

**EXCERPTS FROM
DEPOSITION OF DAVID B. COLE**

1 did?

2 A. Yes, for the very first one.

3 Q. This was done in fall of 1997, correct,
4 approximately?

5 A. Or even before. I'm not sure.

6 Q. It was done in 1997?

7 A. Yeah.

8 Q. And in your initial calculation, what drainage
9 area did you use for the flooding at the PFS site?

10 A. 240 square miles. Not at the site, I'm sorry,
11 that was the access road.

12 Q. The access road area?

13 A. Uh-huh (affirmative).

14 Q. What area had PFS used in its initial
15 application?

16 A. I don't remember the exact number. It was
17 much less than that, in the 20's..

18 Q. About 25, 26, somewhere in there?

19 A. Yeah, somewhere in there.

20 Q. You took issue with that, I take it?

21 A. Yes. That was one thing I questioned.

22 Q. That was a major issue you took with the
23 initial flooding calculation done by the PFS--

24 A. Yes, it was.

25 Q. -- was the drainage area?

1 A. Uh-huh (affirmative).

2 Q. Now, is it true that the Private Fuel Storage
3 has redone its storage calculation using a larger
4 drainage area?

5 A. Yes, it is.

6 Q. And they have now used a drainage of I believe
7 270 square miles?

8 A. That's what I remember, yeah.

9 Q. I take it, my understanding is the State
10 acknowledges that's an appropriate drainage area for
11 calculating the flooding at the site?

12 A. I would say it was conservative, yeah.

13 Q. So that's no longer an issue between us,
14 correct?

15 A. No, I don't think so.

16 Q. Besides drainage areas, what other factors are
17 relevant to calculating potential flooding?

18 A. Well, one of them is the time that the water
19 takes to accumulate, which is the concentration time.

20 Q. That's the time of concentration?

21 A. Uh-huh (affirmative).

22 Q. So that's the time that it takes for the water
23 to accumulate up to a--

24 A. Well, it's from the farthest reach of the
25 watershed to the outlet, is the measure of the time.

1 Q. That's the time of concentration?

2 A. Uh-huh (affirmative).

3 Q. What other factor is there that you use in
4 calculating flooding?

5 A. Well, it's the loss rate. How fast the rain
6 is absorbed into the soil and how much of it runs off as
7 the result of that.

8 Q. And what is the loss rate?

9 A. Okay. For the large flood we used an
10 infiltration rate, and it's how fast-- how many-- if the
11 rain is falling so many inches per hour, it's how many
12 inches per hour are being absorbed or lost by
13 infiltration into the soil or other so that it doesn't
14 become part of the runoff.

15 Q. So if I look at Exhibit 4, which I take it
16 Exhibit 4 reflects factors that you used in your first
17 flooding calculation that was done in 1997, correct?

18 A. Yes.

19 Q. So you used the infiltration rate of .15 for
20 that calculation?

21 A. Inches per hour for the large floods.

22 Q. That represents .15 inches per hour?

23 A. Yes.

24 Q. When you talk about the large flood, what are
25 you referring to?

1 A. Well, I'm referring to the flood by the access
2 road.

3 Q. There's another basin or area that PFS
4 calculated flooding for?

5 A. That was the site itself.

6 Q. It just kind of comes off of Hickman Knolls or
7 something?

8 A. Hickman Knolls, yeah. And there we used the
9 curve number, which is another measure or another way to
10 calculate losses.

11 Q. So that's a different way of calculating
12 losses of water that doesn't accumulate as part of the
13 runoff?

14 A. Yeah, it doesn't become part of the runoff.

15 Q. What does the curve number represent?

16 A. The curve number, and we used a curve number
17 of 70 there. The curve number method was developed by
18 the Soil Conservation Service, they've become the
19 Natural Resources Conservation Service, and there's a
20 whole set of procedures and equations that relate to the
21 precept and how much is being lost to this curve number.

22 Q. So the number, again, is another measurement
23 of how much water is part of the runoff that accumulates
24 as part of the flood?

25 A. Yes.

1 Q. Does the curve number represent a percentage?

2 A. Not a direct percentage, but the larger the
3 curve number the more the runoff.

4 Q. The larger the curve number, the more the
5 runoff that is available to accumulate as part of the
6 flooding?

7 A. Yes.

8 Q. So curve number and infiltration rates are two
9 ways to model the same factor, in a sense?

10 A. Yes. But what we do is we use the curve
11 number on small watersheds and short duration storms,
12 really. We don't really use it over 24 hours.

13 Q. Why is that?

14 A. We don't feel like it accurately reflects the
15 loss. After a short period of time the curve number
16 method fills up and it doesn't show any more loss. So
17 if you run into a 72-hour storm as opposed to a 6-hour
18 storm we don't use the method, the curve number method
19 on the long duration storms.

20 Q. Okay. Just so that we're clear now, we
21 identified there was two basins or two areas which PFS
22 did flooding calculations for?

23 A. Yes.

24 Q. One was kind of like the site itself and the
25 other one was for the access road?

1 A. Uh-huh (affirmative).

2 Q. And I understand the State does not take issue
3 with the flooding calculation that PFS has done with
4 respect to this smaller basin or the area that is
5 directly above the site?

6 A. Yeah, we didn't.

7 Q. And you do not?

8 A. We do not.

9 Q. Take issue with that, correct?

10 A. Uh-huh (affirmative).

11 Q. So it's with the larger drainage area, the
12 270-square mile drainage area that affects the access
13 road, that's the one you take issue with PFS's
14 calculation?

15 A. That's the one we did, yes.

16 Q. And that's the one you do take issue with
17 today; is that correct?

18 A. Yes.

19 Q. So looking at this sheet right here real
20 quick, I see a couple of numbers on the bottom after the
21 line. Okay?

22 A. Yes.

23 Q. I see SVNWa 100 Dat, 44 cfs. I take it that's
24 something for the smaller basin with which you don't
25 take issue?

1 Q. You don't take issue with the 100-year
2 calculation that Private Fuel Storage did?

3 A. No, I don't.

4 Q. What's the difference between a 100-year
5 flood calculation and the probable maximum flood
6 calculation?

7 A. They represent two different size of storms.

8 Q. Let's talk about the 100-year flood
9 calculation first. What is that supposed to represent,
10 as far as you understand it?

11 A. As far as I understand it, it's the type of
12 flood you would expect to occur with the probability of
13 .01, or once in a hundred years.

14 Q. A chance in a hundred years. And what is the
15 PMF flood, probable maximum flood?

16 A. That's the largest flood that would be
17 expected on that, the largest precip. PMP is probable
18 maximum precip. So it's the largest precip and the
19 largest flood resulting from that that could be expected
20 at that.

21 Q. And how do you determine the largest precip?

22 A. The National Weather Service Report, Hydromet
23 49, they've got principles in that for calculating the
24 probable maximum precip.

25 Q. And what was the probable maximum precip for

1 MS. CHANCELLOR: Objection, he doesn't know
2 how the berm is constructed.

3 Q. (BY MR. GAUKLER) Assuming, hypothetically,
4 the berm is constructed to protect the site from the
5 flood then you would have no issue with this part?

6 MS. CHANCELLOR: Same objection.

7 Q. (BY MR. GAUKLER) You may answer if you can.

8 MS. CHANCELLOR: Certainly. You can answer it
9 if you can.

10 THE WITNESS: If the berm was constructed
11 correctly and the road gets-- there's a way for the road
12 to get past the berm without breaching its purpose then
13 yes.

14 Q. (BY MR. GAUKLER) Wouldn't the berm just be
15 like a speed bump in the road?

16 A. I don't know. It may be. You'll have to tell
17 me.

18 Q. Okay.

19 MS. CHANCELLOR: That was my objection.

20 Q. (BY MR. GAUKLER) Going back to your recent
21 calculation, you again used an infiltration rate of .15?

22 A. Yes.

23 Q. You did not use a CN number for this?

24 A. Not for the calculation of large drainage,
25 long duration storms.

1 Q. Because?

2 A. Because we don't feel like the curve number
3 represents the loss rate on the long duration storm.

4 Q. So you've used the infiltration rate instead
5 for your calculation?

6 A. Yes.

7 Q. In lieu of a CN number?

8 A. In lieu of a CN number.

9 Q. I understand. Off the record for a second.

10 (Discussion held off the record.)

11 MR. GAUKLER: Let's take a five-minute break
12 since we've been going about an hour.

13 (Short recess.)

14 Q. (BY MR. GAUKLER) Back on the record. I would
15 like to have you look at Exhibit 7 again, which is the
16 PFS flood analysis with the larger drainage basin area
17 of 270 square miles. We identified earlier that the
18 time of concentration as one area in which you took
19 issue with the calculation. Are there any other areas
20 with which you take issue with respect to this
21 calculation, Exhibit 7?

22 A. Well, they've really-- I mean, in some ways
23 this is almost like an art form, but I feel like they've
24 overestimated the time of concentration and by using the
25 curve number they've actually underestimated the loss

1 so--

2 Q. The curve number?

3 A. It's my understanding they've used curve
4 numbers in these runoff calculations. So, I mean,
5 there's a difference. But one is one direction and the
6 one is the other.

7 Q. One is what? What do you mean by one is one
8 direction?

9 A. Well, a longer time of concentration gives a
10 smaller flood where using the curve numbers instead of
11 the constant infiltration rate is actually increasing
12 the size of the flood plain. So there's a little bit
13 of--

14 Q. So using a curve number of 70 actually
15 increases the size of the flood?

16 A. On a large.

17 Q. On a large?

18 A. On a large duration flood like this.

19 Q. So using the curve number of 70 is better than
20 using the infiltration rate of 1.5 that you used?

21 A. Yes, it would be.

22 Q. So there's offsets?

23 A. Yes.

24 Q. So if you went up and used a higher curve
25 number yet, for example, of 96, that would increase it

1 much more yet, correct?

2 A. Not a great deal because the curve number
3 actually fills up in the first part of the flood and
4 then there's no more infiltration. So there's a limit
5 to how effective that is.

6 Q. You did something different, but what Private
7 Fuel Storage did in their calculation is actually more
8 conservative than you did on this second point?

9 A. Yes, on at second point.

10 Q. Anything else that you identified?

11 A. No, that's it.

12 Q. Now, on your calculation, look at Exhibit 2,
13 the first page. Just the very first page.

14 A. Okay.

15 Q. You calculated, I guess, a peak PMF flow of
16 64500 cfs?

17 A. Yes, using this calculation.

18 Q. And PFS calculated a maximum PMF flow of 53000
19 cfs?

20 A. Yes. That's what I extracted from here.

21 Q. And that results in a difference in elevation
22 of less than a foot, as you point out in the first page
23 of Exhibit 2, correct?

24 A. Yes.

25 Q. Have you reviewed a recent filing by PFS

1 following up on some questions in terms of flooding at
2 the site? I show you a document dated May 18, a letter.
3 Have you seen this document?

4 A. I don't know whether I've seen this one. I
5 don't believe I have.

6 MS. CHANCELLOR: Have we gotten copies of
7 this, Paul?

8 MR. GAUKLER: You should have. You're on
9 here. You're on the cc list, anyway. I've been trying
10 to make sure they do that.

11 MS. CHANCELLOR: Yes, they have been very
12 good. It often takes-- the 18th. What day was that?

13 MR. GAUKLER: I think the first couple of
14 pages, I can mark this as an Exhibit-- let's mark it as
15 Exhibit 9.

16 **(Exhibit 9 marked for identification.)**

17 MS. CHANCELLOR: It often takes up to five
18 days from this date to get to us so he probably hasn't
19 seen it.

20 THE WITNESS: Yes, I haven't seen it.

21 Q. (BY MR. GAUKLER) The first page of the
22 enclosure refers to the fact that they are redoing the
23 calculation to a CN of 96; do you see that?

24 A. Yes.

25 Q. Which is a much more conservative CN number,

1 correct?

2 A. Yes. It's approaching 100 which is no loss.

3 Q. Which is much more conservative than your

4 infiltration rate of 1.5, then, correct?

5 A. Yes.

6 Q. And they calculate a PMF of 85000 cfs using

7 that?

8 A. That's what the comment on the front of this

9 is so I assume that's it.

10 Q. You haven't had a chance to review it, but you
11 assume that's what it shows, right?

12 A. Yes.

13 Q. And 85,000 is greater than what you calculated
14 of 64,000?

15 A. Yes, it is.

16 Q. I would like to show you your Second Amended
17 Responses to Interrogatories. These are already on the
18 record so I won't mark this. These are responses
19 concerning Utah N which you were responsible for, again,
20 correct?

21 A. Yes, they are.

22 Q. If you look on page 7, please, Interrogatory 2
23 says, "Identify and fully explain each respect in which
24 the State claims that the facilities designed is not
25 adequate to protect access to the site against adverse

1 consequences for potential flooding as cultivated by the
2 State."

3 And the response says, "In PFSF cross-sections
4 described in down view of the access road, PFSF appears
5 to assume that a vertical berm is in place to prevent
6 the PMF flood discharge from spreading west on the
7 access road and possibly flooding the site. There is
8 not enough information shown to describe the geometry of
9 the berm and how the access road gets past the berm."

10 That's what we discussed previously, right?

11 A. Yeah. That's what I raised a minute ago.

12 Q. And if the berm were constructed to protect
13 the site from 85000 cfs flood, then that would protect
14 it from your 64000 cfs flood, right?

15 A. Yes.

16 Q. And you go on to say that-- it refers to the
17 fact that "the access road may be flooded or washed out
18 preventing necessary operations, personnel or emergency
19 services to provide access to the site."

20 What would be the adverse consequences of the
21 access road being flooded out in that sense, to the
22 health and safety of the public, do you know?

23 A. Well, like it says here, it would just prevent
24 someone accessing the site if you needed to.

25 Q. That would be the only thing?

1 A. That's all I know.

2 Q. Do you know what consequences that would
3 result in if they weren't able to access the site if
4 somebody was stranded on the site?

5 A. I wouldn't expect them to be too great. I
6 mean, that's--

7 Q. Okay.

8 A. Unless something was going on out there that
9 you needed to take care of in an emergency.

10 Q. And also, it's possible to rent a helicopter
11 or something like that too, correct?

12 A. I suspect so. This is a big flood so maybe
13 it's raining real hard.

14 Q. Talking about the PMF and 100-year flood.
15 With respect to generally structures and buildings,
16 they're usually designed to protect against the 100-year
17 flood as opposed to a PMF flood; isn't that correct?

18 A. When you say buildings, I'm not sure we could
19 say buildings, but in some cases they are. I mean, I
20 was trying to think. Like FEMA will require flood
21 insurance if you're in a 100-year flood plain.

22 Q. Right. And there are special restrictions if
23 you're within the 100-year flood plain, yes?

24 A. If you're within a 100-year flood plain, yes.

25 Q. And that's where FEMA tries to discourage