

STATEMENT UNDER OATH

OF

PETER DEL DUCA, II

Taken pursuant to Notice by Richard J. Lipuma, CCR, a Court Reporter and Notary Public in and for the Commonwealth of Pennsylvania, at the Southeastern Utah Association of Governments, 375 South Carbon Avenue, Price, Utah, on Monday, October 29, 2007 beginning at 4:50 p.m.

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ALSO PRESENT:

Kelly Kirkwood, Notary Public

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## P R O C E E D I N G S

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MR. ZELANKO:

My name is Joe Zelanko.  
I'm an accident investigator  
with the Mine Safety & Health  
Administration (MSHA), an  
agency of the United States  
Department of Labor. With me  
is Derek Baxter from the  
Solicitor's Office, and  
Sherrie Hayashi, with the Utah  
Commission of Labor. We will  
be conducting the questioning  
today.

I, together with other  
government investigators and  
specialists, have been  
assigned to investigate the  
conditions, events and  
circumstances surrounding the  
fatalities that occurred at  
the Crandall Canyon Mine in  
August 2007. The  
investigation is being

1           conducted by MSHA under  
2           Section 103(a) of the Federal  
3           Mine Safety & Health Act and  
4           the Utah Commission of Labor.  
5           We appreciate your assistance  
6           in this investigation.

7                         After the investigation  
8           is complete, MSHA will issue a  
9           public report detailing the  
10          nature and causes of the  
11          fatalities in the hope that  
12          greater awareness about the  
13          causes of accidents can reduce  
14          their occurrence in the  
15          future. Information obtained  
16          through witness interviews is  
17          frequently included in these  
18          reports. Your statement may  
19          also be used in other  
20          proceedings.

21                        You may have a personal  
22          representative present during  
23          the taking of this statement  
24          and may consult with the  
25          representative at any time.

1 Your statement is completely  
2 voluntary and you may refuse  
3 to answer any question and you  
4 may terminate your interview  
5 at any time or request a break  
6 at any time.

7 A court reporter will  
8 record your interview. Please  
9 speak loudly and clearly. If  
10 you don't understand a  
11 question, please ask me to  
12 rephrase it. Please answer  
13 each question as fully as you  
14 can, including any information  
15 you've learned from someone  
16 else.

17 I'd like to thank you  
18 in advance for your appearance  
19 here. We appreciate your  
20 assistance in the  
21 investigation. Your  
22 cooperation is critical in  
23 making the nation's mines  
24 safer.

25 After we have finished

1 asking questions, you will  
 2 have an opportunity to make a  
 3 statement and provide us with  
 4 other information that you  
 5 believe to be important. If  
 6 at any time after the  
 7 interview you recall any  
 8 additional information that  
 9 you believe might be useful,  
 10 please contact Richard Gates  
 11 at the telephone or email  
 12 address provided to you. I'll  
 13 give you a card before you  
 14 leave.

15 Ms. Kirkwood, would you  
 16 swear in the witness?

17 MS. KIRKWOOD:

18 Please raise your right  
 19 hand.

20 -----  
 21 PETER DEL DUCA, II, HAVING FIRST BEEN  
 22 DULY SWORN, TESTIFIED AS FOLLOWS:  
 23 -----

24 MR. ZELANKO:

25 Ms. Kirkwood, are you

1 empowered as a notary in the  
2 State of Utah?

3 MS. KIRKWOOD:

4 I am.

5 MR. ZELANKO:

6 And when does your  
7 commission expire?

8 MS. KIRKWOOD:

9 August 15th, 2008.

10 MR. ZELANKO:

11 And have you sworn in  
12 Mr. Del Duca?

13 MS. KIRKWOOD:

14 I have.

15 BY MR. ZELANKO:

16 Q. Mr. Del Duca, is it okay for  
17 me to call you Pete?

18 A. Yeah.

19 Q. Okay. Would you please state  
20 your full name and address for the  
21 record?

22 A. Peter N. Del Duca, II. I live  
23 at (b) (7)(C)

24 (b) (7)(C) .

25 Q. Do you have any questions

1       about the interview process as I  
2       described it?

3       A.       No.

4       Q.       Do you have a personal  
5       representative with you today?

6       A.       No.

7       Q.       Peter, are you appearing here  
8       today voluntarily?

9       A.       Yes.

10      Q.       How long have you worked for  
11      MSHA?

12      A.       Well, I came on in '05, I  
13      believe, in the summer of '05 as a  
14      co-op student. And then I worked ---  
15      well, I came on as a temporary and  
16      then I rehired the following year.  
17      And then I became a permanent  
18      employee.

19      Q.       So you've been a permanent  
20      employee ---?

21      A.       About two years.

22      Q.       About two years.

23      A.       That's what that'd be, a  
24      little over two years, I guess.

25      Q.       And what is your current duty

1 station?

2 A. Denver, Colorado.

3 Q. And that's where you did your  
4 co-op work and everything; right, in  
5 the Denver office?

6 A. Yes, sir.

7 Q. Okay. And what's your present  
8 position?

9 A. Mining engineer in the roof  
10 control department.

11 Q. And how long have you been in  
12 that position, since you were hired  
13 on permanently?

14 A. July 9th, 2006 is my effective  
15 date.

16 Q. And who's your current  
17 supervisor?

18 A. Billy Owens.

19 Q. You'd already discussed a  
20 little bit about your co-op status.  
21 Can you give us a brief overview of  
22 your employment history preceding  
23 that and go through it again?

24 A. With MSHA, you mean?

25 Q. Well, did you work anywhere

1 before MSHA while you were in school  
2 or before you went to school?

3 A. Not that's pertinent to this  
4 work, but --- I mean, I had like  
5 summer jobs. I'm not sure if I  
6 understand what exactly you're  
7 asking.

8 Q. Just --- I didn't know if you  
9 had worked somewhere else. Maybe out  
10 of high school you worked at a mine  
11 somewhere before you decided to go to  
12 college that might be relevant, but  
13 if you had no pertinent  
14 experience ---.

15 A. I have no relevant experience.

16 Q. That's okay. Would you please  
17 describe your educational background?

18 A. Yeah. I went to --- I  
19 graduated from the Colorado School of  
20 Mines as a general engineer with a  
21 mechanical specialty, so I'm a  
22 mechanical engineer.

23 Q. Do you hold any professional  
24 licenses or certificates, PEs,  
25 fundamental ---?

1 A. Well, yeah, I guess I'm EI.  
2 It used be an EIT, but I think they  
3 dropped the T. It's an EI now. It's  
4 an engineering term there.

5 Q. And once you became a  
6 permanent employee of MSHA, you  
7 started your AR training?

8 A. I started it after I'd  
9 graduated from school. The way it  
10 worked with the co-op program was  
11 that I worked in the health  
12 department. I didn't begin any of my  
13 training to Beckley until after I  
14 graduated from school. Because with  
15 the co-op programs you have --- they  
16 help with school and then you work  
17 part time at the same time. And then  
18 when you graduate, they have the  
19 option of making you an offer or not.  
20 But you're considered a permanent  
21 employee during the time that you're  
22 a co-op student.

23 Q. Okay.

24 A. So I didn't start any of my  
25 actual training I guess beyond ---

1       you know, I did go --- accompany  
2       inspectors and that during the time I  
3       was in co-op.

4       Q.       Okay. Have you completed your  
5       AR training now?

6       A.       I've completed all my Beckley  
7       courses.

8       Q.       You said you have accompanied  
9       MSHA personnel on the field?

10      A.       Uh-huh (yes).

11      Q.       Do you know approximately how  
12      many times? You said you worked in  
13      health. Were there times that you  
14      went to the field health related or  
15      --- how many times roof control  
16      related?

17      A.       Oh, okay. Well, see then ---  
18      since July of '06, I've been in roof  
19      control. And that's all been --- all  
20      of that's been either general  
21      inspection or roof control. I've  
22      accompanied --- I'm not sure.

23      Q.       Quite a few times?

24      A.       Not as many roof control as  
25      general.

1 Q. Okay. Do you recall how many  
2 times just roof control related?

3 A. I'm not sure.

4 Q. Do you go mostly with the same  
5 people or different people?

6 A. I try to go with different  
7 people to get different outlooks on  
8 things, see how they --- everybody  
9 does things different.

10 Q. The roof control visits that  
11 you made, who did you normally travel  
12 with, with those?

13 A. Billy.

14 Q. And what was the purpose, can  
15 you recall? When you were out, what  
16 was the main purpose of the  
17 investigations?

18 A. Well, one of them was at  
19 Crandall in the north barrier pillar  
20 development section. One of them was  
21 on a --- had the enclosure at Oak  
22 Creek. Just different things like  
23 that. I think that might have been  
24 it with Billy.

25 Q. Did you travel with the other

1 roof control specialists? It would  
2 have been Kathleen Keller ---.

3 A. I didn't travel with Gary. I  
4 went with Kathleen and Billy at the  
5 same time, but I never traveled with  
6 Kathleen by herself --- by ourselves.

7 Q. In your roof control job since  
8 July of '06, what are your primary  
9 areas of responsibility? What kind  
10 of work have you been doing?

11 A. Plan review.

12 Q. How many plans would you say  
13 that you've reviewed?

14 A. Well, that's kind of a tough  
15 question because, I mean, we get  
16 quite a few amendments come through.  
17 I mean, they come through pretty  
18 regularly. Plus --- it's hard to  
19 say.

20 Q. Okay.

21 A. I mean, quite a few. Quite a  
22 few amendments. And then also we  
23 review some ground control plans for  
24 surface mines. We also review  
25 impoundment reports and things of

1 that nature. So I mean ---.

2 Q. So when you said your primary  
3 area of responsibility is plan  
4 review, it includes the ground  
5 control for surface mines, roof  
6 control plans, completing amendments  
7 or maybe primarily amendments and  
8 impoundment plans, too. All those  
9 things.

10 Okay. Of the roof control  
11 plan amendments and full plans that  
12 you're familiar with, did many of  
13 them included engineering analyses?

14 A. No, not too many.

15 Q. The impoundment plans tend to  
16 be more engineering oriented?

17 A. Yes. Well, I guess it's kind  
18 of a hard question to answer. I  
19 mean, you're still using engineering  
20 knowledge when you review a plan no  
21 matter how you look at it. But as  
22 far as actually doing a lot of  
23 calculations and stuff, I guess  
24 that's what I thought you meant when  
25 you asked the question. Is that ---?

1 Q. Yeah, that's basically what  
2 I'm asking. Do you see a lot of  
3 supporting information that's  
4 engineering in nature coming in, in  
5 most of the plan amendments or are  
6 they more ---?

7 A. Not on most of them. It's not  
8 a typical thing for them to come  
9 through with.

10 Q. Okay. When you do see the  
11 engineering analysis come in, is it  
12 usually done by in-house engineers at  
13 the companies, or is it worked on by  
14 consultants and submitted?

15 A. I guess both. Some of it's  
16 done in-house, primarily probably  
17 consultants.

18 Q. And when you do see  
19 consultants, who --- have you seen a  
20 number of them? Which consultants do  
21 you normally see being used in  
22 District Nine mines?

23 A. I'm not really sure. I don't  
24 really look at who it's ---  
25 necessarily who does it as much as

1 the content.

2 Q. Okay.

3 A. Sorry I can't really give you  
4 a good answer on that.

5 Q. In the roof control plan  
6 submittals that you've looked at,  
7 what types of design work are people  
8 normally doing whenever they're  
9 submitting an amendment? I mean,  
10 pillar plans, gate road designs,  
11 multiple scene interaction issues,  
12 what kind of issues have you seen in  
13 your tenure here?

14 A. Well, we've seen a little bit  
15 of all of it, I guess.

16 Q. Okay. In your experience  
17 there at the district with those  
18 range of different things, what types  
19 of analyses are people normally doing  
20 and submitting with the plans to  
21 justify plan approval? What types of  
22 approaches are they using for design?

23 A. Well, I'm not sure I can --- I  
24 don't know offhand.

25 Q. Have you seen many people

1 using ARMPS or LAMODEL, for example?

2 A. I've seen it a couple times, I  
3 guess.

4 Q. A couple times. Okay. And of  
5 those, how many of the plans that  
6 you've looked at, roof control  
7 plans ---?

8 A. Most of them don't come in  
9 with analysis. It's only if it's a  
10 little bit different of a plan.

11 Q. Right. So most of the things  
12 that you're looking at are of what  
13 kind of a nature? They're not a big  
14 design type plan change. It's ---

15 A. No.

16 Q. --- more routine. Like what  
17 kinds of things?

18 A. Well, there'll be some things  
19 like --- well, if they want to do a  
20 pillar split to bring a --- from a  
21 longwall gate road, you know, to run  
22 their belt down or something of that  
23 nature. Some of the pillaring plans,  
24 cut sequences, things like that.

25 Q. Or maybe they want to add a

1 type of support that they haven't  
2 used before?

3 A. Yeah, yeah.

4 Q. A lot of it's fairly routine?

5 A. Yeah, it's nothing too ---.

6 Q. Okay. So of the ones that  
7 come in that have a lot of  
8 calculations that are unusual, about  
9 how many of those have you looked at?  
10 Or how many analyses submitted by an  
11 operator or a consultant who you  
12 looked at that involved a great deal  
13 of design work?

14 A. Not too many.

15 Q. And when you did those, if  
16 they use ARMPS or LAMODEL, did you  
17 use ARMPS and LAMODEL also to check  
18 them?

19 A. I haven't use ARMPS to check  
20 --- or LAMODEL, excuse me. I've had  
21 a little bit of trouble with the  
22 program, so I haven't used it very  
23 much, mostly ARMPS. I've used ALPS  
24 before, too, on gate roads.

25 Q. Any other programs that ---?

1       A.       I've dabbled with a few of  
2       'em, but primarily I'd say probably  
3       ARMPS if we're going to use a  
4       program.

5       Q.       All right. With ALPS and  
6       ARMPS, how were you trained to use  
7       those programs? Did you attend an  
8       ARMPS or ALPS seminar?

9       A.       No.

10      Q.       No? Did you rely on resources  
11      --- the resource files in the  
12      programs, or did someone show you, or  
13      how did you learn how to use them?

14      A.       Well, each of them when they  
15      first came out, they were presented  
16      with a paper that accompanied them  
17      that talks a little bit about it. I  
18      mean, they're really publicized when  
19      they come out. The NIOSH has those  
20      little pamphlets, for lack of a  
21      better term, that talks about the  
22      programs and the help files inside of  
23      them.

24      Q.       So the papers, pamphlets and  
25      the help files?

1 A. Yeah.

2 Q. All right. We'll just focus  
3 now on Crandall Canyon, the mine  
4 itself and the plan approval process  
5 and so forth. What was your role in  
6 the review process for that plan for  
7 the north barrier pillar?

8 A. Well, the plan came in and it  
9 wasn't actually submitted as a plan.  
10 It was sent in as a --- it was kind  
11 of an --- if we were to submit this  
12 plan, would it be approved? It was  
13 sent in as a cursory review, at first  
14 with two consultant reports, and then  
15 the actual requests were sent in  
16 after the cursory review.

17 Well, the cursory review came  
18 up. Basically Billy brought these  
19 two reports to me and said that, go  
20 through these and, you know, look at  
21 them and see what you can find in  
22 them. Run an analysis on them and  
23 see --- an independent analysis and  
24 see what you think about what they're  
25 doing and come back to me and report

1 to me.

2 Q. So their Agapito reports were  
3 part of this cursory review?

4 A. That's what they were. They  
5 were the two reports, the first two  
6 that came through. I have them with  
7 me.

8 Q. Do you need to look at them to  
9 refer to the dates or anything?

10 A. Yeah.

11 Q. Do you want to do that? Go  
12 ahead and pull them out.

13 A. August 9th, 2006 and July  
14 20th, 2006. They have dates on them.

15 Q. And both those reports  
16 addressed development mining or  
17 development mining and retreat  
18 mining?

19 A. It was development and retreat  
20 at both the north barrier pillar and  
21 the south barrier pillar.

22 Q. Okay. So you were asked to  
23 review those. Was anybody else asked  
24 to review them, too?

25 A. I don't know.

1 Q. Those reports included both  
2 LAMODEL and ARMPS analyses; is that  
3 correct?

4 A. Yes, sir.

5 Q. How was the LAMODEL analysis  
6 evaluated? When you were asked to  
7 look at that, what did you do?

8 A. Looked at the inputs, the  
9 properties for the coal. The  
10 analyses that they submitted, they  
11 had everything in, they had all their  
12 inputs that they used in all their  
13 drafts and everything and all the  
14 outputs. Since I had some trouble  
15 --- you know, setting up a LAMODEL  
16 grid for that without AutoCAD is, you  
17 know, very timely, or time consuming,  
18 rather.

19 Q. So you had LAMODEL available  
20 to you on your computer, but you  
21 didn't have AutoCAD, any version of  
22 AutoCAD or the version that you  
23 needed to run the program?

24 A. We have one copy of AutoCAD  
25 for the district. It's on our IT

1       guy's computer. It's somewhat  
2       available, but it's ---. And then  
3       from there you have to get the maps  
4       from the mine sent in to you and then  
5       figure out what the sections you're  
6       on and draw it in. I mean, it's,  
7       even with --- it's still time  
8       consuming, but it wasn't really made  
9       accessible, so ---.

10       Q.       Okay. So you had the program,  
11       AutoCAD was marginally available but  
12       not ---

13       A.       Yeah.

14       Q.       --- not easy to get to, and  
15       you lacked the AutoCAD files from the  
16       company in order to ---?

17       A.       I managed to get them to send  
18       those to me. I requested them and  
19       they did send those to me.

20       Q.       Okay. You sent them and  
21       requested it with the intention of  
22       trying to duplicate the model?

23       A.       Uh-huh (yes).

24       Q.       But it just proved to be  
25       too ---?

1 A. Too time consuming. So most  
2 of the review of LAMODEL came through  
3 the review of the properties, what  
4 their inputs were.

5 Q. And how was the ARMPS'  
6 analysis evaluated?

7 A. The ARMPS' analysis, I did my  
8 own ARMPS' analysis.

9 Q. So you actually took their  
10 input and duplicated it. Had they  
11 given you enough ---?

12 A. I took their drawings of  
13 basically what they plan to do and  
14 then I ran an analysis.

15 Q. You analyzed it completely  
16 independently of what they did?

17 A. Completely independently. It  
18 should probably be noted that my  
19 analysis, my inputs, weren't correct  
20 from what --- it differed from  
21 convention, I guess.

22 Q. And what do you base that on?  
23 What do you base the conclusion that  
24 yours is --- what was the term you  
25 used, it was different than the

1 convention?

2 A. Yeah, my applications ---  
3 basically I did my analysis. I ran  
4 it from there. We took our  
5 differences of the analysis of mine  
6 and we took any questionable inputs  
7 on LAMODEL and we wrote them a letter  
8 back that said that if it was  
9 submitted this way, it would not be  
10 approved, the following deficiencies  
11 were, and we had them listed out. So  
12 basically this is what we don't  
13 understand, explain it to us.

14 And then I guess the  
15 consultants contacted Billy about it  
16 and they went through it, all the  
17 inputs and explained why they were  
18 valid and kind of went from there.  
19 And that's kind of where we found ---  
20 where some of my assumptions were  
21 overly conservative.

22 Q. Okay. When you said we in  
23 there, we wrote a letter, we found  
24 this, you're talking about you and  
25 Billy?

1 A. Yes.

2 Q. The accident investigation  
3 team was provided with handwritten  
4 notes and several typed pages from  
5 the district. I'm going to give you  
6 this.

7 MR. ZELANKO:

8 Can we mark this as  
9 Exhibit One?

10 (Del Duca Exhibit One  
11 marked for  
12 identification.)

13 A. That's what I'm looking at.  
14 This is my ARMPS' analysis. It  
15 explains my inputs and why I used the  
16 inputs I used.

17 BY MR. ZELANKO:

18 Q. Okay. So that's ---?

19 A. If you go through it, I mean,  
20 you already ---.

21 Q. That's your work, both  
22 handwritten and the typed?

23 A. That's --- yeah, a hundred  
24 percent.

25 Q. And when were the typewritten

1 pages ---? There's a date up there  
2 at the top.

3 A. That's when I typed them up,  
4 yes. What we had done is we --- when  
5 I did the analysis, I took my  
6 analysis into --- we spread out a map  
7 in the conference room and talked  
8 with Billy and explained the  
9 differences, you know. Nothing was  
10 written out at that point. It wasn't  
11 submitted as a formal report like  
12 this. All the appendices, those were  
13 already done. The drafts that are in  
14 here, those were all produced back  
15 when I did the review to show Billy  
16 what I'd come up with, you know.

17 Q. You used the output function  
18 of the program to print out these  
19 pages because they showed the  
20 stability factors, I presume?

21 A. Correct.

22 Q. And when you laid everything  
23 out on the table, you had a map  
24 there. We often do that. Did you  
25 write notes on the map to help

1 explain what your results were?

2 A. No.

3 Q. You just laid it out and said,  
4 I did this work here and these  
5 numbers represent this?

6 A. Yeah.

7 Q. Okay.

8 A. And then I produced that  
9 because --- well, the question of the  
10 review started to come up. Was one  
11 done and all that stuff. So they  
12 said get your notes together, put  
13 them in and make sure that, you know,  
14 you can explain why you used your  
15 inputs, and so I did.

16 Q. Can we look, Pete, at the  
17 first page of the notes? Can you  
18 tell us what some of the comments,  
19 some of the statements you wrote  
20 there, what it means?

21 A. Sure.

22 Q. At some point there it says,  
23 could not analyze third section  
24 without LAMODEL. We talked already  
25 about the difficulties with

1 implementing LAMODEL. What's the  
2 third section? Does that refer to a  
3 section in the mine or a section in  
4 the report?

5 A. See the program came in when  
6 they submitted this. They wanted to  
7 pull these pillars, too, out here  
8 outby the seals for Main West and  
9 start pulling these.

10 Q. So the third section, for the  
11 record, refers to the area that they  
12 proposed to retreat outby 108 in the  
13 Main's West, including the old  
14 entries?

15 A. I'm not sure if it's 108, but  
16 that sounds right.

17 Q. Outby the seals?

18 A. Right. They hadn't submitted  
19 a plan to us yet on that anyway.

20 Q. So your terminology was the  
21 first section would have been the  
22 pillar section in the north barrier?

23 A. That would've been the first.  
24 The second would have been the south  
25 barrier, and the third would have

1       been back there.

2       Q.       The same page we're looking at  
3       here on Exhibit One, it says  
4       fundamental differences.   What were  
5       your fundamental differences?   Were  
6       they between your calculations and  
7       Agapito?

8       A.       Yes, between the modeling that  
9       I did and theirs.   These are what  
10      made --- you know, typically when you  
11      run a model, some of the things you  
12      do, which I didn't print out or  
13      anything, is you run a sensitivity  
14      analysis, too, which ARMPS is set up  
15      to do.   All you have to do is you  
16      just click --- you know, you make a  
17      graph vary in strength or whatever  
18      and it shows the differences in your  
19      stability factor versus strength.   So  
20      these are kind of ran from the  
21      differences between mine and how much  
22      --- if they affected it.   I mean, if  
23      it didn't affect it, really, then it  
24      wouldn't have come up as a  
25      fundamental difference.

1 Q. Okay.

2 A. Typically every time you model  
3 you always want to run a sensitivity  
4 just to see where you're at, just to  
5 see what changes it and what's an  
6 import and input.

7 Q. Did you see any sensitivity  
8 analysis that was done in the LAMODEL  
9 or ARMPS' work that Agapito  
10 presented?

11 A. I don't believe it was  
12 submitted with the report.

13 Q. But you assumed that they  
14 would have done something similar?

15 A. Whenever we do any kind of  
16 modeling, I mean, that's just one of  
17 the basics of computer modeling.

18 Q. Okay. It says below  
19 fundamental differences, in-situ coal  
20 strength 1640 psi versus 900 psi.  
21 Where did that come up?

22 A. Well, usually when you  
23 estimate coal strength, you start at  
24 900 unless you have better data.  
25 They submitted 1,640 psi as the in-

1       situ strength of the Hiawatha seam,  
2       which seems a little bit high from  
3       starting at 900. But after Billy  
4       spoke with them, they turned in  
5       several documents where it's been  
6       measured by --- input in papers by  
7       both NIOSH and by Maleki and a couple  
8       others that the strength of the  
9       Hiawatha seam actually is  
10      considerably higher. In-situ  
11      strength has been estimated anywhere  
12      from 1,800 psi on up to --- DUCS has  
13      it as 5,446.

14      Q.       And DUCS is the database of  
15      uniaxial compressive strength of  
16      coal ---

17      A.       Yes, sir.

18      Q.       --- that was produced by  
19      NIOSH?

20      A.       Yeah.

21      Q.       Did you look at those  
22      references to those strengths?

23      A.       Yeah, I have them with me, if  
24      you'd like me to give you a copy of  
25      those?

1 Q. No, that's fine. Okay. These  
2 values, were they relevant to the  
3 LAMODEL analysis or ARMPS or both?

4 A. Both. I guess when you're  
5 looking at it, though, the way they  
6 ran their analysis in ARMPS is they  
7 ran it by back analyzing pillar  
8 sections historical with similar  
9 loading conditions. And then they  
10 took that and found a baseline. Now,  
11 if you run it with a baseline and you  
12 ran all your analyses with a 1,640  
13 psi strength, then your baseline is  
14 still going to be valid even though  
15 you differ from the 900 psi. NIOSH  
16 has published documents that said  
17 that when you're using ARMPS, because  
18 it's an empirical database that you  
19 should stick with 900 psi. You  
20 shouldn't go outside of that unless  
21 you have site-specific data from back  
22 analysis.

23 But if you do your back  
24 analysis with 900 psi or you do it  
25 with 1,640, it's going to really ---

1 in essence, you're going to have  
2 different numbers, but it's going to  
3 show you the same thing. Does that  
4 make sense?

5 Q. That's a good explanation.  
6 You're indexing to past experience.  
7 So the strength, as long as you're  
8 consistent, it ---.

9 A. Exactly.

10 Q. They're relative.

11 A. I'm not very articulate today,  
12 so ---.

13 Q. No, I think you did a good job  
14 there.

15 A. Since LAMODEL uses  
16 calculations instead of --- when  
17 using the design, it was set up to  
18 use all the old strength formulas and  
19 that, Bieniawski equations. The in-  
20 situ strength is very important. The  
21 model is very sensitive to that.

22 It should be noted, too, that  
23 the strengths of the Hiawatha seam  
24 with a range from 1,800 psi on up to  
25 5,446, were not up to that upper

1 limit. But those were calculated  
2 from both samples, the three by  
3 threes and the four by four samples,  
4 and also using inseam pressure cells.

5 In fact, I think I have a  
6 document with me where they did  
7 pressure cells at the Wilberg Mine  
8 that showed considerably higher  
9 strengths, things like that that the  
10 Bureau of Mines put out with NIOSH.

11 Q. So as opposed to uniaxial  
12 compressive strength, these are  
13 actual pillar strengths ---

14 A. Right, these are ---.

15 Q. --- calculated from field  
16 measurements.

17 A. Calculated from field  
18 measurements. Exactly. So it's not  
19 just --- because when we take your  
20 three by threes and your four by  
21 fours and you do uniaxial compressive  
22 strength, it's not really  
23 representative because it doesn't  
24 take into account cleats and anything  
25 else that's going to be present

1       inside your seam.

2       Q.       That's the size effect that  
3       they talk about.

4       A.       Yeah, size effect. Thank you.

5       Q.       Okay. On your paper here, you  
6       said then there are fundamental  
7       differences modeling geometry.

8       A.       That's actually where I  
9       learned that I had modeled it  
10      incorrectly. I modeled it showing  
11      the pillars as all being retreated.  
12      What they came back and pointed us to  
13      was NIOSH references that showed that  
14      if you have --- the program sees coal  
15      pillars that are unretreated as solid  
16      blocks of coal.

17      Q.       Who is they? They pointed you  
18      to ---.

19      A.       Well, when Billy spoke with  
20      Agapito, what they said to him, and  
21      then he came to me and showed me what  
22      I had done wrong.

23      Q.       So Billy spoke with Agapito?

24      A.       I believe he did, the way I  
25      understand it.

1 Q. Okay. And do you have those  
2 references?

3 A. I think so. Here's some  
4 similar language right here on page  
5 72. That's the top highlighted one.  
6 This is that loading condition two,  
7 which is development only ---  
8 development and then retreat only on  
9 one active gob where it's been  
10 developed, panels next to it. It  
11 sees those as solid coal.

12 MR. ZELANKO:

13 The paragraph that  
14 Pete's referring to says,  
15 another interesting  
16 observation was that all 21  
17 ARMPS loading condition to  
18 case histories were  
19 successful. In the loading  
20 condition two, side abutment  
21 load transfer does not occur  
22 because the adjacent panels,  
23 if any had been driven, have  
24 not been retreat mined.  
25 Therefore, the program

1           considers these areas as being  
2           unmined coal or infinitely  
3           large pillars.

4                     MR. BAXTER:

5                     Can you indicate for  
6                     the record just what the title  
7                     of the document is?

8                     MR. ZELANKO:

9                     This is a paper that  
10                    was presented at the 21st  
11                    ground control conference in  
12                    Morgantown, West Virginia.  
13                    It's titled, Deep Cover Pillar  
14                    Extraction in the US Coal  
15                    Fields.

16                    BY MR. ZELANKO:

17                    Q.           Thank you, Pete.

18                    A.           We found a failure, too, to  
19                    illustrate how loading condition two  
20                    is illustrated.

21                    Q.           Yeah, loading condition two is  
22                    --- it's a panel being extracted  
23                    between two previously developed but  
24                    not pillar section.

25                    A.           Yes.    Which is pretty much

1     what you're looking at when you're  
2     looking at, say, the north barrier  
3     pillar. You have the Main West area,  
4     which is developed panel or developed  
5     pillars. Though they remain --- they  
6     were a production panel. And then  
7     you've got a barrier pillar on the  
8     other side before your gob, so it  
9     would be more of a loading condition  
10    three, still the same.

11    Q.       Okay. You mentioned  
12    historical versus current. When you  
13    did your first analysis before you  
14    got word back from Agapito that your  
15    geometry was wrong, you said the  
16    historical data, you wrote gob,  
17    barrier pillar and active gob. And  
18    then in current you said, two gobs,  
19    different sized barrier pillars, see  
20    attached charts. What was the crux  
21    of your original questions? When you  
22    looked at it first, you said what?

23    A.       The geometry of the historical  
24    section, they used the --- up on the  
25    north panel up here, that's what they

1 used to analyze it as their base.  
2 Whenever you do a model, you always  
3 have to calibrate it using historical  
4 data. Or that's the best way to do  
5 it. I guess, you can start out  
6 generalized, but it's --- the best  
7 practice is with the model and start  
8 with something --- you know, figure  
9 out your baseline and then go back  
10 and go from there. Especially when  
11 you're looking at a model that's  
12 empirical since it's going to compare  
13 a highly successful percentage. This  
14 is likely to be successful versus  
15 unlikely to be successful.

16 Q. So the area you're referring  
17 to is up marked Section 36, it's  
18 those panels that were developed  
19 using the mobile bridge conveyor  
20 unit?

21 A. That's correct.

22 Q. And that was the calibration  
23 point for the historical data?

24 A. Right. Those would have been  
25 a single gob on one side. They would

1 have been loading condition three  
2 from ARMPS. No, I didn't understand  
3 ---. See this is where I differ  
4 again in model in geometry and  
5 learning afterwards. I made it as a  
6 loading condition four between the  
7 mains, and I didn't consider the  
8 mains as being solid block. So I  
9 changed it from this condition to  
10 this condition. So that's basically  
11 what those notes mean. I said two  
12 gobs, it had a gob on both sides with  
13 that when it ---.

14 Q. And it says, different sized  
15 barrier pillars. What were you  
16 thinking there?

17 A. I would have to look. I'm not  
18 completely sure offhand what that ---

19 Q. Okay.

20 A. --- particular note means.

21 Q. But in any case, you weren't  
22 concerned that the historical  
23 analysis might not be appropriate?

24 A. Yeah, I wanted to ensure that  
25 it was, since ---.

1 Q. Okay. There were five  
2 questions ---. I think you mentioned  
3 earlier that you posed questions to  
4 the operator saying that the plan  
5 would be deemed inadequate unless  
6 these questions were answered.

7 A. Correct.

8 Q. Who formulated the questions?

9 A. I drafted that letter. I was  
10 the one who drafted it. I don't  
11 recall if they were all mine or if  
12 some of them were added. I don't  
13 recall that. But it's likely that he  
14 probably had some to add, too.

15 Q. Do you recall whether they ---  
16 since you did the analysis, they were  
17 primarily yours. And did they arise  
18 primarily from your evaluation of the  
19 plans and these notes that you wrote?

20 A. They were from --- yeah, from  
21 my independent model. And then Billy  
22 said, okay, that makes sense, you  
23 know. He said, write a disapproval  
24 or write that this will be  
25 disapproved since it's not a plan.

1 And basically he told me the language  
2 that's in that letter there, which I  
3 have right here. That the plan as is  
4 currently written would not be  
5 approved. And then I wrote out the  
6 things that were different. Like I  
7 said, I don't remember if he added  
8 anything to what I had or not.

9 Q. Okay. Were these the only  
10 questions you had that were  
11 incorporated into this letter, or did  
12 you have other questions that ---

13 A. No.

14 Q. --- you just didn't enter?

15 A. No, we had everything.

16 Q. That was it?

17 A. I'm pretty sure.

18 MR. ZELANKO:

19 All right. I have a  
20 copy of that letter, too.  
21 We can enter that as Exhibit  
22 Two.

23 (Del Duca Exhibit Two  
24 marked for  
25 identification.)

1 BY MR. ZELANKO:

2 Q. I guess the question is, how  
3 were the five questions answered?

4 First of all, you mentioned a phone  
5 call, you think, to Agapito.

6 A. I think that's what happened,  
7 is that they contacted him. I know  
8 that --- or I'm pretty sure that  
9 Billy discussed everything with him.  
10 I wasn't there for it, so I don't  
11 know. It's just the way I understand  
12 how it happened.

13 Q. That's fine. Do you know what  
14 the answers were to the questions?

15 A. I don't even know the answer  
16 to every question. We can go through  
17 them and find out.

18 Q. I'd like to do that, then.  
19 The first question, do you want to  
20 read the question for the record?

21 A. Yeah. In-situ coal strength  
22 was estimated at 1,640 psi. An  
23 explanation of how this strength was  
24 determined should be included.  
25 Typical coal strength values are much

1 lower. We wanted to make sure that  
2 these weren't determined without size  
3 effect taken into consideration.  
4 That's where they pointed us to the  
5 papers. I have those here if you  
6 want them or some of them. Not all  
7 of them. I mean, there's so many out  
8 there as far as that goes. So they  
9 pointed us --- they said you know  
10 there's several references out there,  
11 here's some of them, and, you know,  
12 Billy pulled that stuff and said,  
13 yeah, that's okay.

14 The elastic modulus of coal  
15 was estimated at 500 ksi. An  
16 explanation of how this modulus was  
17 determined should be included. If  
18 experimental analysis or test samples  
19 was conducted, an explanation of the  
20 number of samples, the size of  
21 samples and the testing method  
22 employed should be indicated in  
23 submittal.

24 I'm not sure on that one. I  
25 don't recall what the answer to that

1 would be. Probably in the same  
2 papers, but ---.

3 The geometry employed in the  
4 computer model differs from the  
5 physical mine map geometry. This  
6 observation applies to the ARMPS  
7 model geometry employed in the  
8 analysis of the historical section  
9 and the projected sections. How they  
10 modeled the barrier pillars by  
11 including the bleeder entry as part  
12 of the pillar. That's mostly what  
13 that refers to. Differing from mine  
14 where I showed it as fully extracted,  
15 which since it wasn't extracted it  
16 kind of puts it into a weird  
17 situation, though. Because where  
18 they have --- do you model that if  
19 you have something where it's not  
20 extracted and it's going to maintain  
21 its stability for the life of the  
22 panel as designed, otherwise they'll  
23 have to seal the panel. I mean, how  
24 can you really model that as  
25 extracted, you know. So what I did I

1        --- I mean, that's part of why  
2        there's a difference. They kind of  
3        went through and they showed us ---  
4        they pointed us in the direction of  
5        the NIOSH papers. They said, you  
6        know, NIOSH publications say this,  
7        this and this.

8                    And then any answers that we  
9        get from --- we typically don't just  
10       take answers at face value. You  
11       know, we go ahead and find out for  
12       ourselves. You know, we pull the ---  
13       and that's the papers there.

14        Q.            Can you recall anywhere else  
15        that they pointed to NIOSH papers  
16        that ---?

17        A.            I remember Billy showing me in  
18        a paper that it said to include  
19        bleeder entry as part of the barrier  
20        pillar, but I don't recall which  
21        paper it was in, and I can't find it  
22        now. So as far as that goes, I don't  
23        know what I recall.

24        Q.            And the fourth ---?

25        A.            Also ---.

1 Q. Go ahead.

2 A. Also the difference in loading  
3 conditions between the historical  
4 section and the current section.  
5 That's what this observation plus the  
6 ARMPS model geometry employed with  
7 the analysis in the historical  
8 section and the projected sections.  
9 Basically the difference in loading  
10 conditions, which we've already gone  
11 over why that --- why they were  
12 essentially the same loading  
13 conditions. Why it was the correct  
14 assumption the way that they did it,  
15 according to the published documents.

16 Q. Okay. Right now this is the  
17 only document that you can produce  
18 that they refer to that says that the  
19 way they approached it was the right  
20 way and the way that you did it was  
21 incorrect?

22 A. Yeah. I mean, I might have it  
23 in this stuff, too. So I mean, some  
24 other ---

25 Q. Well, I'll tell you what ---.

1 A. --- language in there that's  
2 similar in nature. I mean, it's ---.

3 Q. Okay. I'd be interested if  
4 --- not now, but at your leisure if  
5 you run across it, you can provide  
6 it.

7 The fourth thing was how they  
8 interpreted yielding in the pillars  
9 surrounding the recovery operations.

10 A. Right. Typically, if you have  
11 higher strength coal, it doesn't tend  
12 to yield in a calm manner. It's  
13 going to be a bounce. That's what we  
14 said, that if it's showing it was  
15 yielding on the outside, is it going  
16 to bounce, basically. From that they  
17 said, you know, in mine evaluations,  
18 a mine doesn't have history of  
19 bounces. What you see in the mine is  
20 that you can watch the coal yield,  
21 and when it yields, it just kind of  
22 sloughs off. It doesn't yield  
23 violently in any way.

24 So that one was one kind of  
25 that we couldn't verify without going

1 to the mine. That's not one we could  
2 pull from documents. So we kind of  
3 looked into that one later.

4 Both my analysis and theirs  
5 said that development was within ---  
6 had a high enough stability factor to  
7 be acceptable. So what we ended up  
8 doing was we ended up approving a  
9 plan for development only in the  
10 north, and then we went and examined  
11 the pillars inside the mine and saw  
12 how they actually reacted.

13 Q. Okay. Let me talk about that  
14 in a minute.

15 A. I figured as much. That's why  
16 I didn't go in to it too much.

17 Q. The last one was what the  
18 response was to your suggestion to  
19 use a higher stability factor than  
20 the one they calculated.

21 A. A stability factor of .37 was  
22 determined by analyzing the pillaring  
23 at first north, ninth left panel.  
24 The analysis of this area was  
25 employed to determine the minimum

1 stability factor for favorable  
2 retreat mining. This stability  
3 factor appears to be determined from  
4 where mining ceased due to poor  
5 ground control conditions.

6 Therefore, a higher stability factor  
7 should be employed that ensures an  
8 adequate factor of safety.

9           It seemed like from the way  
10 the analysis --- the way I  
11 interpreted it was that right up to  
12 where the panels --- I thought that  
13 they had only done the ninth panel,  
14 but I guess they had done all nine  
15 panels. They had analyzed all nine  
16 panels and taken a representative of  
17 all of them. And I misinterpreted  
18 that as the ninth only.

19           And so on the ninth panel, it  
20 started to skip pillars according to  
21 the map, which usually denotes that  
22 they're having roof control condition  
23 --- issues. So they skip pillars and  
24 start again. That's what that was  
25 about. The fact that they did the

1 panels to get a representative and  
2 not just one panel is how they  
3 answered that.

4 Then from there they got kind  
5 of a baseline and went up from it. I  
6 believe they said their minimum --- I  
7 don't recall what they said their  
8 minimum was or what the minimum that  
9 anything in the north and south was a  
10 little bit over that.

11 Q. But you felt like they  
12 addressed that?

13 A. Yeah, we felt that they  
14 addressed that adequately.

15 Q. At the end of the day, all  
16 five questions were answered. Did  
17 you think they were all answered  
18 satisfactorily?

19 A. Uh-huh (yes).

20 Q. Okay.

21 MR. BAXTER:

22 Is that a yes?

23 A. Yes.

24 MR. BAXTER:

25 Sorry. So he can

1                   understand.

2           A.           Sorry.

3           BY MR. ZELANKO:

4           Q.           Your written comments, the  
5           typewritten comments here about your  
6           cursory review, you said in there at  
7           one point, it refers to an effort to  
8           conservatively account for possible  
9           conditions in the sealed area.

10          A.           Right.

11          Q.           What were your concerns about  
12          the sealed area?

13          A.           Just that it had been sealed  
14          '99, I believe, something like that.  
15          Or '01, I think is when it was  
16          sealed. It'd been active for a long  
17          time, and it had been active quite a  
18          --- it had been developed quite a few  
19          years ago. The chances of it being  
20          in perfect, pristine order are pretty  
21          minimal.

22                    The worst thing that happens  
23          to a coal mine is time. So when I  
24          analyzed it, I assumed there would be  
25          problems with that area, that they'd

1 probably have some areas that had  
2 roof falls or whatnot just from time.

3 Q. So the basis for your concern  
4 was that here you got this old mains,  
5 it's sealed, you don't know the  
6 conditions, so to be conservative,  
7 you presumed that ---?

8 A. Right, but that puts it --- I  
9 mean, that's an additional six  
10 pillars coming out, five pillars,  
11 something like that. I don't know.  
12 That kind of brings it --- it's  
13 really hard to make that analysis, I  
14 suppose. I mean, that's why I did it  
15 at the time, but I don't agree with  
16 that now.

17 Q. Did anyone describe the  
18 conditions in the old west main ---  
19 Main West prior to sealing?

20 A. No.

21 Q. There weren't any discussions  
22 about ground deterioration as a  
23 result of the longwall nearby or  
24 anything like that?

25 A. No. I don't believe there was

1 any deterioration. I mean, they had  
2 really substantial barrier pillars on  
3 the longwall passed ---. I don't  
4 believe that there would have been  
5 any load transfer into --- or minimal  
6 load transfer. I guess, there'll  
7 always be a little bit, but it would  
8 be very minimal. Most of it would be  
9 carried --- I mean, that's why you  
10 put in massive barrier pillars in the  
11 first place, is to protect your long-  
12 term entries.

13 Q. Okay. ARMPS is designed for  
14 pretty simple geometries.  
15 Unfortunately, those simple  
16 geometries crop up over and over  
17 again in a lot of retreat mining  
18 applications, so it finds a lot of  
19 use. But I was going to ask, did you  
20 have difficulty incorporating the  
21 bleeder row into the analysis, but  
22 you'd already stated earlier that you  
23 did. Have you since seen some of the  
24 reports and things that NIOSH has  
25 done talking about how they would

1 recommend doing it?

2 A. Well, I told you that Billy  
3 had showed me that. I don't have it,  
4 so I can't ---

5 Q. Okay.

6 A. --- give it to you.

7 Q. Did you have any concerns with  
8 the way that Agapito did it in their  
9 analysis? I mean, your analysis was  
10 very conservative, by design, looking  
11 at what happens in the old mains if  
12 they deteriorate. And also it was  
13 conservative from the standpoint that  
14 you're pulling that bleeder pillar  
15 and looking at the behavior of  
16 things; right?

17 A. Right.

18 Q. Did you have any concerns with  
19 the way Agapito accounted for the  
20 bleeder pillar?

21 A. I did at the time. That's why  
22 number three, modeling geometry  
23 employed.

24 Q. Right. And the concern was  
25 what, that that would ---?

1 A. That they're showing it as a  
2 solid block of coal, even though  
3 something like --- I don't know.  
4 Just maybe 10, 12 percent was removed  
5 from that, or whatever, 20 percent.

6 Q. So that was going to be non-  
7 conservative. It's kind of going the  
8 other way; right?

9 A. Right.

10 Q. Your notes indicated different  
11 sized barrier pillars that --- we  
12 talked about that already. I was  
13 wondering if that's where you were  
14 looking at the different sized  
15 barrier pillars ---

16 A. Yeah, probably.

17 Q. --- where they had 210 feet  
18 and you had 130.

19 A. Right.

20 Q. They're incorporating that  
21 pillar in there.

22 A. Right. And they have that in  
23 their drawings. They showed a  
24 barrier pillar and they dotted out  
25 where it would have been developed

1 for the bleeder entry.

2 Q. So that's part of where you  
3 had your questions with this  
4 fundamental differences?

5 A. Right.

6 Q. Okay. When you were going  
7 through this process and trying to  
8 figure out how to do this, did you  
9 review NIOSH's resource files that  
10 were on there, like the deep cover  
11 paper?

12 A. Yes.

13 Q. And you looked at it at that  
14 time, too, and said ---?

15 A. Yeah, I looked at it again  
16 more in depth after Billy had talked  
17 to 'em and told me what I'd done  
18 wrong, I guess.

19 Q. Did you recall seeing the part  
20 about barrier stability --- barrier  
21 pillar stability factors in there?

22 A. I didn't recall seeing that in  
23 there.

24 Q. Okay.

25 A. When you look at the case

1 histories that were incorporated with  
2 the deep cover, the ones out of Utah,  
3 most of them didn't employ barrier  
4 pillar, or the barrier pillar  
5 stability factor is noted as zero.  
6 It's hard to say that --- I mean,  
7 when you're looking at deep cover for  
8 the whole country and barrier pillar  
9 stability is figured at two or  
10 whatever is a conservative estimate.

11 But when you're looking at  
12 case history for Utah, here's all  
13 your Utah mines right here. You can  
14 see on the barrier pillar stability  
15 factors, if you thumb through that  
16 one on the next page, you don't have  
17 --- most of them do not apply it to a  
18 greater than two stability factor  
19 with successful design.

20 Also, it talks about in ARMPS  
21 that if the barrier pillars are  
22 undersized, and this is from the  
23 original ARMPS paper that came out,  
24 that the program accounts for that by  
25 transferring the load. It uses an

1 algorithm that transfers the load, if  
2 it's undersized, back into the active  
3 mining zone. So it uses the ARMPS  
4 stability factor to determine the  
5 stability factor of the entire  
6 system. Since a pillar system  
7 doesn't act independent, it's not one  
8 pillar that it's analyzing, it's  
9 analyzing the system. So if the  
10 barrier pillars are not substantial  
11 enough, then it'll reflect inside the  
12 ARMPS stability factor. And that's  
13 in --- I mean, we talk about that in  
14 the first paper or one of the earlier  
15 papers that Chris Moore produced.

16 Q. The earlier paper was  
17 entitled, Analysis of Retreat Mining  
18 Pillar Stability.

19 A. It was printed in that right  
20 there.

21 Q. Yeah, it's Bureau of Mine's  
22 --- or NIOSH information circular  
23 9446. That paper, the database, most  
24 of those case histories were from  
25 about what depth?

1 A. For this paper?

2 Q. Uh-huh (yes).

3 A. This paper was depths  
4 considerably lower, 750 feet. Yeah.

5 Q. And do you know what really  
6 prompted the ---?

7 A. The fact that this was not ---  
8 and this wasn't exactly valid for the  
9 deeper depths. But also when they  
10 talk on this deep cover paper, they  
11 say that your ARMPS stability factors  
12 are more conservative when you get to  
13 deeper depths because of the ---  
14 overestimating the gob relaxation. I  
15 think Keesly (phonetic) was the one  
16 who presented that.

17 So you still go back if you're  
18 looking at the ARMPS stability  
19 factor. You see what I'm saying?

20 Q. The Utah case histories, did  
21 you actually plot those and look at  
22 the ---?

23 A. I didn't plot them, no. I  
24 just looked through them. I  
25 mean ---.

1 Q. Okay.

2 A. What they had was they had 18  
3 cases at four mines. Most of them,  
4 like I said, have a zero barrier  
5 pillar stability factor. There's  
6 very few --- some of them that were  
7 satisfactory that did have them, .28.

8 Q. Did you look at all this  
9 information in the process of  
10 approving that plan beforehand?

11 A. No, I didn't look at it when  
12 we did this analysis.

13 Q. Okay.

14 A. Most of this was --- I mean, I  
15 didn't have much to do with it after  
16 I --- I mean, I did the analysis  
17 and ---.

18 Q. Okay. Were any comparisons  
19 made to stability factors at other  
20 deep cover operations in District  
21 Nine, not looking at this database,  
22 but just ---?

23 A. In-house?

24 Q. Uh-huh (yes).

25 A. No, I did not.

1 Q. Well, not just you, did  
2 anybody?

3 A. No.

4 Q. Did you have an opportunity to  
5 evaluate the conditions in the north  
6 barrier section? You said earlier  
7 that you did.

8 A. I believe it was January 9th.  
9 I went with Billy. We went  
10 underground and watched them while  
11 they were mining and looked at the  
12 section and looked at how it was  
13 reacting to the development.

14 Q. Were they developing then?

15 A. They were.

16 Q. And what did you observe? For  
17 example, what were the ground  
18 conditions like?

19 A. They looked pretty good in  
20 there. The pillars were what they  
21 would call hourglassing at that  
22 particular mine. That's how they  
23 described it.

24 Q. Do you remember where you were  
25 at, like what crosscut number?

1 A. I forget. I'm not sure.

2 Q. You actually went up to the  
3 faces?

4 A. Yes. We walked in, we checked  
5 --- we looked at all three entries,  
6 or four entries, I guess. What we  
7 saw was at about two breaks outby the  
8 face, was where yielding was  
9 occurring. We walked up, we were  
10 standing in front of one pillar and  
11 it looked great. It was square and  
12 the pillars outby had hourglassed.  
13 And it popped, it sounded like a  
14 gunshot. And I mean, we were this  
15 far away. I thought I was done, I  
16 thought it was bad. But if you can  
17 hear it and you realize that you have  
18 time to think that it's not. But  
19 what happens, it popped real loud.  
20 It sounded, like I said, like a  
21 gunshot. And then it just kind  
22 sloughed off.

23 I mean, it was just the  
24 weirdest thing. The miners were kind  
25 of laughing at us, joking a little

1 bit, you know, 'cause they were kind  
2 of used to seeing it yield like that.  
3 It wasn't an uncommon occurrence.

4 So kind of what we determined  
5 was that it was yielding on  
6 development, that they were  
7 maintaining a lot of load. That  
8 pretty much was our answer to the  
9 number four, that there wouldn't be a  
10 violent outburst. That and the fact  
11 that they've --- that I don't believe  
12 they've had --- they have a very low  
13 history of bounces, if any at all.  
14 I'm sure I have their bounce history  
15 here, too. I remember printing it  
16 out because we reviewed it when it  
17 came as a question later on.

18 I don't know if this is it or  
19 not. Most of it, as I recall, I  
20 don't know that there were any --- I  
21 don't think I have it with me,  
22 actually.

23 Q. So you did look at the bounce  
24 history and their ---?

25 A. Yes. We'll look at the

1 history of roof and bounce. I mean,  
2 we don't just look at one thing or  
3 the other. We print off and make  
4 sure that it's what their history of  
5 injury and non-injury of roof falls,  
6 rib rolls, outbursts, everything, you  
7 know. We want to make sure that, you  
8 know, if the mine has had a really  
9 bad time with it, that we really want  
10 to, you know, look at that.

11 Q. Sure. So you had concerns  
12 about the yielding based on what you  
13 saw on the model. And you go to the  
14 mine January 9th. You go up in the  
15 face area, you see hourglassing, two  
16 crosscuts outby that's indicative of  
17 a gradual yielding, ---

18 A. Right.

19 Q. --- and so you're not so  
20 concerned about violent ---?

21 A. Right.

22 Q. Well, let's talk about that,  
23 too. When we talk about bounces,  
24 bumps, outbursts and all those  
25 things, can you tell us what, in your

1 mind, constitutes a bounce or a bump?  
2 Which term do you prefer?

3 A. Bounce. Well, basically,  
4 probably the best way would be a  
5 sudden release of energy because I  
6 think that's the best way to describe  
7 it. It could be in the form of floor  
8 heave, and it can be in the form of  
9 pillars yielding, but it's not a slow  
10 process. It's instantaneous. Here  
11 it is holding a lot of load, it  
12 reaches that point where it's too  
13 much, and when it yields.

14 But it's not a failure in a  
15 sense that --- it doesn't collapse.  
16 You don't have your pillars crushing  
17 out. You have either bursting or  
18 like I said you can have floor heave  
19 where pillars push through, where it  
20 comes up really quickly.

21 Q. Okay. Did you see any floor  
22 heave while you were up on the  
23 section?

24 A. I don't believe so. I'm  
25 pretty sure I didn't.

1 Q. But you did experience an  
2 event. In your mind, was that a  
3 bounce?

4 A. No.

5 Q. No. That was just what?

6 A. It was just a yielding. I  
7 mean, it didn't --- the release of  
8 energy wasn't a violent release of  
9 energy.

10 Q. So to be a bounce, it needs to  
11 expel something?

12 A. Yes.

13 Q. Were you aware of reports of  
14 any bounces on development that were  
15 ever reported by the company in the  
16 north barrier?

17 A. On development, no.

18 Q. How about on retreat?

19 A. After the accident occurred,  
20 we were then --- I had never seen the  
21 second report previous to --- or the  
22 third report rather, excuse me,  
23 previous to August 6th when the  
24 bounce occurred.

25 Q. Were you aware that they

1 stopped mining in the north barrier?

2 A. Where they come out, it wasn't  
3 mined anymore. I'd had no idea. My  
4 part really was just the cursory  
5 review, and then going with Billy.  
6 It was a training thing more than  
7 anything.

8 Q. When you talk about the third  
9 report, that was --- do you have ---?

10 A. Yeah, I have that, too. Let  
11 me tell you the date.

12 MR. ZELANKO:

13 Do you need to take a  
14 break, go to the men's room or  
15 anything? Let's take a break.

16 SHORT BREAK TAKEN

17 BY MR. ZELANKO:

18 Q. You were attempting to find a  
19 date for the third report.

20 A. Yeah, I found it. April 18,  
21 2007.

22 Q. So you were unaware that they  
23 stopped mining in the north barrier,  
24 that they moved, and the first  
25 inkling that you had that that had

1 occurred and it was due to a large  
2 bounce or other adverse conditions  
3 was when you looked at this report?

4 A. I'm sorry. Go ahead. Again?

5 Q. Okay. Were you aware that  
6 they had moved the section?

7 A. I had really nothing to do  
8 with it at this point. My  
9 involvement stopped after --- I guess  
10 after development, after we'd been  
11 there. Shortly after that.

12 Q. So you went to the mine July  
13 the 9th. Did your ---?

14 A. January 9th.

15 Q. January the 9th. I'm sorry.  
16 You did your investigation. Here's  
17 all of the questions that you had,  
18 and from that point further you had  
19 no involvement with Crandall Canyon?

20 A. Right. Yeah. Typically, it  
21 wasn't, in my mind, for ground  
22 control. Utah mines were handled by  
23 Gibb, when he was with us. Colorado  
24 mines are handled by Kathleen.  
25 Although Randall --- it's only like

1 five more, but they're ---. The  
2 point being, I believe it was given  
3 to me because I was the most recent  
4 out of school and had the most  
5 background with modeling. So that's  
6 why the review came to me.

7 Q. So you became aware of all of  
8 these other things after August the  
9 6th?

10 A. Yes.

11 Q. All right. So any roof  
12 control plan approved for the south  
13 barrier, you didn't evaluate?

14 A. I don't believe I had anything  
15 to do with the south barrier. I  
16 believe the only amendments I did  
17 were the north development, the north  
18 retreat and leaving top coal as a  
19 form of skid control. I believe  
20 those were the three that I drafted  
21 the approval letters.

22 Q. And the leaving top coal, that  
23 grew out of your January visit, they  
24 were having difficulty with drawing  
25 rock?

1       A.       They spoke with us about draw  
2       rock.    You know, it's a common  
3       practice, especially when you have  
4       strong coal.

5       Q.       Do you know if anybody else in  
6       your office --- when this second  
7       approval came in, you weren't asked  
8       to look at it.   Do you know if anyone  
9       else in your office ran ARMPS or  
10      LAMODEL on that plan for the south  
11      barrier?

12      A.       We probably did.   I mean, I  
13      don't know either way, but I would  
14      assume we did.   He's very meticulous  
15      about things.

16      Q.       When and how did you hear  
17      about the August 6th accident?

18      A.       I arrived at work August 6th,  
19      and on my way in, they told me what  
20      had happened.   Dave Elkins and Erik  
21      Vermulen were on their way out to  
22      help with something for ---.   They  
23      said there's been a bounce at  
24      Crandall or whatever, so ---.

25      Q.       Have you gone to the mine

1 since the 6th?

2 A. No.

3 Q. Were you assigned any duties  
4 relative to the rescue operations?  
5 When it was ongoing, did anybody call  
6 and ask you to do anything?

7 A. Relative to the rescue  
8 operation?

9 Q. Yeah.

10 A. No.

11 Q. Relevant to anything else?  
12 Anything else relevant to Crandall  
13 Canyon?

14 A. Yes. We got about, I don't  
15 know, 12 requests a day from  
16 Arlington requesting information that  
17 either had to do with this or similar  
18 retreat conditions. We got  
19 considerable requests from Congress.  
20 We got requests from everybody that  
21 worked on --- pretty much all those.  
22 I didn't work on any of the  
23 congressional requests. The stuff  
24 that I had previously done was used  
25 for --- I didn't work on those

1 because I was in Beckley. But pretty  
2 much all the other requests.

3 Q. And you had mentioned earlier  
4 that Billy suggested you put your  
5 notes together or someone else to  
6 prepare the typewritten document  
7 here?

8 A. Yeah. They said --- I don't  
9 remember if it was Billy or Knepp or  
10 --- I don't know who asked me to.  
11 But they said, if I could put  
12 together a report of what my review  
13 was, could I still do that? I said,  
14 yeah, I know exactly what I did,  
15 everything that I did. So ---.

16 Q. Okay. Have you ever  
17 interacted with employees of other  
18 federal or state agencies regarding  
19 ground conditions or plan review or  
20 anything like that in District Nine?

21 A. No. I mean, we're always  
22 dealing with them a little bit in  
23 impoundments and --- things that  
24 we've done, but I've never dealt with  
25 anybody.

1 Q. Are you aware of pillar  
2 extraction mining elsewhere in Utah  
3 or in Colorado where a barrier  
4 adjacent to a gob was successfully  
5 mined?

6 A. Past case histories. Well,  
7 where a barrier was next to ---?

8 Q. Let's say barrier between two  
9 gobs, specifically.

10 A. Barrier between two gobs? At  
11 Crandall. I mean, they've pulled  
12 pillars forever there, since the mine  
13 opened. It started out with pulling  
14 pillars, then when they got the  
15 longwall in there ---. But they  
16 retreated all of the sub mains that  
17 ran between the old panels. All that  
18 down there, and each one at least  
19 lapped into the barrier pillars until  
20 they were almost nothing.

21 Q. You're referring to the south  
22 mains?

23 A. Yeah, the south mains. They  
24 have different names as you go  
25 around. Four and a half East, Six

1 East. I don't recall all of them,  
2 that's just a couple.

3 Q. Did you or others at the  
4 district refer to that as a basis  
5 for ---?

6 A. Prior case history?

7 Q. Yeah. Was that a case history  
8 that came to mind when you're looking  
9 up there at the west mains and what  
10 they're proposing to do, that this  
11 was a successful case history  
12 that ---?

13 A. Yeah. Billy looked at all of  
14 that stuff. He went through --- I  
15 mean, the fact that they had been  
16 successful pulling the pillar under  
17 all of these ---. I mean, that's ---  
18 you pretty much have almost identical  
19 loading conditions right there where  
20 you're looking at --- that's with  
21 pulling them up there where they had  
22 to pull them, two barrier spots.

23 Q. Okay.

24 A. I mean, we look at everything  
25 when we review a plan as far as what

1 the mine has done successfully and  
2 what it hasn't.

3 Q. Okay.

4 A. The covers, we didn't use  
5 those in any of the case histories  
6 for calibrating our models because  
7 the covers didn't get as deep. I  
8 think --- let me look here. That's  
9 not the right map.

10 Q. It's probably around 1,400  
11 feet or so.

12 A. Yeah, exactly. So it's still  
13 a substantial depth. It's not quite  
14 at the 1,500 and 2,000 range that  
15 these were being pulled, but it's a  
16 substantial depth that they had a lot  
17 of success and where they --- all the  
18 barrier pillars were ---.

19 Q. But to your knowledge, you  
20 didn't do ARMPS or LAMODEL to use  
21 that as a calibration point or  
22 anything?

23 A. I didn't, no.

24 Q. Okay. Do you have anything  
25 that you'd like to add that might be

1 relevant to either August 6th or the  
2 16th, the accidents? Anything that  
3 we didn't cover that comes to mind  
4 that you feel compelled --- maybe we  
5 should take a break before we do  
6 that.

7 A. Yeah, that'd be great.

8 SHORT BREAK TAKEN

9 BY MR. ZELANKO:

10 Q. When you said earlier that you  
11 reviewed bounce history as part of a  
12 plan review ---?

13 A. We review roof control and  
14 ground control history. I mean we  
15 pull roof falls and bounces. I mean,  
16 we pull it all. We don't just focus  
17 on any particular plan.

18 Q. When you say you pull that,  
19 how do ---?

20 A. You can either pull off MSIS  
21 or a mine's access database. You can  
22 pull like non-fatal --- or non-injury  
23 roof falls, stuff like that. And  
24 that's an okay way to do it, but you  
25 can use a BI query. And that's

1       actually a lot better way to do it  
2       because you can pull everything, then  
3       you can set it to all your injuries  
4       that apply. So it's not just non-  
5       injury, it's injury data, too. And  
6       you put it as qualifying it. I mean,  
7       you can qualify it for fall of roof,  
8       outburst, fall of ribs or face. I  
9       mean, that way you can get all of  
10      them in one report and you don't miss  
11      anything. You don't have to go  
12      through all the accidents, and look  
13      at, you know, some guy got punched in  
14      the lip and got stitches, you know.

15      Q.       Yes. You don't keep a  
16      separate file with bounce information  
17      in it? You would just do this BI  
18      query or MSIS search using keywords  
19      or key categories?

20      A.       And some are categories of ---  
21      everything that gets put into it is  
22      put into terradata, and then this is  
23      pulled out of terradata. And it's  
24      all classified under an accident  
25      classification of a six or a seven or

1 an eight, fall of roof or ribs, fall  
2 of face.

3 Q. What do you think caused the  
4 accident at Crandall Canyon, August  
5 6th accident?

6 A. I guess that's really ---  
7 still waiting to see what the  
8 accident investigation team says. I  
9 would say that it's a massive pillar  
10 failure. I mean, that's pretty  
11 obvious.

12 Q. Fair enough. Is there  
13 anything you'd like to add, Pete?

14 A. I don't think so, not at this  
15 time.

16 MR. ZELANKO:

17 On behalf of MSHA, I  
18 want to thank you for  
19 appearing and answering  
20 questions today. Your  
21 cooperation is very important  
22 to the investigation as we  
23 work to determine the cause of  
24 the accident.

25 We ask that you not

1 discuss your testimony with  
2 any person who may have  
3 already been interviewed or  
4 who may be interviewed in the  
5 future. This will ensure that  
6 we obtain everybody's  
7 independent recollection of  
8 events surrounding the  
9 accident.

10 After questioning other  
11 witnesses, we may call you if  
12 we have any follow-up  
13 questions that we feel that we  
14 need to ask you. If at any  
15 time you have additional  
16 information regarding the  
17 accident that you would like  
18 to provide to us, please  
19 contact us at the contact  
20 information that was  
21 previously provided to you.

22 If you wish, you may  
23 now go back over any answer  
24 you have given during this  
25 interview. And you may also

1           make any statement that you  
2           would like to make. You've  
3           chosen not to make an  
4           additional statement at this  
5           time. Again, I want to thank  
6           you for your cooperation in  
7           this matter.

8

9

\* \* \* \* \*

10           STATEMENT UNDER OATH CONCLUDED AT

11

6:20 P.M.

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