Well, what
 9 happened at that point was a discussion
 10 was had, and the outcome of that
 11 discussion was that we would wait. We
 12 would do the gas testing. And exactly
 13 who said what is, at this point,
 14 unclear. I would like to know the
 15 answer to that question myself. That's
 16 all I have.
 17 MS. CAMPBELL:
 18 Mr. Hatfield, when you
 19 look at our pictures behind you, how
 20 does that make you feel?
 21 MR. HATFIELD:
 22 I can't even describe how
 23 it makes me feel. You know, sometimes
 24 --- I struggle sometimes on emotional
 25 issues, but I can say that what it

1 makes me feel is all the more
 2 determined to learn something from this
 3 accident so that no one ever has to go
 4 through this again.
 5 CHAIR:
 6 Dr. Novak, just one
 7 question. The date of this report
 8 --- it doesn't have a date on it.
 9 Maybe I missed it.
 10 DR. NOVAK:
 11 Oh, okay. I guess last
 12 Sunday.
 13 CHAIR:
 14 Last Sunday? Okay.
 15 MR. DEAN:
 16 I had a question for Mr.
 17 Sawyer. Have you personally developed
 18 a forces map based on your work?
 19 DR. SAWYER:
 20 Have I what?
 21 MR. DEAN:
 22 Developed a forces map
 23 based on your visit underground,
 24 direction of forces?
 25 DR. SAWYER:

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1 From 1970 --- no, 1984 to
2 what, 1993, was the chief in the
3 industrial safety division. I
4 established ---.
5 MR. DEAN:
6 No, sir. I believe you
7 misunderstood my question. Have you
8 personally developed a forces map of
9 some of the plate bending and pizza pan
10 bending at Sago?
11 DR. SAWYER:
12 Me, personally?
13 MR. DEAN:
14 Yes, sir.
15 DR. SAWYER:
16 No, no. I've reviewed my
17 people's work to make sure it was
18 right, though.
19 MR. DEAN:
20 Okay. Thank you. Mr.
21 Sawyer, as well, would the yield
22 strength and tensile strength numbers
23 at elevated temperature actually be
24 somewhat lower than what you show on
25 page ten of your report?

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1 DR. SAWYER:
2 Yeah. When you heat up a
3 material, it's easier to deform it.
4 That's correct.
5 MR. DEAN:
6 Do you have any estimates
7 of what kinds of temperature those may
8 have seen during the explosion?
9 DR. SAWYER:
10 No. No, sir.
11 MR. DEAN:
12 Mr. Novak, I have a
13 couple questions from our engineer
14 here. What is the most likely means
15 that lightning may have passed through
16 300 feet of rock formation in the
17 absence of a metal well casing, in your
18 opinion, going to the surface strike?
19 DR. NOVAK:
20 Just a direct strike to
21 the earth will cause relatively deep
22 penetration of currents into the earth.
23 And again, it's a function of soil
24 resistivity and, you know, the
25 magnitude of the lightning strike, the

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1 peak current.
2 MR. DEAN:
3 Do you have any other
4 evidence besides the seismographic
5 evidence that you can provide that the
6 CO monitors indicate the explosion
7 occurred at 6:26?
8 DR. NOVAK:
9 Can you say that again?
10 Any other evidence besides the three
11 things that I've already listed to
12 ---?
13 MR. DEAN:
14 Yes, sir, to tie the
15 ---.
16 DR. NOVAK:
17 Other than, you know, the
18 lack of a better explanation strengthens
19 it, but that's --- I don't have any
20 additional facts, no.
21 MR. DEAN:
22 What is your estimate of
23 the voltage of the 101 kiloamp
24 lightning strike?
25 DR. NOVAK:

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1 When it hits --- when it
2 hit the ground or the tree? You're in
3 the --- oh, geez. You're in the --- I
4 hate to venture a guess, but you're
5 well over --- into the millions of
6 volts.
7 MR. DEAN:
8 If lightning came in past
9 the seals and created an electric arc
10 that caused the explosion, would you
11 expect that there would be physical
12 evidence of one?
13 DR. NOVAK:
14 Not necessarily because
15 it only --- as I mentioned I think with
16 the first slide that I have, it would
17 take such a small amount of energy. It
18 can be just a very, very small spark
19 that initiates the explosion.
20 MR. DEAN:
21 Okay. Thank you.
22 DR. NOVAK:
23 Thank you.
24 MR. MCKINNEY:
25 Mr. Sawyer, can you hear

1 me?
 2 DR. SAWYER:
 3 No, not too well.
 4 MR. MCKINNEY:
 5 I wonder how you said no
 6 then. I'll try to talk a little
 7 louder. I think we came up this
 8 morning with the fact that you did your
 9 calculations in Number Six entry
 10 basically because of the belt hangers?
 11 DR. SAWYER:
 12 That's correct.
 13 MR. MCKINNEY:
 14 When you did that, did
 15 you look at all of the hangers in the
 16 belt entry?
 17 DR. SAWYER:
 18 All the way out to the
 19 surface, no, sir.
 20 MR. MCKINNEY:
 21 How many hangers did you
 22 look at, starting where the seal
 23 location was inby and how many hangers
 24 did you look at ---?
 25 DR. SAWYER:

1 Well, I went --- yes,
 2 sir, I went in inby as far as I could.
 3 And when I got to the
 4 mined-out area, there wasn't a ladder
 5 high enough. But I did continue on
 6 back to see visually --- I mean, you
 7 know, if the belt hanger has been bent
 8 let's say more than ten degrees, I'd be
 9 able to visually tell that. If it was
 10 two or three, I couldn't.
 11 MR. MCKINNEY:
 12 So you're telling me that
 13 they weren't all bent uniformly?
 14 DR. SAWYER:
 15 Inby, you know, I'd have
 16 to look at my --- you know, my book and
 17 the records, but ---.
 18 MR. MCKINNEY:
 19 You were pretty --- I
 20 mean, you were pretty certain this
 21 morning and confident that you could
 22 stand up as a structural engineer and
 23 talk about the deflection of these
 24 hangers and how important that was to
 25 your calculations.

1 DR. SAWYER:
 2 That's right. That's
 3 right.
 4 MR. MCKINNEY:
 5 I guess my question now
 6 is, starting at the seal, going inby,
 7 how many did you examine? And were all
 8 of them deflected?
 9 DR. SAWYER:
 10 Well, the ones --- well,
 11 you'd have to look on a mine map to see
 12 where the undercut area is. I went
 13 there and went on further back. Now,
 14 I'll tell you this, Mr. McKinney, the
 15 one I'm interested in, okay, I mean,
 16 the further inby I go, the potential
 17 less importance that I could place on
 18 those, you know. The ones that were
 19 right in front of the seal could be the
 20 most important. Then as you progress
 21 backward, they could potentially
 22 individually be least important --- I
 23 mean, less important on it. But yeah,
 24 I'm certain that seal number six got
 25 hit with 60 psi. I'm certain.

1 MR. MCKINNEY:
 2 I understand your
 3 certainty. I guess I'm looking at what
 4 you're using to substantiate that
 5 certainty. Let me ask my question
 6 again. Maybe I'm not very clear with
 7 it. As you progress inby the seal,
 8 let's say 40 feet, you checked every
 9 belt hanger in that
 10 40-foot area?
 11 DR. SAWYER:
 12 Oh, yeah. Yeah.
 13 MR. MCKINNEY:
 14 And all of them were
 15 deflected at the same degree? They
 16 received the same force?
 17 DR. SAWYER:
 18 Oh, no, no, no.
 19 Different. All different. Different
 20 degrees.
 21 MR. DEAN:
 22 All different?
 23 DR. SAWYER:
 24 Sure.
 25 MR. DEAN:

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1 So no uniformity?
2 DR. SAWYER:
3 No, sir.
4 MR. DEAN:
5 Did you pick the ones
6 that were bent the worst, and that's
7 how you came up with your calculations
8 that that was the pressure ---?
9 DR. SAWYER:
10 No, no, no, no. This is
11 what I did. I knew the geometry of the
12 belt hangers. I had the steel tested
13 to find out what its yield and its
14 tensile strength was. Then I did
15 simple beam calculations. All right?
16 And by doing those calculations and
17 treating that as --- what is known as a
18 cantilever beam, that's a beam that's
19 sticking out like this attached to a
20 wall, and applying uniform pressure on
21 there, I can calculate what uniform
22 pressure would cause that belt hanger
23 to yield, just reach the yield point,
24 and that's 60 psi.
25 MR. DEAN:

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1 But one could yield and
2 the other one not, is that what you're
3 saying?
4 DR. SAWYER:
5 Sixty (60) psi would
6 cause the projecting leg of a belt
7 hanger to start to permanently deform.
8 What you see in there after the
9 explosion is the permanent deformation.
10 MR. DEAN:
11 I guess my only concern,
12 Mr. Sawyer, and we'll have to look at
13 the report, we didn't have a lot of
14 time to review it, is that if it's not
15 uniform and it is sporadic, there's
16 flying debris, there's other things
17 happening in that area, and I think we
18 just want to make sure that there's not
19 a possibility that something struck
20 that one, the particular one. And you
21 placed a lot of emphasis on that, so I
22 just wanted to find out ---.
23 DR. SAWYER:
24 I'm saying, Mr. McKinney,
25 if you look at that general trend,

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1 there was a pressure wave that came
2 down there. And almost every one of
3 them are bent. And it takes at least
4 60 psi that you see something
5 permanently. Now, you know, one of the
6 other tests we ran was --- there was
7 always a question
8 --- you could hit those things after
9 you take the belt hanger out with a
10 piece of machinery. All right. Now,
11 if a piece of machinery would hit that
12 on a tip, and it's in my report, and
13 you'd calculate what the maximum moment
14 is and the stretch --- those belt
15 hangers that are down there have a hole
16 in there. And across that section is
17 where if you hit that thing on the tip,
18 you'd probably see, you know, it bent
19 first.
20 Another thing with regard
21 to flying debris or equipment and
22 considering that, the way I considered
23 that, when you hit that with a uniform
24 pressure, all right, even though the
25 belt hanger might be rotated to the

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1 entry, when it sees the pressure ---
2 that will make my mic stop working. It
3 sees the pressure perpendicular to that
4 face. That's just the nature --- that's
5 the nature of pressure. Now, when you
6 hit that --- when a piece of flying
7 debris hits it and/or a piece of
8 machinery hits it, the probability of
9 that hitting that thing nice and flat
10 on, you know, not too high. There were
11 belt hangers, and very few of them,
12 that you look at and you see the
13 corner, you know, the corner that was
14 just, you know, bent on them, and I'd
15 say, uniform pressure did not do that.
16 MR. MCKINNEY:
17 So the answer to my
18 question is you didn't see uniformity
19 and there's some that were bent and
20 some that were not bent?
21 DR. SAWYER:
22 That's right. That's
23 right. Yeah. Oh, yeah.
24 MR. MCKINNEY:
25 We can explore that a

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1 little farther when we get a chance to
2 talk again.
3 DR. SAWYER:
4 Yeah.
5 MR. MCKINNEY:
6 Mr. Kitts, ---
7 MR. S. KITTS:
8 Yes, sir.
9 MR. MCKINNEY:
10 --- you made a statement
11 a moment ago that there was a
12 discussion between Mr. Wilfong and some
13 other people about what the next step
14 of the action should be at the mine.
15 Can you tell me who participated in
16 that discussion?
17 MR. S. KITTS:
18 That's one of the
19 unresolved issues that I mentioned. I
20 think Mr. Collins was there from the
21 state. I think the people who came
22 outside were emotionally distraught at
23 the time. There were family issues
24 involved. And simply put, their
25 recollections aren't real good. So I

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1 would like to ask Mr. Collins who was
2 in that discussion because, to this
3 point, in our investigation we have not
4 been able to determine exactly who was
5 in that room at that time.
6 MR. HATFIELD:
7 What I think was
8 mentioned earlier is the ICG people
9 that were in there were Dick Wilfong
10 and Carl Crumrine, and Mr. Collins was
11 there for the state. There's some
12 uncertainty about which of the MSHA
13 inspectors were in the room. Mr.
14 Collins can probably help with that.
15 MR. MCKINNEY:
16 Okay. I appreciate that.
17 I guess my question would be, and
18 evidently you've looked into this issue
19 to some extent, are you saying or
20 indicating right now that it was the
21 company's position that you wanted to
22 go back underground at that point in
23 time?
24 MR. S. KITTS:
25 No, I'm not. I'm not

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1 saying it was the company's position.
2 I'm saying an opinion was offered. And
3 Mr. Wilfong will certainly say that
4 publicly. But he offered his opinion
5 that he didn't think there was a
6 significant fire and that the
7 --- in his opinion, he felt that the
8 rescue effort could be started at that
9 area. However, there were more issues
10 to be considered, and those discussions
11 were taking place. And frankly, at
12 this point I don't have an answer for
13 you between how we got from Dick
14 Wilfong's opinion to actually waiting
15 until the trending analysis went down.
16 MR. MCKINNEY:
17 Who would have been the
18 official in charge for ICG at the point
19 in time that the conversation happened
20 that you just mentioned?
21 MR. S. KITTS:
22 The senior operating
23 person for ICG would have been Chuck
24 Dunbar, who was mobilizing drill rigs
25 at the particular time that that

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1 discussion was going on.
2 MR. MCKINNEY:
3 Were you aware of this
4 conversation, Mr. Dunbar?
5 MR. DUNBAR:
6 No, sir, I was not. I
7 was not in that debriefing at all.
8 MR. MCKINNEY:
9 Well, I think we could go
10 a long way, but one of the
11 responsibilities is to keep an official
12 in place who makes those kind of
13 decisions for you as a company.
14 MR. DUNBAR:
15 Thank you.
16 MR. CLAIR:
17 Mr. Hatfield, I have just
18 one question or a request really, and
19 that is a lot of this material was new
20 to us today, and we've gotten a lot of
21 information from your experts. But
22 there is, obviously, more work to be
23 done. MSHA has a responsibility to get
24 its report out as soon as possible.
25 I'd ask you for your commitment that as

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1 we proceed with our investigation, if
2 we could have access to your experts
3 and continue a dialogue with them about
4 possible and probable scientific
5 factors leading to the issue at hand
6 here, which is the cause of this
7 accident.

8 MR. HATFIELD:
9 We're fully committed to
10 supporting the investigation and moving
11 it forward as quickly as we can. And
12 we will share information with you as
13 it becomes available.

14 MR. CLAIR:
15 Thank you.

16 CHAIR:
17 Same goes for the state.

18 MR. ROBERTS:
19 Davitt, I've been given a
20 couple questions by the families to see
21 if we can get some clarification on.
22 Most of these questions, Mr. Sawyer,
23 goes to, I think, the line of
24 questioning that was asked by the
25 federal government a moment ago. Maybe

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1 you could clarify just a little bit.
2 The families are concerned that you
3 have suggested there's a tremendous
4 wide range of psi differences from one
5 location to the other. They seem to
6 believe, and I would agree with, that
7 that's a wide range of difference. And
8 I think that's pretty much what Mr.
9 McKinney was asking you. And I don't
10 want to suggest that it's the same
11 thing. And part of these inquiries
12 here go also --- I've got about four of
13 them that I think go the same
14 direction. I'm trying to ask one
15 question here. The fact that these roof
16 bolts or plates were bent in two
17 different directions, you did state
18 that you weren't necessarily the expert
19 on explosions. But are you familiar
20 that from time to time it's not
21 uncommon --- I don't know if anybody
22 over there would disagree, that
23 explosions go forward and explosions
24 come back? Are you aware of that?
25 What I'm saying is they travel in one

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1 direction and then reverse themselves,
2 the same explosion. Are you aware of
3 that?

4 DR. SAWYER:
5 I said I wasn't. All I
6 can tell you, as a structural engineer,
7 which way a pressure wave came first
8 and which one come second. Now, to
9 explain how that happened? I can't.
10 But I can tell you what came first and
11 what came second from a structural
12 point of view.

13 MR. ROBERTS:
14 I'm just trying to get a
15 clarification as to what your findings
16 happen to be here. With respect to the
17 psi findings, if it was the explosion
18 that caused this, going forward and
19 then coming back, would that have any
20 bearing on your findings?

21 DR. SAWYER:
22 Of what I reported to
23 date, that seal number six I can say
24 from the evidence there in my testing
25 and --- that it saw at least 60 psi.

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1 And that's based upon the forensic
2 evidence. And the forensic evidence,
3 from a structural point of view, in
4 front of the other seals, because they
5 are weaker, it's like a pressure gauge.
6 It only goes up to 25 psi. But as a
7 structural engineer, that's all I can
8 say at this point in time.

9 MR. ROBERTS:
10 But your report, your
11 preliminary report spoke of a different
12 number of these entries --- not
13 entries, but where the seals were
14 located, and the wide variation between
15 psi numbers. And that's what the
16 families were inquiring.

17 DR. SAWYER:
18 Well, if I understand you
19 correctly, I don't understand my report
20 said that.

21 MR. ROBERTS:
22 Oh.

23 DR. SAWYER:
24 You say my --- that you
25 all report has been replaced with what?

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1 MR. ROBERTS:
2 Well, maybe we can get a
3 clarification. But remember, please,
4 that we only received this over a month
5 ---.
6 DR. SAWYER:
7 Oh, no, no. No, I
8 understand that. And you know, I'd be
9 happy to meet with anybody, any
10 technical people, and sit down with
11 them.
12 MR. ROBERTS:
13 I think the families
14 would like some clarification of what
15 you're actually saying here. And we do
16 await the remainder of your tests,
17 particularly the heat analysis test,
18 given the fact when an explosion takes
19 place, we have a tremendous amount of
20 heat generated.
21 DR. SAWYER:
22 Oh, yeah. Yeah.
23 Uh-huh (yes).
24 MR. ROBERTS:
25 Mr. Novak, I want to do

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1 two things with you.
2 DR. NOVAK:
3 Sure.
4 MR. ROBERTS:
5 I perhaps apologize if
6 I'm overly aggressive at this meeting.
7 And I've been this way for some time,
8 and I doubt I'm going to change any
9 time soon. But ---
10 DR. NOVAK:
11 That's all right.
12 MR. ROBERTS:
13 --- if I'm going to be
14 overly aggressive about something, it
15 certainly should be this. And maybe we
16 need a little more of that as opposed
17 to a little less of that. But that's
18 just my personal opinion. I caught
19 something in the conversation that went
20 back and forth, and Mr. Hatfield
21 answered a particular question. When
22 did you issue the report that we have?
23 DR. NOVAK:
24 Last Sunday.
25 MR. ROBERTS:

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1 That takes me to you, Mr.
2 Hatfield. You issued a report March
3 14th that said lightning was the cause.
4 What did you base that on? Was it ---
5 ?
6 MR. HATFIELD:
7 No. We based it on the
8 consensus of our experts. As we said
9 very clearly in that press release, we
10 didn't say the reports were finished.
11 MR. ROBERTS:
12 I didn't say they were.
13 There's no date, I don't think, on the
14 report we have of Mr. Novak.
15 DR. NOVAK:
16 No. I forgot to put it
17 on.
18 MR. ROBERTS:
19 When did you issue that
20 report?
21 DR. NOVAK:
22 The report was turned in
23 on Sunday, this past Sunday, okay, but
24 --- and it's more like two months ago,
25 okay, that there was a meeting of the

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1 ICG people and the experts. And I
2 could not attend the meeting because of
3 my son's surgery, and I had to call in
4 on my cell phone from the car. And I
5 expressed my opinion at that point,
6 before the --- you know, before the
7 report was issued.
8 MR. ROBERTS:
9 The report that we've had
10 ---.
11 DR. NOVAK:
12 No, I mean before the
13 press release.
14 MR. ROBERTS:
15 I understand. I'm just
16 trying to figure out which came first
17 here. The written report that we do
18 now have, when was that completed?
19 DR. NOVAK:
20 Last Sunday.
21 MR. ROBERTS:
22 So that was completed
23 last Sunday?
24 DR. NOVAK:
25 Right.

1 MR. ROBERTS:
 2 Okay.
 3 MR. HATFIELD:
 4 And that offered the
 5 benefit of including the information he
 6 gained after the initial findings were
 7 released.
 8 MR. ROBERTS:
 9 That's helpful. I was
 10 going to ask you a question. You saved
 11 me a lot of time. So what you did at
 12 the time, Mr. Hatfield, that you
 13 released the press release on March
 14 14th was based on information that you
 15 got from Mr. Novak, not necessarily
 16 this written report?
 17 MR. HATFIELD:
 18 That's correct. He had
 19 not offered up a written report. He
 20 had shared his opinion based on work
 21 papers, measurements, and whatever
 22 thing he does to develop that opinion.
 23 He shared that opinion with us, and
 24 that's what's reflected in the
 25 findings.

1 MR. ROBERTS:
 2 I asked Mr. Novak, but I
 3 never really asked you about the 2001
 4 report by MSHA and NIOSH with respect
 5 to the Alabama situation. You're aware
 6 that MSHA puts out information
 7 periodically, and NIOSH does the same
 8 thing, so we can deal with certain
 9 tragedies or areas of concern
 10 throughout the industry. So if
 11 something is happening in Alabama
 12 that's unusual, we want everyone to
 13 know it. And as you pointed out, here,
 14 at Sago, whatever we find here, we want
 15 to pass that along to the industry. So
 16 I guess my question to you would be,
 17 were you aware of the bulletin put out
 18 by NIOSH with respect to the three
 19 explosions that were caused by
 20 lightning, by the way, that didn't
 21 travel through the earth, traveled down
 22 through the casings, into the sealed
 23 area?
 24 MR. HATFIELD:
 25 I was not aware of it

1 prior to the Sago accident. I became
 2 aware of it during the investigation.
 3 MR. ROBERTS:
 4 You were in the industry,
 5 obviously, in 2001; right?
 6 MR. HATFIELD:
 7 Yes.
 8 MR. ROBERTS:
 9 So you just didn't see
 10 this?
 11 MR. HATFIELD:
 12 That's correct.
 13 MR. ROBERTS:
 14 Are you, by the way,
 15 familiar with the term pressure
 16 balancing?
 17 MR. HATFIELD:
 18 I read that term in the
 19 NIOSH report, actually.
 20 MR. ROBERTS:
 21 So that's the first time
 22 you came across it?
 23 MR. HATFIELD:
 24 Yes.
 25 MR. ROBERTS:

1 Are you familiar with
 2 what they did in Alabama to protect the
 3 miners in the Oak Grove Mine?
 4 MR. HATFIELD:
 5 I don't know the
 6 specifics, no.
 7 MR. ROBERTS:
 8 It was in the report that
 9 you said you have seen since the Sago
 10 explosion.
 11 MR. HATFIELD:
 12 Yeah. I think the
 13 suggested action was pressure balancing
 14 of seals so that you don't have these
 15 changes driven by barometric pressure.
 16 MR. ROBERTS:
 17 And they also constructed
 18 seals that were about five feet across
 19 and used a mixture of steel and cement
 20 to seal those areas. In case there was
 21 an explosion on the inby side of the
 22 seals, it would not travel out and kill
 23 or injure workers in the mine?
 24 MR. HATFIELD:
 25 That very well may be. I

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1 just don't know the specifics.
2 MR. ROBERTS:
3 I just wondered if you
4 had seen that. Thank you.
5 CHAIR:
6 Mr. Hamilton?
7 DELEGATE HAMILTON:
8 Mr. Kitts, I believe
9 --- Sam Kitts, I believe you testified
10 earlier that --- you talked about the
11 boreholes from January 5th through
12 January 20th, that there was three
13 boreholes drilled, two for air and one
14 to pump water; is that correct?
15 MR. S. KITTS:
16 Actually, the 24-inch
17 borehole was used for both. But all
18 three were for air and one was for
19 pumping.
20 DELEGATE HAMILTON:
21 Were those boreholes in
22 the sealed area or were they in another
23 part of the mine?
24 MR. S. KITTS:
25 Yes. They were in the

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1 previously-sealed area.
2 DELEGATE HAMILTON:
3 And I believe yesterday
4 Mr. Hatfield testified --- I had asked
5 a question about why you didn't reseal
6 that part of the mine, and your
7 information was that you didn't feel
8 confident in those seals, is the reason
9 you went with the boreholes.
10 MR. HATFIELD:
11 Yeah. I believe my
12 statement was that we did not feel
13 comfortable resealing that area. We
14 wanted to ventilate it to the surface.
15 That was the consensus as well within
16 the --- from federal and state
17 regulators on our ventilation plan. So
18 it was determined we would vent the
19 sealed area through the surface --- to
20 the surface through those boreholes.
21 DELEGATE HAMILTON:
22 And those seals, what
23 kind of a --- do you have an idea of
24 what kind of a cost it was to install
25 those seals? I mean, any ballpark

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1 estimate?
2 MR. S. KITTS:
3 Depending on the seal
4 type, you're looking at \$5,000 to
5 \$10,000 per seal.
6 DELEGATE HAMILTON:
7 And how about the
8 boreholes, is there a difference in
9 cost?
10 MR. S. KITTS:
11 I can't quote the cost of
12 installing a borehole off the top of my
13 head, no. Chuck, do you have an
14 estimate of the difference in seal
15 price versus boreholes?
16 MR. DUNBAR:
17 I don't have that with
18 me.
19 DELEGATE HAMILTON:
20 Would it be safe to
21 estimate --- or maybe we shouldn't
22 assume, but it would be safe to say
23 those boreholes were more expensive
24 than that \$5,000 to \$10,000 for that
25 sealed wall?

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1 MR. S. KITTS:
2 I don't think there's a
3 significant difference in cost, no. A
4 24-inch borehole can be expensive. But
5 it depends on the depth and the type of
6 drill you use and --- there's a lot of
7 variables there, that I would hate to
8 just estimate here off the top of my
9 head.
10 DELEGATE HAMILTON:
11 Would it be safe to say
12 that if we would have had boreholes
13 prior to January 2nd, 12 men might
14 still be alive?
15 MR. S. KITTS:
16 Yes.
17 DELEGATE HAMILTON:
18 Thank you. I have one
19 question of Mr. Novak. If you return -
20 -- excuse me, if you turned in your
21 report on Sunday, April 30th, why did
22 it take so long to get it to the
23 families?
24 DR. NOVAK:
25 Say what?

1 DELEGATE HAMILTON:
 2 If your report was turned
 3 in on Sunday, April the 30th, ---.
 4 DR. NOVAK:
 5 That was three days ago.
 6 MR. HATFIELD:
 7 For clarification, that
 8 report was delivered to MSHA, and I
 9 believe they did the further
 10 distribution, if I recall correctly. Is
 11 that right, Ray? Mr. Clair?
 12 MR. CLAIR:
 13 I understand it was
 14 delivered to our attorney on Monday,
 15 and then we received a copy this
 16 morning from your attorney that gives
 17 an update on Mr. Sawyer's report. So
 18 as between Monday and we're all here on
 19 Tuesday, so ---.
 20 MR. HATFIELD:
 21 I believe it was
 22 delivered to Mr. Crawford over the
 23 weekend or perhaps Monday morning. You
 24 may be right. But basically that's
 25 when it came in the hands of the

1 regulators. And then from there, I
 2 suppose it went to the families.
 3 DELEGATE HAMILTON:
 4 Did ICG have a deadline
 5 for your written report, Mr. Novak?
 6 DR. NOVAK:
 7 No. The deadline was
 8 this hearing. Well, I mean, from what
 9 I understand, it had to be turned into
 10 MSHA on Monday --- on this past Monday.
 11 That was the deadline.
 12 DELEGATE HAMILTON:
 13 Mr. Hatfield, did you
 14 request a written report for this
 15 hearing?
 16 MR. HATFIELD:
 17 Yes, I did, essentially
 18 because the state and federal
 19 regulators were asking for a written
 20 report rather than simply relying on
 21 testimony from work papers or whatever
 22 else may be the case. So we asked Mr.
 23 Novak to accelerate his report
 24 development and get us a preliminary
 25 report, and that's what he did.

1 MR. ROBERTS:
 2 I have one last question
 3 from the families here. Mr. Sawyer,
 4 you may have said this and I missed it.
 5 How long did you work for MSHA?
 6 DR. SAWYER:
 7 I started in August of
 8 1970, I was in the roof control
 9 division, and I retired in 1999. So
 10 that's what, 29 years.
 11 MR. ROBERTS:
 12 How many explosions have
 13 you investigated and given a report on
 14 with respect to --- similar to what you
 15 did here?
 16 DR. SAWYER:
 17 Myself, personally?
 18 MR. ROBERTS:
 19 Yes, sir.
 20 DR. SAWYER:
 21 Zero. But I will say
 22 this, okay, from 1977 until definitely
 23 1993, people under my direct
 24 supervision, in one way or another,
 25 were involved with every mine explosion

1 that took place. Now, did I personally
 2 go and follow around as a supervisor,
 3 no. But I reviewed their work.
 4 MR. ROBERTS:
 5 The question that I had,
 6 and I think you answered it in the
 7 beginning, is this is your first on-
 8 site, underground investigation that
 9 you've done personally?
 10 DR. SAWYER:
 11 With a mine explosion,
 12 other than Blacksville Number One,
 13 which was a shaft explosion, okay, but
 14 yes, that's correct.
 15 MR. ROBERTS:
 16 Thank you.
 17 CHAIR:
 18 If there are no further
 19 questions, the Chair will close this
 20 hearing. I want to thank the panel
 21 very much for coming, for giving us
 22 testimony. Unfortunately, Mr. Eugene
 23 Kitts, we didn't have any questions for
 24 you, but we'll try to make up for that.
 25 But thank you again for coming. And

1 we will reconvene at nine o'clock
2 tomorrow morning.

3 * * * * *

4 HEARING CONTINUED

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