

1 BEFORE THE
2 ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

3
4 IN THE MATTER OF THE NAVIGABILITY)
OF THE VERDE RIVER FROM ITS) NO. 04-009-NAV
5 HEADWATERS AT SULLIVAN LAKE TO)
THE CONFLUENCE WITH THE SALT) ADMINISTRATIVE
6 RIVER, YAVAPAI, GILA AND MARICOPA) HEARING
7 COUNTIES, ARIZONA.)

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9
10 At: Phoenix, Arizona
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1 INDEX TO EXAMINATIONS
2 WITNESS PAGE

3 RICH BURTELL
4
5 CONTINUED CROSS-EXAMINATION BY MR. SLADE 3026
6 CROSS-EXAMINATION BY MR. HELM 3176
7
8
9

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1 BE IT REMEMBERED that the above-entitled
2 and numbered matter came on regularly to be heard
3 before the Arizona Navigable Stream Adjudication
4 Commission, at Squire Patton Boggs (US), LLP, 1 east
5 Washington Street, Suite 2700, Phoenix, Arizona,
6 commencing at 9:08 a.m. on the 1st day of April, 2015.

7 BEFORE: WADE NOBLE, Chairman
8 JIM HENNESSY, Vice Chairman
9 JIM HORTON, Commissioner
BILL ALLEN, Commissioner

10 COMMISSION STAFF:
11 Mr. George Mehnert, Director,
12 Legal Assistant, Research Analyst

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1 CHAIRMAN NOBLE: I think we're ready to
2 resume our hearing on the Verde River, Mr. Burtell,
3 Mr. Slade, Jody.
4 George, will you call the roll?
5 DIRECTOR MEHNERT: I will.
6 Commissioner Allen.
7 COMMISSIONER ALLEN: Here.
8 DIRECTOR MEHNERT: Commissioner Horton.
9 COMMISSIONER HORTON: Here.
10 DIRECTOR MEHNERT: Commissioner Hennesa.
11 COMMISSIONER HENNESS: Present.
12 DIRECTOR MEHNERT: Chairman Noble.
13 CHAIRMAN NOBLE: I am here.
14 DIRECTOR MEHNERT: Okay, all four
15 Commissioners are here, and so is our attorney.
16 CHAIRMAN NOBLE: Mr. Slade.
17 MR. SLADE: Mr. Chairman, good morning.
18 Good morning, Commissioners.
19
20 CONTINUED CROSS-EXAMINATION
21 BY MR. SLADE:
22 Q. Good morning, Mr. Burtell.
23 A. Good morning, Mr. Slade.
24 Q. Again, Eddie Slade representing the State
25 Land Department, here with, again, Cheryl Doyle with
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1 the State Land Department.
2 And I want to begin by talking about access.
3 Mr. Hennes had brought up a question when Jerry
4 Van Gasse, if I'm pronouncing his name correct,
5 testified in February, and Mr. Hennes asked about
6 access on wilderness lands. Do you remember that
7 conversation?
8 A. I do.
9 Q. Okay. And so I want to turn to access on the
10 Verde River.
11 Is it your understanding that if a private
12 landowner owns the lands alongside the river, that if
13 the private landowner also owns to the middle of the
14 river on the Verde, they would be able to put up a
15 fence in that area?
16 A. I guess this hearing is to determine what the
17 ownership is; but under your hypothetical, they own the
18 land.
19 Q. That's right.
20 A. That they can put up a fence across the river
21 if it's determined they have title to the middle of the
22 river, yes, I believe that's the case.
23 Q. So they could prevent access from people
24 coming down the river corridor if they put up a fence
25 across the river?
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1 A. A fence perpendicular to the river, would
2 that block -- I don't know if it would block access to
3 the river. It might locally block one's ability to go
4 down the river.
5 Q. Okay. Right. And so it would block an
6 Arizona citizen's ability to move down the Verde River
7 if there was a fence across the river?
8 A. If they were in the river, and depending on,
9 I guess, the size and extent of the fence, that is a
10 possibility.
11 Q. And if the State Land Department owned the
12 bed of the river, had title to the bed of the river and
13 determined that navigability was a public interest --
14 A. I think this is a public trust doctrine.
15 Q. Public trust doctrine.
16 A. Okay.
17 Q. -- they could prevent people from putting
18 fences across the river, is that correct?
19 A. If they were the owner/manager of the land, I
20 suspect so.
21 Q. Okay. You've mentioned the State of Utah
22 case, U.S. v. State of Utah, 283 U.S. 64 (1931) case.
23 And have you reviewed that case?
24 A. What I've reviewed is the Special Master's
25 report that preceded the U.S. Supreme Court's decision,
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1 and I've read the Special Master's report more closely,
2 but I have also read the Supreme Court decision, of
3 which they referenced the Special Master.

4 Q. And I'm going to give you a copy of the --
5 unless you have a copy yourself.

6 A. It would take me a little digging, so --

7 Q. Sure, let me give you a copy.

8 A. -- this will save us all some time, I'm sure.

9 Q. And I'm on 263 U.S. pin site 87.

10 A. I'm sorry, Mr. Slade, when you say pin
11 site -- oh, that's the little asterisk?

12 Q. Yes, there's one asterisk.

13 A. Oh, there it is. Okay. Sorry. That seems
14 like a lawyer notation.

15 Yes, I found it here on this Page 6 of your
16 Westlaw printout, yes.

17 Q. Okay. And do you see the paragraph that
18 begins with "The government" right below that?

19 A. Yes, Paragraph 12.

20 Q. So I'm going to read that. Just let me know
21 if I read it correctly.

22 A. Sure.

23 Q. "The government invites a comparison with the
24 conditions found to exist on the Rio Grande River in
25 New Mexico, and the Red River and the Arkansas River,

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1 above the mouth of the Grand River, in Oklahoma, which
2 were held to be nonnavigable, but the comparison does
3 not aid the government's contention. Each
4 determination as to navigability must stand on its own
5 facts. In each of the cases to which the government
6 refers, it was found that the use of the stream for
7 purposes of transportation was exceptional, being
8 practicable only in times of high water."

9 Did I read that correctly?

10 A. Yes.

11 Q. Okay. And is it your understanding, from
12 what I just read, that each determination as to
13 navigability must stand on its own facts related to
14 that specific river?

15 A. Sure. And I guess where I would only add
16 something, Mr. Slade, is if those same facts are
17 similar to the other rivers that have already been
18 decided, then a comparison can be drawn.

19 Q. And if they are different, then a comparison
20 may not be able to be drawn?

21 A. Sure. At the end of the day, I concur,
22 obviously as if anyone cares what I say, that what the
23 Supreme Court is saying is that each river has to be
24 looked at independently of other rivers, sure.

25 Q. Okay. And you've read the Special Master's

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1 report, correct?

2 A. In the Utah case.

3 Q. In the Utah case.

4 A. That's correct.

5 Q. And in that case he looked at USGS depths; is
6 that correct?

7 A. USGS depths.

8 I don't know --

9 Q. He came up with the average depths over the
10 course of a year, as you testified to?

11 A. Yeah, I apologize, when I paused when you
12 said USGS, I don't know if those are USGS gages or who
13 was operating them, the Bureau or somebody.

14 Q. Okay.

15 A. But there were gages. I don't think the word
16 USGS shows up in that report, but --

17 Q. Sure.

18 A. But, yes, there was government data that was
19 provided upon which he looked at, among other things,
20 depths.

21 Q. Okay. And among other things he looked at,
22 he talked to or deposed boaters who had been on the
23 river; is that correct?

24 A. Mr. Dimock testified, and I didn't read all
25 of them, but I don't think it would be an

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1 overestimation to say hundreds --

2 Q. Hundreds.

3 A. -- of boaters that were -- or people, I
4 should say, some were boaters, some were not, that
5 lived on or near the river that he felt were useful to
6 talk to.

7 Q. For the Green, Grand, and San Juan?

8 A. Yes.

9 Q. Have you talked to any boaters that have been
10 on the Verde?

11 A. Talked to any -- no.

12 Q. Not one?

13 A. I have -- I think what I've done is probably
14 as relevant as talking to any boater, is I tried to
15 read Mr. Williams' book closely, an experienced boater
16 who went from the top to the bottom, with the point of
17 very carefully outlining what he was seeing.

18 And I was certainly here to see Mr. Lynch's
19 testimony and Mr. Fuller's testimony and Mr. Farmer's
20 testimony, and all of them I would consider to be
21 boaters that want to talk about their experience on the
22 river. So I think I've been exposed to certainly
23 people that have boated the river.

24 Q. And just to be clear, when Mr. Lynch,
25 Mr. Farmer, and Mr. Fuller testified, that was after

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1 you've made your nonnavigability decision, is that
2 correct?

3 A. That is correct. However, I was able to read
4 the record in this case prior to this latest round, and
5 I believe Mr. Slingluff testified, and so I was
6 familiar with what he was testifying. I can't remember
7 if Mr. Farmer testified in the earlier round.

8 But there was certainly a lot of discussion
9 in the earlier round, and I read the briefs that your
10 client and others filed. So I got a pretty good sense
11 of what people/boaters were saying regarding the river
12 prior to my submittal of my report.

13 Q. Pretty good sense, but you never talked to
14 one boater on your own?

15 A. No.

16 Q. Okay. And did you ever see a boater go down
17 the river?

18 A. I have. I've seen, you know, people in
19 duckies floating down the river.

20 Q. Where is that, exactly?

21 A. Generally, in the Camp Verde area above
22 Beasley Flats.

23 Q. Did they have any problems?

24 A. I didn't interview them. As you pointed out,
25 I haven't talked to a boater, so...

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1 lot of tourists do. We went up into the mountains and
2 took a guided whitewater trip on the Arkansas.

3 Q. Why haven't you boated the Verde?

4 A. I'm not an avid boater.

5 Q. But you took a trip, I think you said you
6 loved, from what I heard in the Gila, you said you've
7 done a lot of canoeing down Canyonlands National Park?

8 A. That's correct. Sure.

9 Q. So it sounds like you like boating, to some
10 degree?

11 A. I love the area, and in that area the river
12 provides an access, a corridor, along the Green and the
13 Colorado that really is one of the only ways to get
14 into some of these areas.

15 So, again, Mr. Slade, I'm not an experienced
16 boater. Anyone who's boated that stretch of -- I think
17 still water was talked about yesterday. Stillwater
18 Canyon is one of the areas that you float through in
19 Canyonlands. It's a very gentle, easy float through.
20 So that's the extent of my boating.

21 Q. So if you had boated the Verde, do you think
22 you would have learned some things about the river when
23 you did that?

24 A. I think one trip down the Verde by someone
25 who's never done it would not be of much value.

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1 Q. When you were watching them boat down the
2 river, did they have any problems?

3 A. Have any problems.

4 Not that I saw.

5 Q. Okay. And you've never boated the river
6 yourself?

7 A. As I think I testified, I have not. The only
8 river that I have been in a boatable contraption, if
9 you will, was floating the Salt River in an inner tube
10 downstream. I believe I testified to that in one of
11 the earlier cases.

12 Q. In Arizona?

13 A. In Arizona.

14 Q. Okay. But you've boated a fair amount in
15 other places?

16 A. I would not characterize it as a fair amount,
17 certainly not in comparison to Mr. Fuller.

18 Q. Okay. How many times have you boated the
19 Green and the Grand?

20 A. If I were to count them up, probably, in
21 total, on the order of maybe 15 trips.

22 Q. Okay. And you've also boated the Arkansas;
23 is that correct?

24 A. Yes. When I lived in Colorado, a group of
25 co-workers and I during the spring runoff did what a

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1 Q. How about 50 to 60 trips by someone who's
2 done it?

3 A. I think that's why I value Mr. Williams' book
4 so much, because I got the impression that he's that
5 type of person.

6 Q. Okay. Or Mr. Farmer, who testified before
7 this Commission, who's boated at least 50 to 60 times
8 down the Verde?

9 A. I think Mr. Farmer has a very particular view
10 regarding the river.

11 Q. Yesterday you talked about what part of the
12 Verde you've seen, and I'm trying to figure out exactly
13 what segments you've seen.

14 Have you seen on foot, in person, by the
15 river, not on a mountaintop, not on an aerial, have you
16 seen Segment 5 in person by the river?

17 A. Segment 5. And is that my Segment 5, which
18 used to be your Segment 5, or the new Segment 5 that
19 you guys have?

20 Q. Let's go with your Segment 5.

21 A. Okay, which used to be your Segment 5. Okay.

22 Q. That's right.

23 A. And as I recall, your Segment 5 used to begin
24 below Horseshoe.

25 Q. Yes.

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1 A. And I'll look at my map for reference here.
 2 Yes, when I was with Dr. Pearthree, we spent
 3 time, and as I recall, when we did our field trip, we
 4 had to schedule it when the bald eagles weren't nesting
 5 in that lower portion. So yes. And it was -- oh, boy,
 6 it's been now some six or seven years ago since I took
 7 the trip, so my recollections are a bit hazy about
 8 exactly where we were. But we certainly went in the
 9 area below Bartlett Dam and also between Bartlett and
 10 Horseshoe.
 11 Q. And were you actually on the river?
 12 A. As I think I indicated, yes. The purpose of
 13 the trip was --
 14 Q. Mr. Burtell, if I could cut you off.
 15 A. Sure.
 16 Q. I've got a lot of questions here.
 17 A. Sure.
 18 Q. And I think for the sake of the Commission's
 19 time, if I ask a yes or no question, if you could
 20 answer with a yes or no. If you need a short
 21 explanation, I'm sure that would be fine.
 22 A. Sure.
 23 Q. But if you need a longer one, I think you
 24 could do that on redirect.
 25 A. Okay.

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1 Q. So my question is were you actually by the
 2 river in Segment 5?
 3 A. Yes.
 4 Q. Okay. Let's move to Segment 4. Were you
 5 actually by the river in Segment 4?
 6 A. Yes.
 7 Q. What part?
 8 A. Near the confluence of Fossil Creek and the
 9 river.
 10 Q. And have you been to Segment 4 by the river?
 11 Excuse me, Segment 3.
 12 A. Yes.
 13 Q. What part?
 14 A. The area just below the top of Segment 3 in
 15 the Beasley Flats area.
 16 Q. Okay. So you haven't seen from Beasley Flats
 17 down to Childs in person?
 18 A. I've seen it on aerial photography, but not
 19 on the ground.
 20 Q. So you've never seen the Verde Falls?
 21 A. In person, no.
 22 Q. And you've never seen any of the, I believe,
 23 three or four Class III rapids in that section?
 24 A. I have seen pictures in Mr. Williams' report
 25 and many pictures that have been presented during these

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1 proceedings.
 2 Q. In person, you've never seen them?
 3 A. No.
 4 Q. Segment 2, have you seen Segment 2?
 5 A. Yes.
 6 Q. What part?
 7 A. In the Clarkdale area.
 8 Q. And that's where Freeport, your client, has
 9 an interest?
 10 A. I don't know the extent of their interest,
 11 but certainly in that area is where they used to have a
 12 concentrator and a smelter.
 13 Q. Does Freeport still have land next to the
 14 river?
 15 A. I believe they do, but I don't know the
 16 details of it.
 17 Q. Well, obviously you're here because they have
 18 an interest.
 19 A. I'm here because they asked me to eval --
 20 MR. HOOD: Mr. Chairman, I don't think
 21 this is appropriate. He's here because he's been
 22 retained by Freeport, and I don't think it's
 23 appropriate for Mr. Slade to be arguing with the
 24 witness about why he's here and why he ought to be
 25 testifying about the hydrology of the Verde River.

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1 MR. SLADE: Mr. Chairman, a witness's
 2 interest is extremely appropriate for the Commission's
 3 understanding of what the witness is saying.
 4 CHAIRMAN NOBLE: Mr. Slade, we'll allow
 5 you just a little bit more latitude and then we'll cut
 6 you off.
 7 BY MR. SLADE:
 8 Q. So your understanding is Freeport has land
 9 next to the river in the Clarkdale area?
 10 A. I believe that they still own property in
 11 that area, but I don't know any details.
 12 Q. Okay. And Segment 1, what have you seen in
 13 Segment 1?
 14 A. Segment 1, as I think I testified to
 15 yesterday, and I apologize if I'm being overly
 16 descriptive here, but I hiked down from Sullivan Dam
 17 down into the canyon and walked down I think a mile or
 18 two in that stretch.
 19 Q. Have you seen the Parkinsville area?
 20 A. When I was with the Arizona Geological Survey
 21 with Dr. Pearthree, my recollection is we were also in
 22 that area.
 23 Q. And I believe I heard you yesterday; you said
 24 you've seen the Paulden gage, but from afar?
 25 A. If I did, I misspoke. It would have been the

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1 Clarkdale gage --
 2 Q. Okay. So you --
 3 A. -- from afar.
 4 Q. -- haven't seen the Paulden gage?
 5 A. In person, on the ground, no; only in photos.
 6 Q. Are you aware that Supreme Court law
 7 specifically acknowledges that present-day and
 8 recreational use can be used as evidence to prove a
 9 river's navigability?
 10 A. I would answer that by -- and I know you're
 11 not going to want me to read it, but my reference in my
 12 report to PPL Montana.
 13 Q. Okay. So you are aware, is that what I heard
 14 you say?
 15 A. My awareness is as stated by PPL Montana and
 16 I state in my report.
 17 Q. Can we turn to that in your report?
 18 A. Sure.
 19 Q. You let me know what page that is.
 20 A. Okay.
 21 I believe this is Freeport 1, but maybe we're
 22 way past that.
 23 Q. X009, Freeport 1.
 24 A. Mr. Slade, it's Page 4 of my report,
 25 Paragraph 19.

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1 Q. And you have some ellipsis in there, so you
 2 omitted a few things. We'll take a look at that later.
 3 But from what you've put in there, I've read that
 4 correctly?
 5 A. Yes.
 6 Q. And what research did you do to find out if
 7 the modern boats going down the river today are
 8 meaningfully similar to boats that existed at
 9 statehood?
 10 A. The very boats that PPL Montana indicates in
 11 this paragraph is my understanding are the very boats
 12 that are being used on the Verde River now for
 13 recreational activities. So that was the extent of my
 14 research.
 15 Q. And who told you what boats were being used?
 16 A. The record, as I mentioned -- I'm new to this
 17 case, as everybody knows. The record was replete with
 18 information related to what boats were being used along
 19 the river back when this case was tried before.
 20 Q. So if the record said a canoe was being used,
 21 did it say -- and it didn't say if it was a lightweight
 22 canoe, did you assume it was a lightweight canoe?
 23 A. Again, the record did indicate what type of
 24 boats were being used.
 25 Q. Where in the record?

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1 Q. And let's just read the paragraph. I'll read
 2 it for you.
 3 A. Okay.
 4 Q. The court noted, quote, may be considered to
 5 the extent it informs the historical determination
 6 whether the river segment was susceptible of use for
 7 commercial navigation at the time of statehood. For
 8 the susceptibility analysis, it must be determined
 9 whether trade and travel could have been conducted in
 10 the customary modes of trade and travel on water over
 11 the relevant river segment in its natural and ordinary
 12 condition...At a minimum, therefore, the parties
 13 seeking to use present-day evidence for title purposes
 14 must show...the watercraft are meaningfully similar to
 15 those in customary use for trade and travel at the time
 16 of statehood. If modern watercraft permit navigability
 17 where the historical watercraft would not...then the
 18 evidence of present-day use has little or no bearing on
 19 navigability at statehood...Modern recreational fishing
 20 boats, including inflatable rafts and lightweight
 21 canoes or kayaks may be able to navigate waters much
 22 more shallow or with rockier beds than the boats
 23 customarily used for trade and travel at statehood.
 24 Did I read that correctly?
 25 A. Yes.

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1 A. Well, Mr. Slade, I'm not sure I can remember
 2 now the thousands of pages that were written regarding
 3 this; but I remember because many of these same
 4 questions and arguments we're having now occurred
 5 before, and so the questions about the characteristics
 6 of the boats that were being used back then versus now,
 7 this isn't our first go-around on this.
 8 My understanding is, again, reading the
 9 testimony, including even Mr. Fuller's report, talks
 10 about the type of boats that are being used now. I
 11 didn't feel like -- and I think I state in my report on
 12 Page 5, Paragraph 26, and I know you're not going to
 13 want me to read it, because you want me to be precise.
 14 So if you want to read it or look at it, that's fine.
 15 Q. Go ahead and read it.
 16 A. "Modern accounts of boating the Verde River
 17 are summarized by Fuller (2003, Pages 8-4 and 8-5) and
 18 further documented by ASLD in recent supplemental
 19 evidence."
 20 So there was also much evidence that you and
 21 Ms. Hernbrode have submitted that I think also talks
 22 about the various crafts that are being used.
 23 "The purpose of these trips was (and
 24 continues to be) recreational. Most trips occur in the
 25 winter and spring and utilize canoes, kayaks and

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1 inflatable rafts."
2 Q. We've heard a couple of people come before
3 this Commission, in fact, all of the boaters that have
4 come before this Commission have testified that, in
5 fact, the river is boated the vast majority of the
6 year. Is that inconsistent with what you've said here,
7 "most trips occur in the winter and spring"?

8 A. I think my words are correct in saying most.
9 I'm not saying that there are not other times of the
10 river when boating also occurs; but the majority of the
11 boating, and I believe that statement -- I would have
12 to cross-check it to what Mr. Fuller says. Most folks
13 are on the river, and I think Mr. Lynch even said it,
14 during the springtime, when there's more water in the
15 river.

16 But, please, I'm not in any way suggesting
17 that there's not other times of the river that people
18 have been on -- or other times of the season, I should
19 say, when people have been on the river.

20 Q. Do you know of a case that says if a river is
21 only boated a certain time of year, that it's
22 nonnavigable?

23 And I don't mean to put you on the spot.
24 You're not the legal expert here. But did you read a
25 case that gave you the opinion that a river is

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1 trips are during the winter and the spring, and we've
2 heard from all of the boating experts that, in fact,
3 the river is boatable today in its nonnatural condition
4 the vast majority of the year, is that temporary?

5 MR. HOOD: I would appreciate it if
6 Mr. Slade would not mischaracterize Mr. Burtell's
7 testimony and what's already been read. Most of the
8 trips. I think this is an improper attempt to
9 mischaracterize what he said, and I would appreciate it
10 if you would refer to exactly what he said or quote him
11 correctly.

12 CHAIRMAN NOBLE: Thank you, Mr. Hood.
13 Mr. Slade, please proceed.

14 BY MR. SLADE:

15 Q. I'm happy to say that.
16 You've said that most trips occur in the
17 water and spring. We've heard from all of the boaters
18 that, in fact, the river is boatable in its nonnatural
19 condition a vast majority of the year, and those are
20 the words of Mr. Lynch, who runs a commercial
21 operation.

22 So is that temporary?

23 A. I guess I would argue with you there. I
24 would have to go back and look at Mr. Lynch's
25 transcript to see whether he said that he's getting a

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1 nonnavigable if it's only boated during the winter and
2 the spring?

3 A. Yeah. You made me read that. That's what I
4 read from when you had me read the paragraph starting
5 with 12. It says, "In each of these cases which the
6 government refers, it was found that the use of the
7 stream for purposes of transportation was exceptional,
8 being practicable only in times of temporary high
9 water."

10 So I think all of those cases, so...

11 Q. And what does temporary high water mean to
12 you?

13 A. What does it mean to me or what did the
14 Supreme Court mean?

15 Q. What does it mean to you?

16 A. What does it mean to me.

17 Well, temporarily, it's almost a Mr. Helm
18 question. I almost want to break a dictionary out.
19 What does temporary mean? Well, it's not all the time.
20 It's something less than all the time. How much less
21 than all the time, you would have to look at the case.
22 I would have to look at each one of these cases to say
23 temporary, to figure out what is being meant there by
24 temporary.

25 Q. So if you have got in your report that the
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1 lot of business all year around.

2 Q. Well, let's go do it.

3 A. I don't have his transcript.

4 Q. I do.

5 A. Okay.

6 Q. Okay. I'm on Verde River transcript
7 12-16-2014, and I'll give this to you. Starting on 7,
8 he's asked the question.

9 A. Okay.

10 Q. Do you want to go ahead and read the question
11 and the answer?

12 A. "What time of year is most of the boating
13 happening in your operation?"

14 "ANSWER: March through October, with the
15 heaviest emphasis, say, May through
16 September."

17 Q. Okay. Now --

18 A. Can I continue?

19 Q. Well, let's pause there.

20 You put "most trips occur in the winter and
21 the spring."

22 He just said most are between what months?

23 A. He says, "March through October, with the
24 heaviest emphasis, say, May through September."

25 Q. Okay. So that is not the winter and the

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1 spring; is that correct?
 2 A. If you go further on here, he explains why
 3 what happens past May, but you probably don't want me
 4 to read that.
 5 Q. Feel free to do that on redirect.
 6 CHAIRMAN NOBLE: No, he'll do it now.
 7 MR. SLADE: That's fine too.
 8 CHAIRMAN NOBLE: Thank you.
 9 THE WITNESS: "Once we move into May,
 10 when all the irrigation and everybody is
 11 watering fields, livestock, and everything's
 12 growing, certain parts of that river
 13 corridor, especially those that are below the
 14 irrigation dams, can get pretty skinny. Some
 15 of them actually completely dry up until you
 16 move downstream maybe another seven, 800
 17 yards, and then groundwater seeping
 18 underneath these dams start coming back in.
 19 But it gets pretty hard come May, June. Once
 20 you get monsoon season starting, boom,
 21 everything starts flash flooding again,
 22 people aren't using as much water, and it
 23 goes back into better navigability."
 24 Let me see.
 25 "When you say flash flooding, how many

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1 this.
 2 Q. Mr. Lynch runs a commercial operation, and I
 3 believe he testified that he has anywhere between five
 4 to 7,000 people a year in his commercial operation.
 5 Was that generally the number you heard?
 6 A. I can't remember if it was that high or
 7 higher or less, but I'll take your word for it.
 8 Q. Okay. And he says that his heaviest emphasis
 9 is May through September; is that correct?
 10 A. That's right.
 11 Q. Would you agree that there's less water in
 12 the river when the irrigation is being used in the
 13 summer?
 14 A. My flow reconstruction was an attempt to
 15 capture that or, I should say, correct for that
 16 decrease.
 17 Q. So the answer is yes?
 18 A. A big yes.
 19 Q. Let's take a look at some historic accounts
 20 now, and you did a nice job of compiling a chart that
 21 we can use, so if we could pull up your Table 1 in
 22 X009.
 23 And, Debi, that is Slide 15. So we are going
 24 to use the slide now.
 25 Okay, so this is a chart that you've compiled

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1 times a year is flooding an issue where you
 2 can't run a trip or you need to cancel a
 3 future trip? "
 4 "Spring runoff, again, spring runoff, if
 5 we get a big winter, boom, you know, that
 6 first part of March can be pretty tricky. So
 7 we'll always have a couple of days here and
 8 there where we might have to call trips or we
 9 have to go into bigger boats; we have to go
 10 into rafts and do these things. Just depends
 11 on the conditions, what skill level
 12 everybody's got at that time."
 13 CHAIRMAN NOBLE: Please proceed,
 14 Mr. Slade.
 15 BY MR. SLADE:
 16 Q. What Mr. Lynch testified to is different than
 17 what you've put in your report; is that correct?
 18 A. Can you refer me again back to my page?
 19 Q. Paragraph 26, Page 5.
 20 A. I don't know if I would change what I have
 21 written. I, again, say "most trips occur in the winter
 22 and spring and utilize canoes, kayaks and inflatable
 23 rafts."
 24 What I heard, what I recalled, and now what
 25 I'm reading in Mr. Lynch's testimony seems to support

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1 which shows, from your understanding, the historic
 2 boating accounts on the Verde River; is that correct?
 3 A. No. It's correct as of the time I wrote the
 4 report.
 5 Q. Okay.
 6 A. Since that time I believe your client or you
 7 and Ms. Hernbrode have submitted I think two or three
 8 other articles related to boating, at least two.
 9 Q. And I didn't mean to catch you on that. This
 10 is, from your understanding when you wrote it, the
 11 complete record, and a couple things have been
 12 submitted since you wrote that; that's what you just
 13 told me?
 14 A. A complete record that I was able to find and
 15 other people had found.
 16 Q. Okay. And let's take a look at the first
 17 account. It's an account in 1866. And we'll try to
 18 move relatively quickly through these. I know we've
 19 gone through a lot of these before. It's a raft
 20 account; is that correct?
 21 A. Yes.
 22 Q. And the first raft capsized?
 23 A. Yes.
 24 Q. So not an entirely successful account? In
 25 fact, it doesn't look successful at all; is that

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1 correct?

2 A. I think it speaks for itself.

3 Q. Okay. And it's a raft account. So I think,

4 I believe you testified to this either on the Gila or

5 the Verde. You don't count rafts as boating accounts;

6 is that correct?

7 A. That's not -- I've never said rafts aren't

8 boating accounts.

9 Q. Okay. Do you think a raft should be an

10 indication of the navigability of a river?

11 A. I don't think you can look at any individual

12 craft by itself as an indication of navigability.

13 Q. Okay. If you're just moving across the river

14 in a raft, are you going downriver?

15 A. Again, Mr. Slade, I just want to understand

16 so I don't waste your time and the Commission's. Are

17 you asking me whether or not a ferry is an indication

18 of navigability, use of a ferry?

19 Q. Yes.

20 A. My understanding, and I have testified to the

21 effect, that I don't believe that ferries are an

22 indication, when you are crossing a river, as evidence

23 of navigability.

24 Q. Okay. So we won't count this account.

25 Let's move on to 1878, and we've got another

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1 it up, can we assume that they said canvas skiff and

2 not canoe?

3 A. I will trust Mr. Fuller, again, that that's

4 what the article said.

5 Q. And did they have any problems going from

6 Fort McDowell to Phoenix?

7 A. I don't -- not having read the article, I --

8 and I'm trying to -- I think Mr. Fuller had the quote

9 in his report. I don't recall that there was any

10 discussion of problems.

11 Q. Okay. And you note that it's the high flow

12 season, February; is that correct?

13 A. That's what it says.

14 Q. Okay. And as we looked at yesterday,

15 February can be quite variable, as the hydrographs

16 noted; is that correct?

17 A. Some years February has a lot of water, some

18 years less. On average or on median, it's a high flow

19 month.

20 Q. Okay. So if you average the big rain on top

21 of snow events, where you get 5,000 cfs, with the

22 baseflow of, I think what we looked at yesterday, we've

23 said was 200, 300, then you get a pretty high average

24 for that month; is that correct?

25 A. What I would say is the median is also high.

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1 ferry account; is that right?

2 A. That's what it says.

3 Q. Okay. We won't count that account.

4 Let's go on to 1883. We have got a canvas

5 skiff, and they made it from Fort McDowell to Phoenix;

6 is that right?

7 A. That's what it says.

8 Q. And do we know what the skiff looks like?

9 A. As indicated in my table, we don't even know

10 its length.

11 Q. We know that they didn't write canoe; is that

12 correct?

13 A. This was quoted by Mr. Fuller from a

14 newspaper article. I wasn't able to see that article

15 myself. Maybe you folks have. I couldn't find it

16 online with my resources. So I am taking Mr. Fuller

17 and his team at his word that that's what was in the

18 Arizona Gazette.

19 I bore the Commission's time with this; that

20 I attempted to independently read, when I could, such

21 accounts, but if I couldn't find it myself, with the

22 time constraints I was under, I presented what somebody

23 else said. In this case you'll see there's a few

24 references to Mr. Fuller's report.

25 Q. Okay. So to save a little time from pulling

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1 So 50 percent of the time the flows are quite high in

2 that month.

3 Q. So there might be a little -- there's more

4 water, potentially, in the river in February?

5 A. Yes.

6 Q. Okay. Do you think these boaters would be

7 boating in a flood?

8 A. I don't want to put myself in the mind -- as

9 Mr. Dimock I think very eloquently put, boaters do some

10 crazy things. So I really can't surmise what these

11 guys might have been doing.

12 Q. Then we've got the 1887 collapsible U.S. Army

13 account, and you've characterized that as a ferry; is

14 that correct?

15 A. I have.

16 Q. Okay. And there's been some discussion about

17 that account. I believe we've seen a picture of a boat

18 and the two soldiers in the boat. In fact, let's pull

19 up that picture.

20 A. Sure.

21 Q. That is Fuller PowerPoint Page 104. So let's

22 do X011, Part 69.

23 And is that the same account, the photo of

24 the soldiers, is that the same account as the one

25 you've listed here in 1887, or is that a different

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1 account?

2 A. That's the same account.

3 Q. So you believe that the boat used by the

4 soldiers in the picture was being used as a ferry?

5 A. It wasn't me who said that. It was Munson

6 and/or Mr. Fuller. I wouldn't have known what the heck

7 they were doing in that boat.

8 And I apologize. Maybe I can bring it

9 tomorrow, if I can dig it out, but Munson, it's listed

10 in my references.

11 But I wouldn't have known that they were

12 taking couriers across the river during periods of high

13 flood. So I would have either gotten that from

14 Mr. Fuller's report or from Mr. Munson, 19 -- I can't

15 quite see what that is. -- 81. Oh, it's right in front

16 of me. 1981. I think Munson is an Arizona Highways

17 article, which had a picture of the boat, referencing

18 that he got it from the Library of Congress. And my

19 understanding is, again, if it wasn't Mr. Fuller who

20 said it was being used for couriers, to take couriers

21 across, it was Mr. Munson.

22 Q. Okay. Could there, in fact, have been two

23 accounts; one which you've listed in 1887 said the boat

24 was used as a ferry, and then Mr. Munson's account that

25 was 1885, which showed the picture of the boat? And

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1 Mr. Hjalmarson that said that, but I will give

2 Mr. Fuller credit if he said that.

3 Q. Could have been both.

4 A. It would have been nice if whoever said it

5 could have taken a picture now, you know, and GPSed it.

6 So I guess we'll have to just go on their opinion.

7 Looking as a geologist, looking at those

8 rocks, you should be able to match it if you can get on

9 the river. I've never seen anyone actually take a

10 current photograph, GPS it, and say, "Hey, look," next

11 to each other.

12 Q. And you didn't do that?

13 A. And neither did anyone else, as far as I

14 know.

15 Q. But Mr. Fuller's boated this stretch multiple

16 times, and he testified that he thought that was

17 10 miles downstream, closer to Beasley Flats?

18 A. Again, I guess we all have to take his word

19 for what he said.

20 Q. So if it's 10 miles downstream from Camp

21 Verde and it's a boat and we know this stretch is

22 navigable today in nonnatural conditions, do you think

23 it's possible that they boated from Camp Verde down to

24 Beasley Flats?

25 A. Is it possible? Under the right flow

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1 here we are, 1885, picture of the boat.

2 A. When you look at the Munson article,

3 Mr. Slade, it's the identical picture. And I can't

4 remember now if Munson references the Fort Verde

5 Historic Park as where he got it or whether he talks

6 about the Library of Congress. So I really can't add

7 anything more than the two references I've provided.

8 Q. So you're not sure if there were actually two

9 accounts, one in '85, one in '87? Because this photo

10 says '85.

11 A. And I don't know if I would characterize that

12 as an account. It just says it's a photograph circa

13 1885. You said there's two accounts.

14 Q. Sure.

15 A. I think there's just one photo.

16 Q. Okay. Would you count a photo of people in a

17 boat with a specified date that says "Fort Verde

18 soldiers in a boat" as an account of people in a boat?

19 A. I think circa means about, so if you think

20 that's a tight date, then I'll leave that to you then.

21 Q. Okay. And were you here for the testimony of

22 Mr. Fuller when he said that is not the Camp Verde

23 area, and, in fact, that's about 10 miles downstream by

24 Beasley Flat?

25 A. You know, I actually thought that was

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1 conditions, I suppose it would be possible.

2 Did it happen? I don't know.

3 Q. So we might count this as a boating account

4 and not a ferry account, that's possible?

5 A. I think the State Land Department would

6 probably want to count this as a boating, and I will

7 leave it to the Commission to decide there's enough

8 evidence to put it into one box or the other.

9 Q. Let's go back to Table 1, please, of X009,

10 which is Slide 15.

11 And this is the 1988 -- excuse me, 1888

12 account of a hunting trip from Fort McDowell to

13 Phoenix, is that correct?

14 A. Yes.

15 Q. And you characterize this as a hunting

16 expedition; is that correct?

17 A. When I looked at how Mr. Fuller described it,

18 I believe this is the account where one of the two

19 passengers was shot and killed accidentally.

20 Q. That's right. That's my understanding as

21 well.

22 A. And so I think it was an accidental discharge

23 of his weapon. Obviously they're not out there

24 battling each other. So I believe they were on a

25 hunting trip and --

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1 Q. Sure. And do you know where that accidental
2 discharge happened?
3 A. Somewhere between Fort McDowell and Phoenix.
4 That's all I know.
5 Q. Okay. If I told you it happened at Mesa Dam,
6 would you would you agree with that?
7 A. If you're going to ask me that, I guess I
8 would want to see the Phoenix Herald article that says
9 that, but...
10 Q. And if it happened at Mesa Dam and they had
11 made it to Mesa Dam, would they have traveled on the
12 Verde from Fort McDowell down to Mesa Dam successfully?
13 A. Do you know where Mesa Dam is? I don't.
14 Q. My understanding of Mesa Dam would be on the
15 Salt.
16 A. Okay. I don't know that. But do you know
17 that for a fact?
18 Q. Do you know that for a fact?
19 A. I'm asking you, because I just said I don't
20 know where it is, Mr. Slade.
21 Q. I don't. So maybe we'll hear from Mr. Fuller
22 later about where that is.
23 A. Okay.
24 Q. If it is on the Salt and they had traveled
25 Fort McDowell down to the Salt without any problems and

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1 A. Five unsuccessful boating accounts.
2 Q. Let's turn to the Day brothers, and that was
3 their trip in 1891, beginning in September, and that
4 was on the Verde. You've characterized that as
5 Segment 2 through 5. And is September a high flow
6 month?
7 A. No.
8 Q. It's not --
9 A. Not typically. Excuse me. Kind of the tail
10 end of the monsoon, but it's certainly on median,
11 median flow, not a killer month.
12 Q. And we've seen the article, so I don't think
13 we need to pull it up, but we will if we have to. They
14 indicated it was their fifth trip down the river; is
15 that correct?
16 A. Based on the account of one or both of the
17 Day brothers, that's what it says.
18 Q. Okay. And so the trip that they were talking
19 about they had, it was a successful trip; is that
20 correct?
21 A. Again, based on your definition of a
22 successful trip, if the trip, in fact, occurred as they
23 said it did, if we can trust that, yes.
24 Q. And it was their fifth, so they had had four
25 previous successful trips; persons, goods, boat?

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1 then the gun goes off as they're getting out of the
2 boat, completely unrelated to boating, would you
3 characterize this as a successful boating account?
4 A. Again, I mean no disrespect, Mr. Slade, but
5 when you say successful, what do you mean?
6 Because I've heard throughout these
7 proceedings counsel ask us experts what successful
8 means.
9 Q. Did they make it?
10 A. And so for me to try to answer whether it
11 meets your definition of successful, I hate to turn the
12 tables on counsel, but can you describe to me, when you
13 say successful, what exactly are you asking me?
14 Q. Did they make it down the stretch on the
15 Verde with their goods and their boat and their persons
16 intact?
17 A. Yes.
18 Q. Let's turn to the -- before we turn to this,
19 I want to ask you something about generally a
20 hypothetical.
21 If you have a newspaper article that tells
22 you there was an unsuccessful boating account and
23 before that the boatmen had tried four other times and
24 were unsuccessful, how many unsuccessful boating
25 accounts is that?

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1 A. Unfortunately, we have no evidence that they
2 completed the four prior trips. All we have, all any
3 of us have that everyone has seen is one article that
4 says that it was their fifth trip. Following the words
5 of Mr. Dimock, whether or not those other trips
6 actually occurred, we don't know.
7 I, as I'm sure your staff did, we all looked,
8 didn't we? And we all tried to see if there was other
9 articles. And I didn't find any; and I'm sure if you
10 and your team had, we would be all looking at those
11 other articles.
12 Q. So you might want to know something about the
13 veracity of the person who was taking that trip; that
14 would be helpful; is that correct?
15 A. Well, can you -- when you say veracity of the
16 person, with regard to what?
17 Q. If you understood whether the person was a
18 Mr. White, as Mr. Dimock mentioned yesterday, the
19 controversial Mr. White --
20 A. Yes.
21 Q. -- you don't know how he ended up there, or
22 if it was a man of stature, would that change your
23 opinion on the account and its veracity?
24 A. I guess I would have to see why or how a
25 person is being characterized as of stature.

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1 Q. Are you aware that Mr. J.K. Day ended up
 2 being a commissioner for the Arizona Game & Fish?
 3 A. I am.
 4 Q. Does that present him as a man of more
 5 veracity than, say, Mr. White?
 6 A. It may, or it may not.
 7 Q. If we go back to the chart, so we're back on
 8 Slide 15, and this is, again, Table 1 of X009.
 9 And the next account we have is an 1891 raft
 10 of railroad ties; is that correct?
 11 A. That's correct.
 12 Q. And rafts are usually used as sort of a
 13 ferry; is that correct?
 14 A. In this situation the raft was being used to
 15 cross the river to repair a telegraph line.
 16 Q. Okay. So that's a ferry-type activity, would
 17 you agree with that?
 18 A. I would agree with that.
 19 Q. Okay, so we won't count this.
 20 So let's turn to the next account, 1899, and
 21 this is the month of June, and that's a low flow month;
 22 is that correct?
 23 A. Yes.
 24 Q. And you've characterized it as there's dam
 25 building, of an unknown boat being used, and it's near
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1 Q. If we look at the next account in 1903, it's
 2 a steel boat account that you've listed, and it's a
 3 hunting purpose, and you've mentioned it as early 1903.
 4 What did you mean by early?
 5 A. Yeah, and I'm trying to remember now. There
 6 was something about that, and I would have to pull up
 7 Mr. Fuller's article or, excuse me, his citation in his
 8 report that led me to believe that it was during -- and
 9 I say possibly taken during the high flow season.
 10 There must have been something in that account that
 11 gave me that clue.
 12 I tried to be very fair here and not, you
 13 know, overinterpret what was going on here. So I would
 14 have to pull that up.
 15 Q. Okay.
 16 A. And I didn't know the month, so all I could
 17 say was early, so...
 18 Q. If I told you it was December, would you
 19 disagree with that, or would you like to see the
 20 article?
 21 A. The article would help, yeah.
 22 Q. Okay. Let's pull up the article.
 23 A. Sure, that might help; or if you have
 24 Mr. Fuller's report handy, Mr. Slade, Page 321, because
 25 that's what I relied on, so...
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1 Perkinsville; is that correct?
 2 A. And, again, I didn't characterize it that
 3 way, Mr. Slade. That's based -- and this is another
 4 case where I have to rely completely on Mr. Fuller's
 5 report, and my comments are it's based on an undated
 6 article by Don Willard.
 7 So I haven't had a chance to see that. So I
 8 just wanted to -- again, when I put notes like that
 9 into this table, Mr. Slade, it's to let the Commission
 10 know that if they're particularly interested in where
 11 something's coming from, they might want to -- but
 12 what's in here is based on what Mr. Fuller recounted
 13 regarding an article I never saw.
 14 Q. Sure. And Mr. Fuller's report in 2003 was
 15 actually a culmination of a lot of work by
 16 subcontractors; is that your understanding?
 17 A. It is.
 18 Q. Okay. And one of those subcontractors was
 19 SWCA Environmental Consulting, and they did the
 20 historical research; is that your understanding?
 21 A. I believe they authored one of the chapters
 22 on history. So I'll take your word for it.
 23 Q. Is that a pretty reputable environmental
 24 consulting group?
 25 A. They are.
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1 Q. We'll pull up the direct article, and that
 2 way we have no misinterpretation. X017, 97, Page 29.
 3 And we're going to look at a few pages to discern the
 4 month. So let's actually go to Page 24 in that.
 5 And while it's coming up --
 6 A. Sure.
 7 Q. -- this was the curious situation of a horse
 8 that pulls the boat up on a buggy or some type of wagon
 9 trailer with it, and then they get in the boat, they
 10 come down, the horse is trained to go back down. Is
 11 that your understanding?
 12 A. That's what I indicated in my comments, yes,
 13 again, based on Mr. Fuller's description. I never saw
 14 the Palmer article, so...
 15 Q. So this is the Palmer article, and --
 16 A. And I think we need Page 29.
 17 Q. 29 doesn't actually say the date, so that's
 18 why we have some problems figuring out the date.
 19 A. And yet that's, I believe, how Mr. Fuller
 20 referenced it, was Palmer.
 21 Q. That's where the actual account is of
 22 boating.
 23 So let's first go to 29. Let's do that. And
 24 as we're going to 29 -- well, we missed it. We'll come
 25 back.
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1 So it's the top paragraph, and I'll read it
2 out loud. "Sunday morning Joe and I borrowed a steel
3 boat from Dave Wingfield whose father Henry ran the
4 general store. This boat was slung on the axle of two
5 wheels. The horse that pulled it was accustomed to go
6 up the river some five miles and, when turned loose,
7 would take the wheels back to the corral by himself.
8 We also borrowed a couple of shotguns and bought some
9 shells. We launched the boat and had some 16 miles of
10 river to float down. Between us, we got about a dozen
11 ducks and had a swell time."

12 So we can't tell from that what the date is,
13 is that correct?

14 A. Based on the page that Mr. Fuller cited for
15 Palmer, you can't. And I imagine that it must be in
16 the in preceding pages; or, again, I can pull out
17 Mr. Fuller -- I'll say again for the record, Mr. Slade,
18 my indication that it was during the early part of the
19 year was based on what Mr. Fuller said, not based on
20 Palmer, because I didn't have Palmer.

21 Q. Okay. So if Mr. Fuller misspoke, then your
22 indication would also be wrong.

23 A. I was relying on Mr. Fuller, so that would be
24 correct, sure.

25 Q. Gotcha.

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1 A. Sure.

2 Q. And what we can tell from this description is
3 that they borrowed a steel boat that was hanging around
4 in the general store; is that right?

5 A. Yes.

6 Q. So they didn't ship one in special for this
7 trip?

8 A. Unlike the Jerome fellas, this boat was at
9 the general store, sure.

10 Q. Do you know where that general store is? Was
11 it in the Camp Verde area?

12 A. Again, I have not seen this article before or
13 this document, so I suspect maybe in the pages
14 preceding it tells you where the general store was; but
15 I don't know.

16 Q. Okay.

17 A. So...

18 Q. And --

19 A. Do you know?

20 Q. We'll see if the article says it.

21 CHAIRMAN NOBLE: Mr. Burtell, you're not
22 asking the questions.

23 THE WITNESS: Okay.

24 BY MR. SLADE:

25 Q. We can also tell from this that the horse was

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1 accustomed, as it says, to doing this?

2 A. Yes.

3 Q. And I don't know much about horses. Do you
4 know anything about horses?

5 A. No.

6 Q. Okay. Do you know if you can train a horse
7 on one occasion to go up and down?

8 A. As I just said, I don't know much about
9 horses, so I'm not going to say anything about how much
10 it takes to train a horse. I'm just not --

11 Q. Sure.

12 A. I don't have any experience with horses,
13 so...

14 Q. And I understand that. So we don't know how
15 many trips this horse has made bringing a boat up and
16 going back down. It could be 2, it could be 20, it
17 could be a lot of different things; we don't know?

18 A. I certainly don't know.

19 Q. And let's go now to Page 24.

20 And on 24 we've got, in the second paragraph,
21 that the weather in December is quite cool in the
22 daytime and freezing at night. The body was quite
23 bloated. I guess I better give that a little context.
24 The beginning of the sentence, of the paragraph, is
25 that at the cabin the dead man was lying in front of

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1 the door. So they're talking about an account. They
2 mention it's December. And if you took my word for it
3 that between this page and the rest of the pages, until
4 we get to Page 29, which is the boating account,
5 they're talking about that same time frame of December;
6 would you take my word for that?

7 A. I wouldn't take your word for it, no.

8 Q. Okay. So we see December here, and we'll go
9 on December as the date, unless we hear otherwise.

10 A. I just said that I'm not going to take your
11 word for it without looking at the pages between here
12 and 29, to know how much time may have elapsed.

13 Q. Sure.

14 A. So I -- if you want to say it's December, the
15 State Land Department's position, I'll let the
16 Commission consider the data that we all are, so...

17 Q. Let's go back to your chart.

18 A. Okay.

19 Q. Slide 15.

20 And we come to the 1905 two iron boat
21 accounts, and this is a trip that had an issue; is that
22 correct?

23 A. An issue. I don't know what you mean by
24 that, Mr. Slade.

25 Q. Actually, let me back up.

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1 You listed what you knew about the trip at
2 the time. Is it your understanding that the State Land
3 Department has since submitted a couple of extra
4 articles about this trip?

5 A. Two, I believe.

6 Q. And is it your understanding that the trip
7 had an issue, and what I meant by that was they got to
8 a place, potentially below Beasley Flats, where they
9 stopped and they turned around and they went home?

10 A. As I understand, yes, some, but there was
11 some question about whether all of them turned around.
12 But the more recent articles that you and your team
13 submitted, I do recall that there was some point
14 downstream where at least some of them decided to stop.
15 But as I recall, that's all we know.

16 Q. Okay. And so in terms of a successful
17 account, as I've defined it, people, persons, and
18 boat --

19 MR. SLADE: Question, Mr. Chairman?

20 MR. BREEDLOVE: Keep going.

21 BY MR. SLADE:

22 Q. In terms of a successful account, people,
23 persons -- or people, equipment, and boat making it all
24 the way down, this would not be a successful account;
25 is that correct?

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1 Clarkdale/Cottonwood area, then they may have made it
2 from Clarkdale/Cottonwood through what we call
3 Segment 2, then come to an area below Beasley Flats,
4 and at that point they turned away or gave up, is that
5 a probable or possible thing to assume?

6 A. If you assume that they started near the
7 Jerome area, under that assumption, that hypothetical,
8 then that would be true.

9 Again, we don't know where they started,
10 other than wherever Van Deren's Crossing is, so...

11 Q. We wish we had that information.

12 A. Yes.

13 Q. And what time of year was this trip?

14 A. May.

15 Q. Is the irrigation on in May?

16 A. Yes, yes.

17 Q. And is May generally a low water month, even
18 if there were not irrigation?

19 A. Typically, a median flow for May is going to
20 be a lot less than February or March.

21 Q. Okay. And they were using two iron boats;
22 that's what you've quoted here; is that correct?

23 A. As indicated in the newspaper articles.

24 Q. So we've got possible recreational men using
25 two iron boats in a low flow month at a time when

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1 A. Well, first, I don't know if they had any
2 equipment on their trip, being a recreational trip; but
3 I would say that it was not -- their intent was to go,
4 I believe, down to Phoenix. So if that was the purpose
5 of their trip, it was not successful in terms of their
6 destination.

7 Q. Okay. And they said they started in Jerome
8 or they were coming from Jerome; is that correct?

9 A. They were coming from what's referred to as
10 Van Deren's Crossing, and I don't know where that is.

11 Q. If you're coming from Jerome or Van Deren's
12 Crossing, where would you go to put in a boat?

13 A. As you know, if you look at a map, Jerome is,
14 I don't know, some 10 miles or so off the river. So I
15 don't know. I guess one would have to look back at the
16 old maps of roads. If these were Jerome businessmen,
17 as the article suggests, they would have come down
18 someplace to launch their boat. And it says
19 Van Deren's Crossing, so if we could figure out where
20 that is, we would know precisely.

21 Q. Is Jerome closer to Camp Verde or the
22 Clarkdale/Cottonwood area upstream?

23 A. The latter.

24 Q. So if we assume that they started at a point
25 that is closest to them, which would be the

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1 irrigation was probably on and the river was not in its
2 natural condition.

3 If you just knew that information, before you
4 figured out if they were successful or not, do you
5 think they would be successful?

6 A. I apologize, Mr. Slade. You said a lot
7 there. Can you describe that again?

8 Q. Sure.

9 A. I'll concentrate more closely on what you're
10 saying.

11 Q. Let me just simplify it.

12 A. Okay.

13 Q. They're going in May at a low flow, low water
14 time of year with iron boats. Do you think that's a
15 good idea?

16 A. I don't think it's my place to question why
17 somebody would want to take a steel boat in May down
18 the Verde River.

19 Q. Of all the times to go down the Verde River
20 over the course of a year with iron boats, is May, when
21 the irrigation is on, in a low water month, a good or
22 bad time to do that?

23 A. I certainly wouldn't consider it an optimal
24 time.

25 Q. And let's look at the last account we've got.

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1 A. Okay.

2 CHAIRMAN NOBLE: Right on time.

3 BY MR. SLADE:

4 Q. It's a 1931 account, and which is after the

5 time of statehood, and we've got a flat-bottom boat

6 going from Clarkdale to Fort McDowell; is that correct?

7 A. That's what it says, yes.

8 Q. And you've got January and February as the

9 month; is that right?

10 A. I do.

11 Q. Do we know if it was successful by my

12 definition; people, equipment, boat?

13 A. In this case, Mr. Slade, and, again, this was

14 another article where I wasn't able to find the Verde

15 Copper News online, and so I relied on Mr. Fuller's

16 report. I'm trying to remember whether the article

17 said that they successfully reached their destination.

18 One thing that did strike me as a bit odd is that they

19 said they were trapping beavers and otters, and I don't

20 believe in 1931 there were any beavers still on the

21 Verde. So I pointed that out.

22 But beyond that, what I have here is an

23 attempt to summarize what Mr. Fuller said about that

24 article, so...

25 Q. And we could pull up the article, but you

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1 haven't submitted any evidence that it was an

2 unsuccessful trip?

3 A. Based on your definition of successful, no.

4 Q. Okay. So as we look across your historic

5 boating accounts, let's count the total number of

6 boating accounts, and let's exclude ferry and raft that

7 were used as ferry.

8 A. Okay.

9 Q. And so I'll have you do that, actually.

10 A. Okay.

11 Q. If you want to count the total boating

12 accounts, excluding rafts and ferries.

13 A. Excluding rafts and ferries.

14 Q. And let's count the John Day trip as five.

15 A. Okay, if you want to do that. I wouldn't

16 necessarily do that, but you're the one calling the

17 shots, so...

18 One, two, three, four, five, six. So six,

19 and then you add another four if you want to count the

20 other four Day brothers. So that would get you ten.

21 And, again, if that sounds wrong, I'll count again,

22 but...

23 Q. Sure. And if we count the soldiers account

24 as not a ferry account and, in fact, a boating account,

25 how many does that get you?

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1 A. If you make that assumption, that would get

2 you 11.

3 Q. Okay. And now let's count how many were

4 unsuccessful, according to my definition.

5 A. And I can't remember now, Mr. Slade. Did we

6 say that the Jerome businessmen, in your mind, that was

7 a successful trip, even though they were trying to get

8 to Phoenix?

9 Q. Unsuccessful.

10 A. Oh, then I would drop my 10 to 9 and my 14 to

11 13.

12 Q. Well, we're first starting with all of the

13 boating accounts, and then we're going to count which

14 ones were successful.

15 CHAIRMAN NOBLE: Okay. My understanding

16 is we are now at 11 boating accounts, and we're going

17 to subtract from that the number of unsuccessful

18 boating accounts?

19 MR. SLADE: That's right.

20 CHAIRMAN NOBLE: Is that what you're

21 asking?

22 MR. SLADE: That's what I'm asking.

23 THE WITNESS: Oh, okay. I'm sorry.

24 BY MR. SLADE:

25 Q. And I apologize if I wasn't clear.

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1 A. No. We're all just trying to get through

2 this. So, okay.

3 Q. So we talked about the iron boat account as

4 not being successful; is that correct?

5 A. That would be my -- I would call it

6 unsuccessful. So now we're from 11 down to 10.

7 Q. Okay. Are there any other unsuccessful

8 accounts?

9 A. Based on your definition of a successful

10 boating account, that's correct.

11 Q. Okay.

12 A. We're on the same page.

13 Q. So 10 of 11 were successful, based on my

14 definition of a successful boating account?

15 A. Yes.

16 MR. SLADE: Mr. Chairman, this might be

17 a good time for a break.

18 CHAIRMAN NOBLE: Thank you, Mr. Slade,

19 we appreciate that.

20 We'll be in break for 15 minutes. That

21 means about 11:00. No. 20 minutes to 11:00 is when

22 we'll reconvene.

23 (A recess was taken from 10:23 a.m. to

24 10:42 a.m.)

25 CHAIRMAN NOBLE: Mr. Slade, please

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1 proceed.

2 MR. SLADE: Okay, back on the record

3 here. Eddie Slade for the Arizona State Land

4 Department.

5 BY MR. SLADE:

6 Q. Mr. Burtell, do you have an opinion on when

7 the first white settlers came to the Verde Valley area?

8 A. Sometime on or before 1864.

9 Q. And before that, there were no settlers, is

10 that what that means, in that area?

11 A. As I indicated, that's when I know irrigation

12 started. I would have to think a year or two before

13 that time folks got in, came into the area, assessed

14 the land, and decided this was a place to settle.

15 Q. And do you know about when Camp Verde or Fort

16 Verde was established?

17 A. If I can refer to my report.

18 Q. Please do.

19 A. On Page 9 of my report, I indicate that Camp

20 Lincoln, later known as Camp Verde, was established

21 January 1864 along the Verde River near the confluence

22 with Beaver Creek.

23 Q. Okay. And why was that camp established?

24 A. My understanding was to deal with the Apache

25 unrest at the time.

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1 Verde Valley, as one tracks the increase in irrigated

2 lands, obviously the area became safe enough for

3 agricultural activities to continue to increase from

4 1864 through the 1880s and 1890s.

5 I'm not a historian. I wish Mr. August was

6 still here. He could help us all. I believe Geronimo

7 was captured and then he escaped, and I think he was

8 captured in the late 1870s. He escaped and he was

9 still out with a small band of Apaches even through

10 like the mid 1880s, I think; but by that time it was a

11 very small group, so...

12 Q. So is it fair to characterize it as ending

13 somewhere in the mid 1870s, in earnest the hostilities

14 ended, but continued to some degree through the 1880s?

15 A. I think by the 1880s it was much more

16 localized.

17 Q. And you were here for Mr. Randall's

18 testimony; is that correct?

19 A. I was.

20 Q. And did he say something similar; that the

21 hostilities were about between 1860 to 1873,

22 thereabouts? Do you recall?

23 A. I would have to look back at his transcript

24 to remember what he said.

25 Q. And do you recall Mr. Randall talking a

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1 Q. And is that the same reason that Fort

2 McDowell was established in 1865?

3 A. I believe so.

4 Q. And the Apache unrest was taking place in the

5 Verde River Valley; is that your understanding?

6 A. At that time the Verde River Valley was one

7 of an area of Central Arizona where the Apaches had a

8 stronghold, if you will, were very active.

9 Q. And when we talk about the Native American

10 hostilities, it was really a war, is that a fair

11 characterization; it was a war between the American

12 settlers in the Army and the Native American

13 population?

14 A. Mr. Slade, I'm not a military historian, so I

15 would be remiss to try to characterize what is a war.

16 Q. Have you seen it characterized as a war in

17 any of your readings?

18 A. As a war.

19 If so, I don't recall.

20 Q. But it was certainly a hostile time?

21 A. Yes.

22 Q. And when did that hostility end, from your

23 understanding?

24 A. Maybe another way of looking at it is the

25 hostilities continued in Arizona, but at least in the

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1 little bit about those hostilities and saying that we

2 would have shot them on the river, we would have shot

3 them on coming; do you remember him saying something

4 like that?

5 A. I don't recall him saying that they would

6 shoot people, but if you want to show me the

7 transcript, that's fine.

8 Q. We'll take a look at the transcript.

9 So I'm on Verde River transcript Volume 8,

10 February 20th, 2015, and I'm on Page 1827. In fact, it

11 starts on 1826, and I'll give you the transcript. I'm

12 on Line 22, if you want to read the question, and then

13 go on to the next page with the answer.

14 A. Okay, Line 22, "Would it have been dangerous

15 for white settlers to make their way along that river

16 corridor?"

17 "ANSWER --"

18 CHAIRMAN NOBLE: Mr. Burtell, could you

19 read a little louder?

20 THE WITNESS: Sorry.

21 BY MR. SLADE:

22 Q. That microphone I think works.

23 A. Yes. I apologize to everyone.

24 "Would it have been dangerous for white

25 settlers to make their way along that river

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1 corridor?"
2 "ANSWER: It would have been unsafe
3 anywhere, because we were ready to protect
4 our land. Just as much as we would have shot
5 them on the river, we also shot them on
6 coming, and there's a place called Grief Hill
7 there just northwest of Camp Verde where we
8 attacked a wagon train and wiped it out."

9 Q. So from reading that, is it a fair
10 characterization to say that it's a hostile area in the
11 Camp Verde area at the time that Mr. Randall was
12 talking about?

13 A. Wiping out a wagon I would say is a pretty
14 hostile time.

15 Q. Or shooting at people along the river would
16 also be hostile?

17 A. I don't believe he said that; that anyone got
18 shot, actually shot along the river. But if they did,
19 then that would be an indication of it.

20 Q. If he said "We would have shot them on the
21 river," would that have meant that -- he did say "We
22 would have shot them on the river or on coming."

23 Does that mean if you were going down the
24 river, you may have been shot?

25 A. What I actually think it means, that he

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1 didn't see anybody on the river getting shot, but if
2 there were somebody on the river, he would have.

3 Q. Sure. So he didn't see anyone on the river
4 getting shot. And is one of the reasons maybe that
5 settlers didn't go on the river is because they might
6 have gotten shot?

7 A. I guess that asks the question -- they got
8 also shot on a wagon or on a road on a wagon. So I
9 would say it was equally dangerous whether you were on
10 a river or on a road on a wagon. I think it's
11 difficult to distinguish whether one would be more
12 dangerous than the other.

13 Q. And the Stoneman Road that you talked about,
14 that goes around the Verde River Valley; is that
15 correct?

16 A. Around? I don't know if I would characterize
17 it as around the Verde River Valley.

18 Q. Okay, well, let's pull it up.

19 If you have the page, I would love that.

20 A. Yeah, I have what would help, perhaps,
21 Mr. Slade, is the Figure 4 of my report, 1876, at which
22 time the Verde -- I'm sorry, the Stoneman Wagon Road
23 had been completed.

24 And the reason -- the way you characterized
25 it -- I'm not trying to be a jerk here. I'm just --

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1 the way you described it going around, it actually goes
2 to the Verde Valley. The lower part of the Verde
3 Valley is Camp Verde, and so the road goes up and then
4 branches off, one branch going to Fort Whipple and the
5 other branch going to Camp Verde. So it doesn't go
6 around. It goes to the Verde Valley.

7 Q. Let's take a look.

8 A. Sure.

9 Q. If we could zoom in on the -- between the
10 green and the blue in the center, that big -- that's
11 good. Right about -- keep going down. Yes. Okay.

12 So we see Camp Verde at the top.

13 A. Yeah.

14 Q. We see a road coming in from the west. Then
15 we see the road going from Camp Verde, goes out west,
16 the road comes down south, and there's a mountain range
17 in between the Verde River Valley and the Stoneman
18 Road; is that correct?

19 A. Yeah, and I believe the Grief Hill that
20 Mr. Randall referred to is that mountain pass, if you
21 will, to get from Stoneman Road and drop yourself down
22 into the southern extent, the southern end of the Verde
23 Valley.

24 Q. Okay. And then the road cuts down and then
25 it cuts east into Fort McDowell; is that right?

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1 A. Yes.

2 Q. Okay.

3 A. Sure.

4 Q. And the hostilities that we were talking
5 about previously are in that Verde River Valley
6 stretch, according to Mr. Randall; is that correct?

7 A. Mr. Slade, when you say the Verde Valley, my
8 understanding of the Verde Valley, your assistant here
9 would have to extend the map up to the north. Camp
10 Verde represents the lower extent of the Verde Valley,
11 so -- and the Camp Verde Indian Reservation is north of
12 that too. So that's why I was confused. You said the
13 Verde Valley. So the Verde Valley is north, and the
14 Camp Verde area, as I understand it at least,
15 represents the southern extent of the valley.

16 Q. Understood. Let me clarify.

17 A. Okay.

18 Q. This section from Camp Verde, where the river
19 comes down and makes its way down to Fort McDowell --

20 A. Yeah.

21 Q. -- was occupied by the Apaches; is that
22 correct?

23 A. I can't disagree with you. Whether they had
24 any strongholds in that area, I don't know.

25 Where I was confused, and I apologize, by

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1 your questions is I thought you were referring to that
2 as the Verde Valley. I think that's more the Verde
3 Canyon area.

4 Q. Let's call it the Verde Canyon area.

5 A. Okay, yeah. I don't know, again, the extent
6 of the number of Apaches that were along that route.

7 Q. Okay.

8 A. I simply don't know. Mr. Randall, I think,
9 was testifying to the area at and north of Camp Verde
10 because that's where his people, their population, was
11 concentrated and the Reservation was established. So
12 the Reservation was north of my Camp Verde box.

13 Q. Okay. If Mr. Randall said that his
14 understanding of the Apache Nation was that it went as
15 far down as Fossil Creek, is this the Fossil Creek area
16 right here?

17 A. It is.

18 Q. Okay. And we don't see any roads around that
19 area, do we?

20 A. No, we don't.

21 Q. And if, strategically, you're trying to fight
22 the enemy, which, unfortunately, in this case happened
23 to be the Native American population, does it make
24 sense to you that you would put a Fort above and a Fort
25 below the area that you're trying to fight?

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1 A. I think -- well, again, I'll just say I'm not
2 a military historian, and I would not want to sit here
3 and testify as to why someone would put a military base
4 at a particular spot.

5 I would say, though, that it's just off the
6 map to the west you have got Fort Whipple there, you've
7 got Camp Verde where it is, Camp McDowell, and then you
8 have old Camp Reno to the east. Obviously this entire
9 area was considered an area where they thought a
10 military presence was important.

11 But beyond that, as to why they would put a
12 military base at a particular point, I don't think I'm
13 qualified to answer that.

14 Q. Would it make sense to you that the military
15 would try to transport down the heart of the area where
16 they might be fighting to go from one Fort to the next?

17 A. As I -- I'm sorry.

18 Q. Go ahead.

19 A. As I indicated in my report, the military
20 both led, I think, no less than two surveying
21 expeditions, if you will, from the Camp McDowell area
22 north, and at least one of those was along the river,
23 to try to find a short route between Camp McDowell up
24 to Camp Verde, and then no less than two surveying
25 trips from the Fort Whipple area going in the opposite

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1 direction to come down.

2 There was obviously at this period a time or
3 period of time when the commanders of these military
4 bases felt the need for a highway for commerce or a
5 travel route where they could travel and take goods,
6 supplies, soldiers, communications between those two
7 military bases. And then, of course, Camp Verde as
8 well.

9 So the need seemed to exist. I think my
10 contention is there's the river and it wasn't used.

11 Q. Sure. And there are the Forts and the road
12 going around the river as well; is that correct?

13 A. Sure.

14 Q. You've never traveled by boat on the Verde
15 River, is that right?

16 I believe you testified to that earlier.

17 A. I believe I testified to that, yes.

18 Q. So you're not familiar with your
19 vulnerability, as you would travel down a river, to
20 hostile Indians, perhaps?

21 A. I'll answer that in a couple ways. I've
22 never been attacked by a Native American, and I hope I
23 never am. And I don't say that sarcastically. You're
24 trying to put me back in time on the Verde River,
25 perhaps, and whether or not -- I'm thinking you might

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1 be asking me this; what I would be fearful of or how I
2 might consider use of the Verde River at that time.

3 I'll just fall back again on Mr. Randall's
4 account of them attacking a wagon train trying to drop
5 down either from Camp Verde -- needless to say, it was
6 somewhere on that Grief Hill. Is that these were
7 difficult times for everybody, and I think whether you
8 were on the river or on a road, that you would have
9 been susceptible to confrontation with Native
10 Americans.

11 And beyond that, I don't know what more I
12 could really say.

13 Q. Sure. And if the Apaches were located -- I
14 believe Mr. Randall said the extent of them was the
15 Black Hills, and is your understanding that the Black
16 Hills are about here?

17 A. I believe that's correct.

18 Q. Okay. And is your understanding that the
19 Apaches, the furthest west they went was the Black
20 Hills, and then the rest of their occupation was east,
21 is that your understanding?

22 A. All I can say with any certainty, Mr. Slade,
23 is that the Apache presence was at least as far east as
24 the other military base on the Salt River, Camp Apache.
25 So we know at least they -- well, and they extended all

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1 the way into the Safford Valley because Camp Grant was
2 in that area. So we know they went that far east or
3 the military wouldn't have put the resources into the
4 bases.

5 Q. Sure.

6 A. What I struggle with, and I'm not trying to
7 be evasive, I don't know with much certainty how far
8 west their range was, and I would trust Mr. Randall to
9 know what their territory was to the west.

10 Q. So you haven't done any research to find out
11 where the Apache were located, specifically?

12 A. No.

13 Q. So you don't know on this map, as you look at
14 it, what areas the Apache occupied before white
15 settlers came in?

16 A. I think it's safe to assume, with the
17 location of Camp Whipple, which is in that northwest
18 corner, Camp Verde, Camp Reno, and Camp McDowell, that
19 the presence of those four military bases in the 1860s
20 would suggest that much of this entire area there was
21 at least some Apache presence.

22 Q. Okay. You could have read an article or a
23 historical account about this, but you didn't read
24 anything like that; is that right?

25 A. Mr. Slade, there were lots of articles I'm

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1 sure I could have read that I didn't, but I did not
2 read one on this issue.

3 Q. And you didn't list at all in your report, as
4 a reason the river was not used, that there was a war
5 going on in the river corridor area; is that correct?

6 A. I do not discuss the fact that the river
7 would not be used because of the Apache presence.

8 Q. Let's turn to one of your impediments to
9 navigation, rapids.

10 A. Okay.

11 Q. And I believe you list those; your section on
12 impediments begins on your Page 12 in your report,
13 X009.

14 A. And I have a table that summarizes at least
15 the named rapids.

16 Q. Okay. Let's go right to that table then.

17 A. Sure.

18 Q. That is Table -- let's see, we have --

19 A. It's Table 4.

20 Q. Okay. So that is our Slide 13.

21 And this is a table that you compiled based
22 on Mr. Williams' description of rapids on the Verde
23 River, is that correct?

24 A. As noted in Footnote (a).

25 Q. Does this contain any other descriptions

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1 besides from Mr. Williams?

2 A. Let me check.

3 The only other thing I add, Mr. Slade, is
4 under Footnote (c), and I apologize for the small
5 print, I say "Williams describes and locates other
6 rapids within Segments 3 and 4 but does not specify
7 their class."

8 Q. Did you specify their class other than what
9 Williams had specified?

10 A. I think you just asked me what was the basis
11 of this table, and as I said, Footnote (a).

12 Q. Okay. So when it says, in Footnote (c), he
13 doesn't specify their class, you didn't go back and
14 attempt to specify that class?

15 A. No.

16 Q. And if we look at Segment 1, are there any
17 rapids above the level I or II?

18 A. No.

19 Q. And if we look at Segment 2, are there any
20 rapids above the level I?

21 A. Yeah, if you look at -- or possibly at high
22 water. If you look at the two on the right, what he
23 refers to as Platform Banks Droppings and the Roller
24 Uno, I think he says I+ to II at high water.

25 Q. Okay. But the initial designation that

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1 stands alone, apart from the parenthetical, is a
2 Class I; is that correct?

3 A. His statement about the I+ to II, that's from
4 Williams, not me.

5 Q. Okay.

6 A. Oh, and I should also say, excuse me,
7 Mr. Slade, that that refers also to the Clay Banks Rock
8 Garden, because it says "see next." I didn't have
9 space to put the text in, so...

10 Q. Okay. So Clay Banks through Platform Banks
11 and Roller Uno are I's; they can be I+ to II at high
12 water?

13 A. According to Mr. Williams.

14 Q. Okay. Every other rapid in Segment 2 is
15 noted on your chart as a I+?

16 A. That's right.

17 Q. And this is the area where Mr. Lynch runs his
18 commercial operation; is that correct?

19 A. You know, I'm trying to remember exactly
20 where Mr. Lynch starts, but it would be somewhere
21 within Segment 2. And the reason I say that,
22 Mr. Slade, is that I can't remember if he also provides
23 any outfitting for folks that proceed downstream of
24 Beasley Flat.

25 Q. Right.

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1 A. But he certainly starts someplace in
 2 Segment 2, but how far down, I don't know.
 3 Q. This is the stretch with the Verde River
 4 Greenway; is that right?
 5 A. Yes.
 6 Q. And this is the stretch where the Town of
 7 Clarkdale has set up a nice system for recreational
 8 boating; is that right?
 9 A. A nice system.
 10 Q. Or a few access points for boaters?
 11 A. According to that river guide, there are a
 12 series of access points, yeah.
 13 Q. And this is also the stretch where Freeport
 14 has an interest, a land interest?
 15 A. I believe that in the Clarkdale area, as we
 16 discussed earlier this morning, Freeport still owns
 17 some property in that area; but I don't know anything
 18 more than that.
 19 Q. And let's move on to Segment 3. According to
 20 this Williams Guide, and correct me if I'm wrong, I see
 21 three Class III's. Is that correct?
 22 A. Just give me a second to check here.
 23 Q. Sure.
 24 A. Yes, two Class III's and what Mr. Williams
 25 refers to as a III-. I'm sorry. Yes, two Class III's

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1 Falls, for that matter?
 2 A. Again, I've seen a photograph, I think, and
 3 that was presented in the numerous pages prior to my
 4 involvement in the case. I think there's a picture of
 5 somebody kind of doing a daredevil cross of Verde
 6 Falls, yeah, if not more there. It seems to be a
 7 popular place to get your picture taken.
 8 Q. You've read the PPL Montana case; is that
 9 right?
 10 A. As we discussed this morning, yes.
 11 Q. And do you remember what the size of some of
 12 the waterfalls in the Great Falls reach on the Missouri
 13 River were that the court was talking about?
 14 A. You know, I don't recall, and please refresh
 15 my memory, if the Supreme Court decision actually
 16 provided the class of those rapids; but if they did, I
 17 would like to see that, yeah.
 18 Q. And if they didn't provide the class, and I
 19 might have misspoke, but if they provided the height of
 20 the falls, do you recall the height of those falls?
 21 A. That, I think there was a reference to the
 22 height of some, one or more, of the falls, yeah.
 23 Again, I was trying to remember if they
 24 actually provided these, the international
 25 classifications; and I don't think they did, but...

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1 and a third, and the third, Bushman, he says is a III-.
 2 Q. Okay. So of all the ones that have three
 3 hash marks, there are three of those?
 4 A. Yes.
 5 Q. Okay. And then there's also one Class IV,
 6 which we've heard about, and that is The Falls; is that
 7 right?
 8 A. That's correct.
 9 Q. Everything else is a I or a II; is that
 10 correct?
 11 A. According to Mr. Williams.
 12 Q. Have you ever seen anybody boat down a
 13 Class III on the Verde?
 14 A. I have seen photographs in Mr. Williams'
 15 report of people going through. In fact, that might be
 16 what's on the cover of his report. But I believe he
 17 has photographs of at least one of these, maybe it was
 18 Punk Rock, where he's got somebody in a boat going down
 19 through it.
 20 Q. But you've never seen a boat go down a
 21 Class III, that you can recall?
 22 A. Are we on the Verde River now?
 23 Q. On the Verde.
 24 A. On the Verde, no.
 25 Q. And you haven't seen anyone boat down The

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1 Q. I've got the PPL Montana.
 2 A. Okay.
 3 Q. And this is PPL Montana, LLC v. Montana,
 4 132 Supreme Court 1215, and let's go to pin site 1223.
 5 A. Here it is. Okay.
 6 Q. And I'm just going to read from the paragraph
 7 that starts "The Great Falls exemplify." Do you see
 8 that?
 9 A. Yes.
 10 Q. "The Great Falls exemplify the rocky, rapid
 11 character of the Upper Missouri. They consist of five
 12 cascade-like waterfalls located over a stretch of the
 13 Upper Missouri leading downstream from the city of
 14 Great Falls in midwestern Montana. The waterfall
 15 farthest downstream, and the one first encountered by
 16 Meriwether Lewis and William Clark when they led their
 17 remarkable expedition through the American West in
 18 1805, is the eponymous Great Falls, the tallest of the
 19 five falls at 87 feet."
 20 And then it goes on to describe with a quote
 21 from Lewis. Do you see that?
 22 A. Yes.
 23 Q. I'm going to skip that quote. I'm going to
 24 go to the next paragraph.
 25 A. I'm following you.

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1 Q. And it says "If one."
2 A. Yes.
3 Q. "If one proceeds alongside the river upstream
4 from Great Falls, as Lewis did in scouting the river
5 for the expedition, the other four falls in order are
6 Crooked Falls (19 feet high); Rainbow Falls (48 feet),
7 which Lewis called one of the most beautiful objects in
8 nature; Colter Falls (7 feet), and Black Eagle Falls
9 (26 feet)."

10 Did I read that correctly?

11 A. Yes.

12 Q. Okay. So the five falls, as they move down
13 the river, are 19 feet, 48 feet, 7 feet, and 26 feet,
14 and I'm not sure where the Great Falls comes in, but
15 that's 87 feet; is that correct?

16 A. That's what it says.

17 Q. Okay. And if I go to the next paragraph that
18 starts "The Upper Missouri River."

19 A. I'm there.

20 Q. "The Upper Missouri River, both around and
21 further upstream of the Great Falls, shares the
22 precipitous and fast-moving character of the falls
23 themselves. As it moves downstream over the Great
24 Falls reach, a 17-mile stretch that begins somewhat
25 above the head of Black Eagle Falls, the river quickly

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1 descends about 520 feet in elevation."

2 Is that correct?

3 A. You're reading it correctly.

4 Q. Okay. So can we discern from that that The
5 Falls they're talking about, the biggest of which is
6 87, and then 48 and 26 and 19 and 7, can we discern
7 that that is over a 17-mile stretch?

8 A. That seems to be what it says, sure.

9 Q. Okay. If we look at the Verde Falls, do you
10 know how high Verde Falls is?

11 A. I'm trying to remember what I've read.

12 Somewhere between maybe 5 and 10 feet.

13 Q. 5 and 10 feet. And are there any other
14 falls?

15 A. At least the way Williams describes it, he
16 has something called the Pre Falls and the Post Falls
17 and then The Falls. So I guess there's a bit of a
18 gradation of where, you know, a rapid ends and a
19 waterfall begins.

20 Certainly Verde Falls is the feature that
21 most people talk about; but I get the impression that
22 Pre Falls and Post Falls, based on the photographs, are
23 also quite steep, but maybe in his mind doesn't quite
24 fall into the classification of a waterfall.

25 Q. And let's include the stretch from Pre Falls

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1 to what you've noted as --

2 A. Post Falls.

3 Q. -- Post Falls.

4 A. Okay.

5 Q. How many miles is that?

6 A. According to Mr. Williams, it's a stretch of
7 three-tenths of a mile.

8 Q. Okay. I thought I'm looking at seven-tenths
9 of a mile, 97.1 to 97.8?

10 Oh, excuse me, I'm reading the wrong side.
11 Three-tenths of a mile?

12 So Pre Falls begins at River Mile 91.2 and
13 Post Falls is at River Mile 91.5?

14 A. Yes.

15 Q. Okay. Three-tenths of a mile with a 5 to
16 10-foot fall, as you've described it.

17 Is that significantly different than a
18 17-mile stretch with the falls heights that we've
19 listed, in your opinion?

20 A. Certainly the falls described in PPL Montana
21 of are of greater drop than these falls.

22 As to what effect that might have on
23 navigability, my contention would be even these falls
24 would be an obstacle to navigation; both of them would
25 be.

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1 Q. And do obstacles or portages defeat
2 navigability, from your understanding of the case law?

3 A. It's more a question -- again, I think
4 throughout these proceedings, Mr. Slade, it's my
5 contention that you can't just look at one individual
6 factor. Portaging, certainly, in circumstances, can
7 defeat navigation, depending on how often and frequent
8 it is, and at the end of the day, does the amount of
9 portaging result in a river that is not useful as a
10 highway for commerce.

11 Q. Okay. And you've heard some testimony from
12 people who have boated the river about that portage.
13 And is it your understanding that people have testified
14 that if you would like to portage Verde Falls, it's a
15 10-minute drag, in fact, not a portage, around the left
16 side of the falls; is that what you heard?

17 A. Well, I've heard a couple of things.
18 Yesterday's testimony from Mr. Dimock I thought was
19 quite insightful about how it might -- what might be
20 required to get the Edith, his historic boat, around
21 those falls. That's a very different type of an
22 experience than someone perhaps in a kayak trying to
23 get around those falls. So --

24 Q. And what did he describe?

25 A. Well, he said that due to the weight of the

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1 boat, that he would -- might have to line it through.
2 And then the question, as I recall yesterday -- I was
3 trying to listen as closely as I could. That it would
4 be challenging -- I don't know if he said
5 impossible. -- to line it by himself, but it would
6 certainly help to have a second or third person.

7 I didn't get the impression that he thought
8 it would be a trivial matter of lifting the Edith up
9 and walking it around the Verde Falls to portage.

10 Q. Did you get the impression that he would have
11 had to do it for a length that was much more than just
12 right over The Falls?

13 A. We don't know, do we? Because he's never,
14 and nobody has, taken a big historic wooden boat down
15 there.

16 Q. Well, the historic record does talk about
17 different boats.

18 A. But not the Edith, and nor do we know the
19 level of portaging that other folks may or may not have
20 done. All we know, and we spent quite a bit of time
21 earlier walking through those boating accounts, is that
22 some were able to get from Point A to Point B, but we
23 don't know the specifics.

24 Q. Sure. But when we heard from Mr. Dimock, he
25 said he would not even portage. He would line his boat

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1 down the 5 or 10-foot falls, however you want to
2 characterize them, and he would be on his way.

3 Did he talk about taking a day or two days or
4 ten days to do that; do you recall?

5 A. I would have to look back at his testimony.
6 I don't know if he was asked how long it would take.

7 Q. If it took -- in the PPL case, do you
8 remember how long it took Lewis and Clark to go around
9 that 17-mile stretch?

10 A. I don't, and it's been a while since I've
11 read the case, and so I can't remember if the court
12 summarized that.

13 Excuse me, Mr. Slade. To answer your
14 question, it seems like, but I would have to read it,
15 they say "The party proceeded over a more circuitous
16 land route by means of portage, circumventing the Great
17 Falls and their surrounding reach of the river before
18 returning to travel upon the river about a month
19 later."

20 So maybe that's the closest we get.

21 Q. Okay. It took them about a month,
22 potentially?

23 A. Well, it says "See Lewis and Clark Journals,"
24 so I would probably want to read the journals to see.
25 You know, it could be that that month wasn't just to

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1 get around The Falls; that maybe they were doing some
2 other exploring, so...

3 Q. Sure. Didn't take them 10 minutes, though;
4 we know that?

5 A. Unless they were more superhuman than they
6 were -- than we know they were, yeah.

7 Q. And let's go back to your chart?

8 A. Okay.

9 Q. Table 4 of X009. And Segment 4, how many
10 Class III rapids are there in Segment 4?

11 A. Give me just a second.
12 There are none that Mr. Williams lists.

13 Q. And let's turn to your next impediment, which
14 is shallow depth, and we'll start on Table 6 of your
15 report, X009.

16 A. Okay.

17 Q. And so you've listed, as three impediments to
18 navigation, beaver dams, rapids, and shallow depths; is
19 that correct?

20 A. In my report. That's what I list in my
21 report. I would add a fourth one.

22 Q. And what is that?

23 A. It would be in the lower Verde I would
24 include areas there that were braided.

25 Q. Did you talk about braiding in your report at

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1 all?

2 A. I did not.

3 Q. Okay. Did you submit anything regarding
4 braiding in your report?

5 A. I didn't.

6 Q. So we haven't had a chance to review your
7 evidence for braiding in the lower Verde; is that
8 correct?

9 A. What I did is, because I -- I didn't present
10 braiding in my report. I didn't have Dr. Mussetter's
11 report. I knew, based on the work that he had done in
12 the Gila, that he was going to update Dr. Schumm's
13 report in that area. And his report came out I believe
14 a few weeks after my report came out. So I was
15 confident that Mr. Mussetter was going to address that
16 issue.

17 I have since had the opportunity to not only
18 read Dr. Mussetter's report, but to hear his testimony;
19 and I think he makes a compelling case that a fourth
20 impediment to navigation would have been braiding of
21 the channel in that lower reach, which for my
22 segmentation would be in Segments 4 and 5.

23 Q. And I might not have heard you. Did you say
24 you considered that before you wrote your report?

25 A. Because I knew that -- I read Dr. Schumm's

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1 report before I read -- or before I prepared my report,
2 because it was available. It was in the record.

3 By the time I had written my report,
4 Dr. Mussetter had not yet released his report. So it
5 was my understanding that he was going to address
6 navigability -- or he was going to address the braiding
7 issue in the lower Verde. So I didn't feel that I
8 needed to go into it on my own.

9 Q. Okay. So you felt that the impediments that
10 you listed were significant enough that you didn't need
11 to address braiding?

12 A. I think they, in combination with the other
13 lines of evidence that I've presented, made me feel
14 that a reasonable person would include that the river
15 was not navigable. Adding Dr. Mussetter's analysis of
16 braiding in the lower, in my mind, just further
17 supports the conclusions I made.

18 Q. So what you did include in your report,
19 again, is beaver dams, rapids, and shallow depths --

20 A. That's correct.

21 Q. -- as impediments?

22 Okay, and we've looked at rapids, and we're
23 going to look at your depths.

24 A. Okay.

25 Q. And I want to make sure I understood what you

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1 did. And I think the first thing you talk about in
2 your report is you looked at well pumpage from the
3 period that you chose, which was 1914 to 1940.

4 Now, let me back up. I think I skipped a few
5 steps. You did a lot before that. But you came to a
6 decision where you would look at the data from 1914 to
7 1940 because that was the best available data and you
8 thought that would be the best period to try to
9 reconstruct the river; is that correct?

10 A. As I discussed starting on Page 15 of my
11 report, Mr. Slade, I considered -- and I say it in
12 Paragraph 16 [sic]; that I considered several factors
13 before I selected a flow period to try to reconstruct.

14 Q. And ultimately you ended on the period of
15 1914 to 1940?

16 A. A bit more precisely, the period beginning in
17 the 1910s and ending in 1940. I believe there's one of
18 my -- I think. Let me check.

19 The gage at Camp Verde did have some records
20 that went back to 1913, so a year before 1914.

21 Q. Okay. So your table should say 1913 to 1940,
22 perhaps, if we're being exactly accurate?

23 A. You're correct. That's a mistake on my part.
24 Yes, I can see why there would be a confusion there. I
25 say 1914, and I should say 1913.

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1 Q. And the first depletion you looked at was the
2 possibility of well pumpage, is that right, whether
3 there were wells that were pumping that would have
4 affected the baseflow during that period, is that
5 right?

6 A. When you say it's the -- I'm a little
7 confused. -- it's the first thing I looked at or --

8 It's one of the factors that I looked at,
9 certainly, was during my period of record what may have
10 been the impacts of pumping.

11 Q. Okay. And you came up with it would have
12 been less than 1 cfs, is that right?

13 A. For that period, based on some recent
14 groundwater modeling work by the U.S. Geological
15 Survey, turning the clock back to the period in the
16 early 1900s, that's what I concluded from their work.

17 Q. And that's a study that you looked at.

18 The 1 cfs that you reported, what area of the
19 river were they talking about, if you recall?

20 A. My understanding is that study covered the
21 headwaters area all the way down through Camp Verde,
22 through Beasley Flats. It was a study by Garner and
23 others, 2013. And if you'll permit me, maybe the
24 reference provides, in the title of it, the extent.

25 Human Effects on the Hydrologic System of the

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1 Verde Valley, Central Arizona, 1910 through 2005 and
2 then 2005 through 2010.

3 Q. When they say the Verde Valley, does that
4 include the upper watershed?

5 A. You know, my understanding, that the model
6 that they looked at extended not just in the Verde
7 Valley, but extended up into the headwaters area. And
8 that there is great disagreement, I think, between
9 Mr. Hjalmarson that the USGS missed pumping in the
10 upper -- in the headwaters area and they didn't include
11 that in the model. So there seems to be a difference
12 of opinion on his part with the USGS.

13 Q. Okay. And did you submit that study as
14 evidence?

15 A. I provided the reference and I provided, I
16 believe, the page numbers.

17 Yeah. I provide page numbers in
18 Paragraph 69. Pages 32 and 33 talk about the amount of
19 well pumpage during that period, and then Pages 34 and
20 35 indicated their estimate of the reduction in
21 baseflow due to that pumping on those pages.

22 Q. Okay. And if that study was for the Verde
23 Valley and the 1 cfs or less than 1 cfs that you came
24 up with was not including the upper watershed, does
25 that mean you did not include all of the possible well

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1 pumping in the upper watershed?
2 A. My understanding of that report is they did
3 include what they thought was the important pumping in
4 the upper watershed. And the disagreement, again,
5 seems to come down to Mr. Hjalmarson is under the
6 impression that a lot of pumping was occurring in that
7 headwaters area in the shallow aquifer that the USGS
8 simply missed. And I think he takes great pains to
9 point out the deficiencies in that USGS model; that
10 they missed all that pumpage.

11 I'm not sure, however, that that's an opinion
12 that the USGS and the modelers agree with, who did the
13 work; but that's his opinion as a retired USGS person.

14 Q. And after you calculated the pumping
15 depletion, your next --

16 A. Excuse me, Mr. Slade. I didn't calculate the
17 pumping depletion.

18 Q. Okay. After you found what you thought was a
19 reliable number for what was being depleted from the
20 river due to pumping between 1913 and 1940, my
21 understanding of your next step was to turn to the
22 Hayden report; is that correct?

23 A. In terms of step by step what I did,
24 obviously it wasn't quite as straightforward as one to
25 the next. It was more step-like in terms of what I say

1 in Paragraph 66. First, I needed -- before I could do
2 anything, I needed some reliable flow records. So
3 that's where I truly started. And then the next thing
4 that I looked at in terms of priority or importance was
5 diversion data.

6 So that's where, again, I'm not trying to be
7 nitpicky with you, but you said then next I looked at
8 Hayden.

9 I looked for diversion data earlier in the
10 process because I knew that irrigation was the primary
11 cultural depletion for the area. So that's what I
12 looked for next was some reliable measurements of the
13 amount of water being diverted from the river. So that
14 led me to the Hayden report and reports that came
15 before.

16 Q. Okay. And when you looked at the Hayden
17 report -- and we're back on your table here.

18 A. Okay.

19 Q. -- you came up with the diversion from
20 Del Rio and the diversion from Granite Creek as 4 cfs
21 each; is that right?

22 A. That's right.

23 Q. And you've got a footnote there that says
24 "From Hancock (1914, Page 32) and Hayden (1940,
25 Page 9)," is that right?

1 A. That's right.

2 Q. So --

3 A. And then I say "higher rate used if two
4 values available for same location."

5 Q. Okay. And so that would be where you came up
6 with the 4 cfs for that Del Rio and Granite Creek?

7 A. Either from Hayden or Hancock, yes.

8 Q. And that would total the cfs diversion in the
9 upper watershed, because the next one is upper Verde,
10 which is not the upper watershed; is that correct?

11 A. Well, what the next general location would
12 be, that area above the mouth of Sycamore Creek.

13 Q. So the total upper Verde diversion that
14 you came up with is 8 cfs for Del Rio and Granite
15 Creek?

16 A. As indicated by Hancock and Hayden, yes.

17 Q. And do you have a copy of Hayden with you?

18 A. I do. I do.

19 Q. Okay.

20 A. Mr. Slade, are we done with PPL, or should I
21 keep it?

22 Q. Yes, we're done right now.

23 A. I just -- I have a tendency of getting stuff
24 mixed up with my stuff; so let me do that.

25 Q. Me too.

1 A. And I should say, Mr. Slade, I have not
2 printed out Hayden in its entirety, but I certainly
3 have the pages that I used and some other pages. So
4 certainly if it would help and you have a full copy,
5 that might be -- if you want me to read something else,
6 just keep in mind I don't have --

7 Q. Yes, we do have a full copy, and we can
8 provide that to you.

9 A. Okay. Thank you.

10 Q. And --

11 A. Excuse me, Mr. Slade. I just wanted to take
12 a look if his attachments got included in here.

13 Q. They are included.

14 A. They are.

15 Q. Yes.

16 A. Okay, great. Or his exhibits. Okay.

17 Q. So let's turn to your first cite, which is
18 Page 32 of Hancock (1914), and we are on the Hayden
19 report, which --

20 MR. SLADE: Do we have an exhibit number
21 on Hayden?

22 MS. DEBI LOPEZ: X053-188.

23 MR. SLADE: X053-88. Is that the
24 complete Hayden?

25 MS. DEBI LOPEZ: 188. Yes.

1 BY MR. SLADE:
 2 Q. X053 Part 189. Okay. And there's two
 3 different sets of page numbers. There's a page number
 4 for the exhibit and then there's a complete page number
 5 for the whole thing. So we are on the complete page
 6 number 317, is that right?
 7 A. Yes.
 8 Q. Can we pull that up, actually?
 9 And you calculated the 4 cfs from, from my
 10 understanding, the 175 and the 170 maximum capacity,
 11 which is miner's inches; is that correct?
 12 A. That's right.
 13 Q. Okay. And you came up with about 4 for each
 14 one of those?
 15 A. Yeah. And, you know, it's always funny, as
 16 an engineer or a scientist, how many significant
 17 figures do you show in a table. And I don't show them
 18 all, which is why, when you look at my Clarkdale
 19 column, you see 2 plus 2 plus 4 is equal to 9, and you
 20 think, wow, this guy can't even add. The problem,
 21 again, is the decimal places I'm not showing.
 22 So just keep that in mind if you saw some,
 23 what looks like, discrepancies. It's more of a
 24 rounding thing or how many decimals I'm showing in the
 25 table.

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1 got published.
 2 Q. Okay. So the diversions that you have
 3 tabulated for Del Rio and Granite Creek were
 4 established in 1914?
 5 A. Yes.
 6 Q. But the period of record that you used was
 7 from 1913 to 1940?
 8 A. That's correct.
 9 Q. If there were things that began depleting
 10 water after 1914, would those be accounted for in your
 11 report?
 12 A. You know, I looked at that and realized that
 13 there wasn't.
 14 Q. There was not what?
 15 A. There wasn't any additional effects from 1914
 16 to 1940 caused by things going on up there.
 17 Q. Do you have any idea of when the Chino Valley
 18 Irrigation District began?
 19 A. Yeah. In fact, I believe it was 1915 or '16
 20 that the reservoir was completed.
 21 Q. Okay. And is that after 1914?
 22 A. It is. And, again, I was aware of that, and
 23 so I did check independently to see if that, and then
 24 later, as you might ask me, Sullivan Dam I think was in
 25 the late '30s, whether those structures were having an

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1 Q. Sure. So if 175 miner's inches is actually
 2 4.325 cfs, you've shown 4?
 3 A. Well, it's 4.35.
 4 Q. Okay, 4.35.
 5 A. Yeah.
 6 Q. And did you use anything else to come up with
 7 the diversions at Del Rio and Granite Creek from the
 8 Hayden report?
 9 A. I didn't use the Hayden report for Del Rio or
 10 Granite. In this case I relied on Hancock, because I
 11 don't believe that Hayden had ditches or ordinary
 12 capacities or amounts being diverted for that area.
 13 Q. And what year was the Hancock report
 14 published?
 15 A. It said that he did his fieldwork, if you
 16 look at -- and you're right, these page numbers are
 17 crazy. If you look at Page 289 of the Hayden report,
 18 it's his letter submitting -- this is Hancock's letter
 19 submitting his report to a superior judge, John
 20 Phillips, and he says, "I respectfully submit the
 21 following report of my investigations of the Verde
 22 River and its tributaries, commencing July 12th, and
 23 ending October 31st, 1914."
 24 So I read that to suggest that that's when he
 25 did his work, 1914, which is the same year the report

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1 effect on the river. And so I did examine that. In
 2 hindsight, I should have put that in the report. But I
 3 looked at it.
 4 Q. And how did you look at it?
 5 A. Two ways. And one is an incomprehensible,
 6 and I'm the first to admit it, graph that I entered as
 7 an exhibit and will need Mr. Hood to help me out here.
 8 I can give him the Freeport number and let him give you
 9 the rest.
 10 This is Freeport 21. And when you see it,
 11 you'll see why I then looked at another reference.
 12 MR. HOOD: And Freeport 21 is a tab
 13 behind X037.
 14 BY MR. SLADE:
 15 Q. Okay. Can you explain what we're looking at
 16 here?
 17 A. Sure. And I apologize, I was -- let me get
 18 my own copy of 21.
 19 And what's -- and, again, as a scientist, I
 20 apologize to all that this is probably one of the most
 21 incomprehensible-looking charts that you could create.
 22 What I was attempting to show here, and it's
 23 much better described by the USGS in a report that
 24 Mr. Rjalmarson referenced, was the baseflow at the
 25 Clarkdale gage, which, as you know, is downstream of

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1 those dams that we were just referring to.

2 And you can see we have, at least here --

3 boy, if it wasn't always this case -- some data right

4 when the reservoir started to be operated, 1915 to

5 1916. And they operated the Clarkdale gage for a

6 couple of years, and then they jumped ahead and

7 looked -- and then it resumed operation in the '60s.

8 And what I was trying to capture here was

9 whether or not the baseflows during the time when the

10 irrigation season was occurring had changed.

11 And when I presented this, my counsel

12 certainly was probably as confused as all of you about

13 what this said. And I should have -- and I apologize

14 to all; that this is much better summarized by the USGS

15 in a report that Mr. Hjalmarson has discussed, and

16 that's the Owen-Joyce and Bell report.

17 I don't know if this has been entered into

18 the record. So all the heat should be on me for that.

19 Let me give for the record what the title is. Again,

20 this is a document that Mr. Hjalmarson referred to.

21 It's called the "Appraisal of Water Resources in the

22 Upper Verde Area, Yavapai and Coconino Counties,

23 Arizona." And this was prepared by the USGS on behalf

24 of the Arizona Department of Water Resources.

25 Q. Do you know the date of that study?

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1 regional deeper system, as well as any shallow system

2 that Mr. Hjalmarson has spent a lot of time discussing.

3 Q. So the comparisons were 1915 to 1921 and then

4 1965 to 1978; is that correct?

5 A. Unfortunately, that -- well, and we have some

6 data from '65 to '68 here. That's when the gage

7 resumed. So they looked at it.

8 Q. But what you just told me, 1915 to 1921 was

9 compared to 1965 to 1978?

10 A. Yes, and they say that if you compare those

11 two periods, they're not seeing a change in baseflow.

12 Q. Okay. And if the Chino Valley Irrigation

13 District starts in 1916, would you expect them to have

14 most of their agriculture up and running by 1916?

15 A. I don't know how quickly they developed their

16 fields. There were already fields up there before,

17 that I think were being dryland farmed; and then once

18 the Irrigation District got up and running, I would

19 suspect that once the dam filled and they started to

20 irrigate, they were irrigating right away.

21 So my guess would be in 1916, and I think

22 that's reflected in the Hayden report, that you start

23 getting some more acreage at that time, so...

24 Q. Do you know when that acreage reached its

25 maximum for the Chino Valley Irrigation District?

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1 A. It's 1983.

2 And it might -- and I certainly -- again,

3 I'll apologize to all. Maybe during a break we can get

4 this copied. All counsel certainly should look at it;

5 but this is a document that, again, Mr. Hjalmarson

6 referred to.

7 And on Page 36, the last paragraph, they make

8 the following statement: They say "Records for the

9 station near Clarkdale" -- that one -- "from June 1915

10 to June 1921 indicate that the baseflow is virtually

11 identical to the baseflow computed for records

12 collected from April 1965 to September 1978. The lack

13 of change suggests that the groundwater system upstream

14 from Clarkdale still represents equilibrium

15 conditions."

16 So what that suggests to me, Mr. Slade, is

17 that the effect of any of those dams, the dams on

18 Granite Creek are far upstream from the headwaters.

19 Because we're fortunate that we have baseflow data from

20 that period, starting during my period of record and

21 then going into 1978, suggests that I would concur with

22 what Owen-Joyce is saying; "The lack of change suggests

23 the groundwater system upstream...still represents

24 equilibrium conditions."

25 And when I say groundwater system, both the

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1 A. You know, I don't know when it would have

2 reached its maximum. I just know that it started at

3 that period and it continues to this day.

4 Q. So if it reached its maximum after 1921, and

5 then it declined from 1921 to 1965?

6 A. I have no data to indicate that it does. If

7 you have some data to show me that, that would help.

8 Q. Do you have any data on the agriculture

9 between 1914, when the Hancock report was written, and

10 1940, when you've ended your period that you've looked

11 at?

12 A. What I have is an indication of what, if any,

13 effect the agriculture in that area during that period

14 would have done to the river; and that is it's no

15 different than April 1965 to 1978.

16 Q. Okay. But what we don't have in that study

17 is 1921 to 1940; is that right?

18 A. That's right, yeah.

19 Q. So that's 19 years of data we don't have, but

20 6 years of data or 7 years, well, 6, '15 to '21, that

21 we do have?

22 A. Right, and I have not read anything that

23 indicates that between 1921 and 1940 the Chino Valley

24 Irrigation District substantially increased or

25 decreased its acreage.

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1 CHAIRMAN NOBLE: Mr. Slade.
 2 THE WITNESS: Yes.
 3 CHAIRMAN NOBLE: Would it be impossible
 4 if we took a lunch break at this time?
 5 MR. SLADE: Anything's possible in your
 6 chambers.
 7 CHAIRMAN NOBLE: We're going to take our
 8 lunch break. We will reconvene in the Palo Verde room.
 9 It's the one with the 50-foot table, or is it 75?
 10 MR. ERENDOLOVE: Out the door, north side
 11 of the building, right here. And this is only for the
 12 Gila River -- or for the conference.
 13 MR. MCGINNIS: Salt.
 14 CHAIRMAN NOBLE: For the scheduling
 15 conference that will take place at 1:30 p.m.
 16 (A lunch recess was taken from
 17 11:55 a.m. to 2:18 p.m.)
 18 CHAIRMAN NOBLE: Mr. Mehnert, please
 19 call the roll.
 20 DIRECTOR MEHNERT: Okay. Commissioner
 21 Allen.
 22 COMMISSIONER ALLEN: Here.
 23 DIRECTOR MEHNERT: Commissioner Horton.
 24 COMMISSIONER HORTON: Here.
 25 DIRECTOR MEHNERT: Chairman Noble.

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1 CHAIRMAN NOBLE: Yes, I am here.
 2 DIRECTOR MEHNERT: And Commissioner
 3 Henness is absent this afternoon.
 4 CHAIRMAN NOBLE: Thank you.
 5 Mr. Slade.
 6 BY MR. SLADE:
 7 Q. Good afternoon. Again, Eddie Slade with the
 8 Arizona State Land Department.
 9 When we left off, Mr. Burtell, we were
 10 talking about the Hancock report and -- excuse me, the
 11 Hayden report, which includes both the Hancock and the
 12 Turney reports as exhibits, and I would like to pull up
 13 the map that Hayden used of the upper Verde watershed,
 14 and that is in the Hayden report, Page 23, if we could
 15 pull that up, please.
 16 Have you looked at this map, Mr. Burtell?
 17 A. Let me catch up to you here. I want to make
 18 sure we're talking about the same.
 19 Yes, I did look at this map.
 20 Q. We were talking about the Chino Valley
 21 Irrigation District before, and that is the area I'm
 22 pointing at in my red, with the red pointer?
 23 A. It says "Chino Valley Irrigation District."
 24 Q. And that is along the Granite Creek area; is
 25 that correct?

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1 A. Yes.
 2 Q. And the Del Rio area that we were talking
 3 about is at that area; is that correct?
 4 A. It is in that township, as I understand, yes.
 5 Q. Where is the Big Chino Valley on this map?
 6 A. The Big Chino Valley is to the north and to
 7 the west, I believe.
 8 Q. Is it captured on this map, would you say?
 9 A. No.
 10 Q. And where is Walnut Creek on this map?
 11 A. Walnut Creek, as I understand, is to the west
 12 and isn't on this map.
 13 Q. Okay. So it's not captured on this map?
 14 A. Not on this map; but there was also a set of
 15 maps at the end of the report that I don't know if
 16 those help us out any or not. If you could just give
 17 me a second, I'm looking at those.
 18 I don't see those on his map.
 19 Q. So if there were agriculture diversions or if
 20 water was being -- well, let me back up.
 21 Does the Big Chino feed into the -- does the
 22 Big Chino Valley feed into the Verde watershed?
 23 A. Yes.
 24 Q. Does the Walnut Creek Valley or system feed
 25 into the Verde watershed?

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1 A. It does.
 2 Q. So if there was agriculture in the Big Chino
 3 area or the Walnut Creek area, then what it looks like
 4 is the Hayden report did not account for that, at least
 5 as we look at this map?
 6 A. Yeah, as I understand, Mr. Slade, Hayden did
 7 account for the future, if not the present, irrigation
 8 in the Big Chino from deep artesian wells as opposed to
 9 surface water diversions, and he discusses in some
 10 length. I think he has a whole section in his report
 11 related to development, proposed and existing
 12 development, in the Big Chino area in his report.
 13 So I guess what I'm trying to say is that he
 14 was aware of agricultural activities in that area, and
 15 not being supplied by surface water diversions, but by
 16 deep wells.
 17 Q. And would deep wells affect the water that
 18 makes it to the Verde River?
 19 A. Yeah, and I would fall back on the Owen-Joyce
 20 document, where my understanding of the development of
 21 the Big Chino was in that period between the 1915 and
 22 1940, versus certainly by the time then you jump to
 23 1960s, the Big Chino area was being irrigated, and any
 24 effect on baseflow would be reflected, again, by
 25 comparing the earlier period to the later period.

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1 Q. I appreciate this Exhibit X037, Part 21, but
2 I've got to say it's incredibly difficult to read.

3 A. And, again, and that's why I -- unless I'm
4 mistaken, I tried to point out repeatedly how difficult
5 this is to read, and that's why I read the quote from
6 the Owen-Joyce and Bell, where they discuss both the
7 flow in this early period, as well as the flow
8 beginning in '65.

9 Q. Okay.

10 A. And their analysis of -- this is the actual
11 record of flow during those years versus they looked at
12 the flows focusing on the baseflow, which would be most
13 affected by such pumping like in the Big Chino.

14 Q. Okay. And it looks like you put a cap of
15 90 cfs at the top of X037. Did the baseflows go higher
16 than that?

17 A. Yeah. As you can see the top of these, some
18 of the lines, yes, they go up higher; but you can see
19 they don't go any lower. So I tried to create a graph
20 where I was capturing the low flows, but I wasn't
21 trying to capture flood events.

22 Q. So this isn't representative of baseflow
23 years; this is representative of the flow during that
24 year, over the course of the year?

25 A. Yes, and because I show all the months and

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1 A. Yes.

2 Q. If we go down from the pink, that blue is the
3 years '67 to '68; is that correct?

4 A. Yes.

5 Q. And that is somewhere between 70 and 75 cfs?

6 A. That's right.

7 Q. Okay. So that's a year, if we're comparing
8 '67, '68 to '15, '16, we would say that '67, '68 is
9 about 10 cfs lower than the pink?

10 A. Yeah, and the problem with looking at April,
11 May, and June is that the plants are starting to
12 transpire, and so you also have that effect to be
13 considering. And so from a baseflow perspective,
14 probably when the trees aren't transpiring and folks
15 are not irrigating, in my mind it would make better
16 sense to perhaps look in the December, January type of
17 time frame.

18 Q. Well, no matter the year, plants are
19 transpiring; is that right?

20 A. I'm sorry, say that again.

21 Q. No matter the year, '67, '68 or '15, '16,
22 plants are going to transpire in the spring; is that
23 right?

24 A. That's right.

25 Q. Okay. So I didn't quite understand why we

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1 there are times --

2 COMMISSIONER ALLEN: That's okay. I
3 just want to see what the colors are.

4 THE WITNESS: And there are times during
5 the year when, because of monsoonal events or summer --
6 or I should say spring snowmelt, that it's not in
7 baseflow conditions.

8 So I didn't do a great job of what the
9 title of that was. It really should be Historic Verde
10 River Flows Measured at the USGS Gage, and then
11 probably a note saying that I capped the discharge at
12 90, but some flows are higher than that.

13 Baseflow being, I think Mr. Hjalmarson
14 calculated, on the order of maybe 60 cfs or so as his
15 baseflow at the Paulden gage. So I'm trying to capture
16 that lower range of the hydrograph.

17 BY MR. SLADE:

18 Q. Sure. So if we look, actually, on the far
19 right side, and I'm over here in April, May, and June,
20 and the pink is 1915 and '16, is that right?

21 A. That's correct.

22 Q. Okay. And that is somewhere between 75 and
23 80 cfs?

24 A. Yes.

25 Q. Okay. Generally speaking?

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1 can't look at that time period, if we can kind of throw
2 out transpiration as something that occurs over the
3 course of all years?

4 A. Yeah, and, again, I think that's the benefit
5 of looking at the Owen-Joyce and Bell, where they
6 didn't just look at '65 through '68. They looked at, I
7 think, a period up through the '70s, where any
8 year-to-year variability in baseflow and runoff, even
9 during the springtime, they were able to look at a
10 longer period of record and, again, come to their
11 conclusion that the baseflow in the earlier period, in
12 the 19-teens, was not substantially different, in their
13 opinion, than during the later period.

14 Q. Okay. But this is what you put together
15 regarding baseflow after you realized that the Hancock
16 report in 1914 did not consider any irrigation
17 depletions after 1914; is that correct?

18 A. I'm sorry, could you say that again? I need
19 to listen more closely.

20 Q. The Hancock report in 1914 does not consider
21 depletions after 1914, because it was written in 1914?

22 A. Okay.

23 Q. Okay. And your period was from 1913 to 1940;
24 is that correct?

25 A. Yes.

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1 Q. And you put this together to try to make the
2 argument that baseflow did not change all that much
3 from 1914 to 1940, is that correct?

4 A. That's correct.

5 Q. Okay. And what we've just seen, based on
6 what I pointed out, is that in April, May, and June,
7 according to this graph, there's a 10 cfs difference
8 from 1915 to 1967?

9 A. For comparing those two years.
10 If you were to compare 1915 to 1967 through
11 '68, it would be more on the order of a 5 cfs
12 difference; the red line versus the light blue line.

13 Q. Okay. I'm sorry, I thought we did the light
14 blue and the red line before?

15 A. I don't think we've done any line-to-line
16 comparisons yet.

17 Q. Okay. Light blue in the middle?

18 A. Yeah.

19 Q. And what's your estimate about that middle
20 range; what is that cfs?

21 A. Looks like on the order of, I don't know,
22 70 maybe 2, maybe 73, if I was to average it.

23 Q. Okay. And your estimate of this range?

24 A. Would be maybe on the order of 78.

25 Q. Okay. So --

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1 A. I think that's the 5 or 6 cfs I just said.

2 Q. So let me make sure the record reflects that.
3 From '67, '68, comparing that to '15, '16, you said on
4 the order of 5 cfs difference?

5 A. Yeah.

6 Q. And then if we go lower to '65, '66 and
7 compare that to '15, '16, what's the average that you
8 would call the black line, '65, '66?

9 A. I would say the black line is probably on the
10 order of maybe 68 or so.

11 Q. Okay. And, again, the pink line you said was
12 78; is that --

13 A. Yeah, I think I said 78.

14 Q. So that's a 10 cfs difference?

15 A. Yes.

16 Q. And that all happened after the 8 cfs that
17 was accounted in Mr. Hancock's report in 1914; is that
18 correct?

19 A. What we don't know, unfortunately, Mr. Slade,
20 is that what happened after 1940 to 1960s, which was
21 outside the period that I looked at.

22 Q. Sure. But for your purposes we're looking at
23 1913 to 1940.

24 A. Okay.

25 Q. Okay. And there is a 10 cfs or -- yeah,

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1 10 cfs difference that happened after 1914, when the
2 Hancock report was written?

3 A. Again, Mr. Slade, that 10 cfs that you're
4 depicting is when you choose to compare one set of
5 years to another set of years, and then there's -- when
6 you do another comparison, it's 5.

7 So for that comparison it's 10. For the
8 other comparison it's 5.

9 Q. Okay. Either 5 or 10, depends which year?

10 A. Okay.

11 Q. Okay. Where is that accounted for in your
12 report?

13 A. Well, again, not knowing that the difference
14 may have been caused for the years that you want me to
15 compare after 1940, I had no reason to believe that
16 that difference was caused by something outside of the
17 period that I reconstructed.

18 Q. The study you looked at is what you based
19 this on; is that correct?

20 A. I didn't base this on anything. I mean this
21 is data from the USGS. I don't understand your
22 question.

23 Q. Let me rephrase.

24 A. Okay.

25 Q. You told us that the study you looked at

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1 compared the time period of '65 to '78.

2 A. Are we back to the Owen-Joyce study?

3 Q. That's right, we're back to the Owen-Joyce.

4 A. Okay.

5 Q. Compared the period from '65 to '78 to 1915
6 to '21; is that correct?

7 A. If I can, I'll try to get the page number
8 again.

9 Page 36 compared June '15 to June '21
10 compared to April 1965 to September 1978.

11 Q. Okay. So we've got 1965 on here, actual USGS
12 gage data at Clarkdale?

13 A. We have the beginning of the second period
14 that the USGS looked at, yes.

15 Q. And it tells us that compared to 1915 there's
16 about a 10 cfs difference?

17 A. If you were going to limit it to comparing
18 those direct years, that's what the data is saying.

19 Q. Okay. And I'll ask you again, because I'm
20 not sure I understood your response.

21 A. Okay.

22 Q. Where did you account for that in your
23 report?

24 A. Again, I didn't account for something which I
25 feel could be explained by cultural impacts to the

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1 river that occurred after the period that I analyzed.
 2 So I did not account for something that I didn't have
 3 evidence definitely occurred within my period of
 4 record.
 5 Q. Okay. But the study that you referenced
 6 which told you about baseflow used the period of '65 to
 7 '78, which is after the period of your study?
 8 A. That's right. And '65 to '78, they
 9 reactivated the gage in '65, so we're limited to the
 10 data that we have.
 11 Q. So that's a study that is accounting for
 12 things that happened outside of the period that you
 13 looked at, but you relied upon that?
 14 A. It provided me further evidence that anything
 15 that might have been happening in the headwaters area
 16 after Hancock was in that area would not have caused a
 17 substantial change in the flow of the river, baseflow
 18 of the river, by making that comparison.
 19 Q. And is that study, as according to your
 20 understanding of it -- and it's not in evidence, so I
 21 don't think it's been reviewed. I haven't reviewed it.
 22 But according to your understanding of it, is that
 23 study consistent with what we're seeing on this
 24 hydrograph here with the 10 cfs difference?
 25 A. It is when you consider that they didn't just

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1 Clarkdale," and that's the groundwater system that
 2 would include everything upstream of Clarkdale that
 3 might be affecting that gage, "still represents
 4 equilibrium conditions," it says what it says. I'm not
 5 sure how else to interpret the clear language of what
 6 the USGS said.
 7 Q. Do you know if Hayden visited the Big Chino
 8 or the Walnut Creek area?
 9 A. If Hayden did.
 10 Q. Or Turney or Hancock.
 11 A. I believe that they were tasked with looking
 12 at the watershed of the Verde River above, Hayden was,
 13 above, at this time, I believe, Horseshoe, because
 14 Horseshoe, as I understand, was completed in the mid
 15 1940s. Hayden's report was 1940. So as I understand,
 16 he was tasked with looking at that area in its
 17 entirety.
 18 And, actually, if you look at the first page
 19 of -- I'm sorry, Page 3 of the Hayden report, you'll
 20 see that there is a map, and he actually shows the
 21 irrigated lands on Page 3. And if you take a look at
 22 that, you'll see Walnut Creek is included on that map.
 23 In fact, he even plots what looks like it says
 24 "Drainage Diversion Line Damsite" from Williamson
 25 Valley.

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1 look at, as I've presented, '65 to '68. They looked at
 2 a longer period, April '65 to September 1978. So they
 3 looked at a roughly 13-year period of more recent
 4 record, compared that to 1915 to 1921, of which I only
 5 have a couple of the earlier years here.
 6 So they looked at a longer period early on
 7 and a longer period more recently and drew their
 8 conclusion, again I'll read, the baseflow was virtually
 9 identical between those two periods.
 10 And, again, this is a report that
 11 Mr. Hjalmarson cited several times, the Owen-Joyce and
 12 Bell report. So it's a USGS document. It is what it
 13 is. I'm not sure what more I can say.
 14 Q. That's fine. And, again, I haven't read it;
 15 but if it turns out that that document was only
 16 addressing the Verde Valley and not the upper
 17 watershed, could we rely on that document?
 18 A. Again, it's somewhat nonsensical to me, that
 19 question, because the gage is reflective of what's
 20 happening in everything above it. I mean it's the
 21 Clarkdale gage. So any substantial effect to the
 22 hydrograph would be reflected by things that are
 23 happening upstream of it.
 24 So when they say then "The lack of change
 25 suggests that the ground-water system upstream from

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1 And as I understand, he has a section in here
 2 about future development in the Big Chino. So my
 3 impression is that he did get up into that neck of the
 4 woods.
 5 Q. And Mr. Hjalmarson would disagree with you on
 6 that point?
 7 A. I'm not surprised.
 8 Q. Does SRP have a gage at Walnut Creek; do you
 9 know?
 10 A. Walnut Creek? If they do, I'm not familiar
 11 with it.
 12 Q. I'm going to jump around a little bit and
 13 move off the Hayden report.
 14 A. Are we done with it?
 15 Q. For now, yes.
 16 A. Oh, for now.
 17 Q. Yes.
 18 You mentioned yesterday that you can say for
 19 sure that below the depths that you have put on your
 20 reconstructed depth chart, downriver, just immediately
 21 downriver from those would be shallower; is that
 22 accurate?
 23 A. I apologize, Mr. Slade. Let me get my report
 24 out again. So we're referring back now to --
 25 Q. We're talking about a conversation we had

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1 yesterday.
 2 A. Okay.
 3 Q. And when I asked you what would be the depth
 4 downstream of the depth that you have reconstructed for
 5 the readings at the site where the USGS did their
 6 readings --
 7 A. Okay.
 8 Q. Okay. You said the depth, I can say for
 9 certain, would be shallower; is that correct?
 10 A. I would say that the depths that I present as
 11 reconstructed using the USGS rating curves, since those
 12 rating curves were not established at a riffle, that
 13 the depths that I reconstructed are at least as deep,
 14 if not deeper, than what's at the riffle.
 15 Q. Okay. And is it true that the -- so the site
 16 where the current meter measurement is taken is upsite,
 17 upriver from the control; is that an accurate
 18 statement, and downriver from the gage height or the
 19 gage?
 20 A. It would be located in the vicinity of the
 21 gage. It could be upstream of the gage. It could be
 22 downstream of the gage.
 23 Q. And it could be upstream of the gage?
 24 A. Not substantially up. It's the same issue
 25 with being downstream of the gage. You don't want to

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1 Q. So channel controls are not generally used as
 2 a place to measure the current meter just upstream?
 3 A. Oh, no, that's not what I said. I said that
 4 most gages, not all, have two controls. At lower flow
 5 the stage at the gage is affected, controlled, if you
 6 will, by the section control; but at higher flows the
 7 stage at the gage site is going to be affected by the
 8 channel control.
 9 Q. And that's a place where the width is
 10 potentially narrowed or widened a bit, depending on the
 11 circumstance; but if we're talking about a control,
 12 usually narrowed downstream?
 13 A. Yes.
 14 Q. Okay.
 15 A. That certainly is a -- yes.
 16 Q. And if you have the same amount of water
 17 coming in the river and it's narrowed, what happens to
 18 depth?
 19 A. The depths will increase.
 20 Q. Okay.
 21 A. Yeah.
 22 Q. So have you done any research to figure out
 23 which gages here are affected by channel controls or
 24 section controls?
 25 A. My understanding, in light of the pool and

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1 get very far away from the gage, with the concern that
 2 there might be an increase or decrease in flow adjacent
 3 to the gage.
 4 Q. And so the current meter is measured at a
 5 place where there is adequate velocity? I think you
 6 mentioned that yesterday. Is that correct?
 7 A. To get a current reading of accuracy, yes.
 8 Q. Okay. And velocity can be created by two
 9 types of controls, a channel control and a section
 10 control; is that right?
 11 A. Can you say that again?
 12 Q. Are there two types of controls that would
 13 increase velocity downstream of where the current meter
 14 measurement is taken?
 15 A. Well, certainly at a section control you're
 16 going to have a more limiting elevation of the channel,
 17 where you likely will get riffles to form.
 18 When you're at the higher flows and channel
 19 controls kick in, then it's the overall dimensions of
 20 the river valley or the floodplain that's controlling
 21 the velocity and the distribution of flow.
 22 Q. Sure.
 23 A. But those are levels that are typically much
 24 higher and much beyond what I would consider ordinary
 25 and natural.

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1 riffle sequence out here, that all of these gages would
 2 have a section control, and at higher flows they will
 3 all have a channel control.
 4 Q. Okay. So at higher flows, if there's a
 5 channel control, depths may be greater than the depths
 6 you've put in your report?
 7 A. Well, certainly under higher flows, we've now
 8 moved past what I was trying to evaluate, which was the
 9 median flow conditions or the 25th percentile.
 10 Q. So your contention is that a channel control
 11 is only a factor at flows above median?
 12 A. No, I didn't say that. I said that, again,
 13 at lower flows section controls are governing. One of
 14 the benefits of using the direct streamflow
 15 measurements is that you don't have to try to model or
 16 simulate where the river transfers from section control
 17 to channel control. You let the measurements, if you
 18 will, speak for themselves. That is, they are
 19 reflective of the depth of the river and the flow
 20 conditions at various discharges.
 21 And no river is unique. No river is always
 22 going to plot as a perfect line. Things are very
 23 dynamic. So that's one of the benefits of rather than,
 24 as Mr. Hjalmarson did, just take one cross-section in
 25 time and simulate what the maximum depth is, when you

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1 look at repeated measurements of discharge and depth
2 and velocity, width over time, you're able to capture
3 more of the ephemeral nature of the channel conditions
4 over time.

5 And if you were to extend a rating curve far
6 enough, you might be able to see the jump, if you will,
7 in the curve where the section control converts to a
8 channel control. And I didn't do that exercise. My
9 task more was looking, after reconstructing flows and
10 using actual measurements rather than simulated depths,
11 what types of on-the-ground measurements were the USGS
12 coming up with for the very depths that I'm
13 reconstructing.

14 Q. Okay. But they could have made a measurement
15 that was greater at a higher flow or potentially
16 greater at a lower flow if it was downstream in a
17 channel control area?

18 A. Well, I don't know if I would characterize it
19 that way, Mr. Slade. What I plotted in the rating
20 curves that I constructed was the data that the USGS
21 collected starting from the lowest flows all the way up
22 to 100 or 200 cfs beyond the highest flow that I
23 constructed.

24 So I wasn't selective in -- I looked at all
25 of the data that they -- all of the field measurements

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1 one of these gages, then it is my opinion that the
2 reconstructed depths at that riffle would be equal to
3 or less than what I put in my report.

4 Q. I didn't ask you about riffles, specifically,
5 because that's a certain type of control.

6 My question is, just downstream, if it's a
7 channel control or a section control, can you also say
8 with a hundred percent certainty that the depths would
9 be less?

10 A. I apologize, Mr. Slade, I don't understand.
11 I don't understand what you're asking. So maybe I need
12 to listen again, and maybe if you can rephrase it. I
13 just --

14 Q. We'll come back to it.

15 A. Okay.

16 Q. So I want to continue on with your analysis.
17 And you reconstructed flow based on the Hayden report,
18 and we've talked about the upper watershed; and you've
19 also used the Hayden report for the areas below the
20 upper watershed, is that correct, to reconstruct flow?

21 A. I guess I need to repeat myself.

22 I used the Hancock and the Hayden report to
23 get an indication of the typical surface water
24 diversions along the Verde River.

25 Q. And my question is, I'm looking at your

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1 that they made related to that gage. So I wasn't using
2 or not using any data. I just used the data, I used
3 all the measurements that they took, again, within a
4 range of discharges that cover at least a couple
5 100 cfs beyond the highest discharge that I was trying
6 to reconstruct the depth for.

7 Q. So let me wrap up this by asking you, can you
8 say with a hundred percent certainty that below the
9 measurement of the gage site that you have put down in
10 your report, it would be shallower?

11 A. A hundred percent certainty.

12 I'll say again, I say with -- a hundred
13 percent -- with very high certainty that the depths at
14 a riffle would be equal to or less than the depths that
15 I reconstructed.

16 Q. Okay.

17 A. So if you were to put --

18 Q. I didn't ask you --

19 MR. HOOD: Let him finish. Excuse me,
20 Mr. Chairman. Could the witness be allowed to finish
21 his answers, please?

22 BY MR. SLADE:

23 Q. Go ahead, Mr. Burtell.

24 A. If you were to reconstruct the flows and pass
25 those flows over a riffle that was in the vicinity of

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1 Table 6, X009, Cultural Depletion of Verde River
2 Streamflows, and just want to make sure. We talked
3 about Del Rio and Granite Creek, and are the rest of
4 those diversion rates from Hayden and Hancock footnotes
5 that you put at the base there?

6 A. Yeah, I'm not sure how more descriptive I
7 could have been.

8 Q. That's fine. We talked about earlier the
9 study that you had not included as a footnote that you
10 looked at, so I just want to make sure that we have all
11 the information here.

12 A. Okay.

13 Q. And that's column two, and the way you got
14 from column two to column three is by using the Ross
15 report; is that correct?

16 A. That's correct.

17 Q. And we have heard a lot about the Ross
18 report. I want to ask you about the conversation that
19 you had with Ross that you talked about in your direct
20 testimony.

21 A. Yes.

22 Q. Was that by phone or by e-mail?

23 A. Both.

24 Q. Have you submitted the conversation you had
25 by e-mail as evidence?

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1 A. We have those documents, and, Mr. Hood, if
2 you want to present those, we can.

3 MR. HOOD: If Mr. Slade would like a
4 copy, I would be happy to give them to him.

5 MR. SLADE: I would.

6 THE WITNESS: Unfortunately, we don't
7 have Mr. Hjalmarson's e-mail transmissions, but I kept
8 a record of mine and have those for the benefit of the
9 Commission.

10 MR. HOOD: Rich, do you need one?

11 THE WITNESS: I have one, thank you.

12 Mr. Slade, if it would help, but
13 obviously you need to look at this yourself, the first
14 three pages were a futile attempt on my part to get to
15 Mr. Ross Mr. Hjalmarson's documents, which he didn't
16 have.

17 He didn't have any of Mr. Hjalmarson's
18 documents and, thus, you'll see my attempts to send him
19 pages of Hjalmarson's report related to what I did and
20 then trying to send him the entire report, which is the
21 next couple of e-mails. It's a very large document,
22 his addendum, second addendum, and so --

23 BY MR. SLADE:

24 Q. Mr. Burtell --

25 MR. HOOD: I apologize, Mr. Chairman.

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1 Mr. Slade is continually cutting off Mr. Burtell. I
2 think it's inappropriate. I've tried to stay seated as
3 much as I can. Mr. Burtell needs to be allowed to
4 finish his answers.

5 MR. SLADE: I didn't --

6 MR. HOOD: He asked about the e-mail
7 chain. He needs to be allowed to finish.

8 MR. SLADE: Mr. Chairman, I hadn't even
9 asked Mr. Burtell a question before he started talking.
10 If that's how we're going to proceed, it's going to be
11 a long time.

12 MR. HOOD: I disagree that he didn't ask
13 him a question. He asked him about this e-mail chain.

14 CHAIRMAN NOBLE: Please proceed,

15 Mr. Slade.

16 BY MR. SLADE:

17 Q. Did Mr. Hjalmarson use the Ross study at all?

18 A. I don't believe he did, no.

19 Q. So if Mr. Hjalmarson presented Mr. Ross with
20 his documents, there would be no evidence of Mr. Ross's
21 work in Mr. Hjalmarson's documents that he would
22 present?

23 A. Could you state that again? I didn't follow
24 you.

25 Q. Another way of saying it is there's no reason

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1 for Mr. Hjalmarson to present Mr. Ross with his own
2 documents when he didn't use the Ross study.

3 A. Oh. The reason I thought it was valuable to
4 get Mr. Ross Mr. Hjalmarson's study was not all of what
5 Mr. Hjalmarson did, but specifically the addendum that
6 critiqued my use of Ross's work, that is,
7 Mr. Hjalmarson's critique of the value of Ross's data
8 Mr. Ross never saw.

9 Q. And if we go to Mr. Hjalmarson Exhibit X059,
10 second addendum, Page 95, we just encapsulate the
11 essence of what Mr. Hjalmarson said in his direct about
12 why he did not submit more e-mails, and I just wanted
13 to make sure that was clear to the Commission.

14 Mr. Hjalmarson's e-mail is as follows: "Very
15 helpful. Can I quote you on this? Please respond."

16 And, Mr. Burtell, I'll give you a chance to
17 get there. Page 95.

18 A. Oh. Thank you.

19 Q. And Mr. Ross's response is, "As long as it is
20 clear that you are quoting me as a former NAU student
21 who wrote the thesis used, and not in my official
22 current capacity, then you may quote me as such: Open
23 quote, I feel that the data gathered for four large
24 ditches from 2008 to 2010 are neither temporally or
25 spatially adequate to model historic flows for the

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1 Verde River, end quote.

2 Did I read that correctly?

3 A. You did.

4 Q. So from my understanding of that, Mr. Ross
5 was very clear in what he wanted to be quoted about.
6 Did you get that understanding?

7 A. That's what those words say.

8 Q. Okay. So when Mr. Hjalmarson says he won't
9 present other e-mails, could it be because Mr. Ross was
10 very clear about what he wanted to be quoted on?

11 A. When I talked to Mr. Ross, I had found out,
12 according to him, that there were numerous e-mails that
13 Mr. Hjalmarson sent to him, and I didn't ask him what
14 those were. But apparently Mr. Ross indicated that it
15 was a bit overwhelming the amount of e-mail traffic
16 that Mr. Hjalmarson was sending to him.

17 So when Mr. Hjalmarson was cross-examined and
18 was asked the nature of those e-mails and indicated he
19 would not present them, I'll leave it to the Commission
20 to wonder itself what, if anything, was in those
21 e-mails, many of which Mr. Ross said Mr. Hjalmarson was
22 sending to him, that may or may not be relevant to
23 this.

24 And one thing in particular, I think,

25 Mr. Slade, that is telling in Mr. Ross's quote is

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1 "neither temporally or spatially adequate to model
2 historic flows."

3 When I talked to Mr. Ross, Mr. Ross indicated
4 to me that he was under the impression that what I had
5 done was or I was characterizing what I had done as a
6 hydrologic model. And I think I repeatedly said in my
7 report that what I was trying to do is not develop a
8 detailed hydrologic model, but it was an accounting
9 procedure to try to determine an upper end, an upper
10 estimate of what the ordinary and natural flows were.

11 So when I talked to Mr. Ross, he appreciated
12 my side of the story, if you will, which, again, I
13 think those e-mails might be valuable to see, and that
14 is, exactly how did Mr. Hjalmarson characterize what I
15 did.

16 But I guess we won't know how he
17 characterized what I did.

18 Q. We've got some differences in depth across
19 the board between depths that you've represented,
20 depths that Mr. Hjalmarson has represented, and depths
21 that we've heard from boaters that have come before the
22 Commission and Jon Fuller; is that correct? Is that a
23 fair --

24 A. Boy, the way you character -- I don't know
25 how -- you say differences in depths. You've got to

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1 earlier, Mr. Slade, this is one of several factors that
2 I think the Commission and prior courts should
3 consider. Is it the only one? Certainly not. An
4 important one? Yes, I believe, yes.

5 Q. Is another factor how a boat travels down the
6 river today?

7 A. You have to be more specific when you say how
8 a boat travels down the river. What do you mean by
9 that?

10 Q. So if there's disagreement about depths, the
11 ultimate question is are the depths too shallow for
12 boating; is that a fair statement?

13 You've said that shallow depth is an
14 impediment to navigability. So the question is, is the
15 depth too shallow for boating?

16 A. I would say, based on my attempt to
17 reconstruct flows and reconstruct depths associated
18 with those flows, that there would be numerous areas at
19 the riffles and near the riffles where the depths would
20 be limiting and would cause an obstacle or an
21 obstruction for travel.

22 Q. And you've never done anything to test that
23 theory out using a boat, watching someone go over a
24 riffle in a boat, or talking to anyone that has gone
25 over a riffle in a boat; is that correct?

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1 be -- I can't answer that, Mr. Slade. You have to be
2 specific about who is saying a depth and where. A
3 general statement like that, I don't even know how to
4 answer it.

5 Q. Sure. It was meant to be general. We don't
6 all agree, potentially, on the depths, all the experts
7 don't agree; is that a fair statement?

8 A. The depths of what?

9 Q. Mr. Hjalmarson does not agree with the depths
10 that you have presented?

11 A. Mr. Hjalmarson focused on maximum depths. I
12 focused on average depths.

13 Q. And if we converted Mr. Hjalmarson's depths
14 to average depths, are they in agreement with your
15 average depths?

16 A. I don't know, because I didn't do that, and I
17 don't think he did that.

18 Q. And if there is disagreement between depths,
19 is there a case that you know that has relied solely on
20 depth?

21 A. A case --

22 Q. Have you read a case that has made a
23 determination of navigability solely on depth?

24 A. Solely on depth.

25 No. I would say, again, as I've testified

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1 A. What was probably most telling to me early on
2 when I got involved in this case, Mr. Slade, is when I
3 looked at the Utah decision, the Special Master listed
4 a series of boats that he said were, quote, light draft
5 boats that were being used at the time for commerce,
6 and he listed those boats. And it was quite a variety,
7 and those boats commonly had drafts that were not
8 3 feet, which is what everyone says is all I care
9 about, but drafts that were less than that.

10 And yet what was very telling to me was, at
11 the end of the day he relied on not only those boats,
12 but the report by the War Commission, where they also
13 looked at commerce on the Green and the Colorado River
14 or the Grand River, and indicated for the purpose of
15 commerce 3 feet was a limiting depth needed for
16 commercial navigation on those rivers.

17 That, to me, in combination with the boats,
18 the light draft boats that he said were being in use at
19 the time, was, to me, telling and should then, then
20 provide a further guide -- not the only guide -- as to
21 why depth is important and that depths less than
22 2 feet, which is what we have in my reconstructions,
23 are relevant.

24 If you need, for light draft boats, in the
25 opinion of the War Commission and the Special Master,

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1 light draft boats -- and Utah became a state I believe
2 in the late 1890s. If you need that much water for
3 light draft boats used for commerce at that time, then
4 I don't think that's something to ignore.

5 I understand every river has to be taken by
6 itself, but what it provides us is a guidepost to ask
7 ourselves then what type of depths are needed for
8 commercial navigation.

9 Q. When you were making a decision, were you
10 aware that the Supreme Court has stated that small
11 boats, and other courts like the Ninth Circuit have
12 stated that canoes, can be counted as evidence of
13 navigability?

14 A. I'm certainly aware that cases among all of
15 the evidence that I think that these various courts
16 have looked at, that that is one thing to include; not
17 the only thing. I think I'm at a loss of any river
18 case that I've read, but please correct me, where the
19 deciding factor was by itself the use of a canoe.

20 Q. We'll be happy to put that in the brief, so
21 you can find that in there.

22 And would you agree that canoe use, if used
23 for fur trapping on a river repeatedly for commerce,
24 would that constitute evidence of use of the river as a
25 highway for commerce?

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1 A. You know, I don't think that your
2 hypothetical, based on that alone, I would make that
3 determination. Whether or not the Commission will, I
4 don't know; but I believe that if that was all you had,
5 that that would not be enough.

6 Q. Is that different than what you've testified
7 to before?

8 A. I don't -- I don't recall.

9 Q. Do you recall testifying on the Gila that
10 canoe use was, in fact, potentially a commercial
11 activity if done in a repeated fashion?

12 A. As I said, again, Mr. Slade, it certainly is
13 one factor. But I thought the question was by itself,
14 would that be enough to tip the scales, if you will, as
15 to whether a river as navigable; and I don't think I
16 said that in the Gila case. But if I did, I certainly
17 would like to see that.

18 Q. Okay, we'll pull it out.

19 And this is the Gila River transcript,
20 June 20th, 2014, Pages 1175 and 1176, and I'll let
21 you --

22 I can read it or you can. If you want to
23 read the question and then your answer through to
24 Line 18. The question starting on Line 12 of 1175, and
25 it's a little longer, but if we want to get his

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1 complete answer and the question, then we'll read the
2 whole thing.

3 And, Debi, if you want to pull that up as
4 well.

5 So the question is on Line 12 of 1175.

6 A. Do you want me to read this, Mr. Slade?

7 Q. Yes, or I can read it.

8 A. Oh, no, that's fine. I was just -- I was
9 reading it, but not on behalf of the --

10 Q. How about I read it, since it's up here.
11 Then you don't have to read it.

12 A. Okay.

13 Q. Okay.

14 The question is: "And when you talked
15 about commercial, what did you mean by -- you
16 talked about sustained, and then commercial.
17 What do you mean by commercial use? At
18 least, what's your understanding of how that
19 term is used by you in your report?"

20 And you say: "Yeah, and that's a fair
21 question. Certainly trade, and I know there
22 was some discussion this morning about -- or
23 this week about is it trade or travel, and
24 trade and travel. I will maybe go on what
25 PPL Montana said, and I think in there it's

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1 trade and travel in that case. I think when
2 it comes to commercial, and I certainly
3 understand the arguments that attorneys have
4 had over this issue about does it have to be
5 profitable or not. I think it comes down to
6 if it's not for profit or somebody benefiting
7 from the practice, then it has to be part of
8 their livelihood, perhaps. And, again, I'll
9 try my best to distinguish it from a, let's
10 say, personal recreation. Maybe it's almost
11 easier for me to say what it's not.

12 Sometimes it's easier to do that. I would
13 say that a personal use of a recreational
14 craft in my mind would not be what I consider
15 commercial. And obviously your expert and I
16 differ perhaps on that. So it wouldn't
17 include a personal recreational craft. But
18 conversely, it's certainly, if you've got a
19 trapper who's got a canoe loaded up with
20 pelts and it's being used, and not just one
21 isolated event, but is being used
22 consistently, and there's a record of it. It
23 has become a highway -- when I hear the
24 phrase highway for commerce, I kind of get
25 the impression that this is something that is

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1 a reliable, recognizable use."
 2 And do you still agree with that statement?
 3 A. Then can you restate then? I think it was a
 4 hypothetical that you were asking me regarding canoe
 5 use.
 6 Q. Sure. If you have canoes that are reliably
 7 and consistently used, traveling down the Verde for the
 8 purpose --
 9 A. Use -- oh, I'm sorry. I'll let you finish.
 10 Q. -- for the purpose of trapping, canoes or a
 11 small boat for the purpose of trapping, are they using
 12 the river as a highway for commerce?
 13 A. In that circumstance, that would support a
 14 determination. However, I would again say that there
 15 are other factors that should be considered. But under
 16 your hypothetical, that would be something that the
 17 Commission should look at.
 18 Q. Okay. That's all I have on that. Thank you.
 19 A. Okay.
 20 Q. I want to turn back to your report, and we
 21 are moving along. I am on Page 20 in your report.
 22 Actually, let's go to Page 21. Excuse me. And I'm at
 23 Paragraph 92. And in 92 you compare the depths from
 24 the State of Washington's navigability potential study
 25 to the depths of the Verde River; is that correct?

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1 A. I look at medians.
 2 Q. So you're comparing the median flow, which is
 3 going to be less than the mean flow on the Verde River?
 4 A. Yes.
 5 Q. And you've made the comparison in 92, but did
 6 you mention at all that Washington is using mean and
 7 you are using median?
 8 A. In terms of the flows?
 9 Q. Yes.
 10 A. No.
 11 Q. If you used mean flows on the Verde, would
 12 your depths be greater than the median flows that you
 13 used?
 14 A. It would be realistic to consider that the
 15 mean flows would be greater than the median flows,
 16 sure.
 17 Q. And did you mention that at all in
 18 Paragraph 92?
 19 A. I think I just answered that, your question
 20 before. No, I didn't make that distinction.
 21 Q. So you're comparing apples to oranges, not
 22 apples to apples?
 23 A. Again, I think what they're saying here is
 24 that whether it's the mean depth or the median depth,
 25 when you're getting a depth, an average depth, in the

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1 A. Yes.
 2 Q. And you're aware that the State Land
 3 Department did a study for ANSAC of a similar nature
 4 where they had criteria for small watercourses in
 5 Arizona?
 6 A. I am familiar with your small watercourse
 7 criteria document, yeah.
 8 Q. And that study was particular to Arizona and
 9 not another state, like Washington?
 10 A. Yes.
 11 Q. Nonetheless, you've looked at Washington; and
 12 have you had the chance to read the entire study?
 13 A. What study are we referring to?
 14 Q. The Washington study on navigability
 15 potential.
 16 A. I have read sections of it and scanned it
 17 all. I focused, obviously, on an early table on
 18 Page 2, where they present those criteria.
 19 Q. Okay. And do you remember, when you looked
 20 at that study, if they are using median or mean flows
 21 when they're calculating their depths?
 22 A. I believe they're using mean flows, average
 23 flows.
 24 Q. And what flows do you use when you calculate
 25 your depths?

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1 river that's less than 2 feet, that there are obviously
 2 some impediments to navigation; probably not.
 3 Q. But are they saying median or are they saying
 4 mean?
 5 A. Well, what I'm saying is that using average
 6 flows, they are saying when the mean depth of the
 7 stream is less than 2 feet, it's probably not
 8 navigable.
 9 Q. Okay. And you've done the median, which is a
 10 smaller flow on a relative basis, and you've compared
 11 those depths to the Washington mean depths, which are
 12 more flow?
 13 A. But as you recall, Mr. Slade, I also did the
 14 25th percentile flows.
 15 Q. Okay. So let's look at your 25th percentile
 16 flows, because in 92 you make the statement "The Verde
 17 River is also nonnavigable in its ordinary and natural
 18 condition using these criteria," and my understanding
 19 is Washington said if it's less than 2 feet, it's
 20 probably not navigable. So you've used that criteria?
 21 A. Yes.
 22 Q. Okay. And none of your median 50 percent
 23 flow reconstructed depths came above 2 feet, according
 24 to you; is that correct?
 25 A. Yes.

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1 Q. And when we look at the 25 percent -- let's
 2 put that up, Table 5. -- would you say that the
 3 25 percent is more similar to a mean?
 4 A. Yes.
 5 Q. Okay. Do any of those depths go between or
 6 above or equal to 2 feet?
 7 A. At the East Verde River I have 2.2 feet.
 8 Q. And, therefore, Washington, if your
 9 25 percent is comparable to a mean, Washington would
 10 consider at least two segments here in the 2 foot to
 11 3 and a half foot range, and what they say is 2 foot to
 12 3 and a half feet may be navigable depending on the
 13 balance of factors; is that correct?
 14 A. That's what it says, sure.
 15 Q. And that's different than what you've listed
 16 as the Verde River is also nonnavigable using the
 17 Washington criteria?
 18 A. To me, the Washington criteria are consistent
 19 with the other factors that I looked at to indicate
 20 that, again, not looking at any individual factor by
 21 itself, but using a balance of factors -- I'll use the
 22 words that the State of Washington did. -- that these
 23 depths and the other factors in their totality, if you
 24 will, would lead one to that conclusion.

25 Q. But Washington, in their study, they didn't
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1 look at a whole bunch of other factors. They said
 2 depth is what we think is a good factor, and we think
 3 if it's between 2 and 3 and a half feet, then it may be
 4 navigable.
 5 A. And, again, I guess I would emphasize to the
 6 Commission the "may be navigable."
 7 Q. Sure.
 8 A. So it may be or it may not be, and, again,
 9 depending on the balance of factors.
 10 Q. Sure. But it certainly is not nonnavigable,
 11 depending on the balance of factors?
 12 A. Oh, no, that's not what it says at all. It
 13 doesn't say it's not nonnavigable.
 14 Q. Let me rephrase.
 15 It comes in between the 2 to 3 and a half
 16 feet, at least two segments, according to you, not the
 17 less than 2 feet, which is what you put in your report?
 18 A. Again, Mr. Slade, as I understand, if it's
 19 less than 2, for a threshold or a screening criteria,
 20 the State of Washington says probably not navigable.
 21 So a greater certainty that it's not navigable. And
 22 then when it's between 2 and 3.5, the probability that
 23 it is navigable goes up. But it's not until you get
 24 over 3.5 that Washington -- the probability swings over
 25 to the probably navigable.

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1 So I don't think, again, this by itself is
 2 determinative of whether a stream is or isn't.
 3 Q. Sure.
 4 A. But I certainly think it helps support the
 5 various factors that I looked at.
 6 Q. But when you listed this study, you listed it
 7 by itself and you said according to these criteria, the
 8 depth criteria, the Verde is nonnavigable.
 9 And the problem with that was you were using
 10 a different flow than the Washington study. And when
 11 we use a flow that's potentially more comparable to the
 12 Washington study, then the Verde River may be navigable
 13 depending on a balance of factors?
 14 A. And it may not be navigable.
 15 CHAIRMAN NOBLE: Mr. Slade, was that a
 16 question?
 17 MR. SLADE: Yes.
 18 CHAIRMAN NOBLE: Okay. Would you
 19 rephrase it?
 20 THE WITNESS: Okay.
 21 BY MR. SLADE:
 22 Q. Is what I'm saying correct; and that is, you
 23 used this study as a specific study related to depth,
 24 and you found that the Verde was nonnavigable,
 25 according to this study, but you didn't use the right

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1 flow that is used in the State of Washington study?
 2 A. As I indicated, I don't state here that I'm
 3 just using the median flow, and I looked at both the
 4 median and the 25th percentile. I don't see
 5 anywhere -- do I state in Paragraph -- I don't believe
 6 I state in Paragraph 92 that I'm looking at the median.
 7 Q. But you do state "The Verde River is also
 8 nonnavigable in its ordinary and natural condition
 9 using these criteria."
 10 The criteria for nonnavigability is less than
 11 2 feet. If we use your median flow reconstruction, all
 12 of those are less than 2 feet. That's where you came
 13 up with nonnavigable.
 14 If we use a more comparable flow, which is
 15 what we pointed out is the 25 percent, two of the
 16 segments, according to you, move into the 2 to 3 and a
 17 half feet, may be navigable depending on a balance of
 18 factors. But that's not represented in your
 19 Paragraph 92, is it?
 20 A. Again, it would --
 21 Q. That's a yes or no question.
 22 MR. HOOD: No, it's not.
 23 CHAIRMAN NOBLE: Excuse me.
 24 MR. HOOD: Mr. Chairman, that was a --
 25 CHAIRMAN NOBLE: Please sit down.

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1 MR. HOOD: -- five-minute diatribe. He
 2 needs to be able to answer.
 3 BY MR. SLADE:
 4 Q. Yes or no?
 5 A. Could you restate the question, please,
 6 Mr. Slade?
 7 Q. Is the fact that the Verde is navigable,
 8 potentially, may be navigable, according to the
 9 Washington criteria, if you use a similar flow rate
 10 that Washington used, is that represented in your
 11 Paragraph 92?
 12 A. Because the 2 to 3.5 feet -- and I'll read it
 13 again -- says "may be navigable depending on the
 14 balance of factors," that 2 to 3.5 feet suggests that
 15 the State is telling the user of their threshold to not
 16 just look at depth by itself; that you want to look at
 17 the balance of factors.
 18 So I am now taking that criteria and trying
 19 to apply it, and by applying it, I'm being told by the
 20 State of Washington to look at the balance of factors.
 21 So I am now following their instruction to not just
 22 look at depth, but to look at other factors. And I
 23 looked at other factors.
 24 And so at the instruction of the State, I
 25 looked at the depth. The depth fell within that range.

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1 study, because that's what it was. It didn't have a
 2 balance of other factors. It did not have historical
 3 works.
 4 CHAIRMAN NOBLE: I'm up here, Mr. Slade.
 5 MR. SLADE: Excuse me, Mr. Chairman.
 6 And he's now saying that he included,
 7 beyond depth, these balance of other factors. But if
 8 we look at what that study was about, which was depth,
 9 Mr. Burtell has misrepresented where the Verde River
 10 comes in in that study.
 11 CHAIRMAN NOBLE: Do you have any other
 12 questions about the Washington decision?
 13 MR. SLADE: I don't.
 14 CHAIRMAN NOBLE: We're moving on.
 15 Would now be a good time to take a
 16 break?
 17 MR. BREEDLOVE: I have an announcement
 18 about the fire drill. This is off the record.
 19 (A recess was taken from 3:36 p.m. to
 20 3:56 p.m.)
 21 CHAIRMAN NOBLE: We're back on.
 22 Proceed, Mr. Slade.
 23 BY MR. SLADE:
 24 Q. I've only got one question left and that
 25 question is, Mr. Burtell, can you rank the segments as

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1 I followed their instruction to look at the other
 2 factors. I looked at those other factors, which we've
 3 spent a lot of time talking about, and came to the
 4 conclusion that when you're asked to look at the
 5 balance of other factors, you come to the conclusion
 6 that it's not navigable.
 7 Q. If you look at just the factor of depth,
 8 which the study ended up only adopting as the factor
 9 that they would propose the State use, according to the
 10 factor of depth, which was the primary part of that
 11 study, does the Verde River come in in the may be
 12 navigable aspect of their determination?
 13 CHAIRMAN NOBLE: Mr. Slade, I guess I'm
 14 not understanding. Are you suggesting that the
 15 Washington decision says that we should rely solely on
 16 depth of water in making a determination of
 17 navigability? Is that what you're asking him?
 18 MR. SLADE: I'm suggesting that the
 19 criteria that they proposed was a depth criteria with a
 20 balance of other factors.
 21 CHAIRMAN NOBLE: Are you suggesting that
 22 they propose that we use only a depth criteria?
 23 MR. SLADE: I'm not suggesting that.
 24 What I'm suggesting is when Mr. Burtell listed the
 25 criteria, he was looking at that study as a depth

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1 ASLD has segmented them; or, rather, I guess as you've
 2 segmented them, can you rank those? And I understand
 3 you've determined that all segments are nonnavigable;
 4 is that correct?
 5 A. That is my determination.
 6 Q. Would you be able to rank those in order of
 7 which segment is the least nonnavigable going down to
 8 which segment is the most nonnavigable?
 9 There's no easy way to say double negatives.
 10 A. Yeah, it's a double negative.
 11 Q. But if you want to write it down, it's the
 12 least nonnavigable.
 13 A. Okay.
 14 Q. So that would be the most navigable.
 15 A. Even though I'm saying that all of the
 16 segments are nonnavigable.
 17 Q. That's right.
 18 I'm wondering, in your opinion, which segment
 19 that you have found is nonnavigable is the least
 20 nonnavigable, and then order down to the most
 21 nonnavigable, which, to the contrary, would be the
 22 least navigable.
 23 A. So the most nonnavigable in a crazy
 24 hypothetical would be, just so that we're ranking these
 25 similar, most nonnavigable, let's say, might be a

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1 stream with no water in it at all. I mean that is the
 2 most nonnavigable, would be a stream with no water.
 3 Q. Okay. Are you starting from the bottom or
 4 the top of the ranking?
 5 A. I was told that I'm supposed to look at the
 6 least nonnavigable to the most nonnavigable.
 7 Q. Okay.
 8 A. And I just wanted, for super-extreme sides of
 9 things, most nonnavigable -- I'm not saying this is the
 10 case. -- would, let's say, be a dry stream; and least
 11 nonnavigable would be a stream that if you added one
 12 more drop of water, you tip the scales and now it's
 13 navigable. Is that a fair -- I just want to make sure
 14 that we're saying the same thing.
 15 Q. That's right. Yes, that's correct.
 16 A. Okay.
 17 Q. And now we want to apply that to the Verde
 18 River.
 19 A. Yes, okay. I just wanted to make sure that
 20 I'm answering your question as best I can.
 21 And to answer your question, I can look at --
 22 I can refer to my segmentation, which was the State
 23 Land Department's original segmentation?
 24 Q. Yes.
 25 A. Okay.

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1 A. Well, I have to preface by saying it's kind
 2 of like the question if you have two children and
 3 you're in an accident and which one are you going to
 4 let die.
 5 Q. I'm sorry that it was like that.
 6 A. Again, using this criteria of most
 7 nonnavigable taken to its absurd extreme that there's
 8 no water in the stream at all, to the least
 9 nonnavigable, where just one more drop would tip the
 10 scales to it becoming navigable. I would say the most
 11 nonnavigable, and then I'll work my way through, would
 12 be Segment 1, followed by Segment 3, followed by
 13 Segment 2, followed by Segment 5, with the least
 14 nonnavigable Segment 4.
 15 CHAIRMAN NOBLE: And so the headline is
 16 Burtell says Segment 4 is almost navigable.
 17 THE WITNESS: Which the way the
 18 question's posed to me, I'm sure it will end up in a
 19 State Land Department brief like that. But I would
 20 like to say on the record that I feel very strongly
 21 that any and all of these segments are not navigable
 22 based on my analysis.
 23 MR. SLADE: Thank you Mr. Burtell.
 24 Thank you, Mr. Commissioner or Mr. Chairman and the
 25 Commission. Appreciate your time.

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1 Q. Or if you want to refer to the State Land
 2 Department current segmentation, that's fine too.
 3 Let's just be clear about which it is.
 4 A. Sure. If I can, I would prefer to use the
 5 State Land Department's original segmentation.
 6 Q. Okay.
 7 A. I always get barked at when I ask more
 8 questions of anybody. Can there be ties?
 9 Q. No.
 10 A. No ties. Okay.
 11 If the Commission and Mr. Slade would mind,
 12 can I take a minute to look at the segments?
 13 CHAIRMAN NOBLE: Since this is the last
 14 question, we certainly want you to take your time.
 15 THE WITNESS: Okay.
 16 CHAIRMAN NOBLE: And thank you, Eddie.
 17 THE WITNESS: I will say for the record
 18 this is not easy, but I'm trying, particularly because
 19 I can't have ties, but that's the rules of this game,
 20 so okay.
 21 Just about done. I appreciate people's
 22 patience.
 23 Okay, Mr. Slade, I am done.
 24 BY MR. SLADE:
 25 Q. Okay. What do you have.

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1 CHAIRMAN NOBLE: Thank you, Mr. Slade.
 2 We appreciate what you've done.
 3 Is there anyone else who wishes to
 4 question Mr. Burtell?
 5 Mr. Helm, we welcome you back.
 6 MR. HELM: It's always a pleasure.
 7 CHAIRMAN NOBLE: And following Mr. Helm,
 8 is there someone else we can look forward to
 9 questioning Mr. Burtell?
 10 MS. MONTGOMERY: I may have just a few
 11 questions, but I would like to go after Mr. Helm.
 12 CHAIRMAN NOBLE: Okay.
 13 MR. HELM: I know she would, but in the
 14 order of things and the way we've been doing it, you
 15 get to go before me.
 16 MS. MONTGOMERY: Well, the problem with
 17 that is that they're points of clarification,
 18 Mr. Chairman, and so I would very much like to go after
 19 Mr. Helm.
 20 MR. HELM: She's going to clarify me;
 21 that seems cute.
 22 MS. MONTGOMERY: I might have to,
 23 actually.
 24 MR. HELM: I don't necessarily accept
 25 that she can read my mind.

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1 CHAIRMAN NOBLE: Would it be okay if we
 2 asked you to go now?
 3 MR. HELM: It would be okay if you
 4 asked.
 5 CHAIRMAN NOBLE: We do.
 6 MS. MONTGOMERY: I doubt I would have to
 7 clarify anything you would do, Mr. Helm.
 8 MR. HELM: I bet you will.
 9 CHAIRMAN NOBLE: Now, do you have
 10 additional questions?
 11 MR. HOOD: As of right now, it would be
 12 only a couple, so very brief.
 13 CHAIRMAN NOBLE: And then following
 14 Mr. Burtell, what is the next step in this hearing?
 15 MS. HERNBRODE: Mr. Fuller.
 16 DIRECTOR MEHNERT: Rebuttal case.
 17 CHAIRMAN NOBLE: And as to rebuttal from
 18 the State Land Department, is there anything else that
 19 we could be looking for by way of witnesses other than
 20 Mr. Fuller, which I believe is all you're expecting to
 21 do, Joy?
 22 MS. HERNBRODE: That's all I'm expecting
 23 to do.
 24 CHAIRMAN NOBLE: Mr. Helm.
 25 MR. HELM: Yes, sir.

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1 worked on since September --
 2 CHAIRMAN NOBLE: Mr. Burtell, you're a
 3 little soft.
 4 THE WITNESS: There are a few projects
 5 that I would add to it, but other than that, it is
 6 pretty up-to-date.
 7 BY MR. HELM:
 8 Q. Okay. Add away.
 9 A. In addition to continuing to work on the
 10 projects that are listed there, the two new projects
 11 that I would add would be an evaluation of a spring
 12 study in Oak Creek Canyon that I did recently and,
 13 also, another project related to water rights in the
 14 Agua Fria area.
 15 Q. And when did you do those studies?
 16 A. Both studies have been between when I did
 17 this in September 2014 to now. Both were earlier this
 18 calendar year.
 19 Q. Okay. Did they result in any published
 20 papers?
 21 A. They were -- one is attorney-client
 22 privileged, and the other was not a report, but working
 23 with a counsel, who's actually in another state.
 24 Q. I am somewhat overwhelmed by the breadth of
 25 expertise that you express in these hearings. I mean

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1 CHAIRMAN NOBLE: I am very worried.
 2 MR. HELM: I'm terrified. I've got to
 3 run this thing.
 4 CHAIRMAN NOBLE: I am very worried for
 5 you. Is someone going to sit next to him and hold his
 6 hand or something? What happened to the yellow pad?
 7 MR. HELM: Oh, no, don't panic. We have
 8 that.
 9 CHAIRMAN NOBLE: Oh, okay. Oh, I just
 10 couldn't see. Okay, we're back in business.
 11 MR. HELM: And we have the book. I'm
 12 going to start with the book. I just wanted to get the
 13 one thing in here first, because the book is the stuff
 14 I actually did before I got here.
 15
 16 CROSS-EXAMINATION
 17 BY MR. HELM:
 18 Q. Mr. Burtell, John Helm for Maricopa County
 19 and Maricopa County Flood Control District.
 20 A. Good afternoon, Mr. Helm.
 21 Q. How are you? Pleasure to see you again.
 22 And let's start off, briefly, have you
 23 reviewed your CV that you've got here, your CV, and is
 24 it up-to-date and accurate?
 25 A. There are a few projects, Mr. Helm, that I've

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1 if I understand it, from what I've heard here, you
 2 claim to at least be an expert in some parts of the
 3 history of Arizona or the history of watercourses or
 4 what have you; fair enough?
 5 A. Oh, I don't think I've ever said, Mr. Helm,
 6 that I'm a historical expert. I'm not a historian.
 7 Q. Then I misheard you in your earlier testimony
 8 here, because I recall hearing something about I'm a
 9 self-taught historian, and I get that from having to
 10 write history about various things when I do reports.
 11 A. Mr. Helm, you must be confusing me with
 12 somebody else. I don't think I've ever -- and, please,
 13 we can go back to the transcript. I don't think I've
 14 ever called myself a self-taught historian.
 15 Q. Well, my recollection is you did. I do have
 16 a note on it. But I'll just wait and leave that until
 17 it's time to write something up.
 18 A. Sure.
 19 Q. And you will agree now that you don't claim
 20 to have any particular expertise in history or the
 21 analysis that historians do when they're looking at
 22 something to try and render an opinion on; is that
 23 fair?
 24 A. What is fair, Mr. Helm, is, as Mr. Fuller and
 25 other hydrologists that have testified in these

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1 proceedings, I have used historical accounts to help
 2 further my analysis of the task at hand.
 3 Q. But they're historical accounts written by
 4 somebody else?
 5 A. Sometimes reading a newspaper article that is
 6 of a historical nature.
 7 Q. We'll go a lot faster if you'll answer my
 8 question.
 9 My question was they were written by somebody
 10 else, true or false?
 11 A. What was written by somebody else?
 12 Q. The accounts, the historical accounts you're
 13 referring to.
 14 A. Yes.
 15 Q. Good enough. See how fast that goes when
 16 you --
 17 A. But, Mr. Helm, I'm going to ask you questions
 18 if I don't understand what you're asking.
 19 Q. That's perfectly acceptable, and I'll try and
 20 explain it to you.
 21 A. That's great.
 22 Q. Okay. Then let me just straighten some other
 23 things along in this breadth of things.
 24 You have stated that one of the big obstacles
 25 to being able to boat on the Verde River are beavers.

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1 So my question to you in that respect is are you a
 2 zoologist?
 3 A. I am not a zoologist.
 4 Q. Are you an expert in beavers of any form?
 5 A. I am not an expert in beavers in any form.
 6 Q. Are you an expert in wildlife?
 7 A. I'm not a biologist.
 8 Q. Okay. So your observations regarding beavers
 9 then, again, are either from you reading some book that
 10 you're relying on or it's just your opinion as John Q.
 11 Citizen, not an expert?
 12 A. I would not characterize it that way.
 13 Q. How would you characterize it?
 14 A. I would characterize it similar to
 15 Mr. Fuller, who I don't believe is a biologist, who
 16 also talks about historic boats. Is he a historian? I
 17 don't believe so. And yet his PowerPoints include
 18 discussions of historic boats.
 19 Q. Okay. Let's talk just a minute about this.
 20 Did you have any other experts that worked
 21 for you or worked on your studies?
 22 A. No.
 23 Q. So you didn't have any wildlife people who
 24 worked on your studies to give you opinions on beavers,
 25 right?

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1 A. That's correct.
 2 Q. You didn't have any historians who worked on
 3 your studies to give you opinions on history?
 4 A. I had the benefit of reading other
 5 historians' reports.
 6 Q. Nobody that worked under you?
 7 A. No.
 8 Q. Okay. You're aware that Mr. Fuller is the
 9 chief witness for the State here, right?
 10 A. Yes, he is.
 11 Q. You're aware that a number of other experts
 12 participated in drafting the State's positions; fair
 13 enough?
 14 A. I disagree with that.
 15 Q. How about Mr. Pearthree? He didn't work for
 16 the State?
 17 A. He did work for the State.
 18 Q. Okay. So he's another expert, right?
 19 A. That's correct.
 20 Q. Okay. So how do you disagree with
 21 Mr. Pearthree working for the State?
 22 A. No, that's not what I disagree with.
 23 Q. What do you disagree with?
 24 A. Well, Mr. Fuller had in his PowerPoint
 25 presentation additional documents that he said that he

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1 was presenting above and beyond his report; but he
 2 didn't provide us the ability of knowing whether that
 3 was based on a historian doing that analysis. We don't
 4 know where that additional information came. So you
 5 just asked me --
 6 Q. You, as the we, are represented here -- or
 7 you were employed by an attorney to come here and
 8 speak, right?
 9 A. That's correct.
 10 Q. And that attorney has had the privilege to
 11 cross-examine Mr. Fuller, hasn't he?
 12 A. Yes.
 13 Q. Did you point out to that attorney that
 14 Mr. Fuller hadn't told you who did a topic?
 15 A. We certainly discussed, when we received his
 16 PowerPoint before his presentation, that it was unclear
 17 to us where certain pieces of information were coming
 18 from.
 19 Q. And at least as we stand here today, the
 20 attorney that represents your client had an opportunity
 21 to ask Mr. Fuller where that information came from if
 22 he wanted to know it, didn't he?
 23 A. And I believe he did.
 24 Q. Okay. Well, then so what's our problem here?
 25 You know where the information came and you know that

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1 there were a number of other sources who worked for the
2 State of Arizona in preparing those reports; fair?

3 A. Again, I don't know if we know where some of
4 those sources of information came.

5 Q. Well, you could have had the attorney ask,
6 and you would have known if he had; fair enough?

7 A. Is -- fair enough.

8 Q. You have said any number of times that you
9 don't know where something's coming from. I understand
10 that.

11 A. Sure.

12 Q. And my problem with that is if you didn't
13 know and it was something you needed to know, you had a
14 methodology to find out about it right here; fair
15 enough?

16 A. Fair enough.

17 Q. Okay. Okay, so now I think we've eliminated
18 historian and wildlife biologist or beaver expert; fair
19 enough?

20 A. Those are all characterizations that you said
21 that I may or may not be.

22 Q. Well, I understand that. I just want to make
23 sure that you will admit that you're not an expert in
24 beaver habitat, in how beavers build their habitat on a
25 stream, how beavers lived, whether a beaver dam can

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1 cross-examine me tomorrow.

2 Q. That's a fair assumption.

3 A. I will get the page where there was a
4 photograph taken and included in this report, which was
5 included in this USDA report, where there was a beaver
6 dam along the river. I thought I had it flagged, and I
7 apologize, and I see that I don't, so...

8 Q. Okay. And what report is that in?

9 A. Again, Freeport 40.

10 Q. I get that. What's the name of it I mean?

11 A. "Synthesis of Upper Verde River Research and
12 Monitoring."

13 Q. By whom?

14 A. USDA.

15 Q. Written when?

16 A. December 2012.
17 Excuse me. Let me write down that as a
18 homework assignment.

19 Q. Now, when you make comments about, and we'll
20 stick with beavers for a second here, in your report
21 and how they clog up the river so people can't travel
22 down it, do you have those comments specifically
23 referenced to the document, the historical document,
24 that you read that indicated that?

25 A. Yes. In my -- I'm sorry, Mr. Helm. My mind

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1 really clog up a big river or not?

2 A. I am not a biologist.

3 Q. Okay. And you're not an expert on habitat?

4 A. I'm not an expert on habitat.

5 Q. Okay. Good enough.

6 And, in fact, have you ever personally gone
7 onto the Verde River and found a beaver hutch?

8 A. I have not.

9 Q. Okay. So you've never physically witnessed
10 the way beavers might clog up the Verde River?

11 A. I have seen pictures.

12 Q. Okay. You've never personally seen one?

13 A. Personally, no. Pictures, yes.

14 Q. I understand. When were the pictures taken?

15 A. I have a document that was prepared and
16 entered into evidence. Mr. Bjalmanson, I believe,
17 spent a great deal of time discussing this.

18 It's Freeport 40, Mr. Hood.

19 MR. HOOD: Freeport 40, for the record,
20 is a tab behind X054.

21 THE WITNESS: If you give me a second,
22 Mr. Helm.

23 BY MR. HELM:

24 Q. Sure.

25 A. I will -- I'm assuming you're continuing to

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1 was wandering. I apologize.

2 In my Table -- I should have this down better
3 by now. In my Table 3 of my report, I list the
4 following pieces of information: The date, the
5 description of the account of a beaver dam, the source,
6 that is, who said or who made the account. Sometimes
7 it's the same person, sometimes it's not, as the
8 reference. And then I have a reference column and then
9 some comments that I added regarding the source.

10 I think your question was do I provide a
11 clear indication of where I found the information.

12 Q. In other words, just as a general statement,
13 somewhere in there you say that beaver dams clogged the
14 upper Verde and, therefore, made it impassable and not
15 boatable, or something to that effect.

16 A. You are, I believe, mischaracterizing what I
17 said.

18 Q. Okay. Did you not say that beaver dams were
19 an obstacle to navigation in the upper Verde?

20 A. If you would like, I could turn to the
21 paragraph where I provide conclusory remarks regarding
22 beaver dams, if that would be of help.

23 Q. Fire away.

24 A. Paragraph 57.

25 CHAIRMAN NOBLE: Page?

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1 THE WITNESS: Oh, excuse me, Page 13,
2 Paragraph 57.

3 Should I read it, Mr. --

4 BY MR. HELM:

5 Q. Oh, absolutely, because it will take me a
6 long time to get to it, the way I run these things.

7 A. Sure.

8 "Given the occurrence of beaver dams along
9 the Verde River both historically and recently and how
10 quickly beavers can repair their dams following floods,
11 such conditions would have posed an ongoing impediment
12 to boat travel prior to stream development. The
13 occurrence of these dams may also explain, at least in
14 part, the lagoons noted by early travelers and settlers
15 in the region. Removal of beaver from the river
16 through trapping would eventually have caused the pools
17 formed behind their dams to drain and locally lowered
18 stream levels."

19 Q. Okay. I didn't hear one reference to any
20 citation in there. Do you have a footnote and you just
21 didn't mention it as you were going through it?

22 A. That was Paragraph 57 that proceeded
23 Paragraphs 55 and 56. 55 was the Table 3 that we just
24 went through that had, for every one of the accounts by
25 segment, where I got the information. Paragraph 56,

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1 which came before what I just read, is an occurrence of
2 recent beaver dams, and I provide two sources of
3 information there, Mr. Helm; a quote from a journalist
4 who lives in the Camp Verde area, Steve Ayers, and his
5 citation is provided there and a full reference in my
6 references as to the occurrence of active beaver dams
7 in Segment 1; and then I also include additional
8 information regarding the professor, one Walt Anderson,
9 and what he saw regarding a beaver survey he completed,
10 and that's in Appendix E of my report.

11 So I believe I've tried to do a pretty fair
12 job in the two paragraphs immediately preceding what I
13 read. That is -- maybe that's the question. I don't
14 know what your question is, but the basis of my
15 Paragraph 57 is Paragraphs 55 and 56.

16 Q. My question is simply this: You've obviously
17 read several things in here, and I don't know which
18 item that you have listed in your Table 3 applies to
19 which statement in Paragraph 57, which is the paragraph
20 that you're referring to me as your principal paragraph
21 on beavers.

22 So either what you're telling me is, Helm, go
23 read all of this and somewhere in there you'll find
24 this, or you could give me a reference to which one of
25 the ten or so references you have in here that applies

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1 to Page 57.

2 A. Mr. Helm, in this situation I did not look at
3 any single account in Table 3 as the basis of
4 Paragraph 57.

5 Q. Okay. So that's your synthesis of what you
6 think these ten historical documents say; is that
7 right?

8 A. If that's a question --

9 Q. Yes.

10 A. -- should I respond?
11 Paragraph 57 is my conclusion based on
12 Paragraph 55, which is a listing of historic accounts,
13 and Paragraph 56, which is more recent accounts of
14 beavers.

15 Q. And that's your conclusion as a
16 hydrologist/geologist?

17 A. Yes.

18 Q. Not as a historian?

19 A. No.

20 Q. Not as a zoologist or somebody who works with
21 beavers?

22 A. And I'm not sure, Mr. Helm, a zoologist is
23 going to tell you whether or not a beaver dam is going
24 to be an impediment to a boat.

25 Q. Okay. We've heard some testimony here that

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1 it's not, haven't we?

2 A. By hydrologists, who are not -- I mean by
3 hydrologists that are not biologists. So I guess it's
4 left to the Commission where you've got a bunch of
5 hydrologists making comments about beavers and none of
6 us are biologists.

7 Q. But some of them are boaters, aren't they?

8 A. Not historic boaters. They're current
9 recreational boaters.

10 Q. Okay. Would you consider -- and, I'm sorry,
11 I've forgotten the fellow's name that was here just
12 before you and testified.

13 A. Mr. Dimock.

14 Q. Yes. You don't consider the fact that he's
15 gone through these things with a reconstructed boat?

16 A. But he's never gone on the Verde River with a
17 reconstructed boat. He went on the Verde River with
18 kayaks and canoes.

19 Q. Okay. So at any rate, it's your synthesis,
20 as a person who has no actual experience dealing with
21 beavers; is that fair?

22 A. No actual experience with beavers.

23 I am not a biologist. I have seen beaver
24 dams. I have seen beaver. I'm not sure how else to
25 respond.

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1 Q. On the Verde River? Unless I specify
 2 something else, when I make these questions to you,
 3 I'll be asking you in the context of the Verde River,
 4 all right?
 5 A. Okay.
 6 Q. Do you understand that when we start out?
 7 A. That would help.
 8 Q. Okay. So you haven't seen a beaver house on
 9 the Verde River?
 10 A. I've seen a photograph of a beaver, as
 11 indicated in this USDA document that I have as homework
 12 tonight.
 13 Q. At least you're going to attempt to show us
 14 one?
 15 A. A photograph of one.
 16 Q. Yes.
 17 A. Yes.
 18 Q. But in real life, you haven't been out there
 19 and saw a beaver swimming in the Verde, have you?
 20 A. I will let you and the Commission look at the
 21 photograph and see if it's of value.
 22 Q. Okay. And does that photograph show the
 23 beaver and a beaver dam?
 24 A. As I recall, it is a beaver dam and impounded
 25 water upstream of it.

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1 Q. Oh, we're going to talk a lot about what you
 2 wrote, so don't get depressed now or you'll really be
 3 depressed by the time I get done.
 4 A. I wouldn't get depressed, Mr. Helm.
 5 Again, Paragraph 55 refers to Table 3. I say
 6 on that paragraph that, at the end of that first
 7 sentence, "beaver dams were common along Segments 1, 2
 8 and 5." I don't know quite how more clear I could have
 9 said that.
 10 Q. You didn't say that they weren't common or
 11 that they did not exist on 3 and 4, did you?
 12 A. I did not.
 13 In Paragraph 56, I then proceed to say
 14 "Beaver dams are still frequent along Segment 1 today."
 15 And, no, but perhaps it would triple the length of my
 16 document if, every time I say something that is, I have
 17 to then proceed to say everything that it's not.
 18 Q. Sure. How do you know --
 19 A. Which becomes a bit ludicrous.
 20 Q. How do you know they're still frequent on 1?
 21 A. Because -- I'm assuming you have read my
 22 report closely, and if you would like, we can spend the
 23 time going through. As I think I previously indicated,
 24 a reporter, Steve Ayers, wrote an article about a
 25 professor who did a survey of beaver in Segment 1; and,

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1 Q. Do you recall what segment it's in?
 2 A. Segment 1.
 3 And, Mr. Helm, if I could interrupt, if it
 4 helps you, since you seem to be confused as to how I
 5 wrote Paragraph 57, to be clear, I'm only talking about
 6 the occurrence of beaver that I found historical
 7 evidence in in Segments 1, 2 and 5, and my Table 3 has
 8 headers that says Segment 1, Segment 2, and Segment 5.
 9 So if it would help alleviate this confusion that I
 10 seem to have caused you, I did not find evidence of
 11 beavers in Segments 3 or 4.
 12 Q. So can we say for at least Segment 3 or 4
 13 beavers are not an impediment to navigation?
 14 A. I did not find evidence of beaver dams in
 15 that area. Maybe such evidence exists and I didn't
 16 find it.
 17 Q. From what you found, would you say that
 18 beavers are not an impediment to navigation in
 19 Segments 3 and 4?
 20 A. Based on the evidence I looked at, yes.
 21 Q. Is there anywhere in your report where you
 22 specifically state that, other than by the very fact
 23 that Segment 3 and 4 are not mentioned in your table?
 24 A. I guess we need to go back and talk about
 25 what I wrote again.

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1 in addition to that, I include pages from Professor
 2 Anderson's survey in Attachment E. I'm not sure what
 3 more I can say to be responsive to your question.
 4 Q. Okay. I just asked you how you did it, and
 5 you've responded. We'll do a lot of that, okay.
 6 A. I'm looking forward to it, Mr. Helm.
 7 Q. Trust me, I went through every section, and
 8 I've got little questions, if I can operate this thing,
 9 on almost every section of your report, but I want
 10 to --
 11 A. I would expect nothing less from you,
 12 Mr. Helm.
 13 Q. Thank you.
 14 Now, you do claim to be an expert in
 15 hydrology?
 16 A. I am trained as a hydrologist.
 17 Q. Are you an expert? Yes or no?
 18 A. I am being -- I'm serving in this capacity as
 19 an expert hydrologist.
 20 Q. Do you claim to be an expert geologist also?
 21 A. I am a registered geologist.
 22 Q. Do you claim to be an expert geologist?
 23 A. In this situation my geologic background
 24 really wasn't being called into play, but I do consider
 25 myself to be an expert in the field of geology.

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1 Q. Thank you. A simple yes would have worked,
 2 right?
 3 A. But, again, your questions sometimes lead me
 4 to wonder. I don't always understand what you're
 5 asking.
 6 Q. And it's perfectly fair to tell me, if you
 7 don't understand, please rephrase it or I don't
 8 understand what you're saying. But I thought, you
 9 know, are you an expert in geology was a pretty
 10 straightforward, not misleading question, and I'm sorry
 11 you didn't get it.
 12 A. Fair enough. Fair enough.
 13 Q. So what professional licenses do you hold?
 14 A. I'm a registered geologist.
 15 Q. State of Arizona?
 16 A. State of Arizona.
 17 Q. Anywhere else?
 18 A. No.
 19 Q. You're not a P.E.?
 20 A. I'm not a registered engineer, no.
 21 Q. Do you claim to have any particular expertise
 22 in the field of law?
 23 A. Oh, certainly not, Mr. Helm.
 24 Q. You're not a lawyer, obviously, right?
 25 A. Never would proclaim to be one.

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1 A. Based on those cases, I believe I was given
 2 criteria in those cases that were useful for me in
 3 preparing my declaration.
 4 Q. Do you think that those two cases set out all
 5 of the criteria the federal judiciary uses?
 6 A. That's not the task that was given to me.
 7 Q. What task was given to you?
 8 A. Can I read Paragraph 5? Would that help to
 9 answer?
 10 Q. I don't have any idea whether -- I just want
 11 you to answer my question. What task was given to you?
 12 A. Paragraph 5 is a response to your question.
 13 Q. Very good.
 14 A. "In evaluating the navigability of the Verde
 15 River, I am mindful that ANSAC intends to receive,
 16 review, and consider evidence on two issues: The
 17 navigability or nonnavigability of the Verde River in
 18 its ordinary and natural condition, quote/unquote,
 19 prior to the State of Arizona's admission to the United
 20 States on February 14th, 1912, consistent with the
 21 Arizona Court of Appeals decision in State v. Arizona
 22 Navigable Stream Adjudication Commission," and then the
 23 citation, which I won't bore us all with; "and (b)
 24 segmentation of the Verde River consistent with the
 25 United States Supreme Court's decision in PPL Montana."

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1 Q. Surprisingly, lawyers I think will admit that
 2 there are some people who can be an expert in areas of
 3 the law who aren't lawyers, all right, and I just want
 4 to establish that you don't claim to be one of those
 5 folks either?
 6 A. I'm not one of those people.
 7 Q. Okay. Do you claim to be an expert in
 8 determining whether a stream or river is navigable for
 9 title purposes under the standards set forth by the
 10 federal judiciary?
 11 A. I believe in this proceedings I would say
 12 yes.
 13 Q. Okay. Tell me each case you have read
 14 authored by one of the courts in the federal judiciary
 15 that give you this expertise.
 16 A. As I indicate in the beginning of my report,
 17 Mr. Helm, for the purpose of preparing my declaration,
 18 I focused on two court cases. I focused on -- and I
 19 state this in Paragraph 5. I read PPL Montana and
 20 State v. Arizona. Those are the two cases that I
 21 studied and used, and I think I state that as clearly
 22 as I thought I could in Paragraph 5.
 23 Q. And having studied those two cases, you now
 24 claim to be an expert on how the federal judiciary goes
 25 about determining navigability?

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1 Q. Okay, you studied those two cases. And for
 2 purposes of your testimony here, based on those two
 3 cases, you claim to be an expert in federal judicial
 4 determinations of navigability for title purposes in
 5 the United States?
 6 A. I claim to be an expert in providing
 7 information that would be relevant to these two tasks
 8 before me. So perhaps I should restate, and when you
 9 say federal judiciary, perhaps I need to ask you what
 10 exact -- are you asking me if I'm an expert on all
 11 navigability case law? I would say no. But I'm not
 12 sure what you're asking me.
 13 Q. Well, you know, you are claiming to be an
 14 expert in the law that governs, for title purposes,
 15 navigability.
 16 A. Mr. Helm, no disrespect. I just said that I
 17 am an expert, in my opinion, on providing the
 18 Commission the information necessary related to those
 19 two court cases.
 20 Q. And if those two court cases are not all the
 21 information that the Commission needs to make its
 22 determination, then your report is simply restricted to
 23 those two cases, and we should not pay any attention to
 24 it for any of the criteria set out in any other case?
 25 A. Mr. Helm, I will leave that for you to brief

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1 and for the Commission to take the benefit or the lack
2 thereof of the information that's in my report.

3 Q. You didn't write your report for any
4 compliance with anything but those two cases; is that
5 fair?

6 A. I believe that's what I just said.

7 Q. I just want to make sure I understand.

8 Within that context, tell me what the
9 standard for a navigability determination is as set out
10 in those two cases.

11 A. There are a series of factors.

12 Q. All right. I asked you to tell me what they
13 were. Would you tell me?

14 A. Okay. One is a temporal factor, if you will,
15 and that is on or before statehood. Also is temporal,
16 if you will, in that streamflow conditions should be
17 looked at in their ordinary and natural condition.

18 Another factor to consider is the boats that
19 are being used, if they are used, should be
20 meaningfully similar to the boats that were available
21 for commerce at the time of statehood.

22 Another factor that comes to mind is that one
23 is to look at both the actual occurrence of the river
24 in its use as a highway for commerce or, lacking that,
25 its susceptibility for commerce. So both actual use,

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1 which I believe the court has indicated is most
2 persuasive, versus, lacking that, its susceptibility.

3 So I'm trying to -- I apologize, Mr. Helm.
4 Try to put yourself in my shoes. I'm trying to
5 consider all of the factors.

6 Also, the person using the river, again, is
7 using it as a highway for commerce.

8 Q. Okay. So with regard to that last item --

9 A. Oh, and, I'm sorry, one more --

10 Q. Sure.

11 A. -- to complete, is a spatial factor, and that
12 is we are to look at that segment of the river that is
13 relevant for the proceedings; thus, the segmentation
14 factor. So I believe I've got them all.

15 Q. Is commerce a requirement?

16 A. The river is to be looked at, I believe,
17 based on The Daniel Ball test, as a highway for
18 commerce.

19 Q. If we have massive number of boats using a
20 river, but none of it's for commerce, would that
21 eliminate the use of that river for a navigability
22 determination, to not consider those boats?

23 A. I would need to know a lot more about all
24 these massive boats of which you're referring.

25 So you're posing a hypothetical to me.

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1 Q. Absolutely. I'm trying to find out what your
2 standard is to make a determination of navigability for
3 title purposes. And you've told me that commerce, in
4 some form or other, is a requirement. Have I got that
5 right?

6 A. That's correct.

7 Q. And so now I want to know what constitutes
8 commerce in your mind. Maybe that's an easier way of
9 putting it.

10 A. Use for trade and travel. And I know that
11 you disagree, I believe, with at least what's stated in
12 PPL Montana where it's trade and travel. Use of the
13 river for trade and travel related to someone's
14 livelihood.

15 I certainly am cognizant of the fact that
16 someone using a river for personal business might also
17 constitute commerce, but it would still be for their
18 livelihood. As I view it, Mr. Helm, and I'm sure you
19 disagree vehemently, someone on a hunting trip, I don't
20 consider that necessarily is for their livelihood. So
21 a hunting trip would be outside the realm of what I
22 would consider the use of the river for commerce.

23 Q. It has to be something more than somebody
24 getting in a boat at Point A and going to Point B,
25 traveling down the river?

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1 A. I'm not sure if there was a question there,
2 but I'll again say the use of the river as a highway
3 for commerce means that the person using it is using it
4 for their livelihood. And, again, that is one of many
5 factors that would be considered.

6 Q. So the travel on the river must be related to
7 the person's livelihood who's doing the traveling?

8 A. I believe that's -- yes, that would be an
9 important factor for a Commission to consider. Not by
10 itself, but a factor.

11 Q. And that's a factor that you considered in
12 making your determination?

13 A. And I'll let you and the Commission decide
14 whether I made the right call or not.

15 Q. I understand that. But you do admit to
16 having used that specific factor in making your
17 determination?

18 A. I think I just said that, yes.

19 Q. I didn't think you did, but that might be
20 just my hearing. I'm getting old.

21 All right. Now, you mentioned, also, that
22 you need to make a determination based on the ordinary
23 and natural condition of the stream, right, or the
24 river?

25 A. Yes.

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1 Q. Okay. So the first thing I need you to do
2 for me is to define what you understand the term
3 ordinary means.

4 A. Ordinary would be -- and I will use the words
5 of State v. Arizona, and they are actually --

6 Q. Let me stop you just for one second.
7 Ordinary as you applied it in making your determination
8 in this matter.

9 A. Yes.

10 Q. Fair enough.

11 A. That's what I was -- that's where I was
12 heading.

13 Q. Just wanted to make sure.

14 A. If you look at Footnote (a), I prepared my
15 report with that definition of ordinary and natural. I
16 can read it or you can refer to it, whatever you would
17 prefer.

18 Q. Takes me a while to get back up to the top of
19 your report. I'm trying to do it. So maybe why don't
20 you read it to me.

21 A. Sure, sure.

22 "The Arizona Court of Appeals characterized
23 ordinary flow conditions as, quote, usual, absent major
24 flooding or drought, and natural flow conditions as
25 without manmade dams, canals or other diversions."

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1 Q. Okay. Did they indicate that they must be
2 considered as separate elements?

3 A. I believe in this decision it's an and, but
4 you're probably going to tell me it's an or.

5 I do know that PPL Montana is and; and I
6 believe the governing legislation, the ARS, it says
7 and.

8 Q. Okay. And it says and in here. But in
9 reading this, is there any doubt in your mind that the
10 court in Winkleman required the Commission to make a
11 separate determination for ordinary and a separate
12 determination for natural, and they could not equate
13 one to the other?

14 A. Mr. Helm, I'm not a lawyer, so I'm not even
15 going to try to guess what the Winkleman court was
16 suggesting or anything else.

17 Q. Good enough. Then this will be fairly simple
18 for me.

19 A. Sure.

20 Q. You did not make a separate determination of
21 what the Verde River would look like as ordinary as
22 defined by the Winkleman court; fair enough?

23 A. I characterized it based on the Court of
24 Appeals' definitions that I read.

25 Q. You did not make a separate determination for

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1 ordinary?

2 A. I considered both ordinary conditions and
3 natural conditions.

4 Q. Together?

5 A. Together, yes.

6 Q. I can't find a place in your report where you
7 go, heading, "Ordinary Condition of the Verde River,"
8 and then you write that up as that is defined by
9 Winkleman; fair enough?

10 A. Okay.

11 Q. Okay?

12 I also can't find the same deal for natural,
13 right? You didn't do a section where you describe what
14 the natural conditions of the Verde River?

15 A. I would disagree with you there.

16 Q. Okay. Where do we define or find the section
17 where you did the natural conditions as opposed to
18 natural and ordinary?

19 A. In one of my tables, at least with regard to
20 the flow reconstruction, I did both.

21 Q. Together?

22 A. Together.

23 Q. Right. I'm looking for separate. If you
24 didn't do --

25 A. Looking for separate.

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1 Q. -- them separate, I don't want to know about
2 it.

3 A. With regard to separate, the analysis that I
4 made of irrigation diversions, that would be an attempt
5 to assess the ordinary conditions of the river, and
6 that was done and tabulated by itself, and one could
7 look at that by itself.

8 Q. Do you tell us anywhere in your report that
9 that's what that is?

10 A. I think the table is explanatory, and the
11 text that goes with it; that it's an attempt to
12 tabulate the occurrence of historic agriculture for the
13 purposes of determining if that has an effect on the
14 navigability of the river.

15 Q. Which table is that?

16 A. That is Table 2.

17 Since one of the factors, as we've just
18 discussed, is ordinary, and that is without manmade
19 diversions, Table 2 is titled "Historic Irrigation
20 Along and Near the Verde River above Fort McDowell."
21 So I list the irrigated acres there, and so if you're
22 looking for a case where I have information that I'm
23 presenting that independently provides an assessment of
24 one of the two, ordinary or natural, this would be an
25 example of that.

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1 Q. Okay. And where in Table 2 do you tell us
2 that is this an assessment of the ordinary condition of
3 the stream?

4 A. Give me a second.
5 In Paragraph 29 I summarize the findings from
6 Table 2, and I say towards the end of that paragraph,
7 and this is on Page 6 --

8 Q. Okay. If I go back up there from Table 2 to
9 Page 6, it will be another 10 minutes, so tell me what
10 it says.

11 A. Sure, sure. I would like to help.
12 "As discussed further in Section VII, it is
13 unlikely that even this level of stream depletion would
14 have substantially changed the depth of the stream and
15 impacted its susceptibility to navigation."

16 Q. Okay. So that doesn't say anything about or
17 use the word ordinary, does it?

18 A. The susceptibility to navigation should be
19 considered under ordinary and natural conditions.

20 Q. Do you say that anywhere in your report; that
21 when you're talking about the susceptibility, it means
22 susceptibility under ordinary conditions?

23 A. Again, Mr. Helm, going back to the task that
24 was before me, my task was to review the conditions of
25 the Verde River consistent with those two court cases.

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1 And the one court case, again, talked about
2 characterizing the ordinary flow conditions and the
3 natural flow conditions.

4 So I believe the task that the Commission
5 gave me and gave all of us here, including counsel, was
6 to look at the evidence, receive, review and consider
7 evidence on those two issues, and that first issue is
8 ordinary and natural. And I will leave it to you as to
9 whether I did that fairly or not.

10 Q. All right. Well, let me just ask you a
11 question or two about Table 2 that you're telling me is
12 the ordinary reconstruction, and you have it assessed
13 by year; is that fair?

14 A. This is a table that is attempting to look at
15 what type of irrigation was occurring and associated
16 streamflow depletions.

17 Q. I get that. But you say it reflects the
18 ordinary condition?

19 A. It is useful in determining what the ordinary
20 flow condition is. It's a table that's trying to
21 figure out how much streamflow depletion is associated
22 with so many irrigated acres, so...

23 Q. Okay. And during the years that you have set
24 out there, did any floods take place?

25 A. Did any floods take place.

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1 I would believe that there would have been
2 floods, sure.

3 Q. Okay. And is there anywhere in Table 2 where
4 you show me where you eliminated the impact of the
5 flood in your calculations regarding surface water
6 diversions?

7 A. Again, these were diversions related to
8 irrigation. This wasn't an attempt to try to evaluate
9 flood conditions. I do that elsewhere in my report.

10 Q. Okay, well, they don't stop irrigating just
11 because there's high flow going down the river, do
12 they?

13 A. Well, if it was associated with a rain event,
14 they might cut back on their irrigation at the time.
15 If it was a monsoonal storm and they just got a bunch
16 of rain dumped on their field, perhaps they wouldn't
17 irrigate as much. I certainly didn't evaluate that.

18 Q. All right. So this table doesn't make any
19 distinguishing assessment of drought or flood as it
20 would impact irrigation; is that fair?

21 A. This table does not. Elsewhere I do.

22 Q. Now, as part of the natural part of
23 evaluating a river, floods and droughts are part of it,
24 right?

25 A. Sure. That's correct, yeah.

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1 Q. And in order to be ordinary, you've got to
2 take floods and drought out, right?

3 A. Yes, that's correct. Sure.

4 Q. And this table doesn't take the impact of
5 floods and drought out of your assessment?

6 A. Again, this table, you wanted an example
7 where I just looked at one or the other. So this was a
8 table that addressed one of the two, which is the
9 natural side.

10 Q. It includes the other side. Oh, no, this
11 table -- maybe I misunderstood you. I thought you were
12 telling me this table addresses the ordinary side?

13 A. No, natural, because it's related to
14 irrigation. So we're looking at something -- I mean
15 natural meaning absent the effects of man or his
16 diversions.

17 Q. Right.

18 A. So if I did, I misspoke.

19 Q. I'm sorry. I understood it to be just the
20 opposite. One of us goofed up.

21 A. Yeah, and I apologize. It's probably me.

22 But, again, historic irrigation is definitely
23 under the header of a cultural depletion, which, based
24 on that definition, and I'll just read it again for --

25 Q. You don't need to read it again.

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1 The thing that's clear now, and just let me
2 reverse the question --

3 A. Okay. Yeah, sure.

4 Q. -- is that this Table 2 includes the impacts
5 of flood and drought?

6 A. This table was not intended to look at the
7 conditions of floods and droughts. So I would
8 disagree, because it simply has nothing to do with
9 floods and droughts.

10 It was an attempt to try to capture potential
11 nonnatural flow conditions; that is, natural flow
12 conditions are defined without manmade dams, canals or
13 other diversions. This is a table of historic
14 irrigated acres and associated diversions. So this was
15 an attempt to try to characterize the degree of manmade
16 diversions, which is one of the two things you asked me
17 to look at.

18 Q. Sure. And let me flip it a little because we
19 talk about floods a lot.

20 A. Sure.

21 Q. But the other hooker in that is drought,
22 isn't it?

23 A. And as I think I indicated, I separately
24 addressed drought elsewhere, floods and drought.

25 Q. But would they irrigate more in a drought?

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1 A. Would they irrigate more in a drought.
2 That would be reasonable to conclude.

3 Q. And you don't have any assessment of whether
4 there was a drought that occurred between 1864 and
5 1883, correct?

6 A. What this is, Mr. Helm, is an estimate of
7 diversions for irrigation based on irrigated acres.
8 So, yes, there could be times when these diversions
9 could be quite a bit less, actually, if it was a wet
10 year. You might recall, what I used was what I
11 considered to be more typical diversions. So, again,
12 there could be some very wet years where they would be
13 diverting less and maybe some very dry years where they
14 would be diverting more, but I tried to avoid those
15 extremes and was trying to capture something more
16 typical.

17 Q. How did you do that?

18 A. The sources that I got this from, Hayden
19 provided me the acreage, but the diversions came from,
20 and I indicate there, both Hancock and Hayden.

21 And when you go to the Hancock and Hayden
22 report, they had maximum diversions of these ditches,
23 and I believe they used the word ordinary or typical
24 diversions in the ditches. So I tried to focus in on
25 the ordinary diversions, again, thinking that that was

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1 the task before me.

2 Q. Okay. So if it's the ordinary diversions,
3 that would not be a natural condition, would it?
4 Wouldn't that be an ordinary condition?

5 A. Any diversions are -- any diversions are a
6 nonnatural condition.

7 Q. I don't understand.

8 In the context of ordinary and natural, what
9 you're saying is any diversion is a nonnatural
10 diversion?

11 A. Again, I apologize, Mr. Helm. Maybe I'm
12 getting tired. But Arizona Court of Appeals defined
13 natural flow conditions as without manmade dams, canals
14 or other diversions.

15 Q. Right.

16 A. So I'm saying that diversions are evidence of
17 nonnatural -- or conditions that would result in
18 nonnatural flow.

19 I apologize. I don't know how else to say
20 it.

21 Q. I'm lost. I mean if these are natural, they
22 didn't have anything to divert them with, right?

23 A. I don't think diversions by their nature are
24 natural.

25 Q. Oh, no, I -- well, sure they are. If you

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1 build a structure out at the river to shove the water
2 off onto your land, that's not a natural condition, is
3 it?

4 A. No.

5 Q. Okay.

6 A. Okay. All right, I apologize. I must -- we
7 must -- I must be misunderstanding.

8 Q. Both of us are very confused, I can see that
9 much.

10 A. And I'm surprised, because I don't know how
11 clearer the title of my table could be, "Historic
12 Irrigation Along and Near the River Above Fort
13 McDowell."

14 Q. And that irrigation comes from a diversion;
15 fair?

16 A. Yes.

17 Q. Wouldn't have it without it?

18 A. Yes.

19 Q. Okay. So these are not natural diversions?

20 A. I think any diversion --

21 Q. Is not natural?

22 A. -- is not natural.

23 Q. Right. Just bear with me. I'm trying to get
24 it figured out.

25 So this does not represent the ordinary

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1 condition prior to man coming along and changing the
2 situation?

3 A. Right, Mr. Helm. I indicated that I used
4 this data to help evaluate what the conditions were in
5 their natural state, and --

6 Q. How do you do that? Explain how you take
7 conditions that are not natural --

8 A. Sure.

9 Q. -- and evaluate conditions natural.

10 A. Sure.

11 What I did, Mr. Helm, is when you look at the
12 estimated streamflow depletion associated with that,
13 which is the fourth column, that's an attempt, in my
14 opinion, to come up with a high estimate of the effect
15 or the impact of irrigating those lands, as to water
16 that would have been taken away from the river.

17 So let's just use, as an example, 1872. I'm
18 saying based on the irrigated acreage that we have, how
19 much water could have been diverted out of the river.
20 If you count for some of that water coming back, I'm
21 suggesting that the water was taking a hit of almost
22 40 cubic feet per second.

23 Q. Okay. So it took 68 out and it put 39 back,
24 is that what I get?

25 A. No, it's not putting 39 -- well, 39, in my

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1 opinion, would -- in my way of trying to overestimate
2 the potential impacts from diversion, that 39 would
3 have to be put back in the river to try to reconstruct
4 the flows as if the diversion did not happen.

5 Q. That's what I just said, I thought.

6 Why, when you're figuring out the amount of
7 water being diverted, don't you just use that number to
8 calculate the diversion, instead of adding back this
9 return flow?

10 In other words, if I know all the -- the
11 amount of water that's being diverted, I add it up, I
12 get the amount of water going down the river, don't I?

13 A. Mr. Helm, again, maybe I misspoke and, again,
14 I apologize if I'm getting tired. But this 39 is the
15 amount that I'm saying I'm estimating as an upper limit
16 of what was depleted from the stream that would need to
17 be added back to the stream to reconstruct its flow.

18 And I think I -- estimated streamflow
19 depletion below irrigated areas. So using my 1872 as
20 an example, the 39 cfs I am saying is otherwise not
21 going to get back to the river. So if we want to try
22 to look at the river in its natural condition, assuming
23 that such a diversion did not occur, you would put that
24 39 cubic feet per second back into the river.

25 Q. Why isn't it a sum of all of the numbers in

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1 your Estimated Surface Water Diversion For Irrigation,
2 Table 3?

3 A. I'm sorry, Table 3 is the beaver dams.

4 Q. No, I mean in Table 2, Line 3, whatever you
5 want to call it.

6 A. I'm sorry, could you state the question,
7 please?

8 Q. Sure. Why isn't the amount of water just the
9 sum of all the water that they diverted? Why do I have
10 to add it back? Aren't you overstating it?

11 A. Oh. Well, as I think -- and I believe you
12 were here, Mr. Helm. The amount of water that's being
13 diverted from the Verde River, based on the records I
14 looked at, are considerably more than the crops need,
15 and I attempted to -- and I could direct you to
16 analyses, including one that was done by Hayden, where
17 he talks about the fact that a considerable larger
18 amount of water is diverted out of the river than could
19 in any way be needed by the crops in their consumptive
20 use.

21 Q. Well, I got all that. But I'm just saying
22 why isn't the sum of all the water being diverted, all
23 right, added to what didn't get diverted, the total
24 amount of water in the stream?

25 A. Yeah, and I think -- I thought I --

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1 Q. Before people started growing things.

2 A. Well, the water that was diverted out of the
3 stream for agricultural purposes, and I spent, I think,
4 quite a bit of time on direct trying to explain, that
5 the Verde Valley was unusual and the amount of water
6 that was being diverted was quite a bit higher than
7 certainly what would be needed by the crops.

8 So when you divert all that water out, if you
9 actually look at the ditches in the Verde area, the
10 majority of the ditches, those ditches run all the
11 time; that is, outside of the few months, usually in
12 the winter, when they don't -- they do maintenance on
13 the ditches, the water is running continuously in the
14 ditches.

15 And so when you look at the actual geometry
16 and the dynamics of those irrigation systems, they then
17 turn water out from the ditches onto the lands.

18 Q. Let me just stop you there.

19 CHAIRMAN NOBLE: That's a good place,
20 that's a good line.

21 MR. HELM: I've got to ask him just one
22 question, because I don't understand it, and I need to
23 understand it, and if we break until tomorrow, it will
24 go away.

25 CHAIRMAN NOBLE: Are you sure?

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1 MR. HELM: No.
 2 CHAIRMAN NOBLE: 9:15 in the morning.
 3 Go ahead, John, one more question.
 4 BY MR. HELM:
 5 Q. You're analyzing this Verde Valley, where the
 6 river, is with crops growing on it, right?
 7 A. Yes.
 8 Q. And they're using up part of that water,
 9 right?
 10 A. Yes.
 11 Q. So aren't you shortchanging the river the
 12 water that was used for those crops if you're out to
 13 determine how much water would have been there if
 14 nobody was growing crops?
 15 A. No, Mr. Helm, I don't believe that I did
 16 that.
 17 Q. Well, and that's what I'm looking for you to
 18 explain to me, how that -- you're saying that we've got
 19 a diversion out here. We put 4 -- the top one says we
 20 divert 7, we put 4 back in. That's after somebody used
 21 up that 3 cfs, right?
 22 A. Mr. Helm, I'm not saying that -- I'm saying
 23 that 7 is taken out, if you want to use 1864, and in my
 24 conservative approach, 4 out of the 7 would not have
 25 otherwise come back into the river and would have been

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1 CHAIRMAN NOBLE: Mr. Burtell, we will
 2 take the unusual step of beginning tomorrow morning's
 3 testimony with an answer, rather than a question.
 4 MR. HELM: Great idea.
 5 THE WITNESS: Okay.
 6 MS. HERNBRODE: At 9:15.
 7 CHAIRMAN NOBLE: 9:15, if you can get up
 8 here.
 9 (The proceedings adjourned at 5:06 p.m.)
 10
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1 lost.
 2 Q. That's only if somebody took it out.
 3 CHAIRMAN NOBLE: John, you keep asking
 4 questions.
 5 MR. HELM: I know it, but that's what
 6 I'm confused with.
 7 MR. HOOD: He's also not letting him
 8 answer the questions, which I have a problem with.
 9 THE WITNESS: I'm just struggling. The
 10 Verde --
 11 MR. HELM: Think about it overnight.
 12 What I'm looking --
 13 CHAIRMAN NOBLE: Thank you. Thank you.
 14 BY MR. HELM:
 15 Q. What I'm looking at -- let me tell you what
 16 I'm thinking about. What I'm thinking is the 7 is what
 17 was in the river, all right --
 18 A. No.
 19 Q. -- before man showed up and needed 3 of it to
 20 grow corn.
 21 A. No, the 7 is not the flow in the river. It's
 22 how much was diverted in the ditch from the river. It
 23 says "Estimated Surface Water Diversions For
 24 Irrigation." So that column is not the flow in the
 25 river. It's the diversions.

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1 STATE OF ARIZONA)
 2 COUNTY OF MARICOPA)
 3 BE IT KNOWN that the foregoing proceedings
 4 were taken before me; that the foregoing pages are
 5 a full, true, and accurate record of the proceedings,
 6 all done to the best of my skill and ability; that
 7 the proceedings were taken down by me in shorthand
 8 and thereafter reduced to print under my direction.
 9 I CERTIFY that I am in no way related to
 10 any of the parties hereto, nor am I in any way
 11 interested in the outcome hereof.
 12 I CERTIFY that I have complied with the
 13 ethical obligations set forth in ACJA 7-206(F)(3)
 14 and ACJA 7-206 (J) (1) (g) (1) and (2). Dated at
 15 Phoenix, Arizona, this 13th day of April, 2015.

Jody L. Lenschow

JODY L. LENSCHOW, RMR, CRR
 Certified Reporter
 Arizona CR No. 50192

I CERTIFY that Coash & Coash, Inc., has
 16 complied with the ethical obligations set forth in
 17 ACJA 7-206 (J) (1) (g) (1) through (6).
 18
 19
 20
 21
 22
 23
 24
 25

David S. Smith

COASH & COASH, INC.
 Registered Reporting Firm
 Arizona RRF No. R1036

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1 BEFORE THE
2 ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

3
4 IN THE MATTER OF THE NAVIGABILITY)
5 OF THE VERDE RIVER FROM ITS) NO. 04-009-NAV
6 HEADWATERS AT SULLIVAN LAKE TO)
7 THE CONFLUENCE WITH THE SALT) ADMINISTRATIVE
8 RIVER, YAVAPAI, GILA AND MARICOPA) HEARING
9 COUNTIES, ARIZONA.)

10 At: Phoenix, Arizona
11 Date: April 2, 2015
12 Filed: April 22, 2015

13
14 REPORTER'S TRANSCRIPT OF PROCEEDINGS
15 VOLUME 15
16 Pages 3225 through 3459, Inclusive

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1 INDEX TO EXAMINATIONS
2 WITNESS PAGE

3 RICH BURTELL
4
5 CROSS-EXAMINATION CONTINUED BY MR. HELM 3230
6 CROSS-EXAMINATION BY MS. MONTGOMERY 3410
7 REDIRECT EXAMINATION BY MR. HOOD 3434

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1 BE IT REMEMBERED that the above-entitled
2 and numbered matter came on regularly to be heard
3 before the Arizona Navigable Stream Adjudication
4 Commission, at Squire Patton Boggs (US), LLP, 1 east
5 Washington Street, Suite 2700, Phoenix, Arizona,
6 commencing at 9:40 a.m. on the 2nd day of April, 2015.

7 BEFORE: WADE NOBLE, Chairman
8 JIM HENNESSY, Vice Chairman
9 JIM HORTON, Commissioner
BILL ALLEN, Commissioner

10 COMMISSION STAFF:
11 Mr. George Mehnert, Director,
12 Legal Assistant, Research Analyst

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1 CHAIRMAN NOBLE: Mr. Mehnert, will you
2 call the roll for the record.
3 DIRECTOR MEHNERT: Commissioner Allen.
4 COMMISSIONER ALLEN: Here.
5 DIRECTOR MEHNERT: Commissioner Henness.
6 COMMISSIONER HENNESS: Present.
7 DIRECTOR MEHNERT: Commissioner Horton.
8 COMMISSIONER HORTON: Here.
9 DIRECTOR MEHNERT: Chairman Noble.
10 CHAIRMAN NOBLE: Here.
11 DIRECTOR MEHNERT: And our attorney is
12 here, and we can go ahead.
13 CHAIRMAN NOBLE: Okay, Mr. Helm, please
14 proceed.
15 MR. HELM: Thank you.

16 CROSS-EXAMINATION CONTINUED
17 BY MR. HELM:
18 Q. We were talking about Table 2 when we came to
19 a grinding halt yesterday. Do you recall that?
20 A. I do.
21 Q. Okay.
22 A. Good morning, Mr. Helm.
23 Q. Good morning.
24 Just to kind of wrap that up, explain to me
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1 specifically the purpose of this table.
2 A. Okay. Give me a second here.
3 The purpose of Table 2 is I introduce it in
4 my report in the section where I'm providing historic
5 accounts, as well as historic needs for transportation
6 in the region; and the purpose for introducing it in
7 that area was to give the Commission some context as to
8 the amount of diversions, cultural impacts, if you
9 will, on the flows in the Verde River.
10 Q. As I understand Winkleman, the timing that
11 you're supposed to be using to determine whether the
12 river is navigable is before the commencement of modern
13 era settlement, correct?
14 A. I believe Winkleman says that we're to look
15 at natural and ordinary conditions prior to statehood.
16 Q. Well, let me read it to you.
17 A. Please.
18 Q. This is Winkleman, Page 242, under
19 Headnote 22, about halfway down the paragraph, it says
20 "Consequently, the River could be considered to be in
21 its natural condition after many of the Hohokam's
22 diversions had ceased to affect the River, but before
23 the commencement of modern-era settlement and farming
24 in the Salt River."
25 This is obviously talking about the Salt, but
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1 it could be the Verde or any other river, right?
2 A. No. The court was not referring to anything,
3 as I understand, other than the Salt when they made
4 those words.
5 Q. All right.
6 A. And I'm not a lawyer, so --
7 Q. So for your vision of the Verde River, what
8 the court wrote about the Salt River in Winkleman, in
9 your mind, is not applicable to a determination of
10 navigability on the Verde?
11 A. Mr. Helm, what you just read to me is in
12 reference to the Hohokam, and there weren't any Hohokam
13 on the Verde. So as I understand the Hohokam, that
14 reference was with respect to their evaluation of early
15 agriculture in the Salt.
16 Q. It says more than that, doesn't it?
17 A. Mr. Helm, I don't have the decision.
18 Q. "Hohokam diversions had ceased to affect the
19 River, but before the commencement of modern-era
20 settlement and farming."
21 Doesn't have anything to do with the Hohokam,
22 does it? That says make your determination before
23 modern-era farming comes into play, right?
24 A. Certainly if what the court was saying,
25 before modern-era farming, I don't see where they say
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1 that applies to the Verde, but if you're going to say
2 that that means it applies to the Verde, then the
3 question is what is the extent of --

4 Q. Let me stop you right there.
5 I'm not saying whether it does or it doesn't.
6 I'm just trying to find out what you think it did and
7 what you did. Did you apply that statement to your
8 work on the Verde?

9 A. Yes, I did.
10 Q. So you made your determinations before
11 modern-era farming commenced?

12 A. Yes.
13 Q. Okay. And so with that in mind, doesn't
14 Table 2 deal with modern-era farming?

15 A. What my Table 2 shows is that, in my opinion,
16 the modern-era farming that was occurring in the upper
17 Verde was not of a significance to affect the
18 navigability.

19 Q. So what you're saying is the cfs that was
20 used up in modern-era farming that is referenced in
21 column three is insignificant to a determination of
22 navigability on the river?

23 A. What I'm saying is that after you account for
24 the water that directly returns to the river through
25 diversions, that the resulting depletion, which I

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1 believe is a high estimate of depletion, would not
2 substantially affect the river and its navigability.

3 Q. In other words, what you're saying is the
4 difference between 77 cfs and 136 cfs in 1883 doesn't
5 affect the flow of the Verde for purposes of a depth
6 determination?

7 A. From the perspective of a depth
8 determination, no.

9 Q. I believe I asked you to give me your
10 definition of ordinary and your definition of natural,
11 and you read me Winkleman, right?

12 A. I did.

13 Q. And then you told me that you evaluated the
14 Verde in accordance with those definitions?

15 A. That is what I attempted to do.

16 Q. And you told me that you did not do it
17 separately for each definition?

18 A. If I did, I misspoke. Mr. Helm, the ordinary
19 is one thing and natural is one thing. They are two
20 different criteria.

21 Q. Okay.

22 A. I looked at both -- if I can finish, please.

23 Q. Sure.

24 A. I looked at both criteria. I looked at the
25 river and evaluated characteristics relevant to its

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1 natural state, and separate and independently I looked
2 at conditions relevant to its ordinary state.

3 Q. Okay.

4 A. I realize they are two distinct things. I
5 looked at them distinctly and separately.

6 Q. Good. Could you show me where your distinct
7 clarification, classification, where you set out the
8 distinct characteristics of the Verde River for the
9 ordinary condition?

10 A. For the ordinary, yes.

11 Q. Separate from the natural condition.

12 A. Certainly.

13 If you go to Table 5, and, Mr. Helm, for the
14 benefit of the Commission and the record, I will again
15 read Footnote (a) from my report, Page 1, that defines
16 ordinary as usual, absent major flooding or drought.

17 And when you go to my Table 5, to look at the
18 river at times when it wasn't either very high flow or
19 very low flow, I looked at two streamflow percentiles.
20 I looked at the 50th percentile and the
21 25th percentile. It was using those percentiles that I
22 was trying to, again, avoid capturing, on the spectrum
23 of different flows and the record that I analyzed, I'm
24 trying to avoid the very high flows and the very low
25 flows; and those statistical percentiles is my attempt

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1 to do just that.

2 Q. Where does it say that in your report?

3 A. If you'll give me a second, I'll find that.
4 It's on Page 17, Paragraph 72.

5 Q. I must be missing it somewhere. I just read
6 it again. I don't see where you say and this
7 determination represents the ordinary flow condition of
8 the river.

9 A. The last sentence of that paragraph,
10 Mr. Helm, says "These percentiles were used for flow
11 reconstruction rather than average flow rates since the
12 latter are less representative of typical flow
13 conditions and skewed by large flow events.

14 Q. Okay. So it's your testimony at this point,
15 what you're doing and what you're referring to in
16 Paragraph 72 would constitute the ordinary condition of
17 the Verde River for purposes of your study, even though
18 it doesn't say one word about that in that paragraph,
19 right?

20 A. Mr. Helm, as I indicated in Paragraph 72, my
21 attempt to establish ordinary flow conditions was to
22 avoid either very low flows or very high flows, as that
23 last sentence indicates. And as I recall the
24 definition that I read of ordinary, "usual, absent
25 major flooding or drought." So on the major flooding,

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1 on the flooding side, and then I'll get to the drought
2 side, with respect to flooding I directed you to
3 Paragraph 72.

4 Q. So Paragraph 72 is only applicable to the
5 flooding issue?

6 A. Right.

7 Q. Okay. And so it doesn't cover the effect of
8 drought on the ordinary condition?

9 A. And for that --

10 CHAIRMAN NOBLE: Could we get an answer
11 to the question first?

12 THE WITNESS: That paragraph covers the
13 flooding, Mr. Helm, yes.

14 BY MR. HELM:

15 Q. But not drought?

16 A. Correct.

17 And I can show you --

18 CHAIRMAN NOBLE: If you would like to
19 elaborate on that answer, that's fine.

20 THE WITNESS: And I will -- I can now
21 then discuss where I address the drought, if that would
22 be to your -- if that would help.

23 BY MR. HELM:

24 Q. Okay. It doesn't say in Paragraph 72, by the
25 way, that this is just applicable to flooding, does it?

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1 A. Floods are a type of large flow event.

2 Q. Will you answer my question? Did you mean
3 it? It's a yes or no.

4 CHAIRMAN NOBLE: I think he's answered
5 the question. Thank you.

6 MR. HELM: He's answered the question
7 that he doesn't want to answer.

8 CHAIRMAN NOBLE: Yes.

9 BY MR. HELM:

10 Q. Okay. I got it.

11 A. Mr. Helm, there are times of the year when
12 the Verde River flows and the flows are quite large,
13 where it is not necessarily a flood event. So what I
14 was trying to say is that a large flow event can
15 include floods, and it also can include a time when you
16 have a lot of snowmelt when the river is running very
17 high. That is not necessarily characterized as a
18 flood, but it's still a very large flow event. So I
19 was just trying to, as best I can, Mr. Helm, I'm trying
20 to get through this too, is be responsive to your
21 questions.

22 Q. Sure. And what I would like you to be
23 responsive to, and I think you have now, is you've told
24 us that when you use that terminology, we can't tell
25 whether you're talking about a flood or just a large

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1 A. "The latter are less representative of
2 typical flow conditions and skewed by large flow
3 events."

4 I believe large flow events would be floods.

5 Q. Okay. So for your purposes, when you use the
6 wording "large flow event," in your report that's a
7 flood of some size?

8 A. Floods --

9 Q. We don't know what size, but --

10 A. Floods are certainly a large flow event.

11 Q. Okay. When I'm reading your report, have I
12 got to distinguish every time I come across the words
13 "large flow event," or do I know that that's you
14 telling me it's a flood event?

15 A. I think a reasonable person, Mr. Helm, would
16 hear the word large flow event and think that a flood
17 is a type of large flow event.

18 Q. I'm probably the most unreasonable person
19 you're ever going to meet, and I need a record, all
20 right, and I'm just trying to get what you mean by your
21 words, not what I mean, not what some mythical third
22 party sitting out in the other room would understand it
23 to mean, but what you meant it to mean.

24 So did you mean, when you used the
25 terminology "large flow event," a flood?

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1 flow event that isn't a flood; fair?

2 A. No, not fair. I'm saying that a large flow
3 event includes floods.

4 Q. So whenever you use that terminology, we can
5 assume you're talking about floods?

6 A. Floods or --

7 MR. HOOD: Mr. Chairman, he's answered
8 it seven different ways.

9 CHAIRMAN NOBLE: Mr. Helm.

10 MR. HELM: I got you.

11 CHAIRMAN NOBLE: I understand you need
12 to make a record. However, the Commission is fairly
13 clear on what you have asked and what he has answered.

14 BY MR. HELM:

15 Q. Okay, I think you were going to go show us
16 where you dealt with drought.

17 A. That's correct.

18 That's Paragraph 68 of my report on Page 15.

19 COMMISSIONER HENNESSY: What paragraph
20 was that, please?

21 THE WITNESS: Paragraph 68 on Page 15.

22 BY MR. HELM:

23 Q. Okay. I guess you need to explain to me how
24 this paragraph deals with drought.

25 A. Okay. It might help if I read portions of

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1 it.

2 "In other words" -- this is within

3 Paragraph 68 -- "it should be determined whether the

4 period selected for reconstruction was wet, dry or

5 about normal."

6 Dry, you could put parenthetically behind

7 that, is a period where you would consider it to be a

8 drought.

9 Q. And you're telling me from that statement how

10 your report deals with drought?

11 A. If you continue to read the sentence or that

12 paragraph, it describes how, by looking at the period

13 of record for the stream gages, I assessed whether or

14 not that record was affected by either wet conditions

15 or dry conditions; dry conditions being, again,

16 synonymous with drought.

17 Q. Okay. So can you show me, when you do that

18 assessment, what table are we going to look at? Is

19 that Figure 7?

20 A. It says that, Mr. Helm.

21 Q. Is that the one you're referring to where you

22 assess that?

23 A. Yes, that's what it says.

24 Q. Okay. I'm looking at Figure 7, and I don't

25 see any classification in there where you say this is a

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1 all these, as you use it.

2 A. As I use it.

3 I am not sure that I use floodplain in my

4 report. So can you direct me to where I use floodplain

5 in my report.

6 Q. Doesn't matter. Define me how you use the

7 word floodplain.

8 A. But, Mr. Helm, I just said that I didn't

9 use -- as far as I know, I don't use the word

10 floodplain.

11 Q. You're a hydrologist. You don't use the word

12 floodplain in your work?

13 A. That's not the question you asked me,

14 Mr. Helm.

15 Q. I asked you to define for me the word

16 floodplain. Would you? And you've asked me to find

17 it. I'm not going to pore over this thing and find it.

18 I wouldn't have it in here if I didn't think that it

19 was there or that you've used it in your testimony, all

20 right. And so I would like you to define for me how

21 you use floodplain. Fair enough?

22 A. No, Mr. Helm, it's not fair enough, because I

23 would be more than happy to describe to you what I view

24 a floodplain to be, but I don't recall anywhere in my

25 report where I use the word floodplain, and I'm trying

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1 drought year, this isn't a drought year, this is a wet

2 year, this isn't a wet year.

3 A. As Paragraph 7 indicates -- or, I'm sorry,

4 Paragraph 68, there is text that I use to describe the

5 flow records in Figure 7. So if you wanted to read

6 that, that is a discussion of how I was interpreting

7 Figure 7 with respect to wet years or dry years or

8 typical years.

9 Q. Okay. And that text is found at?

10 A. I think I just indicated, Paragraph 68.

11 Q. 68 is the text that describes what you're

12 doing here on Figure 7?

13 A. As you can see for yourself, it says

14 "Figure 7," and then I proceed to describe Figure 7.

15 Q. Good enough.

16 Now, I need to get some other definitions out

17 of you, just so we have a context for your words you've

18 used in your report, okay?

19 A. Sure.

20 Q. So would you define for me the term

21 floodplain?

22 A. Yes. The floodplain --

23 Q. As you used it or as you use it.

24 A. Can I?

25 Q. Sure. I just wanted to get that that's for

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1 to be responsive.

2 CHAIRMAN NOBLE: Mr. Burtell, could I

3 interrupt you?

4 THE WITNESS: Please.

5 CHAIRMAN NOBLE: So that we can make

6 some progress, from a hydrologist's standpoint, what do

7 you understand floodplain to mean?

8 THE WITNESS: Sure. Fine. That's

9 great. Again, I just -- I don't want to be admitting

10 to discussions of floodplains in my report when I

11 didn't use it.

12 But if the question is, is as a

13 hydrologist, which wasn't, I don't believe, the first

14 question, as a hydrologist, in general, what do you

15 consider a floodplain to be. Most stream courses

16 develop a point, a high water mark, an ordinary high

17 water mark, where the channel, once the water level

18 reaches a certain level in a certain flow event,

19 overflows its banks, and when it overflows its banks,

20 if you will, that period or that portion of the channel

21 where it overflows its typical flow rates is considered

22 the floodplain.

23 It's defined in different ways. Most

24 hydrologists -- and we spent a lot of time, I think,

25 discussing this topic with Mr. Helm [sic], but a rule

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1 of thumb most hydrologists use is that a return flow
 2 period on the order of one to two years is a point
 3 where the water in the channel reaches high enough
 4 where it will then overflow its banks and inundate the
 5 floodplain.

6 So it's a feature that over time forms
 7 as an effect of typical flows in the river. So it's a
 8 geographic or geomorphic feature, but it is formed by
 9 the river, and it's only inundated, it only has water
 10 at higher flows.

11 BY MR. HELM:

12 Q. Flood flows?

13 A. As I think I just indicated to you, Mr. Helm,
 14 in most desert streams the rule of thumb is, you know,
 15 a flow of a one and a half to two-year return period.
 16 But the reason I provide that detail is that's not
 17 necessarily all flood flows. Some flows would be
 18 considered a flood flow, but might not be that high and
 19 might not inundate the floodplain. And certainly flows
 20 larger than that would inundate at least portions of
 21 the floodplain.

22 Q. The same question for the term flood channel.

23 A. Flood channel would be the area that under
 24 flow conditions -- a flood channel. Hmm, I have to
 25 think about that one.

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1 where what's referred to as the ordinary high water
 2 mark. In a lot of desert streams, when I've done
 3 mapping of ordinary high water mark, you'll see where
 4 that break is due to vegetation. Again, this is a part
 5 of the river where the flows are typically less than
 6 that. So vegetation can take a foothold, if you will.
 7 And so the low flow channel would be at that level and
 8 lower.

9 Q. And is that the level that is below one and a
 10 half to a two-year return flow?

11 A. The one and a half to two-year return flow
 12 represents the upper limit.

13 Q. Of the low flow channel?

14 A. Of the low flow channel.

15 Q. The same question for braided river.

16 A. And what question? Oh, what I feel the
 17 definition of braided?

18 Braided river is a little more difficult
 19 to -- let me step back.

20 A braided river can range from I've heard
 21 hydrologists say a river channel which breaks into as
 22 few as two independent channels is the beginning of
 23 braiding, all the way up to examples that I believe
 24 Dr. Mussetter showed in some of his slides, where there
 25 could be -- it's almost countless. It's like a weave.

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1 You have your low flow channel. So the
 2 difference between a low flow channel, which is the
 3 area that I was talking about that would have water,
 4 typically, in the Southwest when the flows are less
 5 than, you know, a return period of one and a half or
 6 two years, the flood flow channel then would be within
 7 that area where the floodplain is.

8 And the flood flow channel would, again, vary
 9 with how big of a flood it is. Once the water reaches
 10 high enough to leave the lower flow channel and enter
 11 into the floodplain, conditions on the ground are
 12 always a little messier than we would like to
 13 hypothesize them to be. There can be several channels,
 14 if you will, Mr. Helm, flood flow channels, where as
 15 the flow gets higher, more and more channels will be
 16 inundated.

17 So, again, it's a function of the size of the
 18 flow, but, again, you're leaving the ordinary low flow
 19 channel and then entering an area where, depending on
 20 the flows, you may have one or more channels, depending
 21 on how high the flow is.

22 Q. The same question for low flow channel.

23 A. Low flow channel, at least as I would
 24 describe it, would be flows that are within the period
 25 where you first reach that floodplain. It's roughly

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1 And so there's a lot of debate of, well, you
 2 know, when a channel breaks into two separate channels,
 3 is that braided. Some people call that an anastomosing
 4 stream where you're just beginning to be braided.

5 So it's a bit of a gradational thing,
 6 Mr. Helm, and you might get a hydrologist that says two
 7 channels is braiding, you know. But certainly no
 8 hydrologist is going to question, when you get a stream
 9 where you've got six or seven different interlocking
 10 channels, that that is a braided condition.

11 So I apologize. Some definitions in the
 12 geologic sciences are not as perhaps cut and dry as
 13 some would like.

14 Q. What does this hydrologist define a braided
 15 channel to be?

16 A. I would say for purposes of our discussion, a
 17 navigability determination, that as soon as the stream
 18 breaks into two or more channels, you've now entered a
 19 condition that could have an effect on boating because
 20 you've now divided the flow in one stream now into two
 21 separate channels.

22 So for the purposes of our discussion, I
 23 would consider that a channel that is demonstrating
 24 braiding conditions.

25 Q. The same question for the definition of a

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1 compound channel.
2 A. A compound channel is closer to what you were
3 asking before about a channel with a flood flow channel
4 and a low flow channel, where during more normal flow
5 conditions the water is confined into a single low flow
6 channel; but when the flow gets higher, as I think I've
7 pointed out, the water then can reach a point where
8 it's now spreading over into the floodplain. But that
9 floodplain itself can have separate channels that I
10 don't want to say it's kind of a stair-stepping
11 process, but as the flow gets higher, more and more
12 channels get brought into play.

13 And so a compound channel, which are very
14 common in the Southwest, are, again, channels that have
15 conditions under low flow, but as the flow gets higher,
16 more channels come into play. But a compound channel,
17 unlike a braided channel, a braided channel has
18 multiple channels, unless it's very high and they get
19 flooded out, during most flow conditions; whereas a
20 compound channel might have those multiple channels, or
21 would, only under higher flow conditions.

22 Q. With respect to the five segments that we've
23 used to talk about the Verde River, what segments have
24 braided channels?

25 A. I did not study in my report the braiding,

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1 but what I did have an opportunity to do is look at
2 Dr. Mussetter's report.

3 Q. Okay. You didn't do any individual studies
4 yourself?

5 A. That's correct.

6 Q. The same question for compound channel for
7 the five segments; did you do that?

8 A. No.

9 Q. So you don't have any individually formed
10 opinions as to the braiding on the Verde River or
11 whether it's a compound channel?

12 A. I do have an opinion.

13 Q. You didn't do any studies for it, or did I
14 misunderstand you?

15 A. No. No, you asked me if I have an opinion,
16 and that, to me, is distinct from whether or not I did
17 my own evaluation. I had an opportunity to look at

18 Mr. Helm's evaluation of potential braiding conditions.

19 Q. I didn't do an evaluation. I think you mean
20 Mr. Mussetter.

21 A. No. No, I'm not misunderstood.

22 MR. BREEDLOVE: You said Mr. Helm.

23 THE WITNESS: Oh, I'm sorry.

24 Mr. Hjalmarson. I apologize. Mr. Hjalmarson did an
25 evaluation of braiding, at least in a portion, and so

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1 did Dr. Mussetter, and so I had an opportunity to look
2 at both of their reports. And so you asked me if I
3 have an opinion.

4 BY MR. HELM:

5 Q. What I mean is you, as an expert, did not
6 individual evaluation of the Verde River to determine
7 if there was any braiding out there? You would be
8 relying either on Mr. Mussetter or Mr. Hjalmarson's
9 work?

10 A. That's correct.

11 Q. The same question for a compound channel.

12 A. That's right.

13 Mr. Helm, just -- I shouldn't short-shrift

14 Mr. Fuller. I believe Mr. Fuller also addressed in his
15 opinion what the condition of those channels were. So
16 all three of them I looked at, but I didn't --

17 Q. You've read all three reports, and from that
18 formed your opinions?

19 A. Yes. I just wanted to give credit for
20 Mr. Fuller.

21 Q. Just like I've read all three reports and
22 formed an opinion, and everybody else has too, right?

23 A. That's correct.

24 Q. Back to the definitions.

25 A. Sure.

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1 Q. Define meandering river, please.

2 A. Well, meandering river, on kind of the
3 spectrum of different rivers, the river
4 geomorphological types, meandering is kind of on the
5 other side of the spectrum from braiding, where you
6 have a river where due to a lot of different factors,
7 the channel kind of cuts back and forth within its
8 floodplain. There are portions -- probably the easiest
9 way to explain it is to see a picture of it, and so I
10 would probably refer you or the Commission to the
11 picture that Dr. Mussetter included, I believe, in his
12 PowerPoint presentation of a stream.

13 So, again, a picture is worth a thousand
14 words. But, again, it is a style of river where,
15 unlike a braided river, where you have a steeper slope
16 and usually more coarser-grained material, you have an
17 environment where the river slope is much more gentle.
18 It's typically finer-grained sediments. And the river,
19 if you do an experiment and you start with a straight
20 channel and find sediments, over time it just naturally
21 takes this meandering path.

22 So, again, very distinct from a braided
23 river.

24 Q. Are there any of the segments of the Verde
25 that fall into that definition of a meandering river?

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1 A. You know, much of the Verde River, because
2 it's confined within more canyon areas, I wouldn't
3 characterize it as a meandering river. There are,
4 however, in the Camp Verde area, and probably the best
5 example of that, Mr. Helm, is Pecks Lake is an oxbow
6 lake, what's referred to among geomorphologists, and
7 that's what's referred to as an abandoned meander,
8 meaning the river used to swing over where Pecks Lake
9 is now, but then the river decided to go somewhere else
10 and left Pecks Lake sitting there.

11 So certainly I think any geomorphologist
12 would say that there are portions of Segment 2 that
13 have some meanders in it.

14 Q. Any other segments that would have
15 meandering?

16 A. You know, again, I didn't look -- this wasn't
17 a focus of my report. But let me just think about it,
18 if you would give me a minute to look at my map.

19 It's possible, Mr. Helm, but probably not
20 likely that there would be any in Segment 5 since
21 that's more of a braided regime.

22 I'll stick to my original statement that,
23 again, not having analyzed this in any depth, but I
24 would say meandering is primarily confined to what I
25 refer to as Segment 2.

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1 Q. We're talking about unstable now.

2 A. Unstable, unstable. Excuse me. And that
3 even within that short of a stretch, the channel can
4 move a little bit, but when you pan back, an unstable
5 channel is, again, one that -- a braided river I guess
6 would be a great example of an unstable channel, and
7 that is from week to week and month to month, if you
8 were to carefully look at it and take snapshots in
9 time, you would see that the channel continually moves
10 into different places. So I would consider that to be
11 unstable.

12 But where all of these definitions are tricky
13 for geologists and hydrologists to answer is even a
14 meandering stream is unstable, insofar as over time, if
15 you look at enough years, the meanders have a tendency
16 of kind of moving upstream and downstream. They
17 migrate. But this isn't something that happens in a
18 day or a week. It happens over time.

19 So if you're certainly in the desert, I would
20 say to some degree almost every stream is unstable at
21 some scale.

22 Q. You used gage data for some of your work,
23 correct?

24 A. That's correct.

25 Q. Could you just give me a list of the gages

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1 Q. Okay. Define for me the term erratic as used
2 by hydrologists.

3 A. Erratic?

4 Q. Uh-huh. It's an erratic river.

5 A. Oh, okay. I was thinking -- I'm a geologist
6 as well, and erratic is also used, and I grew up back
7 East, as a -- it's a glacial term related to previous
8 glaciers, and they'll leave big boulders and they call
9 those erratic. So I apologize.

10 But with respect to a stream and flow,
11 erratic, I'm not sure if that's a phrase that a
12 hydrologist would typically use, unless they're doing
13 it more in a lay conversation. Most hydrologists I
14 think would -- erratic is more of a descriptive term;
15 certainly outside of the usual, unusual.

16 Q. The same question with respect to the term
17 unstable, it's an unstable river.

18 A. Yeah, and that one is probably a bit easier
19 for -- I mean a hydrologist would use that phrase.

20 An unstable river -- also, everything is a
21 bit relative, and certainly scale comes into play,
22 Mr. Helm. I think if you were to zero down far enough
23 that you're only looking at about a 10-foot section of
24 stream, during a year even that could be quite erratic
25 insofar as -- I'm sorry, what was -- you're --

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1 that you used?

2 A. Sure. As I recall, Mr. Helm, they're listed
3 in two places. Actually, three places, now that I
4 think about it. So let me get you each one of those,
5 or do you just want one? Doesn't matter?

6 Q. At this point it doesn't matter. I just want
7 to know all your gages.

8 A. Page 16 of my report, Paragraph 71.

9 Q. Define for me what you mean by the word
10 undepleted when you use it in 71.

11 A. Undepleted stream flows, what I was trying to
12 do was reconstruct the flows absent any cultural
13 diversions.

14 Q. And that's done in Figure 2, do I understand
15 that right?

16 A. In Figure 2?

17 Q. According to Page 71.

18 A. Figure 2, I think as my text says, Figure 2
19 shows the location of the gages. So I'm not
20 reconstructing the flows in Figure 2. I'm simply
21 showing where they're at.

22 Q. No gages in Segment 1?

23 A. That's correct.

24 Q. How did you get the streamflow for that
25 segment?

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1 A. There, what I state in my report is that the
2 flows along the Verde River increase from upstream to
3 downstream. So I have a gage closer to the upstream
4 side of Segment 2, which I refer to as the -- well,
5 which is called the near Clarkdale gage.

6 And so what I did is, by knowing what the
7 flow is at a point just below the bottom of Segment 1,
8 I was able to infer what the flow was in Segment 1.

9 Along the stream, Mr. Helm, there is many
10 tributaries and springs that bring water in, so by the
11 time you get down to Segment 2, the flow is increased
12 from essentially nothing at Sullivan Dam and continues
13 to increase down.

14 So by the time I got down to my first gage
15 and reconstructed the flow there, I could then make a
16 determination or an inference as to the flow above,
17 that it would be less than that above.

18 Q. Your judgment call?

19 A. No, I disagree.

20 Q. Up above wasn't your judgment call, based on
21 the flow in Gage 2?

22 A. I would disagree that it was a judgment
23 because I was able to reconstruct and put all the flows
24 back in both above and below that gage. So what I'm
25 doing is I'm -- to reconstruct the flows at the

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1 Clarkdale gage, I had to consider any diversions above
2 the gage, including diversions in Segment 1.

3 Q. And how did you determine the quantity of
4 either the diversion or just of a spring or a stream
5 flowing in in Segment 1?

6 A. I didn't independently evaluate the discharge
7 from springs. But in terms of the diversions, that
8 was -- and I spent a substantial amount of time, as you
9 were here yesterday to witness, in terms of how I
10 reconstructed the flows, and that's summarized in my
11 Tables 5 and 6 and then certainly much text to go with
12 that.

13 Q. Your Table 5 does not deal with Segment 1,
14 correct?

15 A. No, but what I can refer you to, Mr. Helm --

16 Q. Is that a yes, it doesn't deal with it?

17 A. I'm sorry, could you --

18 Q. You said, no, it doesn't. I asked you
19 Table 5 does not deal with Segment 1, and your answer
20 was no.

21 A. I'm sorry. I was asking you to repeat the
22 question so I made sure.

23 You are correct, Table 1 does not
24 specifically address Segment 1.

25 MR. HOOD: Table 5.

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1 THE WITNESS: I'm sorry, Table 5. I do
2 have text, however, that relates the flow at the gage
3 at the upper portion of Segment 2 to the flow in
4 Segment 1, but that's in my text. But you're correct,
5 that is not in the table.

6 BY MR. HELM:

7 Q. And the other one you referred was 6?

8 A. Yes.

9 As you probably were here to listen with
10 Mr. Slade, we spent considerable time going through the
11 relationship between Tables 5 and 6.

12 Q. Okay. But, once again, I don't see any
13 identification of Segment 1. Is Del Rio in Segment 1?

14 A. Yes, Mr. Helm, Del Rio and Granite Creek, as
15 well as the upper Verde above the mouth of Sycamore
16 Creek, those are all in Segment 1. You would have to
17 look at a map to see where Sycamore Creek comes in, but
18 as I recall, Sycamore Creek was the defining point at
19 the bottom of the State Land Department's Segment 1.
20 That was the downstream side.

21 Q. And so the information you used to estimate
22 those flows is from Hancock and Hayden?

23 A. As indicated in Footnote (a), correct.

24 Q. For Segment 1?

25 A. For all the segments.

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1 Q. Based on what you testified to earlier about
2 looking at Mr. Mussetter and Mr. Hjalmarson's and
3 Mr. Fuller's work, I take it the answer would be that
4 you have not conducted any studies on the Verde River
5 regarding split or multiple channels?

6 A. My own independent analysis, no.

7 Q. Do any of the pictures that appear in either
8 your report -- I don't think you've shown any in your
9 testimony. I don't recall. -- depict the condition of
10 the river in its ordinary and natural state or either
11 one, its ordinary or its natural?

12 A. The pictures that I have, I have no reason to
13 believe that the pictures in Figures 5 and 6 are not
14 ordinary or natural conditions, and those were pictures
15 of some rapids that were not photographed by me. They
16 were photographed by the fellow that wrote the book the
17 Williams Guide that we spent considerable time with,
18 again, talking yesterday. Those are pictures out of
19 his book.

20 Q. And so they would be pictures that do not
21 depict the ordinary condition or the natural condition
22 of the Verde River, to the best of your knowledge?

23 A. I would answer that by saying that I don't
24 believe that these photographs you could tell

25 necessarily that these are not ordinary. That is, the

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1 limited amount of diversions upstream of these pictures
2 I don't believe would have had any measurable or
3 visible flow -- I should say visible flow or visible
4 difference in flow.

5 Q. So you maintain that these pictures -- and I
6 want you to identify them for me.

7 A. Sure.

8 Q. Which of the pictures would you maintain
9 showed the Verde River in its ordinary condition as it
10 would have existed prior to irrigation starting to
11 commence, et cetera?

12 A. I would say the pictures in Figure 5, I think
13 a person would be hardpressed, if they could have gone
14 back in time and taken pictures at this area in stream
15 Segment 1, that the river would have looked
16 substantially different than it would have prior to
17 diversions, because at this point the diversions are so
18 minor that I don't think that the river would have had
19 a visibly different flow. Measurably, and as I've
20 pointed out and I've reconstructed, there certainly are
21 diversions going on. But these pictures, again, I'm
22 not sure one could really distinguish, if you could.
23 Are they -- but your question is are these pictures of
24 ordinary and natural. There are diversions upstream,
25 so...

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1 Q. So the answer is yes or no?

2 A. The way that you phrased it then, I would say
3 no.

4 Q. Do you maintain that any one of those
5 pictures, in your opinion, depicts the ordinary flow of
6 the Verde River as it would have existed prior to man's
7 intrusion on it in the 1800s?

8 A. I'll take maybe the picture of Duff Drop,
9 which is in Figure 5. Looking at that photo, it would
10 appear as if this might be a springtime flow. You can
11 see there's many rocks in that drop, and many of those
12 are submerged. So in my mind, this was either -- and I
13 would have to look at the trees. I don't know if
14 they're -- no, they're leafed out. So this might be a
15 springtime snowmelt period. It might be a monsoonal
16 period where the flows have come up a bit, but would be
17 considered ordinary and natural.

18 Q. Do you know the date the picture was taken?

19 A. I don't know the date of any of the pictures
20 in either 5 or 6.

21 Q. Do you know the cfs that was going down the
22 river when the picture was taken?

23 A. I would have to go back. I don't believe --
24 to answer that question, Mr. Helm, I would have to go
25 back and look at each photo. Mr. Williams in some

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1 cases I think referred to the flow at a nearby gage.
2 Whether it was for these pictures or not, I couldn't
3 answer that without going back. So maybe. There might
4 be some flows associated with these, but I can't say
5 for sure.

6 Q. I must be missing something. There's only a
7 few pictures here, and as I look at them, I don't see
8 any of them that list the flow. Am I right?

9 A. No, you asked me whether or not there is flow
10 data to go with these pictures. As I indicated, I
11 don't know what dates these were taken; but
12 Mr. Williams, who did photograph these and include them
13 in his book, for some of his photos, Mr. Helm, he would
14 indicate in the legend of the photo in his guide what
15 the flow was. I didn't reproduce that here. I was
16 just trying to be responsive to your question; that
17 some of these -- I don't know for sure -- might have
18 flows associated with them in the Williams Guide.

19 Q. We would have to read the Williams Guide to
20 find that out?

21 A. That's correct, yeah.

22 Q. Are there any of those pictures that you
23 would say clearly do not depict the ordinary flow of
24 the Verde?

25 A. Clearly do not indicate. Let me look at

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1 those sets.

2 No, I don't have any reason to believe that
3 any of these would be clearly not ordinary and natural.

4 Q. Okay. Now, remembering that natural is a
5 separate topic and includes flood or drought --

6 A. Yes.

7 Q. -- do any of these pictures depict the Verde
8 in flood stage?

9 A. When you say flood, what type of flood are
10 you referring to?

11 Q. The one and a half to two-year flood or
12 greater.

13 A. Okay, so where it's reaching the top of the
14 floodplain.

15 Q. Where you think floods begin.

16 A. Sure. Okay. Thank you. As we talked,
17 floods are a gradational thing. Let me look at these,
18 if you give me a second.

19 The Duff Drop is getting higher to the point
20 where it might be approaching that high water mark.
21 Certainly not the other ones on Figure 5.

22 And now let me look at Figure 6.

23 No, I wouldn't consider at least the three on
24 Figure 6 to be at the ordinary high water mark. Maybe
25 Little Swamper is. The photo is a little hard to --

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1 the river is kind of turning back on itself, so it's a
 2 little hard to see. But I would say, looking quickly
 3 at these, no, none of these I wouldn't consider to be
 4 at the bankfull stage.

5 Q. At or greater than bankfull?

6 A. Correct.

7 Q. The same question with respect to drought.

8 A. With respect to drought, one might make the
 9 argument that Rafael's Gauntlet, to use the boater's
 10 expression, is pretty bony, I think is what they refer
 11 to. But I haven't been to Rafael's Gauntlet under
 12 varying flow conditions like Mr. Williams has.

13 And based on Mr. Williams' description of the
 14 Rafael's Gauntlet area, this whole Segment 1, as I
 15 recall his words of normal flow conditions, that it's
 16 tough-going through there pretty much any time of the
 17 year, regardless.

18 So I believe the -- I'm circling around on
 19 myself. I apologize. But I would say perhaps even
 20 Rafael's Gauntlet, which looks rather bony and low
 21 flow, even that, based on Mr. Williams' description,
 22 might not be that unusual and, in fact, probably
 23 typical.

24 Q. How about in Figure 6?

25 A. Yeah, and the same thing, Mr. Helm, in

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1 Figure 6. Mr. Williams also, again, because as
 2 Mr. Slade asked me repeatedly, I have not boated the
 3 Verde River, but I've been to portions of it. He had
 4 the benefit of providing us all his experience of doing
 5 just that, and this was another segment of the river
 6 where he described, under a range of flow conditions,
 7 that it was very tough-going.

8 So I will trust his many trips down the river
 9 that are the basis of his guidebook to suggest, just as
 10 he says, that even under normal flow conditions, it's a
 11 really rocky, tough stretch to hoe.

12 Q. So none of these pictures demonstrate the
 13 river in a drought condition?

14 A. I don't believe so.

15 Q. Now, you can correct me if I'm wrong, but I
 16 think you've talked about, either in your testimony or
 17 in your report, the terminology commercial navigation
 18 or variants thereon?

19 A. In my report or during testimony?

20 Q. Both. You've used that terminology?

21 A. I have, yeah.

22 Q. And I just, again, would like you to define
 23 for me what you mean by the use of that terminology.

24 A. Well, generally, again, a highway for
 25 commerce, and because it's a highway for commerce,

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1 we're supposed to look at whether the river was used in
 2 a commercial sense.

3 Certainly trade and travel related to
 4 someone's livelihood would probably be the most
 5 succinct way that I would describe it, and certainly
 6 what I had in my mind, which seems to be what you want
 7 to know, when I wrote my report, that's what was in my
 8 mind, is a watercourse that is not used maybe for
 9 someone who wants to spend a weekend hunting, but more
 10 this is for their livelihood, this is how they pay
 11 their bills.

12 And the reason I make that distinction is
 13 that I certainly understand that you could use a river
 14 in a commercial basis for your own business, where
 15 you're not necessarily offering a service to someone
 16 else, but it's still being used in your livelihood.

17 Q. Okay. So as a bass fisherman, I take people
 18 out bass fishing on a guide trip and charge them \$400 a
 19 day, that would be a commercial navigation of wherever
 20 I took them, right?

21 A. Is this -- to answer that question I need to
 22 ask you some more questions, and I don't want to be
 23 rude and get you upset, so --

24 Q. You can't answer that question, is what
 25 you're telling me?

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1 A. I can answer it, but with further
 2 information.

3 Q. So I guess to sum it up as best I can, you
 4 distinguish navigation and commercial navigation, and
 5 navigation is not sufficient to make a stream navigable
 6 unless it has an economic outcome?

7 A. Either a business or a personal financial or
 8 economic, yes. I was trying to understand. I was
 9 listening to your question and trying to understand
 10 what you were saying.

11 Again, I certainly would say that there needs
 12 to be an economic component of the use of the river.

13 Q. So in terms of travel, it's not good enough
 14 that whatever the sufficient number is of boats went
 15 down the river to constitute more than a single use, in
 16 your mind; that travel must have that economic
 17 component also?

18 A. Again, I think it needs to relate to
 19 livelihood, and obviously the other very important
 20 thing is that the boat used for one's livelihood be a
 21 continued and extensive use, not an isolated
 22 occurrence.

23 And, of course, what we're all struggling
 24 with is how many events does it take before it becomes
 25 a continued and extensive use of the river. So the

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1 State Land Department counts 10 boating trips or 14 or
2 5, and we all debate whether a boating trip is actually
3 evidence of the use of the river for commerce, and that
4 seems to be where there's a lot of disagreement.

5 Q. What's your definition? How many trips have
6 I got to have to meet your standard?

7 A. There's not a number, and I don't have a
8 number in my mind.

9 Q. Is it more than one?

10 A. It would be more than one.

11 Q. Is it less than a hundred?

12 A. Are we talking about just boating trips or
13 trips that are being used for ones livelihood?

14 Q. Trips for your livelihood.

15 A. In that hypothetical, again, I would have to
16 understand more about what the types of the trips are
17 and what they're being used for.

18 Q. Pick one that is livelihood in your mind.

19 A. If you had evidence that a steamboat was
20 plying the Verde River carrying passengers and
21 supplies, et cetera, between the military bases, I
22 don't think we would be having the length of these
23 discussions that we are. You asked me for an example,
24 so...

25 Q. Sure. No, I understand that, and I'm going

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1 to work off that.

2 A. Sure.

3 Q. Can it be smaller than a steamboat?

4 A. It could.

5 Q. If we have evidence of canoes regularly
6 traveling up and down the Verde River between McDowell
7 and one of the other Ports, is that sufficient
8 evidence?

9 A. And this is where it starts to get gray and
10 where, again, the words of the Special Master in the
11 Utah case were persuasive to me; is he discussed
12 several light draft boats that were being used on the
13 rivers, including the San Juan River. So he actually
14 discusses boating events on the San Juan River. And
15 yet when he looked at the totality of the evidence,
16 including those boating events, he still determined
17 that the San Juan was not navigable.

18 So the problem, I think, that's before us,
19 Mr. Helm, is that this matter of counting boating
20 trips, I wish it was so simple. I wish it was so
21 simple for the Commission. But it's not. And, again,
22 I'll use Utah as, again, a case where, yeah, I have no
23 doubt that Mr. Fuller could put a canoe on the San Juan
24 River, now or in the past, and float on down that
25 river.

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1 And the Special Master in that case, he had
2 an opportunity to talk to a lot of people that boated
3 those rivers up there, including the San Juan. But he
4 came to a determination that the San Juan was not. So
5 I guess at the end of the day, that suggests to me is
6 that it's not as straightforward, and you have to,
7 again, look at several factors, not just one.

8 Q. Okay. But in terms of the boat factor, are
9 you saying that the way you read the Utah case, the
10 Special Master rejected the canoe-type boat and that,
11 therefore, you would reject it in your assessment?

12 A. Mr. Helm, I don't believe he reject -- I
13 don't remember him rejecting the canoe use. He listed
14 in his report light draft boats that were in use for
15 commercial purposes at the time.

16 Q. And rejected those?

17 A. He didn't reject them for the Green, the
18 Grand and the Green, but he did for the San Juan.

19 Q. And so how does that affect your evaluation
20 of the use of light draft boats on the Verde?

21 A. Yeah, that's a fair question. I think the
22 words, again, that guided me on this topic was
23 continued and extensive. I think he had evidence, and
24 he discusses it in his report, which, as I understand,
25 then the Supreme Court generally adopted, with a few

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1 tweaks are.

2 He was aware of boating accounts on the
3 San Juan, but they were more isolated accounts, and in
4 his judgment, and this is a judgment call, as we all
5 know -- if we had a quick and fast standard, I guess we
6 wouldn't be going through this, but he didn't, and we
7 don't, and because of that, he looked at the boating
8 events that were available on the San Juan and came to
9 his conclusion that it wasn't navigable. He listed
10 several different lines of evidence.

11 I took away from that that in his mind there
12 was not continued or extensive use of commercial
13 boats -- or boats for commercial purposes on that
14 river, and, thus, he came to his decision.

15 Q. So if I understand what you're telling me,
16 you're telling me that small draft boats are all right,
17 as long as they're used for a commercial purpose and
18 that their use is continued and extensive?

19 A. Certainly that is -- if I was determining the
20 navigability of a river, that would be one factor I
21 would look at.

22 Q. And is it a factor that you looked at in your
23 determination for the Verde?

24 A. Yes.

25 Q. Okay. Define for me what you mean by the

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1 word continued use.

2 A. Again, I should have brought a dictionary.

3 Continued being as opposed to occasional, so

4 not frequently. Some of these things are, I think,

5 just -- I would respond to that by saying the common

6 dictionary definition of the word continued; ongoing.

7 I'm not sure how else to describe it to you.

8 Q. I'm just trying to get so that we know your

9 mind-set on the word continued.

10 Did it require that a hundred boat trips in

11 six months; did it require more than that?

12 A. I didn't have any numerical yardstick, if

13 you're asking me, as to what defines continued. And I

14 wish, again, I think we all wish that the Supreme Court

15 or the Special Master in the Utah case provided us such

16 a yardstick, but we simply don't have that.

17 So we're all left to look at the boating

18 accounts, and the different sides will judge them

19 accordingly, and ultimately the Commission will decide

20 what that all means.

21 Q. And we're trying to find out, because you've

22 told the Commission --

23 A. Sure.

24 Q. -- that it's not navigable, what continued

25 meant to you for your determination.

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1 But in my analysis, that was not determinant;

2 that is, I didn't feel that because there's no record

3 of upstream boat travel, that we should just ignore the

4 boating accounts that we have.

5 Q. And I take it that the commercial put food in

6 your mouth standard, from your perspective, would make

7 those trips required to be profitable in some fashion

8 to the person conducting them?

9 A. I didn't say profit -- please, if I said

10 profitable, then I mispoke. I never said that there's

11 necessarily a profit if it's for somebody's livelihood.

12 If it's putting food on their table, it's for their

13 livelihood. So --

14 Q. It has to be profitable to be livelihood,

15 doesn't it?

16 A. Well, if you're bartering, then, you know, if

17 you're trading a service for food or something, I

18 suppose that's a profit.

19 When I hear the word profitable, I'm

20 thinking, well, there has to be some -- there has to be

21 an exchange of goods.

22 Q. I can't make a livelihood if I don't make a

23 profit, can I? A profit is what's going to buy the

24 food.

25 A. Unless the food is being traded. But I'm

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1 A. Yeah, and --

2 CHAIRMAN NOBLE: Mr. Helm.

3 MR. HELM: Yeah.

4 CHAIRMAN NOBLE: I believe the

5 Commission is satisfied with his answer.

6 BY MR. HELM:

7 Q. Then can we go on to extensive? What's

8 extensive?

9 A. Again, I kick myself for not bringing a

10 dictionary, but I would again use the common

11 understanding and definition of extensive as -- maybe

12 it's easier to say what it's not, and that is an

13 isolated event.

14 Q. Okay. Did the trade or travel, as you define

15 those terms, was it required to be both upstream or

16 downstream, or would it have been sufficient if it had

17 just, for example, been in a downstream manner, as long

18 as it met your test of continued and extensive and for

19 a commercial put food in my mouth purpose?

20 A. Sure, I follow you.

21 Certainly my evaluation didn't use upstream

22 and downstream as both being necessary. If there was

23 both upstream and downstream in a commercial fashion,

24 that would make the case stronger, your case, for

25 example.

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1 fine with your definition. For profit, fine.

2 Q. Now, when you made your determination, did

3 you consider recreational boating at all?

4 A. When I made determination of nav -- I'm

5 sorry, I just want to understand, make sure I'm

6 responsive to your question. Did I consider or am I

7 aware of recreational boating on the Verde?

8 Q. Oh, I'm sure you're aware of it.

9 A. Sure.

10 Q. I just want to know whether you considered

11 any of the elements of recreational boating in

12 considering whether the Verde was navigable or not

13 navigable?

14 A. I did.

15 Q. What did you consider?

16 A. Well, as we all are aware, there is

17 recreational boating on the river. My understanding of

18 the recreational boating on the river, the types of

19 crafts that are being used, in my opinion, are not

20 meaningfully similar as those crafts that would have

21 been available at or before statehood.

22 Q. So was that the only reason you eliminated

23 them; the crafts weren't similar?

24 A. If I could refer to my report, I actually

25 have a discussion of the recreational.

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1 Q. Feel free.
2 A. Sure.

3 I think what drove me, Mr. Helm, were the
4 words of PPL Montana on Paragraph 19 on Page 4 of my
5 report.

6 Q. How did it drive you? Did the recreational
7 boating that you were aware of not inform you of any of
8 the potential historic determinations?

9 A. I was driven, Mr. Helm, by the last sentence
10 of the indented quote.

11 "Modern recreational fishing boats, including
12 inflatable rafts and lightweight canoes or kayaks may
13 be able to navigate waters much more shallow or with
14 rockier beds than the boats customarily used for trade
15 and travel at statehood."

16 When I looked at the evidence of the type of
17 recreational boating that is occurring on the Verde,
18 the boats that I've heard, including Mr. Lynch testify
19 to, seem to fall into that category. So that's what
20 drove me.

21 Q. Did you attempt to do any investigation to
22 find out whether any of the boats that are now used for
23 recreational travel would have been meaningfully
24 similar to the boats that were used around 1912?

25 A. I didn't do my own analysis, but I certainly

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1 found Mr. Dimock's testimony to be quite interesting,
2 as somebody who was a builder of -- or who is a builder
3 of historic boats.

4 Q. Okay. Mr. Dimock seems to indicate, or at
5 least the way I understood him, was that he could take
6 the Edith down there, with maybe the exception of
7 having to go over -- or having to line the Verde Falls.

8 A. I must have heard something or I have a
9 different take on what Mr. Dimock said.

10 Q. What's your take on what Mr. Dimock said?

11 A. Well, a couple things Mr. Dimock said. He
12 was pretty clear that he wouldn't want to take his boat
13 above Perkinsville, as a start, or any boat, perhaps,
14 up in that neck of the woods.

15 What was most persuasive to me that he said
16 was that -- a couple things he said that were very
17 persuasive, and that is how handy and industrious
18 people were back then, and he himself is; that people
19 would build a boat, use it, and then scrap it. And the
20 fact that boat building technology, even back then, was
21 alive and well, and we have the few accounts that we
22 do, the isolated accounts of boating, would suggest to
23 me that the Verde River wasn't a river where people
24 thought it would be useful as a highway for commerce.

25 And if it was, it would have a similar characteristic

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1 that the Colorado had, and that is a great evolution of
2 boat building.

3 Dr. Lingenfelter's book goes into great
4 detail about how the early boaters of the Colorado
5 River, over time, evolved and improved their boat
6 building technology, and certainly learned from the
7 mistakes of trying to navigate that river.

8 But there's no type of history of that on the
9 Verde, and we're talking to a boat builder who has made
10 it clear that boats evolve. And the fact that such an
11 evolution doesn't exist on the Verde suggests to me
12 that people just didn't view it as a highway for
13 commerce.

14 The other thing that was telling to me is
15 that he's never taken the boat down. It's, I think --
16 I have great respect for Mr. Dimock's -- his skills as
17 a boat builder speak for themselves, and he's a great
18 contributor to the history of boating in the Southwest;
19 but at the end of the day, he's never taken his boat
20 down the river.

21 Q. And you don't --

22 A. So nobody really knows, in a commercial
23 sense, whether -- and just being able to take your boat
24 down the river, is that doing it in a commercial
25 practice, or is it a thrill, or is it a challenge

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1 trying to overcome; and to me, that's a different
2 thing.

3 Q. In any event, you don't believe he could do
4 it?

5 A. I don't believe we have any evidence that it
6 could be done.

7 Q. Well, then you don't believe his testimony
8 when he tells us that he could take the Edith down the
9 Verde?

10 A. I would feel more confident if he or
11 Mr. Fuller or somebody did take the Edith down.

12 Q. My question to you was you don't believe his
13 testimony that he could do that?

14 A. I question it.

15 CHAIRMAN NOBLE: Mr. Helm, Jody would
16 like to take a break.

17 MR. HELM: Perfectly all right with me.
18 I'll take a break.

19 CHAIRMAN NOBLE: We'll go 15 minutes,
20 and it is the Chair's intent to go until lunchtime.

21 (A recess was taken from 11:00 a.m. to
22 11:21 a.m.)

23 CHAIRMAN NOBLE: Mr. Helm, please
24 proceed.

25 MR. HELM: Thank you.

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1 BY MR. HELM:
 2 Q. Mr. Burtell, when we took our break, we were
 3 talking about recreational boating and the concept of
 4 meaningfully similar and your thoughts the boating that
 5 was being done for recreation was not meaningfully
 6 similar to what happened in the 1912 time frame,
 7 correct?
 8 A. That's correct.
 9 Q. Okay. I want to just go through some items,
 10 and you tell me whether there were any boats of this
 11 character being used for recreation.
 12 Were the boats that are being used for
 13 recreation today, or whatever time frame that
 14 recreation means, at all similar to the boats in 1912
 15 in terms of I call it depth, other people call it draw,
 16 better known as how deep they sit in the water?
 17 A. In terms of depth by itself, I don't know if
 18 there would necessarily be a difference with some types
 19 of boats; but with other types of boats, quite a bit of
 20 difference in depth.
 21 One thing that struck me about Mr. Dimock's
 22 testimony is the Edith and other boats of that design I
 23 think he said were rather shallow, with deeper drafts.
 24 Q. Okay. You would agree then, I think, based
 25 on what you've just said, that there has or are

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1 A. Okay.
 2 Q. I'm just talking about the length. We can
 3 find boats that are being used for recreation today
 4 that have similar lengths to boats that were in use in
 5 1912?
 6 A. Again, you might be able to find some
 7 examples.
 8 Q. So you would agree that to the extent we're
 9 talking just about length, we have some that would
 10 exist in 1912 and would exist today?
 11 A. Of similar lengths, some examples, yes.
 12 Q. Okay. How about width?
 13 A. Again, I'm sure one could find boats today
 14 with a similar width as boats in the past.
 15 Q. How about materials; for example, a wood
 16 boat?
 17 A. The materials I think is where there's a bit
 18 of a distinction. The majority of the recreational
 19 boating now is being done in boats, as I understand,
 20 that are either plastic or lightweight aluminum, and
 21 those were materials that, in my understanding, weren't
 22 readily available at or before statehood, at least here
 23 in Arizona.
 24 Q. I think you confused me a little bit. So you
 25 would agree that there are boats that are being used on

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1 recreational boats being used on the Verde that have
 2 the same depth, draw, however, you want to classify it,
 3 now as there were in the 1912 era?
 4 A. There could be a type of boat where you could
 5 have a similar draw, sure.
 6 Q. So to that extent, there would be some
 7 similar boats that were on the river today or in the
 8 recreational time frame that were also similar use in
 9 1912?
 10 A. All I've said up to this point is just from a
 11 draw perspective.
 12 Q. Just from a draw perspective, right.
 13 A. Yeah, sure.
 14 Q. Next is from a length standpoint.
 15 A. Okay.
 16 Q. And would you make that same agreement for
 17 length?
 18 A. That a -- could you then --
 19 Q. There are boats being used for recreation in
 20 the recreational period that's appropriate to now
 21 assess the river at that have similar lengths to that
 22 that was used in 1912?
 23 A. I'm not sure there were a lot of boats being
 24 used for recreation back in 1912.
 25 Q. No, it doesn't have to be recreation.

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1 the Gila today for recreational purposes that are made
 2 out of wood, similar to what boats were made out of in
 3 1912?
 4 A. I'm confused. You said the Gila?
 5 Q. I'm sorry. I mean the Verde.
 6 A. Could you repeat the question?
 7 Q. Sure.
 8 A. I was hung up on the Gila.
 9 Q. In terms of materials --
 10 A. Okay.
 11 Q. -- one material that you can build a boat out
 12 of is wood?
 13 A. Okay.
 14 Q. Okay. And would you agree that there are
 15 wooden boats in use on the Verde today?
 16 A. Based on what I have heard, there's limited
 17 boating, wood boat use, on the Verde River today.
 18 Q. Today. And there was wood boat use in 1912?
 19 A. Some of the boats that I tabulated -- all but
 20 a few I believe were wooden boats. They were those
 21 steel boats or iron boats.
 22 Q. So we've got wooden boats being used today
 23 and we've got wooden boats being used in 1912?
 24 A. I think I just said, Mr. Helm, that I'm not
 25 aware of any use of wooden boats today.

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1 Q. Did you do any survey?
 2 A. No. This is based on the evidence that like
 3 Mr. Fuller's boat, the boats that Mr. Lynch discussed,
 4 even Mr. Dimock, I believe his boating experience in
 5 the '70s was with a plastic kayak. So I'm just not
 6 aware. Maybe there are, but I haven't seen entered
 7 into evidence any common use, if much at all, of wooden
 8 boats today. But, again, maybe I missed it.
 9 Q. Did you hear Mr. Fuller testify that there
 10 are wooden boats in use today on the Verde?
 11 A. I don't recall him saying that, but if he
 12 did, then I'm sure it's in the record.
 13 Q. And from my recollection, we're also talking
 14 canvas; there are canvas boats that were in use and
 15 existence in 1912?
 16 A. There were certainly canvas boats, I think
 17 primarily used for hunting purposes, at or before
 18 statehood in Arizona.
 19 Q. And there are canvas boats used today?
 20 A. Not that I'm aware of.
 21 Q. Metal boats?
 22 A. I think we have a couple accounts, as I
 23 indicate in my table, of metal boats used at or before
 24 statehood, and certainly today there are aluminum boats
 25 that are used on the Verde; but that's a different

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1 That was my response.
 2 Q. I would like to know for any boat.
 3 A. Okay, so now you're asking me about wooden
 4 boats.
 5 Q. My question was to any boat. I mean I don't
 6 care whether they're wooden, canvas, or what. Just is
 7 the weight the same in 1912 as I can go out and find a
 8 boat that weighs the same in the year 2000?
 9 A. Sure, I -- Mr. Dimock gave me the impression
 10 that the freight canoes. I can't remember now if it
 11 was during his video or in his testimony; that a wooden
 12 freight canoe is a pretty unwieldy craft in terms of
 13 its weight and such. So there is a case where a wooden
 14 boat from the past would seem to be much heavier than a
 15 more modern boat.
 16 Q. You're not helping me. You're not being
 17 responsive, all right.
 18 What I just simply want to know is, for
 19 example, did they use boats that weighed 500 pounds in
 20 1912 and do they still use boats that weigh 500 pounds
 21 in 2000?
 22 A. And I'm trying my best to be responsive,
 23 Mr. Helm. There were cases where boats might have been
 24 a similar weight, but there are certainly examples of
 25 boats that were heavier in the past than the boats now.

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1 material, aluminum versus steel. I think even
 2 Mr. Dimock was a bit surprised to hear iron boats, and
 3 that -- I won't say confused someone of his expertise,
 4 but I think he was scratching his head about what that
 5 might be.
 6 Q. In terms of weight, would you agree that
 7 there are boats in use on the Verde today that would be
 8 similar in weight to boats that were used in the 1912
 9 era?
 10 A. I get the impression, at least with regard to
 11 the metal boats, that those boats were pretty heavy and
 12 unwieldy. I believe the additional evidence that the
 13 State Land Department entered, the folks that were
 14 going down the Verde complained about the difficulty of
 15 the weight of the boats, and that may or may not have
 16 been a reason why they abandoned that trip.
 17 So it seems like the metal boats in the past,
 18 because, perhaps, they -- because they weren't
 19 aluminum, were probably quite a bit heavier than the
 20 boats today.
 21 Q. Stop focusing just on -- alls I want to know
 22 is were there boats that were being used in Arizona in
 23 1912 that had weights that were similar to boats that
 24 are currently being used on the Verde River?
 25 A. And I answered with regard to metal boats.

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1 Q. I just -- I understand that. But alls I want
 2 you to admit, that, yeah, we've got boats that use the
 3 same amount of weight in both time periods.
 4 A. Some boats, yes.
 5 Q. Thank you.
 6 Okay. And are there purposes that boats were
 7 used in 1912 that are the same purposes that boats are
 8 currently being used for on the Verde River?
 9 A. There are what appears to be recreational
 10 boating trips historically and there is recreational
 11 boating trips now, so that would be a yes.
 12 Q. So you would agree that there are similar
 13 purposes?
 14 A. Again, Mr. Helm, when you say similar
 15 purposes, there's different purposes, so that's why I'm
 16 trying my best to be responsive, but I'm not going to
 17 be asked something on so general that I don't
 18 understand what you're saying.
 19 So, yes, recreational boating in the past,
 20 recreational boating now.
 21 Q. Fishing now, fishing in the past?
 22 A. Let me check to see if any of these were
 23 fishing trips. I am referring to my Table 1.
 24 Mr. Helm, with the exception of one, the 1883
 25 trip by the so-called jolly mariners from Fort McDowell

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1 down, that trip we don't seem to know what the purpose
2 of it was. I don't see any other trips that at least
3 based on the historic accounts before us were
4 specifically for fishing.

5 Q. No, I understand that. You're narrowing the
6 question dramatically. I just want to know if boats in
7 1912 were used for fishing?

8 A. Anywhere in Arizona --

9 Q. Anywhere in Arizona.

10 A. -- or on the Verde?

11 Q. Anywhere in Arizona.

12 A. Oh, you didn't say that, and you told me
13 yesterday I'm supposed to focus on the Verde River.

14 Q. Now I just want it anywhere in Arizona.

15 A. Okay. It would help if you --

16 Q. I understand.

17 A. -- when you switch scales, to let me know.

18 Q. Answer the question so we can move along.

19 A. Anywhere in Arizona, certainly there were
20 boats that were used for fishing historically and boats
21 that are used for fishing now.

22 Q. You testified, I believe, yesterday about
23 transportation adjacent to or near the Verde River,
24 roads?

25 A. With Mr. Slade?

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1 Q. I don't remember who it was with or whether
2 it was your opening testimony or not. I just say I
3 recall you testifying about that.

4 A. Okay. Yes.

5 Q. And the reason I ask that question is, did
6 the fact that there were roads adjacent to or going in
7 the same direction as the Verde River affect your
8 determination of whether the Verde River was navigable?

9 A. It was one factor that I considered.

10 Q. Okay. And how did you consider the factor?

11 A. I considered the factor that the presence of
12 a road and the difficulty back then in constructing and
13 maintaining a road indicated that there was a need for
14 transportation.

15 Q. On the river, or on a river if it could be
16 used?

17 A. That there was a need for transportation in
18 the region.

19 Q. Okay. Just generally in the region?

20 A. Correct.

21 Q. So it didn't play any part in your
22 determination of whether the river was navigable or
23 not?

24 A. This is, I guess, what's frustrating me,

25 Mr. Helm. I just answered that it was one of the

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1 factors that I considered in my analysis for
2 navigability.

3 Q. Okay. And if there was a road adjacent to
4 the river, did that indicate to you that the river was
5 not navigable?

6 A. I'll say again, it was one of the factors
7 that I considered. It was not the only factor.

8 Q. For that factor, if it was in existence, did
9 you consider that making the river nonnavigable?

10 A. Nonnavigable.

11 I didn't consider the presence of a road to
12 indicate that a river was nonnavigable. As I just
13 said, I used the presence of a road --

14 Q. That's good. You don't have to say what you
15 just said.

16 MR. HOOD: Excuse me, Mr. Chairman. He
17 was in the middle of his answer, and once again, this
18 is inappropriate. He was explaining exactly what
19 Mr. Helm was asking him, and I'm tired of him
20 interrupting the witness.

21 CHAIRMAN NOBLE: Thank you, Mr. Hood.

22 And, Mr. Burtell, please try to answer
23 the questions.

24 And, Mr. Helm, please try to allow the
25 witness to complete the answers.

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1 BY MR. HELM:

2 Q. Now, you testified that you considered the
3 river on a segment-by-segment basis?

4 A. I did.

5 Q. And I believe you said the segments you chose
6 were the old State segments?

7 A. Yes.

8 Q. The first set they had?

9 A. Yes.

10 Q. Did you assess the river on any other segment
11 basis; i.e., did you look at it to see if there were --
12 I mean you weren't stuck with the five segments that
13 the State used; you could have assessed the river under
14 any kind of segmentation you wanted to that would have
15 fit within PPL, right?

16 A. That's correct.

17 Q. Did you do that?

18 A. I explained in my report what I did.

19 Q. If I understood your report correctly, you
20 said you used the State's segments?

21 A. Can I refer to what I said in my report?

22 Q. Sure.

23 A. Paragraph 17 on Page 3 of my report is
24 responsive, I believe, to your question.

25 Q. As I read that, your answer to my question

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1 would be, no, I did not do any other assessment of
2 possible segments of the Verde River for navigation
3 purposes?

4 A. I was comfortable with the segmentation that
5 the State Land Department had originally done.

6 Q. Was my description correct?

7 A. Yes.

8 Q. Is there a significant variance in the
9 physical condition of the Verde River over its entire
10 length?

11 A. What do you mean by a -- I'm sorry, a
12 considerable what?

13 Q. Is there a significant variance in the
14 physical conditions of the Verde River over its length?

15 A. There are certainly differences across its
16 length, sure.

17 Q. How long do you think a length needs to be to
18 constitute a segment, as that terminology is used by
19 PPL?

20 A. Yeah, I don't think there's any specific
21 length. It's, again, driven by -- I would refer the
22 Commission and you back to the factors that PPL Montana
23 laid out to describe varying conditions of a river that
24 would cause segmentation. And as I read PPL Montana,
25 there is no specific length. It's driven by the

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1 encounter.

2 But, again, no, I have not been to every
3 riffle and every rapid on the Verde River.

4 Q. And is it fair to say that your expertise in
5 boating is not such that it would allow you to evaluate
6 the boatability of a rapid on the Verde River?

7 A. I think that the boatability of the Verde
8 River or any other river with respect to rapids, there
9 is some transference; that is, that's why this
10 international rating scale was developed, devised;
11 that it's not perfect, and I certainly have never
12 classed a river, but it's an attempt to make an
13 apples-to-apples comparison, where you can go to one
14 river where they say it's a Class II, and in a boater's
15 mind, a Class II somewhere else shouldn't be looking
16 like a Class V or VI.

17 So it's an imperfect scale in science, but it
18 does allow a boater, perhaps, going to a river that he
19 hasn't been to yet to know what to prepare for.

20 Q. Okay. Now let's answer my question.

21 A. Okay.

22 Q. My question was that your expertise is such
23 that you cannot assess the boatability, the
24 boatability, of a rapid?

25 A. I would disagree with that.

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1 physical conditions.

2 Q. So for the segments that the State selected,
3 you accepted the change in the physical condition of
4 each of their segments to be sufficient?

5 A. For the purposes of our navigability
6 determination, as I indicate, I didn't see any reason
7 why that wouldn't be a useful segmentation for the
8 purposes here before the Commission.

9 Q. This is a tough question for me to ask you.

10 You did not evaluate personally, by going on
11 site, any of the rapids or riffles of the Verde River
12 for purposes of determining whether they would require
13 a portage, true?

14 A. True.

15 Q. Have you seen every rapid or riffle on the
16 Verde, either in a picture or I guess you went there
17 for seven days or something like that?

18 A. I've certainly -- in Mr. Williams' book, he
19 has pictures of many, but certainly not all. So his
20 book I think is in many ways valuable; one being that
21 one gets a good spectrum of the types of rapids one
22 would encounter, and I think he was pretty liberal with
23 his use of photographs, so that someone who was not
24 familiar could get a sense of what it's going to be
25 like to -- what type of rapids you're going to

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1 Q. Okay. You think you have enough expertise to
2 go out and classify rapids as to their boatability on
3 the Verde River?

4 A. Again, you asked me if I would understand --
5 I'm just trying to follow your question. If I could
6 assess the boatability.

7 If I was given an indication that somebody
8 else had classified a river as a Class III, I would
9 read the definition of a Class III and then try to
10 understand, well, okay, based on those conditions --
11 I'm sorry, I must not be understanding your question.

12 Q. You're absolutely right.

13 I just either want to know that you claim
14 that you can classify rapids because you're an expert
15 in boating --

16 A. Oh.

17 Q. -- or you would say, no, I'm not; I've got to
18 go look up somebody else's classifications?

19 A. Sorry for any misunderstanding, Mr. Helm.

20 I would never ever claim to have the ability
21 to go out and say that a rapid is a Class II+ versus a
22 III-. No, that is not my expertise.

23 Q. Okay. Thank you.

24 A. I relied on Mr. Williams.

25 Q. Okay. And have you heard, from the

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1 testifying that's gone on here from other boaters and
 2 things like that, that people who classify rivers can
 3 come up with different classifications for the same
 4 rapid; one guy thinks it's a II and the other guy says,
 5 no, it's a III?
 6 A. I don't know if we were given any examples of
 7 a rapid on the Verde where there was that argument. If
 8 we're talking on the Verde or just in general?
 9 Q. Just in general.
 10 A. In general, without question, yeah.
 11 Q. And now with respect to the Verde, did you do
 12 any investigation to determine Mr. Williams' expertise
 13 in classification of rapids?
 14 A. Based on his boating experience, I judge that
 15 he would have that expertise. And one thing I was able
 16 to do, Mr. Helm, is a cross-check, if you will; is that
 17 independent of the Williams book, I believe it was the
 18 Forest Service USDA had its own rapids listed for the
 19 segments below Beasley Flats, what I refer to the State
 20 Land Department earlier Segments 3 and 4.
 21 And so I compared what the State Land -- or
 22 what the USDA, their classifications for 3 and 4 to
 23 Mr. Williams, and found them to be generally
 24 consistent.
 25 Q. Okay. And so I would take it to be then that

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1 list. It caused less flow because there's irrigation
 2 diversions, for an example.
 3 A. Yes, and what I did, Mr. Helm, is my focus
 4 was, when I reconstructed the flows, would be those
 5 cultural changes that occurred between -- and I think
 6 Mr. Slade corrected me. I should have said 1913 to
 7 1940. So I looked at cultural effects between that
 8 period when I reconstructed flows, and the other
 9 cultural depletions that I considered was the period
 10 prior to that, to put my historic accounts into
 11 context.
 12 Q. Referring you to Paragraph 6 of your
 13 declaration.
 14 A. 6?
 15 Q. Uh-huh.
 16 A. Okay.
 17 Q. And it's a simple question. Is that all you
 18 did to prepare your declaration?
 19 A. The last sentence, the placeholder, came
 20 true, if you will, "If additional information becomes
 21 available, I reserve the right to revise or
 22 supplement."
 23 Certainly a lot of additional information did
 24 become available.
 25 Q. Give me a list of it.

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1 you claim to have enough expertise in boating to be
 2 able to judge Mr. Williams' abilities as a boater?
 3 A. I did not -- I didn't state that, nor do I
 4 agree with that.
 5 Q. Okay. So you don't think you would have that
 6 expertise?
 7 A. The expertise or -- what I was trying to
 8 respond to your question is, as a check, I looked at an
 9 independent source of someone who classified rapids and
 10 found that that classification is similar to
 11 Mr. Williams', which provided me further confidence
 12 that Mr. Williams' classification was a good one.
 13 Q. I understand that you made a cross-check.
 14 A. Okay.
 15 Q. But I'm just trying to find out whether you
 16 think that you have that expertise to make that
 17 judgment?
 18 A. The judgment of the cross-check or the
 19 judgment --
 20 Q. No, of Mr. Williams' boating ability.
 21 A. If I have that.
 22 I guess I would say no.
 23 Q. Could you tell me what you did to evaluate
 24 what changes modern civilization has made on the Verde
 25 River? And I'm just looking for kind of a laundry

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1 A. It would be Dr. Mussetter's report was
 2 certainly released since that time, Mr. Hjalmarson's
 3 reports were submitted after the submission of mine,
 4 numerous supplemental evidence submitted by the State
 5 Land Department, I think primarily, Freeport submitted
 6 additional, SRP did.
 7 I guess I could summarize it. You asked for
 8 a list, but I would say any and all documents that have
 9 since been entered into the record since I prepared my
 10 report, I had an opportunity to view those. And as we
 11 saw in some of the presentation, data was being
 12 literally presented to us at the day of testimony and
 13 hearing people's conversation, so I had the opportunity
 14 since this time to enjoy all this testimony, et cetera.
 15 Q. Sure. What I take from that is this
 16 additional work somehow changes the work that you
 17 presented in your declaration?
 18 A. No, I didn't state that.
 19 Q. Well, then what you're telling me is the work
 20 that's in your declaration is unchanged even though
 21 there's been additional evidence presented?
 22 A. The conclusions that I draw in my
 23 declaration, based on the data that I had at the time,
 24 would not change, with one exception I would say, and
 25 that would be I didn't evaluate -- and I testified to

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1 this yesterday, and I believe you were here. I
2 testified yesterday that I didn't have the benefit of
3 Dr. Mussetter's report. I understood that he was going
4 to evaluate the river with a focus certainly on the
5 braiding issue, and I said yesterday, and I'll say here
6 today, if I were to go to the section of my report
7 where I list natural impediments to navigation, I would
8 add a fourth, and that would be braiding.

9 Q. And that braiding is not on the entire river,
10 according to Dr. Mussetter?

11 A. As I understand, it was predominantly in the
12 State Land Department's prior Segments 4 and 5, as well
13 as, I believe, some evidence in Segment 2, I think.

14 Q. Whatever he says is what you would say? You
15 don't disagree with Dr. Mussetter?

16 A. I read his report. I heard his testimony. I
17 heard his cross-examination. And I think he provides
18 the Commission strong evidence that braiding was a
19 factor in those areas that should be considered in a
20 navigability determination.

21 Q. So I guess going back to my question
22 regarding is this all you did to prepare your report as
23 it exists in Section 6, the answer is, yes, this is all
24 I did, because you're not going to change your
25 report --

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1 A. Correct.

2 Q. -- as a result of the other evidence?

3 A. Correct.

4 Q. In Paragraph 17 of your report, the
5 Footnote (b), can you identify for me the maps that
6 used?

7 A. I would -- I can't do it here, but I could
8 certainly provide those to you or the Commission.

9 Q. They're not part of the record as we sit
10 here?

11 A. As I indicate, historic and current USGS
12 topographic maps, those are public record maps. But
13 you want to know the specific ones that I used. I
14 could generally describe it to you, but I found that
15 when I do that, I upset you. So I'm not sure how to
16 respond to you.

17 Q. Okay. My last question was they're not part
18 of the record at this point?

19 A. At this stage, no.

20 Q. Thank you.

21 My recollection is that you, and you can
22 correct me if I'm wrong, had about seven days at
23 varying times you were out on the Verde River in the
24 course of your work as a hydrologist in Arizona?

25 A. I would say that's --

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1 Q. Some time with Mr. Pearthree and --

2 A. I would say that's a rough approximation.

3 Q. Okay. Did you, at any time when you were
4 preparing your declaration, specifically go to any part
5 of the Verde River to verify any of the information
6 that you were using?

7 A. I went to the river by flying over it in
8 Google Earth, if you will. But in terms of on the
9 ground, boots on the ground, if you will, no.

10 Q. You're familiar with the Day trip or trips,
11 depending on your belief system, correct?

12 A. Are we talking about the --

13 Q. The trips the Day brothers took down the
14 Verde and ultimately to Yuma.

15 A. I'm familiar with the one newspaper article.

16 Q. Yeah.

17 A. Yes.

18 Q. That's all I'm referring to.

19 A. Yes.

20 Q. They were trapping, according to the article,
21 correct?

22 A. Let me confirm that, but I believe you're
23 correct.

24 Yes.

25 Q. Okay. Does trapping fit your definition of a

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1 commercial enterprise as the Day brothers were doing
2 it?

3 A. As a commercial enterprise.
4 I believe it would be, yes.

5 Q. And if they did it five times, and we don't
6 know that, but if you believe the Day brothers, that
7 they did, would that meet your other test; that it was
8 enough of a repetitive nature to qualify?

9 A. I think that by itself, no, because what
10 evidence we do have of their one trip does not, in my
11 mind, support the fact that the river was being used
12 for a highway for commerce. So I would need more

13 information regarding that trip and if, in fact, any of
14 the previous trips occurred.

15 Q. Did you read the books that have been cited
16 in the record here on trapping?

17 A. And what books are those?

18 Q. I would have to go look them up, but they're
19 in the record.

20 A. Submitted by the --

21 Q. By the various parties.

22 A. By the various parties.

23 I didn't review, maybe, if there's one that
24 got submitted five or ten years ago. But the more
25 recent State Land Department documents I tried to scan

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1 through as much as I could. Many times it was right
 2 before hearing, so...

3 Q. Do you recall one of them describing the
 4 process that a trapper goes through after he gets
 5 himself a beaver?

6 A. I don't recall that.

7 Q. Okay. Well, take my word for it, if you
 8 would, that they describe a situation where it takes
 9 approximately 12 hours to skin the beaver and stretch
 10 it out on the hoop so that it will dry so that it can
 11 be transported by the trapper, okay?

12 A. I --

13 Q. You can just --

14 A. Under your hypothetical, fine. I mean I
 15 haven't read it, so...

16 Q. If you assume that hypothetical --

17 A. If you assume that, okay.

18 Q. All right. Does the length of time that they
 19 took to get down the Verde and the Salt and the Gila to
 20 Yuma come more into being reasonable?

21 A. Well, I guess then the question is, is I
 22 would have a hard time thinking it would take 12 hours
 23 to skin a beaver. I certainly would agree that it
 24 might take that many hours to dry it. And then I guess
 25 the question is, well, why couldn't they dry it in the

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1 A. No, you asked me about if I read all those
 2 books about trapping and what they did, and I told you
 3 I didn't.

4 Q. Okay. So you don't know that either.
 5 So your opinion on the Day brothers taking
 6 200 days to get to Yuma is simply based on the fact
 7 that that's too long a time to travel that distance if
 8 you're not doing trapping?

9 A. The question that comes to my mind is, if
 10 you're going to use that account and they're averaging
 11 1.7 miles per day, it then calls into question whether
 12 or not the river was being used for a highway for
 13 commerce. And that's all I think that article then can
 14 tell us, is that they were using the river, but was it
 15 then as a highway for commerce. And I will leave it to
 16 the Commission to read that account and draw their own
 17 conclusions.

18 Q. If the Commission determines that it's
 19 reasonable to take that period of time if you're
 20 trapping and taking skins to market in Yuma, then it
 21 qualifies in your pantheon of this is an economic use
 22 of the river?

23 A. So are you saying if the Commission says that
 24 that is, it is being used as a highway for commerce?

25 Q. Yeah. No, if they determine that that's a

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1 boat after they've skinned it?

2 Q. I don't have any idea. You would have to ask
 3 the guy that wrote the book. I mean I can dig it out
 4 over lunch, if you want.

5 A. But you just asked me to accept your
 6 hypothesis. So I don't --

7 Q. Well, but I'm saying if that hypothesis is
 8 true, you want to question the hypothesis. You don't
 9 want to accept my hypothesis. I'm saying accept my
 10 hypothesis. If that's the case, would it put into
 11 context the reason that it took the Day brothers
 12 200 days to get to Yuma, because they were successfully
 13 trapping beaver along the way?

14 A. I don't believe that we know.

15 Q. And do we know or do you know how the Day
 16 brothers went about conducting their trapping?

17 A. Boy, if we did, we wouldn't be having all
 18 these questions.

19 Q. So the answer is, no, you don't know?

20 A. No.

21 Q. Do you know how trappers in general who were
 22 trapping on a river went about doing their business?

23 A. I think you just asked me that.

24 Q. No, I asked you about the Day brothers. Now
 25 I'm just --

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1 reasonable period of time to trap and go to Yuma, it
 2 would qualify under your --

3 A. I would think that, as we've discussed
 4 throughout these proceedings, Mr. Helm, that would be
 5 yet another thing that the Commission would want to
 6 consider and take into account.

7 Q. Just as an example, can you explain for me
 8 how your perception of the difference a modern
 9 flat-bottom boat would be from one that was in use in
 10 Arizona in 1912? What's the difference about it?

11 A. A modern flat-bottom boat now.

12 Can you give me an example of a modern
 13 flat-bottom boat now that I could draw that comparison
 14 to.

15 Q. You mean the name of one?

16 A. No, no, a style of boat.

17 Q. A rowboat.

18 A. A rowboat, okay.

19 Q. A boat that's 15 feet long, you propel it
 20 with oars, it's made out of wood.

21 A. I used one as a kid, Mr. Helm.

22 All right, so you're asking me what a rowboat
 23 might look like today versus a rowboat in the past?

24 Q. What's the difference?

25 A. A rowboat I used, at least as a kid growing

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1 up back East, was aluminum, and I hit a lot of rocks
 2 with it, now that I think about it.
 3 A rowboat in the past, certainly at Arizona
 4 statehood, finding an aluminum rowboat back then
 5 probably would have been pretty rare, so it would have
 6 been a wooden rowboat. So the materials would have
 7 been different. Likely, the boat would have been a lot
 8 heavier, may or may not have been as forgiving if you
 9 run into that rock that I had a tendency of doing.
 10 Q. You changed my illustration. I said a modern
 11 wooden boat versus --
 12 A. Oh, I'm sorry. I don't -- I must have
 13 misheard you.
 14 Q. You jumped right to your experience with the
 15 aluminum boat. I understand that.
 16 A. Okay.
 17 Q. So now let's talk about the differences
 18 between a wooden boat today with a set of oars on it
 19 and a wooden boat with a set of oars in 1912. Tell me
 20 what's different.
 21 A. Certainly you could have a -- you could have
 22 Mr. Dimock build you a wooden rowboat, I'm sure, today
 23 that is identical to a wooden rowboat in the past. So
 24 if you want to float a historic boat today, it would be
 25 identical to one in the past.

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1 Q. So your use of the term natural impediment in
 2 Paragraph 20 is just a reference to your Paragraph 6
 3 list of natural impediments, plus braiding?
 4 A. Yeah, I think that's what I just said.
 5 Q. I just want to make that clear.
 6 Okay. And, I'm sorry, but you've never seen
 7 a beaver dam on the Verde, right?
 8 A. Oh, in fact, I did my homework assignment for
 9 you, if you're interested.
 10 Q. Oh, I'm always interested in your homework.
 11 A. Well, you instructed me to find those
 12 photographs.
 13 Q. Yeah.
 14 A. So I was able to.
 15 Two things. First, in --
 16 Q. First of all, but you've never physically
 17 seen a beaver dam, right, on the Verde River?
 18 A. On the Verde River, I believe I testified to
 19 that yesterday and said no.
 20 Q. Right, and so now let's go forward.
 21 A. And when you say seen, just so that we're all
 22 clear, I have not been on the ground to see one; but I
 23 have seen pictures of Verde --
 24 Q. You've never been within a hundred yards of a
 25 real live beaver dam on the Verde River?

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1 But I don't believe modern rowboats are
 2 typically being built of wood today. You asked me to
 3 compare a modern boat --
 4 Q. Wooden boat.
 5 A. Again, I'm not a boat expert.
 6 Q. So you can't make that comparison?
 7 A. Certainly without not having more information
 8 about the boats.
 9 Q. In Paragraph 20 of your report, you use the
 10 term natural impediments. Can you define for me what
 11 you mean by natural impediments?
 12 A. If you give me a second, Mr. Helm, to get to
 13 my page.
 14 Paragraph 20 or Page 20?
 15 Q. Paragraph 20.
 16 A. Paragraph 20, okay.
 17 I refer the reader, I say in Paragraph 20, a
 18 few sentences in, "Natural impediments to
 19 navigability," and then I refer the reader to
 20 Section 6.
 21 And then when you go to Section 6, that's my
 22 discussion of natural impediments to navigation where I
 23 included beaver dams, rapids, shallow water, and as I
 24 discussed with you briefly ago, I would add braiding as
 25 a fourth.

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1 A. Not on the ground, no.
 2 Q. Okay. Let's see the pictures that you're
 3 referring to.
 4 A. Okay. So in USDA, a document that we
 5 discussed yesterday, this is Freeport Exhibit 40.
 6 Mr. Hood I'm sure can provide you and the court. The
 7 page number is Page 53 of that document.
 8 MR. HOOD: Rich, what's the Freeport
 9 number?
 10 THE WITNESS: It is 40, four-zero.
 11 MR. HOOD: Freeport 40 is a tab behind
 12 X054.
 13 THE WITNESS: And Page 53 of that
 14 document has a picture of a beaver lodge formed behind
 15 a pool -- or in a pool formed behind a dam. So here it
 16 is.
 17 BY MR. HELM:
 18 Q. What's the UVR?
 19 A. Excuse me?
 20 Q. What's the UVR?
 21 A. Upper Verde River.
 22 Q. Have you seen any other pictures besides that
 23 one?
 24 A. There are, actually, Mr. Helm. You kept me
 25 up a little bit last night.

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1 Q. Sorry about that.

2 MR. HOOD: He'll send you an invoice.

3 BY MR. HELM:

4 Q. I won't pay it, but he's more than welcome to

5 mail it to me.

6 A. I reference -- in my text I reference an

7 article by one Steve Ayers, who is a reporter that used

8 to write for The Verde Independent. So this is the

9 article that he wrote discussing Walt Anderson's

10 students that surveyed the beaver dams in the upper

11 Verde, and he includes a picture of one of the dams in

12 his article.

13 I thought this was useful. This article is

14 in my reference list, but I didn't include the article.

15 I didn't include a hard copy of the article. So that

16 is available. That hasn't been introduced into

17 evidence. There's the beaver dam.

18 That's the article of which I cite in my

19 report, and I can give -- for the record, on Page 23 of

20 my references, it's the Ayers 2010, and you can

21 cross-check, "Beaver Count: Study Shows Upper River

22 Has Healthy Population," Verde Independent, July 29th.

23 Q. Would you agree on the first photograph the

24 description does not describe a beaver dam blocking a

25 river?

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1 dam?

2 A. Based on this picture alone, no.

3 Q. Either direction, either upriver, downriver,

4 or across river?

5 A. Well, dams go across rivers, so...

6 Q. But they have an upper width; in other words,

7 there's one side of it and another side and a width in

8 between?

9 A. Oh, certainly, yes.

10 Based on this picture alone, I wouldn't try

11 to venture a guess as to how wide it is, either on the

12 upstream side or downstream.

13 Q. Would you agree that there is water on both

14 sides of the dam?

15 A. Certainly.

16 Q. Since this isn't part of the record and I

17 don't know where this is, can I just borrow it for a

18 minute?

19 A. This is --

20 Q. I just want to let them. We've been looking

21 at them, but the Commission hasn't had the joy.

22 A. And, Mr. Helm, I found -- and I looked at

23 this previously, but I, again, didn't print it out at

24 the time; but I talk about, and I can direct the

25 Commission and the readers or the Commission and the

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1 A. It says, "Lodge in a pool formed by beaver

2 dam construction."

3 The reason I believe it is blocking the river

4 is the high flow inundating the trees in the channel.

5 Q. But that's not a pool; that's a lodge, right?

6 That's not a dam?

7 A. It says a lodge in a pool formed by beaver

8 dam construction.

9 Q. That's the lodge they're talking about,

10 right?

11 A. I believe so.

12 Q. Okay. That's not the dam that formed it,

13 correct?

14 A. Right.

15 Q. Okay. On this picture, do you think that you

16 could estimate the height of that dam?

17 A. Without going out there, I wouldn't venture a

18 guess, other than just looking at the picture, maybe, I

19 don't know, maybe 3 or 4 feet high.

20 Q. Okay. And what do you think the width of it

21 looks like?

22 A. You know, unfortunately, Mr. Helm, this

23 picture is taken at an angle where we can't see the

24 entire width of the channel, so...

25 Q. You're not able to estimate the width of the

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1 audience to a paragraph in my beaver discussion where I

2 talk about a professor at Prescott College, one Walt

3 Anderson. And let me get to the page. My Paragraph 56

4 on Page 13.

5 Q. Got it.

6 A. He and his students, which was the subject of

7 which Steve Ayers wrote his article, did some mapping

8 of beaver dams along the upper Verde. And, again, I

9 had seen this. Walt Anderson is very passionate about

10 the Verde River, and he has what's called Geolobo, The

11 Personal Website of Walt Anderson.

12 And I brought a copy of this. This post was

13 way back on November 4th, 2012, and it's entitled "When

14 Verde Means Gold." And it's a series of photographs,

15 very picturesque, I should add, of beaver -- or

16 sections of the upper Verde. And I will show this to

17 you, certainly, and let you look. There's a picture

18 entitled "Beaver Pond," showing fall colors.

19 And, again, anyone wanting to check, this

20 comes off of his website, Walt Anderson. Walt

21 Anderson, college professor at Prescott, and he's in

22 their -- they have a natural resources group. And he

23 has a beaver pond showing fall colors. I don't know

24 where the dam is in this picture.

25 Q. Don't know where the location is either, do

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1 you?

2 A. No. All of these are in the upper Verde.

3 Another beaver pond, but you can't see the

4 dam. And here is a beaver dam with cattails that I'm

5 showing. There is the dam.

6 Q. Does it look like there's water flowing

7 behind those cattails?

8 A. It looks like there's water on either side of

9 the dam.

10 Q. And it's flowing over the dam at one point?

11 A. I wouldn't -- I don't think you can tell from

12 the photo it's flowing other than seeping.

13 And then here is another picture set entitled

14 "Beaver Dam at Sunset."

15 Q. Appears to have flow?

16 A. I don't know where you're referring to flow.

17 Q. (Indicated.)

18 A. No. I see ponded water above and water

19 below, but I don't see actually like a waterfall over

20 the dam.

21 Q. You don't think those -- that section of the

22 picture shows a riffle caused by flow of the river?

23 A. I wouldn't interpret that, but if that's your

24 interpretation.

25 Q. I just want yours. You don't think that's a

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1 Q. I don't think I asked you this. I apologize

2 if I did, but you can tell me.

3 Would you define for me the term meaningfully

4 as you use it in Paragraph 20 of your report, second to

5 last sentence; or last line, actually, not sentence.

6 A. So the sentence saying "Modern, low draft

7 boats now in use are not meaningfully similar to

8 those..."

9 I would, once again, respond to that by

10 common dictionary definition of the word meaningfully,

11 you know, not not unsimilar.

12 Q. Okay. Tell me what your understanding of the

13 common dictionary term meaningful means.

14 A. Meaningfully similar.

15 Meaningfully in this use, to me, would be --

16 maybe some synonyms would be substantially,

17 significantly similar.

18 Q. That's how you interpret it?

19 A. That's my best guess.

20 Q. In Paragraph 2 of your report, you refer to

21 your time as an ADWR manager of adjudications?

22 A. Yes.

23 Q. Can you tell me what your duties were there?

24 A. At the height of that section, in terms of

25 staff, I was managing about 15 hydrologists,

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1 riffle?

2 A. No. No.

3 So, again, this is not entered into the

4 record, but prepared by Walt Anderson, the college

5 professor who led the students on the upper Verde to

6 survey beaver dams.

7 Q. How many pictures actually of beaver dams are

8 there in here? One.

9 A. I think it's the last two.

10 Q. Two?

11 A. Two pictures showing ponds that he's claiming

12 are formed behind the dams.

13 Q. But not pictures of the dam?

14 A. Correct.

15 Q. So your sum and substance of familiarity with

16 beaver dams is four pictures?

17 A. You asked me if I had seen any pictures.

18 Without searching further, there was one other picture

19 I saw online at the Nature Conservancy. I didn't print

20 it out. But they had a picture of a beaver dam

21 referring to the upper Verde. Where they were, I don't

22 know, so...

23 Q. So five pictures?

24 A. Add them all up, I believe that's, yeah, five

25 or so.

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1 geologists, water resource specialists. I had some GIS

2 analysts, folks that do the maps, cartography. And my

3 role was to serve as technical advisor to the

4 adjudication court. And I'm not sure, and I don't want

5 to waste the Commission's time, but I'm assuming you're

6 familiar with the stream adjudications in Arizona, as

7 opposed to this adjudication, which is distinct.

8 Q. Were you, in that capacity, one of the

9 boots-on-the-ground people, or were you the guy who

10 supervised the boots-on-the-grounds people?

11 A. Both.

12 Q. How much of your time was spent on the boots

13 on the ground?

14 A. It increased. Certainly, as any manager will

15 tell you, we all want to spend more time in the field;

16 but as you are responsible for more people, you learn

17 to delegate or try to learn to delegate.

18 I would say, again, initially, you know,

19 maybe 10, 15 percent of the time doing some

20 field-related activity; but that decreased quite a bit

21 as my responsibilities grew.

22 Q. On Page 1 of your report, in the footnote you

23 describe what you perceive the Arizona Court of Appeals

24 did in defining ordinary and natural flow conditions?

25 A. I listed their definitions that I think they

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1 provide parenthetically behind the words ordinary and
2 natural.

3 Q. Okay. Would you agree with me that in terms
4 of the natural flow condition, the Court of Appeals
5 said it included floods and droughts?

6 A. Under natural?

7 Q. Uh-huh.

8 A. Again, I believe that they distinguish
9 between natural and ordinary and had definitions for
10 each, separate definitions.

11 Q. I agree. And in the definition of natural,
12 did it also include floods and droughts?

13 A. Under their definition of natural, I'm not
14 familiar with them adding that under their definition
15 of natural.

16 Q. You heard the testimony of Mr. Randall,
17 right?

18 A. I did.

19 Q. Do you agree with his description of the
20 Verde up in that area where the Apache occupied the
21 Verde, in terms of it being meandering, quicker to go
22 off the river than it was to wander around on the
23 river?

24 A. I would have to go back, and, again,
25 Mr. Helm, I'm trying to answer your question, but it

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1 would help me, and I think Mr. Slade had the
2 transcripts. I would have to see what exactly you're
3 describing. What you just described --

4 Q. It was his -- go ahead.

5 A. -- I don't recall him saying it that way.
6 I'm not quite sure. I don't recall exactly how he said
7 it, so I don't want to agree to something where I'm not
8 looking at the transcript, so...

9 Q. I think he said that the reason the Apaches
10 didn't use the river was that it was quicker to go
11 overland than it was to wind around through the river
12 to get from Point A to Point B. Do you recall that?

13 A. What I recall is him saying that they weren't
14 using the river, and to get from Point A to Point B,
15 that they would not use -- because they weren't using
16 the river, they would have to cross over a mountain or
17 whatever. So I'm sorry.

18 Q. You don't recall him saying they didn't --
19 one of the reasons they didn't use it was because it
20 was quicker to go by land?

21 A. Again, if you could show that to me, that
22 would help.

23 Q. But you don't recall it?

24 A. I don't recall it.

25 Q. You can answer that yes or no, right?

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1 A. Okay. I don't recall.

2 Q. And Paragraph 18 of your --

3 A. Sure.

4 Q. And you may have answered this the other day,
5 but I couldn't remember it. What are the two historic
6 accounts that you maintain are recreational?

7 A. Let me refer to my Table 1.

8 I would say that the Jerome businessmen trip
9 would come under that heading of recreational and the
10 1883 account, the folks from Fort McDowell to Phoenix,
11 the so-called jolly mariners. That gave me the
12 impression that that might be of a recreational nature.
13 I did indicate the purpose was unknown, but that
14 suggested to me, based on the newspaper article, that
15 that might be recreational.

16 Q. And I can't recall. I think you testified
17 that the State had come up with a couple of other boat
18 trips since the ones that you examined in your report?

19 A. At least one, and then I think they had some
20 other accounts that firmed up the Jerome businessmen.
21 When I wrote this and looked at the record, I state on
22 my Table 1, quote, unknown whether trip was actually
23 made. And the State Land Department team found some
24 articles that I think indicated they went down and
25 decided to abandon the trip. So those were additional

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1 articles.

2 But as a new account --

3 Q. Uh-huh.

4 A. -- there was a 19 -- poststatehood, but a
5 1917 account that I've written down here was an
6 additional one. And I have a folder, I think, with the
7 additional ones in it.

8 Q. I just want you -- just tell me what that
9 account was in terms of it went from A to B.

10 A. Sure. I would have to refer to it.

11 Q. Sure.

12 A. Because it, again, wasn't in my report, so...

13 THE WITNESS: Eddie, this is your 121.

14 So I'm not sure what that -- this was your, I'm sure
15 I'm using the wrong phrase, but supplemental evidence
16 No. 121. So I'm sure --

17 CHAIRMAN NOBLE: Okay, we're going to
18 take a break for lunch now, and we'll figure that out
19 during lunch. Let's be back here at 1:30, please.

20 (A lunch recess was taken from
21 12:29 p.m. to 1:32 p.m.)

22 CHAIRMAN NOBLE: Mr. Mehnert, will you
23 call the roll?

24 DIRECTOR MEHNERT: Commissioner Allen.

25 COMMISSIONER ALLEN: Here.

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1 DIRECTOR MEHNERT: Commissioner Henness.
 2 MR. BREEDLOVE: He's walking in right
 3 now.
 4 DIRECTOR MEHNERT: Commissioner Horton.
 5 COMMISSIONER HORTON: Here.
 6 DIRECTOR MEHNERT: Chairman Noble.
 7 CHAIRMAN NOBLE: Here.
 8 DIRECTOR MEHNERT: Commissioner Henness.
 9 CHAIRMAN NOBLE: Commissioner Henness,
 10 are you here?
 11 COMMISSIONER HENNESS: Present and
 12 accounted for.
 13 DIRECTOR MEHNERT: We have a quorum.
 14 BY MR. HELM:
 15 Q. Mr. Burtell, Paragraph 29 in your report.
 16 A. Good afternoon, Mr. Helm.
 17 Q. Good afternoon.
 18 A. Paragraph 29, I am there.
 19 Q. Okay. Just want to isolate that the
 20 conclusions that you set out in these, in this
 21 paragraph, are not from your original work, but just
 22 from work from other people that you read?
 23 A. No. I took what other people -- I took
 24 information from other people and used it in a way that
 25 they did not.

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1 dated February 27th, 1980. That's when the article was
 2 written, and it's a photograph, and I will read the
 3 caption. It says, "Ship shoy! Maybe. This boat was
 4 built in the spring of 1917 for a trip down the Verde
 5 River by Fred Stevens and Jake Webber. The trip was to
 6 be made in a period of high water following the spring
 7 flood. But the men couldn't make it past The Falls in
 8 the Brown Springs area. Pictured are Stevens and his
 9 wife Jessie. Webber was the local blacksmith."
 10 MR. BREEDLOVE: And just let me
 11 interrupt for a second. That's Exhibit X017, but it's
 12 Tab or Part 121.
 13 CHAIRMAN NOBLE: Whatever makes you
 14 happy, Fred.
 15 MR. BREEDLOVE: It makes me really
 16 happy, thank you.
 17 THE WITNESS: Sorry, Mr. Helm.
 18 Ms. Hernbrode wanted me to let everybody know that was
 19 the number.
 20 BY MR. HELM:
 21 Q. Okay. Paragraph 30, moving right along.
 22 A. I'm there.
 23 Q. Okay. This is what appears to be an account
 24 of a guy named Leroux?
 25 A. Yes.

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1 Q. Right, but the information came from other
 2 people and not from your original work?
 3 A. That's correct. Okay. Yes, that is correct.
 4 These are historic -- yes. Simple answer, yes.
 5 Mr. Helm, sorry to interrupt you. Did we
 6 want to -- and I apologize if you were headed this way,
 7 but where I think we left off, Ms. Hernbrode had
 8 provided us the State Land Department's number for that
 9 boating account. Were you going to circle back around
 10 to that?
 11 Q. That's fine, you can go ahead and tell me.
 12 A. She had me write down the number. It's X017.
 13 I think we were off the record and she said, "Rich,
 14 make sure to write that down."
 15 Q. And what do we normally call that? It's the
 16 boating account of who?
 17 A. You asked me if there was any boating
 18 accounts that I didn't look at that were later entered
 19 by the State Land Department.
 20 Q. Right, and I mean we don't call it 121. I
 21 mean what's the name of the guy?
 22 A. That's what I just said, X017.
 23 Q. That's the exhibit. I want to know who went
 24 boating?

A. It is a picture from The Verde Independent
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1 Q. And in that paragraph Leroux describes the
 2 Verde River as a fine large stream, in some cases rapid
 3 and deep, in others spread out into wide lagoons.
 4 And you, as I would understand it, concluded
 5 that that description of the river is not enough to
 6 hold it navigable?
 7 A. As in all of these accounts and other lines
 8 of information, I used this as another line of evidence
 9 that I thought should be considered.
 10 Q. And what did it tell you that led you to
 11 conclude that it was not navigable?
 12 A. It did two things, in my opinion. The first
 13 was, although I guess it would be somewhat obvious,
 14 that there were rapids back in his time of 1854 and
 15 there are rapids now. But he also, again, described
 16 these wide lagoons, which, based on current conditions,
 17 are not prevalent in the area, but at his time they
 18 were obviously present enough for him to note it.
 19 Q. Did the fact that he was traveling by road
 20 play any effect on your decision not to use this to
 21 support a determination of navigability?
 22 A. Back in 1854, since there weren't, as I
 23 understand, settlers in the area, I'm suggesting, and I
 24 say that, that this was probably an Indian trail. So
 25 I'm not quite sure where that trail went, so...

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1 Q. I think it would be Paragraph 31, you set out
2 a number of quotations; do you see that?

3 A. I do.

4 Q. And could you just go down each quotation and
5 tell us what in the quotation indicated to you that the
6 Verde was not navigable as a result of the quotation?

7 A. Sure. Okay. The first, on Page 6, which
8 I -- should I read these or just read it to myself and
9 then tell you what it -- how it --

10 Q. I've got it in front of me, and I'm sure the
11 Commission has the report, so unless you want to just
12 take the time to read it, just tell us.

13 A. Okay. All right. So if the Commission will
14 give me a minute or a second, I will read each one and
15 tell you what effect it had on my view of the
16 navigability of the river.

17 The first one, and this was an account near
18 the confluence with Gap or Chasm Creek, which is
19 slightly below Beasley Flats. The first account,
20 Mr. Helm, was a time when there was, quote, a fine
21 rushing stream. I think this goes to the question of
22 the ability to safely boat in the area, where they say,
23 "We have struck the river in the canyon between the
24 upper and lower valleys, and it will be difficult to
25 get out."

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1 Certainly the ability along a navigable
2 stream for access in and out I think is of some
3 relevance.

4 Q. How did the Colorado get declared navigable
5 if it was a requirement that you be easily getting out
6 of the river?

7 A. What portion of the Colorado River are you
8 referring to?

9 Q. Through the canyons.

10 A. My understanding -- I'm not familiar with the
11 navigability determination of the Grand Canyon in
12 Arizona. I do know that the Grand Canyon -- or I
13 should say the Colorado River in Utah through Cataract
14 Canyon was deemed nonnavigable, and I've been in that
15 area, and that is very difficult to get in and out.

16 Q. Okay. So if I understand, what you're saying
17 is, A, the fact that it was deep enough water that it
18 wasn't fordable, that it was 50 yards wide didn't play
19 any factor; but the factor that convinced you that made
20 it nonnavigable was that it went through a canyon?

21 A. Again, Mr. Helm, I didn't read that statement
22 and by itself was convinced that the river was
23 nonnavigable.

24 Q. But that's what you took away from it, from
25 that statement, that led you to conclude from that

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1 statement that it was nonnavigable?

2 A. Certainly the factor about access getting in
3 and out was something that I considered as one of many
4 factors regarding navigability.

5 Q. One of many factors that indicated
6 nonnavigability?

7 A. Correct.

8 Q. Go to B.

9 A. Okay. This was between Gap or Chasm Creek
10 and near Oak Creek. So when you look at a map of
11 Mr. Allyn's route, he hit the Verde River and then went
12 upstream, only to circle and come back. So in this
13 case he's worked his way upstream. And now let me read
14 this.

15 This account, what I took away from,
16 Mr. Helm, was that very violent floods could go through
17 this area and put the river in a condition that would
18 be unsafe. So I considered that. Certainly I
19 understand that I'm supposed to look at the river not
20 in flood conditions, but it was an observation just how
21 violent the floods could get.

22 Q. Sure, and it played some part in your
23 determination that the river was not navigable?

24 A. Yeah, this one, you know, again, with the
25 understanding and the direction in Winkleman not to

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1 look at flood events, this one probably had less.

2 Most rivers in Arizona are going to have --
3 all rivers in Arizona will flood. This one in
4 particular, due to, I guess, the constriction in this
5 area, just shows how violent and how high the water can
6 get.

7 COMMISSIONER ALLEN: Mr. Chairman,
8 question.

9 CHAIRMAN NOBLE: Sure.

10 COMMISSIONER ALLEN: The circumstances
11 that we're dealing with here, Rich, as far as rainfall,
12 runoff is concerned, was this not one of the largest
13 floods that actually occurred on the Colorado River at
14 this particular time, 1864?

15 THE WITNESS: I'm not familiar with
16 historic flooding on the Colorado River, so I don't
17 know. If you have evidence of that and you're
18 confident that that was a high flood year on the
19 Colorado, then that may or may not indicate that the
20 watershed in the Verde River also would have been
21 running high. I didn't look at it, so...

22 COMMISSIONER ALLEN: Have you read any
23 of the Army reports of people who were going through
24 the northern part of the state at this particular time
25 relative to the flooding that occurred in those areas?

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1 THE WITNESS: No. Perhaps the closest I
2 could get to what I put in my report, but I don't know
3 if I went far back, is the tree rings, to see whether
4 1869 was a really high year based on tree rings. Now,
5 again, that would be more of an annual streamflow.

6 My Figure 7, at least, Commissioner
7 Allen, if you look at 1869 based on tree rings
8 reconstructing flows on the Verde River, 1864 -- let's
9 see if I can do this with a piece of paper here.

10 It's a little hard to tell, based on my
11 graph, but 1864 may have either been a year when the
12 Verde, based on tree rings, was at a million acre-feet
13 for that year, which would be substantially above the,
14 roughly, 400,000, or it's the value right next to it.
15 I'm a little unclear. Which is more on the order of
16 about 700,000.

17 But it's probably one of those two, and
18 both of those are substantially above the 400,000,
19 which is the median. So going from the Colorado now to
20 the Verde, these annual data would support your
21 statement that it might have been a wet -- that might
22 have been a wet year, and that might have been what
23 they were seeing out there.

24 Does that answer your question?

25 COMMISSIONER ALLEN: Yes, that's fine.

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1 that the Rio Grande, as I understood, had been
2 deemed by the -- or has been determined by the U.S.
3 Supreme Court to be nonnavigable. It seemed of some
4 relevance that he was drawing a comparison between a
5 nonnavigable stream, the Rio Grande, which he saw in
6 December and January, when flows would be typically
7 low, to a Verde River which he was traveling through in
8 late February, early March, which is the typical high
9 flow season and perhaps, as Mr. Allen suggests, an even
10 high flow year.

11 So he was saying that the Verde was similar
12 to, nearly as much water. So it provided to me a
13 little bit of context of what the river looked to a
14 person at a very early time, and that person was
15 comparing it to a river that was determined not to be
16 navigable.

17 Q. The next one, D?

18 A. D. As I indicated, Judge Allyn is moving
19 upstream, so now he's up near Montezuma Castle, and it
20 looks like he reaches that on February 29th. Let's see
21 what it says here.

22 My main point here, Mr. Helm, is this is late
23 February now, which, again, is kind of the heart of the
24 higher flow snowmelt season, and he says he crosses the
25 river. Doesn't indicate any difficulties in that

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1 Thanks.

2 THE WITNESS: Mr. Helm.

3 BY MR. HELM:

4 Q. Proceed.

5 A. Proceed, okay. All right. I think we were
6 on C.

7 Q. That's right.

8 A. Yes. Let me read this quickly.

9 This was of relevance to me in a couple of
10 ways. He draws a comparison based on how much water
11 visibly he sees in the Verde River in the Oak Creek
12 area to what he saw on the Rio Grande.

13 And on Page 7 of my report I have a footnote
14 where I had Pratt's book, and he had a diary and he was
15 in the Rio Grande or along the Rio Grande between
16 Santa Fe and Albuquerque in December and January,
17 December 1863 and January 1864, which is the
18 wintertime, prior to the snowmelt. And he was drawing
19 the comparison that the Verde River -- and I'll just
20 read it.

21 "The general characteristics of the valley
22 are similar to those of the Rio Grande and there is
23 nearly as much water in the river as there was in that
24 stream when I first struck it coming from Santa Fe."

25 So what was relevant to me, Mr. Helm, was

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1 crossing. It hearkened back to accounts I've read all
2 the way back to Father Kino, when he would hit the
3 Colorado River and discuss at some length about how he
4 was able to cross the river. Judge Allyn doesn't make
5 any comments about any difficulties in crossing. So it
6 at least gave me an indication that where he crossed,
7 it wasn't difficult; nothing more, nothing less than
8 that.

9 Q. He wasn't on foot, was he?

10 A. I would have to look at the account. I
11 believe he was on horseback.

12 Oh, I'm sorry. On Paragraph 31, "traveled up
13 and then down the Verde by mule with a group of
14 civilians and troops."

15 Q. How tall is a mule?

16 A. How tall is a mule. Well, the ones with four
17 legs are usually --

18 Q. That's the kind I'm talking about.

19 A. Yeah. Let's see. I'm trying to think. You
20 would have to lift your leg up, probably, to get up
21 over a mule, so I would say the back of the mule might
22 be up about this tall.

23 Q. Okay. So if I'm on top of a mule, how deep
24 would the water be before I couldn't ford the mule
25 riding it.

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1 A. My guess would be, but I'm purely
 2 speculating, is that they might not have wanted, just
 3 due to the rocky nature, to try to ride a mule across.
 4 They might want to walk it across so that the mule
 5 doesn't hit maybe a low spot and go tumbling and
 6 everyone gets washed downstream. But that's pure
 7 speculation on my part.
 8 Q. Your assumption is that he got off the mule
 9 and walked it across?
 10 A. I think that's -- yes, that would be my
 11 presumption, but it's pure speculation, Mr. Helm.
 12 MR. BREEDLOVE: For the record, when you
 13 say --
 14 THE WITNESS: Oh, yep, that's --
 15 MR. BREEDLOVE: -- that a mule is this
 16 tall, the court reporter can't record what that means.
 17 THE WITNESS: I violated every --
 18 MR. BREEDLOVE: So maybe you could say
 19 approximately.
 20 CHAIRMAN NOBLE: No, I think we're fine
 21 without it. The U.S. Supreme Court can make its own
 22 decision as to how tall a mule is.
 23 MR. HOOD: Here, here.
 24 MR. BREEDLOVE: Just trying to help.
 25 CHAIRMAN NOBLE: I understand, and I

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1 natural condition of the river?
 2 A. I would not agree with that, insofar as when
 3 he was there, there was a ditch, but it probably wasn't
 4 being used in February to irrigate.
 5 Q. And that's pure speculation on your part?
 6 A. He was there in late February, and based on
 7 my understanding of the irrigation season up there,
 8 that would have been too early.
 9 Q. Okay. But you don't know? I mean what did
 10 you do to determine that?
 11 A. Again, just based on my discussion with the
 12 current irrigators in that area, that would be pretty
 13 early for an irrigation season; but it is my guess
 14 based on that.
 15 Q. And I take it that you wouldn't assume that
 16 it was part of the irrigation system; that even if they
 17 weren't irrigating, they had built the ditch, right?
 18 A. Yes.
 19 Q. And so at that point in time they were either
 20 ready to take the water out of the river or they were
 21 already taking it out?
 22 A. Certainly by 1864, the fact that there was a
 23 ditch there, that was consistent with Hayden's having
 24 1864, in my Table 2, some 200 acres being irrigated at
 25 that time.

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1 agree with you, but in the interest of time.
 2 BY MR. HELM:
 3 Q. Moving right along, E?
 4 A. Excuse me. South of Montezuma Castle, so now
 5 Judge Allyn has made the turn, if you will, and he's
 6 starting to work his way back down the Verde River. I
 7 will read this quickly.
 8 In this case, Mr. Helm, a couple things were
 9 of interest to me. This is 1864, which is when Hayden
 10 indicates the first irrigation was occurring in the
 11 valley, and that was supported by the fact that there
 12 is an acequia, A-C-E-Q-U-I-A, the Spanish word for
 13 irrigation ditch, canal.
 14 So that was evidence to me that we have
 15 evidence of somebody on the ground in 1864 indicating
 16 that there were diversions beginning that far back.
 17 So beyond that --
 18 Q. That doesn't say anything about navigability,
 19 does it?
 20 A. No. But, again, I was trying to capture
 21 conditions of the river in their natural and ordinary
 22 state, and this was evidence that there was a cultural
 23 diversion in 1864 that I would need to consider.
 24 Q. From your perspective, at least in 1864
 25 diversions had commenced and we were no longer in the

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1 Q. Go to F.
 2 A. Okay. You want to skip -- oh, I'm sorry,
 3 yes, F. Okay.
 4 He continues down the Verde River. Now he's
 5 gone all the way down to below the East Verde River, so
 6 he's made some progress.
 7 Another indication in my mind, contrasting it
 8 to a river like the Colorado, he says "We followed down
 9 the stream three days, crossing and recrossing the
 10 river."
 11 This, again, speculation on my part,
 12 Mr. Helm, but crossing and recrossing the river, he
 13 doesn't indicate that that was with great difficulty;
 14 that horses were lost or things like that. He seems to
 15 suggest that it wasn't a big deal. Speculation, but,
 16 again, I took that into account. Again, contrasting
 17 that with the Colorado River, reached the Colorado
 18 River. I don't think someone would quickly say they
 19 were crossing and recrossing the river, so...
 20 Q. Was your assumption on that statement the
 21 same as the earlier one, that he got off his mule and
 22 walked it across each time?
 23 A. That would be, I think, a reasonable guess.
 24 Q. G.
 25 A. G. So now you can -- by the title of this,

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1 "near present day Fort McDowell," he's worked his way
2 all the way down now to near the confluence with the
3 Salt River. And this is simply, Mr. Helm, to indicate
4 that he had continued his way down and had reached Fort
5 McDowell. So he didn't have anything else to say about
6 the river between the East Verde confluence and Fort
7 McDowell. So this was just a way of providing, by
8 March 11th, he was down there. So it provided me
9 bookends as to the period of time he was on his trip.

10 Q. It didn't really tell you anything about
11 navigability?

12 A. The furthest one, perhaps, could squeeze
13 something out of this was that he got all the way down
14 to that area without making further mention of the
15 river one way or the other. From a boating perspective
16 or -- so no.

17 Q. You go on now in 32 and you're talking about
18 Allyn's journey. And the question I would have that
19 this one raises for me is, if we have a description
20 from some person of the characteristics of a river, all
21 right, and just for purposes of our discussion let's
22 assume that they describe characteristics that would
23 lead us to conclude it's navigable, all right, it's
24 20 feet deep, it's, you know -- they're basically
25 describing the Mississippi River or something, all

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1 again, my guess would be, is they would walk their
2 livestock or their horses across, but maybe they rode
3 them across; and that most of the time the river, in
4 his opinion, in that area you could do that. Nothing
5 more, nothing less.

6 Q. Did you, in the course of your study, do any
7 actual studies to determine how deep the Verde River
8 would be before an average human being could not ford
9 it if he was walking?

10 A. Based on --

11 Q. What the depth would be.

12 A. Sure, that's a fair question.

13 Having done streamflow gaging over the years,
14 once the water starts to get to near waist level,
15 depending on the velocity of flow, things can start
16 getting a little nerve-racking out there. You're deep
17 enough submerged at that level that, again, if you lose
18 your footing and the velocity is quickly enough, you
19 may find yourself in a pretty tough situation very
20 quickly.

21 COMMISSIONER HORTON: Mr. Chairman?

22 CHAIRMAN NOBLE: Mr. Helm, would it be
23 all right if Mr. Horton asked a question?

24 MR. HELM: It certainly would.

25 COMMISSIONER HORTON: What is a freshet?

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1 right.

2 And my question is do they have to state it's
3 navigable for you to accept their descriptions that
4 would make it navigable?

5 A. No. What struck me about this, Mr. Helm, was
6 that he never mentions -- he never speculates at all
7 regarding -- he never speculates at all regarding the
8 use of boats. And so whether that makes it navigable
9 or not navigable, I'll just say this is yet another
10 piece of information that I considered. He was silent
11 on the issue, if you will, of use of the river for any
12 boating purposes.

13 Q. Okay. Going to 33, you have another
14 description; this one from Captain Sanford, I believe?

15 A. Yes, that's correct; and as before, I'll read
16 this and then try to quickly summarize what it might
17 mean.

18 Similar, again, Mr. Helm, to some of Judge
19 Allyn's statements, the captain says "The Rio Verde,"
20 and this is in the Fort McDowell area, "is generally
21 fordable, during the freshets it is unfordable; it is
22 never dry."

23 What this, also, as a piece of information
24 that I considered, is that I took away from that that
25 most of the time the river could be forded. And,

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1 THE WITNESS: As I understand, that's an
2 older term that we don't use much more, but I believe a
3 freshet would be the high spring runoff period.

4 BY MR. HELM:

5 Q. Okay. So in terms of fordable, if I'm
6 walking, are we talking 2 and a half, 3 feet deep max?

7 A. Again, it would be two variables to answer
8 your question, Mr. Helm; not just the depth of the
9 water, but the velocity.

10 Q. Sure.

11 A. The velocity is what's going to -- you know,
12 you can, with your arms up, perhaps walk your way into
13 a pool and get yourself across; but if there's some
14 velocity associated with that, whether it's a horse or
15 a human, you can get knocked off your feet and on for a
16 ride, so...

17 Q. Well, since you are the only one here that I
18 am aware of who has had experience out there in that,
19 about what's the max velocity before it knocks you off
20 your feet?

21 A. Well, and, again, it's not just the velocity,
22 because if you have velocity that's really high, but
23 it's only up to your ankles --

24 Q. Put the depth in too.

25 A. Okay. So if you've got both a high-velocity

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1 stream and a relatively deep stream, when you get
2 velocities on the order of 3 feet per second, like I
3 said, it can knock you off your feet.

4 Q. Okay. And how deep would the water be in
5 that case; 3 feet deep?

6 A. I think you just told me to assume that it
7 was 3 feet deep.

8 Q. Oh, if that's what you're answering, that's
9 fine. I didn't know whether you did or not.

10 A. But, again, you could be crossing a pool
11 which is very deep, 3, 4 feet deep, where the
12 velocities are lower, and it might not knock you off
13 your feet, but you might get wet up to, you know...

14 Q. And for the most part, with these examples
15 that you're giving us, where they talk about fording or
16 that sort of stuff, we don't know the location, do we?

17 A. In this situation, no more specific than,
18 quote, near present day Fort McDowell.

19 Q. In other words, that could be quite a stretch
20 of river?

21 A. Could be.

22 Sorry to interrupt, Mr. Helm. There was in
23 this report, or I should say Mr. Allyn's memoirs, I
24 believe there was a map that may have been prepared by
25 the editor of Allyn's memoirs where there was maps as

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1 he followed himself down the river that provide some
2 more specificity as to where he was.

3 I included quotes related to where he was
4 near or close to the river, but there would be,
5 perhaps, other landmarks that I didn't include here
6 that might get you a little closer to a particular
7 area. And that's in my appendices.

8 Q. Okay. Now, have you ever crossed a river on
9 a horse?

10 A. I have not had that pleasure, no.

11 Q. Have you done any studies about how high the
12 water would be before a horse wouldn't want to cross it
13 with a rider on it?

14 A. I will just repeat again. The same knocking
15 yourself off your feet would apply to a horse as it
16 would a person; that a horse would have an easier time
17 going through deeper water if the flow velocities are
18 low versus high.

19 Q. So if I'm fording on a horse, I could
20 probably go across deeper water?

21 A. Not necessarily. Horses fall quite a bit,
22 from what I understand in reading some of these
23 accounts. I believe --

24 Q. Which account said that?

25 A. Yes, the account of the -- now we have to go

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1 to the expedition that was made by the military back in
2 1868, when they were trying to come up with a route to
3 connect them between Camp McDowell and Camp Lincoln,
4 which is later Camp Verde. And a group of soldiers
5 from Camp McDowell went up and they had horses, and my
6 understanding is, in trying to cross the river, the
7 horses lost their footing, and, you know, I don't know
8 if they lost any horses, but it was difficult to get
9 across.

10 Q. How deep was the river; do you know?

11 A. I don't know.

12 Q. How fast was the flow?

13 A. Don't know that either.

14 Q. Was it at the time of the year when it was
15 heavy flows?

16 A. It was January. January is typically before
17 the high flow season, but we don't know beyond that.

18 Q. What would you estimate, based on the
19 knowledge you have, would be a reasonable depth and
20 flow that you could expect a rider on a horse to cross
21 the Verde River?

22 A. Certainly if the flow was a couple feet or
23 less and the velocity was, you know, 1 or 2 feet per
24 second, I don't know if that would be detrimental to a
25 horse and a rider that would knock them off their feet,

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1 but that's pure speculation on my part.

2 Q. And for the most part, we don't have any
3 specifics on any of these things that you talk about
4 where they're fording, whether they were fording on a
5 horse or walking?

6 A. That's correct.

7 Q. Okay. In Footnote (c) on Page 7, I just
8 can't quite figure out what this has to do with the
9 navigability of the Verde River. Are you trying to
10 compare the United States versus Rio Grande Dam &
11 Irrigation Company to the Verde?

12 A. What I was trying to do, Mr. Helm, is in that
13 footnote I indicate that the Supreme Court decision
14 found that the Rio Grande in New Mexico, quote, is not
15 a stream over which, in its ordinary and natural
16 condition, trade and travel can be conducted...its use
17 for any purposes of transportation has been and is
18 exceptional, and only in times of temporary high water.

19 As I testified to probably about five minutes
20 ago, I thought I explained to you that Judge Pratt had
21 just the month prior crossed along -- or traveled along
22 the Rio Grande before reaching the Verde, and he drew a
23 comparison between the two.

24 Q. So you're using Judge Pratt's trip to
25 facilitate a comparison of the Rio Grande River to the

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1 Verde River?

2 A. He was, in his mind, and I should say in his

3 words, comparing the two as to their flow.

4 Q. Okay. And did you use that for your

5 determination?

6 A. I hate to sound like an old record here, but

7 that seemed to be of interest, a comparison of the

8 Verde River in 1864, when there was little, if any,

9 irrigation occurring, and he's comparing it to a river

10 where he said had more flow that was later deemed to be

11 nonnavigable. So that seemed like it might be of

12 interest to the Commission and it was of interest to

13 me.

14 Q. Okay. Page 8, right above the Government

15 Assessments, B, do you see that; you have one sentence,

16 "By the time this article was written"?

17 A. Yes. Now we're referring to an article in

18 1875 and -- yes.

19 Q. I just want to know where you get the 50 cfs

20 from.

21 A. Sure. That article was written, if you look

22 back on Page 7, the Prescott newspaper, the Weekly

23 Journal-Miner, was written in 1875. And if you go to

24 my Table 2, you can see I have acreage irrigated, and

25 if you walk your way across, my estimate of stream

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1 at the difference in depth if you added another 50 cfs

2 onto the stream; and in my opinion, it just doesn't

3 change the depth of the water to a point that it would

4 have substantially changed the depth and, in my mind,

5 have an effect on the navigability of the river.

6 Q. Paragraph 36, I believe, and you're talking

7 about, at the bottom, these surveys that were done on

8 the Verde River and you're talking about they were not

9 meandered; do you see that?

10 A. I discuss that on Page 9, yes, but within --

11 towards the end of that paragraph. Now I'm flipping

12 the page. Yes.

13 Q. You see that, that's all I started with.

14 A. Okay. I was still back on Page 8.

15 Q. Okay. And you state that both banks of the

16 Verde River were not meandered, right?

17 A. For those townships.

18 Q. That's what I mean. That's just specifically

19 for those townships?

20 A. For the townships I've listed, correct.

21 Q. Okay. And were there any townships where the

22 Verde was meandered on both banks?

23 A. I was here for Mr. Littlefield's or

24 Dr. Littlefield's testimony, and I believe that there

25 were some townships more in the southern part of the

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1 depletion at that time at 53, I believe, cfs. And I

2 said "an estimated 50 cfs."

3 Q. Okay. So but where it came from is it came

4 from your work on Table 3 [sic]?

5 A. That's correct.

6 Q. And Paragraph 35, you estimate 500 acres; do

7 you see that?

8 A. Similar exercise, Mr. Heim, where I took the

9 date of the memorial, 1865, and related that to

10 Table 2. And Table 2 is a year-by-year estimate of

11 irrigated acreage. So simply did that comparison.

12 Find 1865, work your way across, and...

13 Q. Okay. Again, at 36 you're talking about the

14 General Land Office cadastral surveys, and you state

15 that they are before significant depletions. And I

16 would just like to know your definition of significant

17 as you use it in that table or paragraph.

18 A. Yeah, sure. What I did, Mr. Heim, was I

19 could go to Table 2, compare the year that the survey

20 was done to the amount of irrigation and associated

21 depletion estimates for that year and then look at the

22 amount of cubic feet per second; and these, in my

23 opinion, are high estimates of depletions. And based

24 on the rating curves that I prepared and presented in

25 the report, some of which are from Mr. Fuller, you look

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1 Verde where both banks were meandered. Those aren't

2 included here.

3 Q. You have a section that starts, is entitled

4 "Early transportation needs" in your report?

5 A. On Page 9, yes.

6 Q. Right. And just for starters, what expertise

7 in assessing transportation needs of early settlers do

8 you bring to the table?

9 A. I have had the opportunity to read the

10 reports that have been entered into evidence prior to

11 this time. I'm not, obviously, a civil engineer who

12 designs and builds roads; but I think I have enough of

13 a general education that I can read the accounts of

14 somebody building a road to understand what a road is.

15 Q. You would recognize a road if you saw it?

16 A. Yes, I think I would.

17 Q. But you don't claim any expertise in

18 constructing that road?

19 A. No. In fact, what I tried to do is rely and

20 cite and enter into evidence folks, historians and

21 others, that would have that expertise.

22 Q. And you don't claim any personal expertise in

23 selection of why the road ought to go one way or

24 another?

25 A. Certainly not.

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1 Q. Am I right, just as kind of an aside, you
2 wrote all the history portions of your report when it
3 starts dealing with history, right; you didn't have a
4 historian floating around?

5 A. No, I, obviously, as we discussed, I relied
6 on other people's reports, but I did not have a
7 subcontractor or a colleague write any of these
8 sections, no.

9 CHAIRMAN NOBLE: Excuse me. Was that
10 for any section or just the history section?

11 THE WITNESS: The only subcontractor I
12 used was a GIS analyst that helped me determine river
13 miles and slopes, and that was -- I think you were
14 interested in what specific topo maps I used. So I
15 have a subcontractor that does that work for me.

16 BY MR. HELM:

17 Q. Who was that?

18 A. Her name is Susan Skirvin.

19 Q. Okay. Does she have any degrees or anything?

20 A. Yes. She's actually a Ph.D. from the
21 University of Arizona. She got her degree in, I
22 believe, the Land and Water Department down there, with
23 an emphasis on geographic information systems.

24 Q. Paragraph 41 you're discussing or you set out
25 a quote about a Captain John H. Coster?

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1 I would say on the order of maybe 20 or
2 25 miles.

3 Q. Going on to Paragraph 42, 1866 is the date
4 you've got in there when you're discussing that. Were
5 the Apaches still in their warlike attitude, or had
6 they become peaceful in 1866?

7 A. I believe there was still a significant
8 Apache unrest at that time.

9 Q. And the road that passes through Wickenburg
10 that you talk in that section, right?

11 A. I'm waiting for a question. Is that a
12 question?

13 Q. I'm asking you. There's a road that you talk
14 about that goes through Wickenburg, and my question is
15 does that go around the area where the Apaches were
16 particularly active on the Verde River?

17 A. Well, obviously the road is beyond the Verde
18 River. But as I understand, the territory of the
19 Apaches was quite broad, and I'm having a hard time
20 remembering all these things in my mind; but during
21 Vincent Randall's testimony, I believe that the
22 Yavapai-Apache Nation put up a poster board that had an
23 approximate boundary or territory of the Apache that I
24 think went pretty broad. Whether it reached
25 Wickenburg, I would have to see it again. But it

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1 A. Yes.

2 Q. And his going to, is it, Prescott, to assess
3 whether they could build a road?

4 A. I believe he had arrived in Prescott, and
5 then he was looking to see if he could find a route to
6 the south, actually, from Prescott down to McDowell.

7 Q. Okay. And my question to you is what does
8 that have to do with the navigability of the Verde
9 River?

10 A. What it demonstrated to me is that the
11 military felt that there was a need for a highway for
12 commerce as early as 1866 connecting the two military
13 bases.

14 Q. Well, it says from Prescott, doesn't it?

15 A. Yeah, and Fort Whipple is right next to -- is
16 in the town of Prescott.

17 Q. Okay. How far is the Verde River from
18 Prescott as the crow flies?

19 A. Well, it depends on -- you could hit the
20 Verde in different directions. So are you talking the
21 closest?

22 Q. Closest, yeah.

23 A. The closest, okay. I mean you could go to
24 the headwaters. Okay. I've got to refer to a map
25 here. It will be easier on this map.

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1 certainly went west, so...

2 Q. Do you recall the name of the river that
3 passes through Wickenburg?

4 A. The Agua Fria.

5 Q. Not the Verde?

6 A. No.

7 And I am mistaken, and I'm embarrassed to say
8 it, being a hydrologist in the state. It's the
9 Hassayampa. I knew it didn't sound right. The
10 Hassayampa goes through Wickenburg, not the Agua Fria.
11 The Agua Fria is more subparallel to I-17. I
12 apologize.

13 Q. Paragraph 46, you talk about a Captain
14 Sanford reporting that communication between Camp
15 McDowell and Phoenix was by wagon?

16 A. That's correct.

17 Q. And from that, you conclude that the Verde
18 River was not navigable, correct?

19 A. What I --

20 Q. One of the factors, I meant.

21 A. I will rely on my words; that based on that
22 statement and the foregoing discussion, the Verde River
23 was not considered a viable means of transportation
24 either above or below Camp McDowell.

25 Q. So to some degree, we don't know what, but to
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1 some degree, the fact that transportation in early
2 times was not by river, but by road, you used as at
3 least one factor to make a determination that the Verde
4 River was not navigable?

5 A. I believe, Mr. Helm, that the presence and
6 the need for those roads showed a need for a highway
7 for commerce; and the fact that the river was not used
8 then, in my mind, suggests that it was not determined
9 or was not considered navigable by the people at the
10 time. And I will let the Commission weigh whether that
11 is of relevance. It was of relevance to me.

12 Q. Well, this is where I'm going. I mean
13 certainly we will let the Commission weigh anything
14 they darn well feel like weighing.

15 A. Sure.

16 Q. But in terms of what you weighed --

17 A. Yes.

18 Q. -- you weighed the fact that transportation
19 was by road as indicating that that meant the adjacent
20 river, for example, was not navigable?

21 A. In light of the early time period, Mr. Helm,
22 the clear need that the military saw to have
23 communication between their Forts and the fact that the
24 river was not utilized by the military or we have no
25 evidence that it was, that, to me, was certainly a

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1 factor that I included in my analysis.

2 Q. Was that a yes?

3 CHAIRMAN NOBLE: Mr. Helm, if I may
4 suggest, every time you ask him about that, he just
5 keeps hammering you a little more.

6 MR. HELM: I understand.

7 CHAIRMAN NOBLE: Okay.

8 MR. HELM: Sometimes I like to be
9 hammered, though.

10 BY MR. HELM:

11 Q. Did you, as part of your studies for this
12 thing, ever read the Defenders of Wildlife case?

13 A. As I believe you might have asked me that at
14 the Gila hearing. If I did, it was a while ago. My
15 focus in terms of court decisions was Winkleman and
16 PPL.

17 Q. So you did not focus any of the decisions
18 that you made in this matter on any of the holdings
19 that were set out in the Defenders of Wildlife case?

20 A. Unless some of those, Mr. Helm, got
21 incorporated into the Winkleman; but, no, I didn't read
22 Winkleman by itself. Again, I focused on -- I'm sorry,
23 Defenders by itself. I focused on Winkleman. I
24 focused on PPL. To the degree that some of the
25 findings of Defenders worked their way into Winkleman,

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1 I'm not an attorney, so I certainly didn't study that.

2 Q. But you didn't go -- alls I'm driving at is
3 you didn't go to Defenders and check your work against
4 Defenders?

5 A. That's correct.

6 Q. In Paragraph 46, again --

7 MR. HELM: And I'm going to let him
8 hammer me again.

9 CHAIRMAN NOBLE: It's not that --
10 Mr. Helm, it's not that the Commission doesn't enjoy
11 the hammering. It's just that it takes time.

12 MR. HELM: I understand. But you can
13 also understand I've got to have this stuff in the
14 record.

15 CHAIRMAN NOBLE: Okay.

16 BY MR. HELM:

17 Q. Once again, you're talking about roads, and
18 you indicate that had the Verde River been navigable,
19 much of the road that you're talking about that
20 paralleled it would not have been necessary; do you see
21 that?

22 A. I do.

23 Q. And so, again, this is a case where the road
24 played a factor in your decision that the river was not
25 navigable?

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1 A. Yes.

2 CHAIRMAN NOBLE: While you're thinking
3 about that, Mr. Helm, I forget, Mr. Burtell; was there
4 some case that said that you could not consider roads
5 as a factor in determining whether or not there was
6 navigability?

7 THE WITNESS: If there is, I'm not aware
8 of it.

9 CHAIRMAN NOBLE: Okay. Thank you.

10 MR. HELM: You're welcome.

11 BY MR. HELM:

12 Q. To move this along a little quicker, you have
13 a number of these quotes where you're talking about
14 rivers throughout your report, correct, and how roads
15 are near rivers and how roads are affected by rivers,
16 just as a general proposition?

17 A. When you say how roads are affected by
18 rivers --

19 Q. Well, sure.

20 A. -- I don't understand what that means.

21 Q. What I'm trying to do, I'll be very frank
22 with you, I'm trying to not have to let you kick me
23 every other time, but yet establish that you have a
24 number of places in there where you've talked about
25 roads in relationship to the Verde River and how it

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1 affected your decision that it was nonnavigable.
 2 A. That would be fair.
 3 Q. Okay. And instead of going through each one
 4 of them, you, I take it, would admit that if you set it
 5 out in your report, then you used that as a factor in
 6 your determination?
 7 A. I certainly did.
 8 Q. Okay. Moving on down to Paragraph 56, we're
 9 in beaver dams. You have heard testimony here from
 10 Mr. Fuller and others that beaver dams are not --
 11 CHAIRMAN NOBLE: Whoa, whoa, whoa.
 12 You're moving to another paragraph?
 13 MR. HELM: I even told you I was. Were
 14 you asleep again?
 15 CHAIRMAN NOBLE: Boy, I'll tell you, I
 16 was dang near asleep and George was going by, I got
 17 distracted and I heard it out of the corner of my ear,
 18 I, I saw. Anyway, it's time for a break.
 19 (A recess was taken from 2:34 p.m. to
 20 2:44 p.m.)
 21 CHAIRMAN NOBLE: Mr. Helm, please
 22 proceed.
 23 MR. HELM: Thank you, Chairman.
 24 BY MR. HELM:
 25 Q. Mr. Burtell, I'm into beavers now, all right?
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1 A. But I'm not testifying that I have crossed a
 2 beaver dam in a canoe and it's easy.
 3 Q. But you have a certain outlook based on your
 4 employment?
 5 A. Actually, it was the State Land Department's,
 6 I think it's their small boating criteria, that lists
 7 beavers as a possible obstacle for navigation. So it's
 8 theirs.
 9 Q. On small rivers?
 10 A. I believe it would be on small. It would be
 11 on small. In my mind it could be on large as well.
 12 Q. That report was not aimed at any large body
 13 of water, was it?
 14 A. No, the section regarding beavers and
 15 obstacles, it was with respect to boating on rivers.
 16 Q. On little rivers or streams, right, that's
 17 what that report's about?
 18 A. That was the title of the report, but I
 19 certainly think that that would be an obstacle on a
 20 large river too. It's my opinion. If the Commission
 21 or you disagree with it, then that's your place, but
 22 that's what I thought.
 23 Q. Okay. You've heard Mr. Fuller state that he
 24 has canoed across a beaver dam, right?
 25 A. Better than stating it, it was in a video.
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1 CHAIRMAN NOBLE: Now, wait a minute,
 2 wait a minute. I cannot sleep because of this issue.
 3 I want you to know that unless you're prepared to call
 4 every beaver who ever lived on the river or built a
 5 dam, I don't know how far we're going to go on this
 6 beaver thing.
 7 MR. HELM: We're not going very far.
 8 CHAIRMAN NOBLE: Okay.
 9 BY MR. HELM:
 10 Q. I just want to ask you, with respect to that,
 11 you heard the testimony of the absent Mr. Fuller and I
 12 believe at least one or two other paddlers that they
 13 did not consider beaver dams to be a real impediment to
 14 their paddling up and down the stream. Do you recall
 15 that kind of testimony?
 16 A. The recreational boaters that you're
 17 referring to said that, yes.
 18 Q. All right. And do you have any reason not to
 19 believe them?
 20 A. I think each one of them has a certain
 21 opinion regarding this case. So to the degree that
 22 that may or may not have had an effect on how difficult
 23 it might be, in their minds, to cross a beaver dam, I
 24 will let that be thought about by the Commission.
 25 Q. Same issue you have, isn't it?
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1 Q. Okay. And you don't think he's lying about
 2 that?
 3 A. It's not a question of whether he was lying
 4 about crossing. But I believe he characterized by
 5 crossing one in an unloaded, modern canoe, that I think
 6 he was trying to demonstrate, quote, look how easy this
 7 is, why would this be any trouble for people in the
 8 past.
 9 And in my opinion, I wouldn't connect the
 10 dots that way.
 11 Q. Why would it be trouble to people in the
 12 past?
 13 A. Mr. Fuller was out there on a recreational
 14 basis. In fact, the way the video, in my memory, I
 15 think he almost viewed it as a challenge and something
 16 that was fun. I happened to get the sense that a
 17 boater which has a boat loaded up with either people or
 18 supplies that came across a beaver dam every half a
 19 mile or mile might not enjoy the recreational benefits
 20 of it the same way that Mr. Fuller would.
 21 Q. Have you viewed a beaver dam on the Verde
 22 River every half a mile?
 23 A. There are certainly portions of it currently
 24 and historically where that frequency apparently was
 25 not uncommon.
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1 Q. Where were those portions?
2 A. I would have to go back to the tables again.
3 I'm in Table 3 of my report. A Jerome
4 dentist, one Mr. Hawkings, indicated in the 1860s "The
5 bottom of the Verde River was from one half to one mile
6 wide, and was covered with a dense forest of trees,
7 with thick underbrush, which it was very difficult even
8 to get through on foot, every half mile or mile there
9 would be a beaver dam."

10 The next account by a Mr. Coues, an
11 ornithologist, indicated, and I'll read towards the
12 end, "Particularly upon the Rio Salado and
13 San Francisco/Verde River is it very abundant, and its
14 dams occur, in some places, every few hundred yards."

15 Q. And from that you generalized that the entire
16 river has beaver dams ever half a mile?

17 A. I didn't say that, Mr. Helm; you just said
18 that.

19 Q. Is there a beaver dam in existence or was
20 there a beaver dam in existence that you're aware of
21 that's a mile and a half long? Do you believe that?

22 A. I'm sorry, I misunderstand. A mile and a
23 half long?

24 Q. Yeah, I thought you just quoted that the one
25 fellow said that the beaver dam was a mile and a half

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1 your view of where the beaver dams are located?

2 A. Not at all.

3 Q. Good enough.
4 Yeah, would you -- and if I have asked you
5 this, just tell me, and we can move on. Have you
6 defined what an impediment is for me?

7 A. Yes, I did.

8 Q. Do you recognize a discrepancy in the amount
9 of rapids that are reported between Mr. Williams'
10 report and Dr. Mussetter's report?

11 A. Dr. Mussetter's report, I believe, and
12 Dr. Mussetter testified to this, if my memory serves,
13 that his focus was more on the lower Verde, from the
14 Beasley Flats area down. He did have some discussion
15 of the Camp Verde area.

16 Williams, as you might recall, and my table
17 summarizes, Williams looked at the river from its
18 headwaters all the way down to the mouth, and I've got
19 the number. Some 30 or 40 rapids were in that upper
20 region that Dr. Mussetter didn't consider.

21 Q. So is it your testimony that in the regions
22 that they both considered, there's no discrepancy
23 between the rapids Mr. Williams identifies versus the
24 ones that Dr. Mussetter identifies?

25 A. I would have to go back and take a look at

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1 long. Did I misquote that?

2 A. I believe you're misunderstanding. The
3 quote, and I'll read it again, and I apologize if I
4 misread it, "It was very difficult to even get through
5 on foot, every half mile or mile there would be a
6 beaver dam."

7 Q. That's not the -- you mentioned a mile and a
8 half in one of your quotes.

9 A. Maybe we need to read the record back,
10 because if I did, I misread.

11 Q. Then it's not there?

12 A. No. And the other account I read, and I
13 believe I'm reading this, and this was the account by
14 Coues, "and its dams occur, in some places, every few
15 hundred yards." So those were the two accounts that I
16 read.

17 Q. We'll just check the record.

18 Did you hear the testimony of Dr. Mussetter
19 they couldn't find any beaver dams in Segments 3, 4,
20 and 5?

21 A. I don't recall him saying that, but I would,
22 again -- I'm learning that one should always look back
23 at the transcripts. So if that's what it says, that's
24 what it says.

25 Q. And if that's what it says, does that affect

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1 all the ones that Dr. Mussetter listed versus
2 Mr. Williams. There might be a few discrepancies, but
3 I can't say whether there are or there are not. I
4 didn't do the exercise, so...

5 Q. In Paragraph 59 you talk about "The increased
6 frequency and still larger rapids between Beasley Flat
7 and Horseshoe Reservoir would have posed an even
8 greater impediment to navigation."

9 A. Okay.

10 Q. And you cite (h), a Footnote (h), and then
11 you make a reference in there to the photographs.

12 Is that your basis for your conclusion, those
13 photographs?

14 A. No, no. My basis for that is just what my
15 words said, "increased frequency and still larger."
16 That was why I made that statement.

17 Q. What do you rely on for your conclusion that
18 there are larger rapids between Beasley Flat and
19 Horseshoe Reservoir?

20 A. Again, if you go back to my table, Mr. Helm,
21 Table 4, you'll see I actually list the number of
22 rapids and Williams' classification of those rapids,
23 and you'll see that within Segments 3 and 4 rapids of
24 classifications II and III are common in those
25 segments; whereas in Segments 1 and 2 the rapids are

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1 typically Class I.
 2 Q. So if we wanted to give a quick answer, you
 3 could say I relied on the Williams report, right?
 4 A. I relied on the Williams report.
 5 Q. Thank you.
 6 Right above your Section VII on Streamflow
 7 Reconstruction, the last sentence you're talking
 8 about --
 9 A. Can you give me a paragraph, please?
 10 Q. It would be 63, I believe. Yeah.
 11 You state, the end of the sentence is "and
 12 would not have been suitable for boats customarily in
 13 use for commerce prior to statehood." Do you see that?
 14 A. I do.
 15 Q. I assume that's a reference to boats
 16 customarily used in Arizona?
 17 A. Yes.
 18 Q. Okay. Do you have anywhere in your report a
 19 list of what those boats are?
 20 A. I do not.
 21 Q. Do you have any reference to any historical
 22 documents that we could look at that would list the
 23 boats customarily used in Arizona?
 24 A. I think the list that the Special Master used
 25 in the Utah case would be applicable in Arizona. Those

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1 A. 1913 through 1940.
 2 Q. Through 1940.
 3 A. And in a general way, then increased those
 4 flows to account for an estimate of the amount of water
 5 that I determined was depleted from the river, that
 6 wouldn't have quickly returned to the river, and then
 7 added those depletions onto the flows that were
 8 measured at the gages, and in my Table 5 then list
 9 under 50th percentile flow and the 25th percentile flow
 10 what those reconstructed flows were.
 11 Q. Is there any hydrological texts that you are
 12 aware of that suggest that this methodology is a way to
 13 make a determination of what the natural flow of the
 14 river would be?
 15 A. Probably the closest I saw isn't necessarily
 16 a text, but would be the State of Oregon in the John
 17 Day case. On their website, and that was supplemental
 18 evidence, they had a list of median stream flows for
 19 those streams and then they had a column of -- and I'm
 20 trying to remember their language, but it was an
 21 attempt to reconstruct the flow absent any expected
 22 irrigation diversions. And they used that as a means
 23 of, among other lines of evidence, to evaluate the John
 24 Day River.

Q. Is that where you got the idea from?
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1 were light draft boats being used on the rivers in
 2 Utah. I think that list of boats in all of the
 3 testimony that the Utah Special Master went through, I
 4 would list those boats, those light draft boats; and
 5 then, in addition, obviously the various type of
 6 watercraft, steamboats and others, used on the Colorado
 7 River.
 8 Q. Like the Edith?
 9 A. When I say the Colorado, I would refer to the
 10 steamboats that were being used on the border with
 11 California.
 12 Q. The Edith wouldn't count?
 13 A. No, because I don't believe the Edith was
 14 being used for commerce.
 15 Q. Okay. In 64 on the streamflow
 16 reconstruction, you're talking about -- this is where
 17 you start to do your accounting methodology, right?
 18 A. That's correct.
 19 Q. Would you describe for me specifically how
 20 you did your accounting methodology?
 21 A. Okay, I will do this again. As I spent I
 22 think a good portion of yesterday with Mr. Slade, I
 23 took streamflow records from a period of record that I
 24 was discussed at length.
 25 Q. Those are the ones from --

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1 A. I wouldn't say that I got the idea from that,
 2 other than that is a similar approach that I used. I
 3 got the idea having, you know, seen this used generally
 4 in other areas where, again, you're trying to estimate
 5 how much water there is in a river and how much
 6 potentially was affected by man.
 7 Q. So it's fair to say then, at least as you sit
 8 here, no text comes to mind that you can point me to
 9 that approves the methodology you applied?
 10 A. Well, I will just say again, if it was good
 11 for the State of Oregon and, I should really add, the
 12 Bureau of Reclamation and in the White Book analysis --
 13 the White Book analysis does a similar accounting
 14 methodology where they took streamflow records and then
 15 they add data back in. So I apologize, Mr. Helm. I'm
 16 getting a little tired. But the White Book would be a
 17 reference that I would use as a -- if you want an
 18 example of somebody who has applied an accounting
 19 procedure, that would be one.
 20 Q. Was that the same accounting procedure that
 21 you applied?
 22 A. Its methodology is generally the same. They,
 23 I believe, were -- they considered the river in a less
 24 conservative way than I did.

Q. So it was a different accounting methodology,
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1 at least to the extent of how they applied it?
 2 A. No, again, it's the same basic premise of
 3 taking streamflow records and adding water back in; but
 4 I added a lot more water back in than they did.
 5 Q. When you add water back in, the net effect of
 6 that is to reduce the water taken out, right?
 7 A. That's a nonsensical question to me.
 8 Q. Is my assumption right? You start with --
 9 A. So could you please repeat that? I didn't
 10 understand what you were saying.
 11 Q. Sure.
 12 When you add water back in, that reduces the
 13 amount of water that you show as being taken out?
 14 A. You take out initially so much water for a
 15 diversion, and in my accounting procedure, I then --
 16 some of that water that was taken out, not all of it is
 17 permanently left from the river. Some comes back on
 18 its own, if you will.
 19 Q. But not all?
 20 A. But not all of it.
 21 Q. So the net, something stays out of the river?
 22 A. Let me explain it to you this way, Mr. Helm:
 23 Let's say that you divert a hundred cfs out of the
 24 river, out of a hypothetical river, a hundred cfs gets
 25 diverted out. My analysis and a lot of historic

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1 Q. Okay. And that got back, what, by the corn
 2 drying out or the beans drying out, or it was used, at
 3 least part of it, for agriculture, right?
 4 A. It was being diverted from the river for
 5 agricultural purposes. The reason I believe my
 6 estimate is conservative is, when you look at the
 7 consumptive use of the crops, that is, how much water
 8 that the crops need before they start to wither, based
 9 on -- and I believe I had extensive discussion of this
 10 while you were here. The amount of water being
 11 diverted is much greater than the amount of water that
 12 the crops need.
 13 So what I'm not accounting for is, of the
 14 57 percent that I'm saying you need to put back in the
 15 river, a good portion of that also works its way back
 16 to the river, but not directly through the runoff of
 17 the irrigation ditches. It's getting back to the river
 18 through seepage and baseflow to the river.
 19 And I indicate in my report that is an
 20 important factor as to why I believe my estimate is
 21 conservative, because I'm assuming all of the
 22 57 percent that doesn't directly return to the river is
 23 otherwise lost. It either evaporates. It disappears.
 24 But based on the amount of water that the crop needs,
 25 that's just not the case.

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1 evidence indicated that of that hundred that left the
 2 river, a fairly large portion directly comes back to
 3 the river, and that's related to how the diversions and
 4 how the ditch riders managed the ditches.
 5 And what I mean by that is the ditches in the
 6 Verde, with few exceptions, those ditches are running
 7 all the time; that is, the water is being diverted out
 8 of the river during the irrigation season all the time.
 9 And then the farmers that are along the ditch open up
 10 their floodgates -- or open up their headgates, I
 11 should say, and allow the water to divert onto their
 12 fields. But not all of the water that they're
 13 diverting out onto their fields completely dries up the
 14 ditch. There's various ditches along -- or various
 15 headgates along the ditch.
 16 So the information that I got from Mr. Ross
 17 indicated that on the order of 43 percent of the water
 18 that got diverted out of the ditch directly returns to
 19 the river. So that water that directly returned to the
 20 river would have gotten picked up by the gages.
 21 Q. So 57 percent didn't?
 22 A. And that was the 57 that I put back into the
 23 river, if you will, that I was saying didn't quickly
 24 return to the river on its own, that I needed to
 25 reconstruct.

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1 And that is what Mr. Hjalmarson did.
 2 Mr. Hjalmarson was just worried about the amount of
 3 water that would need to be diverted to meet the
 4 consumptive use of the crop, and that's a number that's
 5 much smaller than mine. And when you run through the
 6 math, that's when you find that the amount of water
 7 that I ultimately am putting back into the river per
 8 acre irrigated is four times greater than the amount of
 9 water that Mr. Hjalmarson feels per acre needs to get
 10 put back into the river.
 11 Q. If I understand what you're saying, what
 12 you're saying is there's 57 percent of the water that's
 13 diverted that goes back into the stream by some
 14 methodology other than direct return?
 15 A. No, Mr. Helm.
 16 Q. It comes from groundwater seepage, it comes
 17 from --
 18 A. Mr. Helm, I just said the 57 percent that
 19 gets diverted out, I am saying that that doesn't come
 20 back into the river. And that's why, when I
 21 reconstruct the flows, I have to take that 57 percent
 22 and add it onto the streamflow records to reconstruct
 23 flows.
 24 Q. That's what I'm talking about.
 25 So if I understand what you're saying, is

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1 that in your work you went through this exercise to
 2 figure out how much was diverted. Then you figured out
 3 how much went directly back into the river as a result
 4 of the diversion.
 5 A. Some 43 percent.
 6 Q. Right.
 7 And then the 57 percent you added back by
 8 some methodology --
 9 A. An accounting methodology.
 10 Q. -- to --
 11 A. To bring the river up to what it would have
 12 been had you wouldn't have diverted anything.
 13 Q. Right.
 14 Why was that procedure necessary, as opposed
 15 to just adding up the flow in the river?
 16 A. I don't know what you mean by adding up the
 17 flow in the river.
 18 Q. Well, it seems to me that you're trying to
 19 get to a point where you want to figure out what's the
 20 natural flow of the river, right?
 21 A. That's correct.
 22 Q. And you're going through this whole numbers
 23 game. And is the reason that you're going through the
 24 numbers game because you don't know what the flow of
 25 the river was prior to man starting to irrigate?

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1 A. The reconstruction that I present in Table 5,
 2 those reconstructed flows both are under ordinary
 3 conditions and natural conditions. It is an attempt to
 4 look at both, and I fully understand both are separate
 5 factors that needed to be considered.
 6 Q. That's Table 5?
 7 A. That is Table 5, yeah.
 8 COMMISSIONER ALLEN: Mr. Chairman.
 9 CHAIRMAN NOBLE: Yes.
 10 COMMISSIONER ALLEN: I have a question.
 11 If you know the total amount of water
 12 that was extracted for each of the irrigation ditches
 13 and for the wells, assumedly, why did you need to go
 14 through the reconstruction process? All you needed to
 15 do was say this much was taken out, and so we're adding
 16 it back in to the record.
 17 THE WITNESS: Again, Mr. Allen, the
 18 reason why all of the water that got diverted out I
 19 didn't put back in is that I had evidence to indicate
 20 that some 43 percent was already coming back in of the
 21 percentage that got diverted.
 22 COMMISSIONER ALLEN: Okay. So if you
 23 had taken the 43 percent and utilized that figure --
 24 THE WITNESS: It's the 57 percent that
 25 I'm putting back in, that I'm saying would not

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1 A. Again, what I'm trying to do is reconstruct
 2 the flows based on gage data and estimates of diversion
 3 records and more recent estimates of direct returns to
 4 the river from those diversions.
 5 Mr. Helm, I apologize, Commissioners, I
 6 simply don't know how else to -- I'm reaching a point
 7 where I don't know how else to explain the same thing
 8 over and over and over again. I'm kind of at a loss,
 9 so...
 10 Q. I'm just verifying what you did. You know,
 11 and I think I understand what you did, but --
 12 A. Okay.
 13 Q. I sympathize with you that you've had other
 14 people ask you these questions, but I have to do it
 15 from my fashion too.
 16 CHAIRMAN NOBLE: Are we going to find up
 17 your portion of the testimony and give you a book?
 18 MR. HELM: I hope so.
 19 CHAIRMAN NOBLE: No, we're not.
 20 MR. HELM: My wife will be crushed.
 21 CHAIRMAN NOBLE: I know, I know.
 22 BY MR. HELM:
 23 Q. The reconstruction that you created, is that
 24 a reconstruction of the natural flow versus the
 25 ordinary flow?

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1 otherwise come back in on its own.
 2 COMMISSIONER ALLEN: But if you know how
 3 much was taken out in the very beginning, why would you
 4 have to go through the reconstruction process?
 5 THE WITNESS: Again, as Hayden pointed
 6 out in detail, and I tried to describe for the upper
 7 Gila, the amount that they are diverting in the Verde
 8 in between 1914 and 1940 was on the order of about
 9 3.4 cubic feet per second per hundred acre.
 10 COMMISSIONER ALLEN: Right.
 11 THE WITNESS: Then a draw comparison to
 12 the consumptive use of the crops --
 13 COMMISSIONER ALLEN: Right.
 14 THE WITNESS: -- how much water the crop
 15 needs. Mr. Hjalmarson used 3.15 acre-foot per acre.
 16 COMMISSIONER ALLEN: Yeah.
 17 THE WITNESS: That is equivalent to
 18 0.44 cubic feet per second per hundred acres. That is
 19 over four times less than the amount that they're
 20 diverting.
 21 So you can't simply then say, well,
 22 they're diverting all of this water, and you better put
 23 all of what they're diverting back in, because based on
 24 Ross's data, 43 percent is already coming back in on
 25 its own, because that's water that got diverted into

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1 the ditch that didn't get turned out through the
2 headgates onto the fields.

3 COMMISSIONER ALLEN: Right. So, in
4 essence, the 43 percent that comes back into the river
5 immediately at the end of the ditch, that goes down and
6 it's diverted again by the next ditch downstream, and
7 then goes down and it's diverted again by the next
8 ditch downstream, so --

9 THE WITNESS: So it's put back into the
10 river.

11 COMMISSIONER ALLEN: -- a compilation of
12 the total amount that's extracted by each ditch would
13 not then be a true accounting of what was in the river?

14 THE WITNESS: What was available in the
15 river, because that 43 percent is coming back into the
16 river, which is then available, and is consistent with
17 even Mr. Lynch's testimony that, yeah, there's a dam.
18 The water gets diverted. In some cases there's almost
19 no water below the diversion. But then you go
20 downstream and all of a sudden there's water back in
21 there. So that some of that diverted water is getting
22 right back into the stream.

23 What Ross provided us is a glimpse of
24 how much water is directly returned to the river at the
25 terminal end. It's what's referred to as terminal

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1 reconstructed. So the two columns that say
2 Reconstructed Mean Flows and the two columns that say
3 Reconstructed Mean Depths, that was my attempt,
4 Mr. Helm, to look at how the river was in its natural
5 condition.

6 Q. Okay. Where do I find the ordinary?

7 A. The ordinary then is the percentiles that I
8 looked at under the reconstructed, and I picked two
9 percentiles. The 50th percentile being the median and
10 the 25th percentile as being higher than the median,
11 where I was trying not to look at baseflow, which is
12 what Mr. Hjalmarson did, which was 90 percent, which is
13 much lower. That would be lower flows. Or very high
14 flows, flood flows, which would be something less than
15 a 25th percentile.

16 So I was attempting to capture a portion of
17 the record that wasn't either really low, drought, or
18 really high, flood. So it's those percentiles that
19 then provide the ordinary component of my
20 reconstruction.

21 Q. And what information, facts, studies do you
22 rely on that tell you that the 25 percent and the
23 50 percent represent, actually represent, the ordinary
24 condition of the Verde River?

25 A. It was as I believe Mr. Fuller had in his

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1 return flow, which I'm sure you're familiar with,
2 that's coming back into the river that, as you pointed
3 out, is then available to be diverted downstream again.

4 You can't keep counting that again and
5 again or you would be double-counting. You would end
6 up with so much more water in the river than --

7 COMMISSIONER ALLEN: No, no, I agree
8 with you completely.

9 THE WITNESS: Okay. And I apologize to
10 all suffering through all this with me; that even
11 though it's a simple accounting procedure, you have to
12 kind of get your head around water in a ditch and
13 returning, and so you have to kind of think about it
14 spatially, as well as temporally, and it's difficult.
15 I guess I'm just not doing a very good job of
16 explaining it.

17 COMMISSIONER ALLEN: No, that's fine.
18 I'm good.

19 BY MR. HELM:

20 Q. Now, with respect to Table 5 again we were
21 talking about, which or what of the information here do
22 you say is the natural flow information that's
23 displayed in this table?

24 A. The natural flow is -- again, the natural
25 would be absent diversions. That would be my

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1 report. He talks about the fact that averages, as
2 opposed to medians, would be an overestimate because of
3 the influence of high flood events.

4 Q. Okay. I just want to know what is your basis
5 for those two percentages, the 25 and the 50? What can
6 you point to and say, see, Mr. Helm, those represent
7 the ordinary because...

8 A. And I just explained one of them to you.

9 Q. I didn't get it then, so...

10 A. Again, Mr. Fuller used -- or made the
11 statement that average flows were not necessarily
12 representative of ordinary conditions. So in his
13 report, if you look at his report, he tabulates median
14 flows, 50th percentile flows, as an indication in his
15 report of what would be considered ordinary.

16 I, though, trying to be conservative and not
17 get myself in trouble with folks like you, figured why
18 not even go a bit further and include flows even higher
19 than median, which is beyond what Mr. Fuller did, and
20 look at 25th percentile flows. So I did that.

21 Q. But, I guess --

22 A. It was my professional judgment then to go
23 beyond Mr. Fuller's 50th percentile, which he used for
24 ordinary conditions, and I also included, for the
25 benefit of the Commission, 25th percentiles.

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1 Q I guess my frustration is simply that nobody
2 is giving me or you are not giving me a description of
3 what constitutes the ordinary flow of the Verde River,
4 i.e., the flow of the Verde River unaffected by
5 drought, unaffected by floods. It seems to me that's a
6 spread between X and Y, 95 percent, 5 percent is flood.
7 Down on the bottom end, 5 percent is drought, something
8 like that. And points to some specific evidence that
9 supports that.

10 These are just your judgment calls or
11 Mr. Fuller's judgment calls to the extent that you're
12 relying on those, right?

13 A I used my professional judgment and
14 Mr. Fuller used his professional judgment. He used his
15 professional judgment to indicate that averages he
16 didn't consider were necessarily representative of
17 ordinary. He then decided, hey, for the purposes of
18 providing evidence to the Commission, let's look at
19 median flows, the 50th percentiles. That's what he
20 presents in his report.

21 I attempted then to not only build on what he
22 did in his judgment, and I'll let you question his
23 judgment, and be even more conservative than that and
24 choose a 25th percentile, which is, as you can see in
25 my reconstructed flows, those are higher flows than the

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1 50th percentile. The 25th percentile is a judgment
2 call that I made professionally as to what those higher
3 flows would be as a representative range of ordinary.

4 The court didn't provide us a definition,
5 unless you can provide it, Mr. Helm, of what they meant
6 by ordinary.

7 All they provided us hydrologists was absent
8 floods and absent droughts and that's all they provided
9 us. Unfortunately, we weren't provided anything more
10 than that.

11 Q And all I'm trying to get at, this is your
12 judgment call. It is not based on any study that you
13 have conducted. Admittedly, your judgment call as a
14 hydrologist, but it's not based on any study that
15 you've done. You haven't got any facts that you can
16 lay out to me that says, John, for the last 55 years
17 the flows down the Verde were the flood flows took up
18 5 percent of the time and the rest of it was non-flood,
19 until we get to the other end, where 5 percent of the
20 time it was drought.

21 You didn't do any of those studies. You
22 don't have any factual basis, other than your
23 professional judgment as a hydrologist?

24 A I disagree.

25 Q What have you got?

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1 A As I indicated to you before, Mr. Fuller and
2 all of the years and all of the studies that were done
3 related to the State Land Department, for some reason,
4 and perhaps we could ask Mr. Fuller, he felt that the
5 50th percentile that he used in his reports for these
6 various rivers, he believed that those -- that
7 50 percent would be useful for the Commission to look
8 at when he wrote those reports. So perhaps we could
9 ask Mr. Fuller where he got his 50 percent.

10 Q I get that, all right. But what I'm looking
11 at is at you, and I'm trying to ask you where you got
12 your 50 percent, and I'm trying to clarify that you
13 don't have any studies that support that, other than
14 whatever Mr. Fuller did, correct?

15 A I --

16 CHAIRMAN NOBLE: Okay, we're moving on.
17 We're done with this issue.

18 THE WITNESS: Yeah.

19 MR. HELM: Okay. All right.

20 BY MR. HELM:

21 Q On Paragraph 80 you say "My analysis showed
22 that, absent cultural depletions," and I just want to
23 know what your definition of cultural depletion is?

24 A Those were the diversions that I attempted to
25 correct for, that is, add the water back in, and those

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1 were the irrigation depletions, with one addition,
2 Mr. Helm, and it's listed in my Table 6; is that I
3 believe Phelps Dodge, the predecessor to Freeport,
4 according to records that were either in -- I believe
5 it was Hayden, that they were diverting some 9 cubic
6 feet per second for their mining facilities in the
7 Clarkdale area. So that is an exception of something
8 other than an irrigation use, an irrigation cultural
9 depletion.

10 Q Paragraph 82, in that paragraph, when you're
11 talking about undepleted streamflow, is that a
12 reference to the Bureau of Reclamation 1952 report?

13 A I think the second sentence says "In 1952,
14 BOR published a report."

15 Q Well, actually, all I'm trying to find out
16 is, is your discussion of that in this, like in the
17 next -- in that report, "undepleted streamflow," yadda
18 da yadda, the "depletions upstream," that's a reference
19 to that report?

20 A I think the clear language of what I read
21 speaks for itself.

22 Q A yes or no would work.

23 A Yes.

24 CHAIRMAN NOBLE: Well, Mr. Helm, you
25 didn't need to ask the question either, because it says

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1 so in the report.
 2 MR. HELM: All right.
 3 BY MR. HELM:
 4 Q. On Paragraph 88, are you aware of any court
 5 cases that have approved a depth of less than 3 feet
 6 for navigability?
 7 A. In the Utah case, the depths of less than
 8 3 feet I believe was one factor that the Special Master
 9 in that case used.
 10 Q. Yeah, I understand; but are you aware of any
 11 others? That was my question.
 12 A. I don't think you mentioned the Utah case.
 13 You asked me if I had known of any cases, so I just
 14 described to you a case.
 15 Q. Any other?
 16 A. I don't believe so.
 17 Q. The rapids that you describe in Paragraph 89,
 18 you talk about rapids being common along four of the
 19 five segments?
 20 A. That's correct.
 21 Q. And if I understand it, you have not on the
 22 ground verified any of those rapids in terms of depth
 23 of flow, how long they were, that sort of stuff?
 24 A. I relied on the Williams report for that.
 25 Q. Is it also fair to say that with respect to
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1 THE WITNESS: Sure.
 2 COMMISSIONER ALLEN: Where,
 3 specifically, is the Paulden gage located.
 4 THE WITNESS: The Paulden gage is
 5 located in Segment 1, which was --
 6 COMMISSIONER ALLEN: No, I understand
 7 that, but where? Is it above Granite Creek or is it
 8 below Granite Creek or --
 9 THE WITNESS: Oh, it's -- Granite Creek
 10 is actually above Sullivan. It's downstream of Granite
 11 Creek.
 12 COMMISSIONER ALLEN: How far?
 13 THE WITNESS: I couldn't say exactly,
 14 but it's downstream.
 15 COMMISSIONER ALLEN: The reason I ask is
 16 because there are massive springs that occur just in
 17 the area around Granite Creek and below Granite Creek
 18 where it enters into the Verde.
 19 THE WITNESS: That's true.
 20 COMMISSIONER ALLEN: So --
 21 THE WITNESS: If you could give me a
 22 second, there is a very useful figure that was in this
 23 USDA document that shows the relationship between the
 24 springs and the gage. It would take me a little while
 25 to dig it out. But my memory, Commissioner Allen, is
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1 rapids or riffles, what have you, you have not on the
 2 ground, boots on the ground, verified any of the depths
 3 of flows going across those rapids or riffles?
 4 A. Boots on the ground, no. Other people's
 5 work, yes.
 6 Q. What do you mean by other people's work?
 7 You've read other people's work, is that --
 8 A. The USDA, actually, in a report that we
 9 entered into evidence, actually had cross-sections both
 10 at the pool and the riffle in the vicinity of the
 11 Paulden gage. So you actually can get a view of that.
 12 And Dr. Mussetter had a cross-section, a
 13 series of cross-sections, down along portions of the
 14 lower Verde where you could see where you go from pools
 15 to riffles or rapids back to a pool.
 16 Q. Okay. Let's start with a riffle. Going
 17 across the river from one side to the other side, are
 18 you aware of any study of the riffles on the Verde
 19 River that determines the depth at the thalweg?
 20 A. This USDA document does show the deepest
 21 point on that cross-section of the riffle near the
 22 Paulden gage.
 23 Q. One riffle?
 24 A. That was in that document.
 25 COMMISSIONER ALLEN: Question.
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1 that there are springs above and springs below the
 2 Paulden gage, but there are definitely springs above it
 3 that feed.
 4 COMMISSIONER ALLEN: Now, doesn't the
 5 Salt River Project also have a low flow gage in that
 6 area?
 7 THE WITNESS: I'm not aware of it, but
 8 we have the luxury of Mr. McGinnis here and Jeff
 9 Hellman, so maybe those two could answer your question.
 10 MR. MCGINNIS: I don't know. I think we
 11 have one up there, but I don't know how close it is to
 12 the Paulden gage.
 13 COMMISSIONER ALLEN: Yeah, it's my
 14 understanding that that gage does exist, but, again, I
 15 don't know where it's located.
 16 Is it possible to find out?
 17 MR. MCGINNIS: We can find out.
 18 COMMISSIONER ALLEN: Thank you.
 19 MR. SLADE: Mr. Chairman, I believe
 20 Mr. Hjalmarson included it in his report, the SRP gage.
 21 COMMISSIONER ALLEN: Okay.
 22 BY MR. HELM:
 23 Q. Back where I was wandering around on the
 24 thalwegs.
 25 A. Yes.
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1 Q. We have one cross-section that shows the
 2 depth of flow at a thalweg, is that what you said?
 3 A. No, that's not at all what I said. I said
 4 that there is the USDA document that has the depth of
 5 the thalweg at a riffle near the Paulden gage, and at
 6 least one other that I'm aware of would not be up in
 7 that area, but would be the cross-section that
 8 Dr. Mussetter put together on the lower Verde, where
 9 he, again, went from pool to riffle, pool to riffle in
 10 the area, and I believe he was in Segments either 4 or
 11 5.
 12 Q. So we have two, two cross-sections?
 13 A. Two that I'm aware of. There might be more.
 14 Just one final follow-up. When you say two,
 15 Dr. Mussetter's are a series of cross-sections.
 16 Q. Somewhere down in the south?
 17 A. But it's not just one individual. I think
 18 his analysis had no less than, I don't know, ten or so
 19 or more cross-sections in the area that he looked at.
 20 Q. In the riffle-pool-riffle?
 21 A. Sequences, yes. I just wanted to be clear.
 22 I didn't want you to just think or say that it's just
 23 two cross-sections. His represents more than -- it's
 24 one reach with many cross-sections within it.
 25 Q. And but you didn't do any studies to try and

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1 determine what the thalweg was anywhere on the Verde
 2 River?
 3 A. No.
 4 Q. Are you familiar with the Equal Footing
 5 Doctrine?
 6 A. Not as well as, I'm sure, you and the other
 7 attorneys are, but I have a general --
 8 Q. General understanding of it?
 9 A. Yeah. Yes.
 10 Q. And is your general understanding that that
 11 means that each state comes into the union under the
 12 same standards as the other states?
 13 A. I would say that's my understanding, general
 14 understanding, of what that means, sure.
 15 Q. Okay. If a state comes into the union under
 16 the Equal Footing Doctrine and the rivers in that state
 17 are determined to be navigable by their use as a
 18 highway for commerce in a canoe, would your knowledge
 19 of that affect your decision on the boats that should
 20 be used to determine whether rivers in Arizona are
 21 navigable?
 22 A. It certainly would be something to keep in
 23 account, but I would say that, following, I think,
 24 Mr. Slade or you, or somebody reminded me that these
 25 navigability determinations should be done case by case

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1 and each river is unique. And you look at a lot of
 2 factors and you put it in the blender, and the
 3 Commission or a Court decides what all of that means.
 4 So would that be a factor? Certainly would
 5 be something else to consider. I don't know if that
 6 would be the only factor, though, no.
 7 Q. Would it be a factor that allows you to
 8 change the standard of the boat; for example, if Puerto
 9 Rico shows up and wants to become a state next week,
 10 are we going to use hovercraft or stuff that run up and
 11 down?
 12 A. Mr. Helm, I'm not a lawyer, so I don't know
 13 if I'm the right person to be speculating about legal
 14 standards.
 15 Q. In any event, when you used the boats for
 16 your report, you used the ones that were in existence
 17 in 1912?
 18 A. I used the boats that were in existence at
 19 and around the time of statehood. I, as I indicated,
 20 looked at historic evidence of boats that were used on
 21 the Verde River. I'm certainly also familiar with
 22 light draft boats that were available in the region at
 23 the time and the boats that were actually being used
 24 for commerce in Arizona along the Colorado. That was
 25 the extent of the boats that I looked at.

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1 Q. If I understand your testimony earlier,
 2 basically what you've said is that you put more water
 3 back into the river than Win did, Mr. Hjalmarson?
 4 A. On a per-acre basis, that is the case. And
 5 as a result of that, when you compare his flow
 6 reconstructions to mine, you start to see at the Camp
 7 Verde area and below where my median flows are larger
 8 than his median flows. So from a boating perspective
 9 or from a navigability perspective, what have you, to
 10 the degree that discharge and associated depths are a
 11 factor to consider, I'm looking at the river with more
 12 water in it than he is.
 13 Q. Do you have an estimate of what the
 14 difference in depth between Mr. Hjalmarson's work and
 15 yours is?
 16 A. Mr. Hjalmarson focused on the thalweg, the
 17 deepest part, and I looked at average, so I didn't do
 18 the exercise.
 19 Q. All right. So you never made a determination
 20 what the difference would have been if you had used
 21 your number on his thalweg?
 22 A. Well, I couldn't have done that, because all
 23 of his reports were released about a week before the
 24 hearing, so they weren't available to me.
 25 Q. But is it still, no, I didn't do any of those

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1 kinds of -- I didn't take my average and see what the
2 depth would be at the thalweg?

3 A. Since I released -- or since my report was
4 written and his reports were released about a week
5 before we started --

6 Q. But you didn't need his reports to make a
7 determination of the thalweg, did you?

8 A. No. You just asked me whether I compared
9 my -- what his depths would be to what -- or his flows
10 were to mine and the associated depths.

11 Q. And you said no.

12 A. Because I didn't have his.

13 Q. And then I asked, I thought --

14 A. Okay.

15 Q. -- did you compare your average depth to the
16 thalweg?

17 A. I didn't -- as I believe I said, I didn't
18 consider the thalweg.

19 Q. As a general proposition, in a shallow river,
20 would you agree that the boater probably goes to the
21 deepest part of the river in an attempt to boat it?

22 A. I found Mr. Williams' book to be quite
23 telling about this idea about chasing the deepest part
24 of the river; that that is something that boaters do
25 that can be quite challenging. Certainly it would be

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1 I would need more information, Mr. Helm. I
2 would need to know where the road is that you're
3 referring. I would need to know how recently that road
4 had been maintained, if it had just rained and the road
5 is washed out. I can't answer that without a lot more
6 information from you.

7 MR. HOOD: Mr. Chairman, it's about a
8 quarter to 4:00. I'm wondering if we could get a sense
9 with where we're at with Mr. Helm's examination. I
10 really think it would be unfair to put Mr. Burtell back
11 on the stand tomorrow, and I think everybody's sense is
12 we're going to need tomorrow for Mr. Fuller. There are
13 other people here that have some questions for
14 Mr. Burtell. I have some limited redirect. I just
15 want to make sure we're going to get Mr. Burtell done
16 this afternoon.

17 CHAIRMAN NOBLE: Okay, we'll take a
18 break until 4:00.

19 (A recess was taken from 3:45 p.m. to
20 4:00 p.m.)

21 CHAIRMAN NOBLE: Mr. Helm, proceed,
22 please.

23 MR. HELM: Thank you.

24 BY MR. HELM:

25 Q. Do you recall testifying yesterday, I believe

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1 to -- in a rocky channel, low flow conditions, it would
2 be to their benefit.

3 Mr. Lynch's testimony indicating how often he
4 hears people's boats scraping on the bottom would
5 suggest to me it's not always so easy to know where the
6 deepest part of the river is.

7 Q. Would you agree that the depth of the average
8 flow in a section of riverbed would be shallower than
9 the depth at the thalweg?

10 A. I think by the definition of what thalweg is,
11 it's the deepest part of the stream.

12 Q. And so you measured your measurement against
13 a shallower depth?

14 A. What I -- my reconstructed depths are average
15 depths. They're not the deepest depths.

16 Q. So it's a shallower depth; fair?

17 A. Shallower than the thalweg, yes.

18 Q. Do you have any opinion, in terms of going
19 from, let's say, Fort to Fort, whether you could do
20 that in the types of boats that were in existence in
21 1912 quicker in a boat than you could on a horse?

22 A. Quicker in a boat than on --

23 So that's a hypothetical --

24 Q. Yeah.

25 A. -- since we don't know --

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1 it was, that the focus in making a navigability
2 determination on the Verde should be on the shallow
3 portions of it?

4 A. I believe I said that when it comes to
5 looking at depths, the limiting factor for
6 navigability, if you are looking at depth as a criteria
7 or a factor in navigability, one should focus on not
8 the deeper parts of the stream, but the shallower
9 parts, the riffles and the rapids, less the pools.

10 Q. And that's what you did in your analysis?

11 A. As I explained, I believe extensively with
12 Mr. Slade, that you were here for, I didn't look at
13 pools and I didn't look at riffles or rapids. I looked
14 at depths that would have been greater than the riffles
15 or the rapids. So my flow depths, in my mind, are
16 conservative yet again because I didn't look at the
17 area where they would have been even shallower.

18 Q. You talked a little bit yesterday about
19 poling a boat, I think, and in your mind, is poling --

20 A. I have to stop you right there, Mr. Helm. I
21 don't remember talking about poling a boat.

22 Q. Yes, I have a note in my notes of your thing
23 that said you talked about poling a boat.

24 So based on that, assume for this purposes

25 that you did mention it in some fashion, all right.

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1 A. I'm sorry. Maybe my hearing is as tired as I
 2 am. Are you saying pulling --
 3 Q. Poling.
 4 A. -- or poling? Poling.
 5 Q. You've got a pole and you stand up in a boat
 6 and you push yourself along.
 7 A. Okay. I don't recall saying that.
 8 Q. I understand that. We'll check the record.
 9 So if you can answer it as a hypothetical, and then we
 10 can check the record to see if you really did talk
 11 about poling.
 12 And my only question is simply this: In your
 13 mind, would the fact that you poled a boat down a river
 14 make the river nonnavigable?
 15 A. Poled a boat downriver make it nonnavigable.
 16 I will answer that as I think I've answered
 17 many other questions to you. If that -- if your
 18 hypothetical was being applied to a river, that would
 19 be, again, one of many lines of evidence you would want
 20 to consider.
 21 Q. And would you consider that as a negative
 22 element in making a determination that the river was
 23 navigable?
 24 A. I would have to understand better in your
 25 hypothetical about why they were poling.

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1 Q. To go from A to B.
 2 A. As opposed to floating?
 3 Q. Uh-huh, to go faster.
 4 A. To go faster.
 5 If the purpose of the poling was to go
 6 faster, again, I would take that into account.
 7 Q. You've talked a lot about the Utah case, and
 8 do you recall off the top of your head, in any part of
 9 that case, whether the Special Master actually
 10 considered any of the rivers for less than the full
 11 year; navigable for part of a year?
 12 A. His determinations were based on looking at
 13 flow records for the entire year, and then he
 14 determined that the river was either navigable or not
 15 navigable. I do not recall him saying that a river was
 16 only navigable for a part of the year.
 17 Q. Or studying a river to make that kind of
 18 determination?
 19 A. I disagree with you. He looked at, if you
 20 look back -- and I have his report, if you would like
 21 to go through it. He looked at flow conditions
 22 throughout the year.
 23 Q. Have you got any case law that you can
 24 suggest to me to look at where a river was either
 25 determined navigable or not navigable based on the

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1 average depth of the river?
 2 A. I would say a fine example of average depth
 3 would be the Utah case.
 4 Q. No other ones that you're aware of?
 5 A. Mr. Helm, I'm not an attorney, so I am not an
 6 expert in case law.
 7 Q. In your Figure 5, the photos, did you make
 8 any determination of the length of the rapid that was
 9 shown in the photo?
 10 A. No.
 11 Q. I know you keep saying that you're not an
 12 attorney, and we all certainly understand that; but in
 13 your work, did you come across any cases where a court
 14 relied on the work of a surveyor to hold a river not
 15 navigable?
 16 A. I can't recall one right now, no.
 17 Q. Yesterday Eddie asked you a question about
 18 what you used the GLO surveys for; do you recall that?
 19 A. I do.
 20 Q. And my note says you answered what Win used
 21 the GLO surveys for, and not what you used them for,
 22 so --
 23 A. And we had --
 24 Q. -- could you tell me what you used them for?
 25 A. Absolutely. I used them, and we had this

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1 conversation, as you might recall, earlier this
 2 afternoon. You asked me on Paragraph 36, on Page 8,
 3 about the General Land Office surveys and whether they
 4 were meandered or not.
 5 Q. I didn't think I asked you whether -- what
 6 you used them for, which is the question on the table.
 7 A. Mr. Helm, they're in my report in the section
 8 on Government Assessments, and it was used by me to
 9 evaluate navigability.
 10 Q. Thank you.
 11 CHAIRMAN NOBLE: Were they in the
 12 report, Mr. Helm?
 13 MR. HELM: I haven't got it in front of
 14 me, so I can't tell you at the moment.
 15 CHAIRMAN NOBLE: Did you fail to read
 16 it?
 17 MR. HELM: No, I read it.
 18 CHAIRMAN NOBLE: Did you fail to recall
 19 that they were in the report?
 20 MR. HELM: Well, I probably did.
 21 CHAIRMAN NOBLE: Thank you.
 22 BY MR. HELM:
 23 Q. Does a riffle as opposed to a -- let me back
 24 up.
 25 Define for me the difference between a riffle

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1 and a rapid.
2 A. It's an answer of degree. As a riffle gets
3 larger, it will eventually turn into a rapid. It's
4 like a lot of questions that I think lawyers like to
5 ask scientists and want to have a precise point when a
6 riffle becomes a rapid. It's a gradational thing. A
7 riffle is, arguably, a very small rapid.

8 Q. Does the length of the riffle make a
9 difference on its impact on transportation on the
10 river?

11 A. Under some cases, it could, sure.

12 I think what's more relevant is how
13 frequently they occur.

14 Q. Okay. You've compared the Utah case to the
15 Verde in any number of ways, all right. And all I want
16 to know at this point is are you aware of any case law
17 in the United States that approves a methodology of
18 determining the navigability of a river by comparing it
19 to another river?

20 A. As I think we've talked now no less than two
21 or three times already, Mr. Helm, and I've talked with
22 Mr. Slade, each river should be taken on its own
23 merits.

24 However, with that being said, just as
25 attorneys use other case law to help them in their

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1 evaluations, a technical person would be remiss if they
2 ignored the technical aspects that were brought up in
3 these other river cases and ignored them. So I simply
4 did -- similar to what attorneys do by looking at other
5 case law for some guidance, I did the same thing.

6 Q. So the simple answer to that question is, no,
7 I am not aware of any other cases?

8 A. Can you repeat the question?

9 Q. Are you aware of any case law in the United
10 States that determines navigability by comparing one
11 river to another?

12 A. The cases -- some of the cases that I have
13 read certainly talk about and reference other cases
14 with other rivers, but that's as far as I will take it,
15 because I'm not a lawyer. But certainly, as I have
16 seen these courts, when they write their
17 determinations, they're not working in a vacuum. They
18 certainly consider determinations on other rivers. How
19 they do that legally is outside my field of expertise.

20 Q. So would you -- you would say that it's your
21 understanding that courts compare the conditions on a
22 known river for navigability purposes to the conditions
23 on an unknown river?

24 A. As I just said, Mr. Helm, and I'm not sure
25 how many more times I can continue to say, that each

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1 river, as the court direction, is looked at on its own
2 merits. However, I'm not a lawyer, but as case law
3 evolves, certain legal principles, in my mind, get more
4 honed or clearer and such then legal standards perhaps
5 gets easier to be applied subsequently in cases.

6 But I'll say again, Mr. Helm, I'm not a
7 lawyer, so I'll let you decide evolution of case law.

8 Q. I'll stipulate you're not a lawyer, so you
9 don't have to keep saying that, how's that?

10 A. And if -- okay.

11 Q. Is the Verde Falls the biggest obstacle on
12 the Verde River?

13 A. Verde Falls is a type of obstacle on the
14 river.

15 Q. Is it the biggest one, I asked?

16 A. What do you mean by biggest?

17 Q. Height, distance.

18 A. Height.

19 It certainly is the largest drop that I'm
20 aware of on the river.

21 Q. Is it the longest?

22 A. The longest in terms of a rapid's
23 overall length -- I mean the drop occurs over a
24 relatively short distance, but there's a Pre Falls and
25 a Post Falls. So are you asking me to look at the

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1 entire length --

2 Q. The entire length.

3 A. -- of the falls section?

4 And you're asking me is it the longest or the
5 shortest?

6 Q. The longest.

7 A. I didn't do that type of analysis to compare
8 lengths of one rapid to the next.

9 Q. Did you do anything regarding studying
10 lengths of portages on the Verde?

11 A. I did not.

12 Q. Do you have any opinion on how long a portage
13 would be before it would disqualify a river from being
14 navigable?

15 A. No. It seems like from what I have read and
16 heard in testimony, again, the issue of portages is --
17 you're going to get mad when I say it, but is just one
18 other factor that a Court or a Commission would need to
19 consider; but I don't believe there's any yardstick.

20 Q. Okay. Now, you're here as an expert for
21 Freeport Mining, right?

22 A. Freeport Minerals Corporation.

23 Q. I don't know what the technical name is, but
24 that's your client?

25 A. That is my client.

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1 Q. Okay. And you're being paid by them?
 2 A. I sure am.
 3 Q. How much have you been paid to date?
 4 A. I don't --
 5 MS. HUNTER-PATEL: Can he even ask?
 6 Wait a minute.
 7 CHAIRMAN NOBLE: I'm not sure that's
 8 relevant.
 9 MR. HELM: In every court I've ever been
 10 in, when you ask an expert, you can ask them how much
 11 they've been paid.
 12 CHAIRMAN NOBLE: Wait till you get to
 13 court and ask him.
 14 MR. HELM: He won't be there.
 15 CHAIRMAN NOBLE: Well, you're not
 16 getting it today.
 17 MR. HELM: It's your choice.
 18 I don't have any further questions.
 19 CHAIRMAN NOBLE: Is there anyone else
 20 who has questions for Mr. Burtell?
 21 MS. MONTGOMERY: Just a few, really.
 22 THE WITNESS: Amen.
 23 MS. MONTGOMERY: And they'll be
 24 different, so...

25 COMMISSIONER HORTON: So it's
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1 that often, so I'm taking it.
 2 So with regard to your reconstructed flow
 3 models --
 4 A. Yes.
 5 Q. -- I'm not going to ask you about that.
 6 A. Appreciate that.
 7 Q. I was dared to say that, so I thought I
 8 would.
 9 Really, during your cross-examination by
 10 Mr. Slade, you were asked a lot about Mr. Randall's
 11 testimony; do you recall that?
 12 A. Yes.
 13 Q. And so there were several things I wanted to
 14 ask you about that.
 15 A. Sure.
 16 Q. And just to get started, I'm going to hand
 17 you kind of several things I want to talk to you about
 18 today.
 19 A. Okay.
 20 Q. But it really starts with the Yavapai-Apache
 21 it's Exhibit X055, YAN-1, and for the most part, we're
 22 going to talk about Exhibit A to that, which is the map
 23 of the ancestral lands of the Yavapai and the Apache,
 24 and I've got some copies here. I had my big bulletin
 25 board, but I left it at the office, so I don't have it

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1 refreshing.
 2 THE WITNESS: And hopefully not the same
 3 questions.
 4 MS. MONTGOMERY: Oh I don't know, I
 5 might.
 6 CHAIRMAN NOBLE: I sure hope we're not
 7 going to hear "and, again."
 8 MS. MONTGOMERY: I will endeavor not to,
 9 but cannot guarantee it.
 10 (A brief recess was taken)
 11
 12 CROSS-EXAMINATION
 13 BY MS. MONTGOMERY:
 14 Q. Good afternoon, Mr. Burtell.
 15 A. Good afternoon.
 16 Q. Susan Montgomery for --
 17 CHAIRMAN NOBLE: Oh, that was your best
 18 smile. That was your best smile.
 19 MS. MONTGOMERY: I have to butter the
 20 poor guy up. He's about ready to drop. Sue Montgomery
 21 for the Yavapai-Apache Nation.
 22 THE WITNESS: For the record, a much
 23 more pleasant view than I have had recently.
 24 BY MS. MONTGOMERY:
 25 Q. I am grateful for that comment. I don't get

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1 now for you. I apologize.
 2 CHAIRMAN NOBLE: You can use Joy's,
 3 can't you?
 4 MS. MONTGOMERY: No, she doesn't have
 5 this, ironically. But I did bring it, and it's marked
 6 on the bottom, but it's an excerpt, though. And I have
 7 one for you and, again, it's not a big one.
 8 THE WITNESS: I have a magnifying glass,
 9 so...
 10 BY MS. MONTGOMERY:
 11 Q. I've noticed that.
 12 A. All right.
 13 Q. You know, I'm going to hand you these too so
 14 I don't have to keep getting up and down, and these,
 15 for the record, are the transcripts of -- some
 16 excerpts, small excerpts, of Mr. Randall's testimony on
 17 February 20th, 2015. And I might have one other thing,
 18 but I'm going to -- shall I just set these here for
 19 you?
 20 A. Yes, that would be great. I have a tendency
 21 of mixing stuff up, so...
 22 Q. Here's one excerpt, and here's another one.
 23 And might have one more, but let's start with this.
 24 A. Okay.
 25 MR. HOOD: Sue, I object to you showing

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1 him a transcript when asking him to recall testimony
 2 from several weeks ago.
 3 MS. MONTGOMERY: Mr. Commissioner, I
 4 apologize for that.
 5 CHAIRMAN NOBLE: Did Mr. Hood say
 6 something again?
 7 MR. MCGINNIS: No, not really. It's the
 8 cold medicine.
 9 BY MS. MONTGOMERY:
 10 Q. Okay. And, Mr. Burtell, you have the map in
 11 front of you that is Exhibit A to X055, YAN-1?
 12 A. I do.
 13 Q. Okay. During Mr. Slade's questioning with
 14 you about the aboriginal territory of the Yavapai
 15 people, and in particular the Dilzhé'e or the Tonto
 16 Apache people, it seemed that he suggested that the
 17 Apache were primarily -- their ancestral lands were
 18 primarily concentrated along that Verde River corridor.
 19 Do you recall that questioning?
 20 A. I sure do.
 21 Q. So I want to just refer to this map that you
 22 have in front of you, and you see it there. Would you
 23 say that the Apache territory was just concentrated
 24 along the Verde River?
 25 A. Yeah, and I -- again, my memory isn't as good

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1 want to make sure we can move forward through a couple
 2 more questions.
 3 A. Please.
 4 Q. And I'm going to ask you a little bit about
 5 the Yavapai and about some other things as well.
 6 A. Okay.
 7 Q. But just so we're clear on this, let's take a
 8 look, if you could. I have in front of you, it looks
 9 like -- I'm trying to see my note here. Mr. Randall
 10 actually explained, in reference to this Exhibit A, in
 11 reference to this map, what he said the territory of
 12 the Tonto Apache or the Dilzhé'e Apache was. And I
 13 handed you a transcript, and you'll see, I think if you
 14 look at Page 1759 of the transcript.
 15 A. I'm there.
 16 Q. And I think it starts at Line 22. I tried to
 17 highlight that for you. And there I think Mr. Randall
 18 was describing in his words his ancestral lands.
 19 Would you just take a look at that and maybe
 20 read that for the record, just that small piece?
 21 A. Sure. Starting at 22, in answer to the
 22 question "Can you tell me a little bit [more] about
 23 this map and what it delineates," Mr. Randall's answer:
 24 "Basically, I always -- when I try to help
 25 people understand our aboriginal territory,

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1 as it used to be. Had I had this map in mind, I would
 2 have been much more responsive to Mr. Slade's
 3 questions. I think I suggested how much further east
 4 they may have gone over towards the headwaters of the
 5 Salt, where you have "Western Apache."
 6 But I had no idea -- but, again, I should
 7 have remembered. -- just how far west they go. The
 8 Yavapai groups that you have, I think the question came
 9 up even with Mr. Helm about, well, how about the
 10 Yavapai or the Apaches, Native Americans, in the
 11 Wickenburg area; and, boy, looking at this map, the
 12 territory is far more extensive than I even thought in
 13 my own head.
 14 More responsive to your question, certainly
 15 it would be a mischaracterization to say that it's
 16 centered around the Verde.
 17 Q. Thank you.
 18 A. I would say more centered around Central
 19 Arizona was probably --
 20 Q. Correct, and I -- I'm sorry.
 21 A. No, that's all I have to say.
 22 Q. Thank you, and I'm mindful of Mr. Hood having
 23 an opportunity to visit with you as well.
 24 A. Sure. Sorry.
 25 Q. So I'm going to -- no, you're great. I just

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1 it's almost what is Central Arizona today.
 2 The territory, aboriginal territory,
 3 basically is from Ash Fork, and if you draw a
 4 line south all the way to Aravaipa Canyon and
 5 then draw the arrow back towards Show Low and
 6 then from Show Low back to across Flagstaff
 7 and back to Ash Fork, is basically, roughly,
 8 the aboriginal territory of the" -- and I
 9 don't want to try to pronounce that --
 10 "people."
 11 How do you pronounce it, Susan?
 12 Q. Dilzhé'e.
 13 A. Okay.
 14 Q. But thank you. By that, you mean the Apache,
 15 the Tonto Apache?
 16 A. As indicated on this map, that's synonymous
 17 with the Tonto Apache.
 18 Q. Thank you.
 19 And then does that map also show the Yavapai
 20 territory?
 21 A. It does, in green.
 22 Q. Okay. And that's a relatively large area as
 23 well?
 24 A. Surprising to me, extending all the way to
 25 the Colorado River.

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1 Q. And just so we're clear on that, I handed you
 2 a transcript of Mr. Randall's testimony, and I think if
 3 you look at I have Page 1760, starting at Line 6. And
 4 that would be, yeah, the other one.
 5 A. Oh, gosh. Yeah, I was going to the next one.
 6 Q. No, I think you're good.
 7 A. Keep going on this one?
 8 Q. Yes.
 9 And let's just, to be clear, could you read
 10 that section that's highlighted there that explains
 11 Mr. Randall's view of the Yavapai area?
 12 A. Sure. He is asked "Does this map also show
 13 the Yavapai aboriginal territory?"
 14 His response: "Yes. They had quite an
 15 extensive territory that they roamed, and, of
 16 course, they had to roam a lot of the country
 17 because even today it's hard to survive out
 18 there where they -- in their aboriginal
 19 territory. But, basically, it was the Verde
 20 River down to the confluence of the Salt and
 21 then extending down, as I understand it, down
 22 towards Gila Bend and then down towards Ajo,
 23 down in that country, and then back up to
 24 La Paz or Parker today; and then from there,
 25 head north up towards north of Wickenburg,

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1 A. I think Mr. Randall put it well, and I,
 2 ironically, kind of stole his phrase, maybe
 3 subconsciously. Central Arizona would be a good
 4 general description.
 5 Q. Thank you.
 6 So one of the things that we've heard, and we
 7 heard it on the cross for you from Mr. Slade, it seems
 8 to suggest that a reason why the settlers and the
 9 miners and others didn't navigate the Verde River was
 10 because they were particularly vulnerable to Indian
 11 attack. Do you recall this line of questioning?
 12 A. Clearly.
 13 Q. And we've heard it a couple times during this
 14 week, right?
 15 A. That's correct.
 16 Q. Okay. In Mr. Slade's cross-examination to
 17 you, he asked you to read from Mr. Randall's testimony,
 18 and he had a couple selected pieces that he asked you
 19 to read, and I want to make sure -- I'm not going to
 20 ask you to read it again, but I want to make sure we
 21 get a couple of the pieces in that he didn't ask you to
 22 read. And if I'm redundant, I apologize.
 23 But could you take a look at the transcript
 24 that I gave you? It starts at Page 1826 and Line 22,
 25 and that would probably be the other one I gave you. I

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1 which would be up around Congress Junction
 2 and Skull Valley and all that territory."
 3 Q. And this map shows their general area of
 4 concentration here, let's see, on Exhibit A that I
 5 handed you, right?
 6 A. With the green boundary, yes.
 7 Q. And then does this map also show other Apache
 8 territories on it?
 9 A. It does.
 10 Q. And what are they, on the Apache side?
 11 A. On the Apache side, in the southeast corner
 12 of the state, it says Chiricahua Apache; and then in
 13 the, interestingly enough, eastern part of the state,
 14 they are referred to as the Western Apache.
 15 Q. Just the Western Apache generally, yeah.
 16 A. Yeah.
 17 Q. It can be confusing.
 18 A. At this stage my mind is so confused about
 19 anything that it's, like, east, they're in the east,
 20 but they're called the Western Apache. So...
 21 Q. Correct. Thank you, Mr. Burtell.
 22 So it's pretty safe to say that the Yavapai
 23 and the Apache homeland encompassed just a vast swath
 24 of Central and Eastern Arizona or a vast majority of
 25 what is now Arizona?

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1 gave you two little stapled together.
 2 A. Yeah, and the second one I have, the first
 3 page is 1825, but you want me to go to 1826.
 4 Q. I think so, beginning at Line 22. It should
 5 be highlighted.
 6 A. Yes.
 7 Q. I can look at what I have.
 8 A. No, no. There was a highlight on the first
 9 page. That's all I was --
 10 Q. I see. Yeah, we're going to go back to that,
 11 I think.
 12 A. Okay, on Page 1826, Line 22, would you like
 13 me to read that?
 14 Q. I would be grateful, thank you.
 15 A. "QUESTION: Would it have been
 16 dangerous for white settlers to make their
 17 way along that river corridor?"
 18 "ANSWER: It would have been unsafe
 19 anywhere, because we were ready to protect
 20 our land. Just as much as we would have shot
 21 them on the river, we also shot them on
 22 coming, and there's a place called Grief Hill
 23 there just north of Camp Verde where we
 24 attacked a...train and wiped it out."
 25 Should I continue?

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1 Q. No, thank you. I want to stop there for a
2 second because I don't want to -- I know we talked
3 about Grief Hill before, so let me just ask you,
4 though, in terms of -- yeah, let me ask you to
5 continue.

6 So on 1827, just read the next spot, if you
7 don't mind, starting at Line 5 that's highlighted.

8 A. Sure.

9 "QUESTION: In your opinion, knowing the
10 riparian corridor and the surrounding land,
11 is it easier to hide and be concealed in the
12 riparian corridor or the surrounding land?"

13 "ANSWER: You can do it anywhere. If you
14 know your gorilla tactics like we did, we'll
15 get you anytime."

16 Q. Okay. And do you have any reason to disagree
17 with Mr. Randall's view that in terms of the Apaches at
18 that time, they were hostile, they were able to engage
19 in hostilities both on the land and elsewhere?

20 A. Like many people who might have an interest
21 in Arizona history, some of the stories of the years of
22 Apache unrest are quite amazing how people were
23 ambushed. And I'll just reiterate that one of the
24 pieces of evidence we submitted was a chapter in a book
25 about transportation between the Phoenix area and

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1 fought as hard for their land just as much as
2 we did."

3 Q. Okay. So from everything that you've
4 reviewed and you've heard and from what I've heard you
5 say, is it fair to say that the Apache and Yavapai
6 hostilities towards settlers and the military were not
7 really concentrated on the Verde, but, rather,
8 encompassed a large swath of what's now Arizona?

9 A. I'll, yeah, go back to Mr. Randall's phrase,
10 and I guess I independently use it as well. Central
11 Arizona at this time not only has a concentration of
12 military bases for a reason, and that is that area,
13 quite in its entirety, there was a lot of unrest with
14 Native Americans.

15 Q. And as you indicated a moment ago, these
16 hostilities happened on roads and trails, as well as
17 anywhere else?

18 A. Pervasive throughout the area, and I would
19 only add to that that if I was a Native American and I
20 saw a road, I think I would figure out pretty quickly
21 how often a stage is going up that road. It seemed to
22 be a pretty convenient place to stage an ambush.

23 Q. And they did that.

24 A. And the historic records suggest that they
25 did just that, sure.

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1 Prescott, and there's a whole chapter about Indian
2 attacks on roads, both to stagecoaches and freighters,
3 which those newspaper accounts are very consistent with
4 Mr. Randall's testimony. So it seems to be painting a
5 pretty consistent picture.

6 Q. It was a very difficult time for all
7 concerned?

8 A. If you were on a road, I would be looking
9 over my shoulder.

10 Q. And just to be clear, here we've been talking
11 about the Apache, but I want to just talk briefly about
12 the Yavapai, if I could, if that's all right. And I
13 would like to turn your attention -- let me see -- to
14 Page 1825 of the transcript, which is where you were
15 trying to go earlier.

16 A. Sure.

17 Q. Line 17, and this is with regard to how the
18 Apaches defended their -- rather, the Yavapais defended
19 their homeland.

20 A. Starting on Line 17, "My understanding was,
21 and from your testimony I heard, that the
22 Yavapai were more peaceful originally, and
23 the Apache were more prone to defending their
24 homeland; is that your understanding?"

25 "ANSWER: No, they were just as -- they

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1 Q. But yet the settlers and the military used
2 roads all the time?

3 A. Lacking another way of getting themselves,
4 supplies, mail, et cetera, that's how they did it.

5 Q. So just, I guess, to just kind of go to it,
6 so this question of the existence of hostile Indians
7 throughout the state during this period, do you think
8 in any way this was a primary reason why the Verde
9 wasn't navigated?

10 A. No. Again, people still had to get around.
11 I think they would have been just as susceptible to
12 Native American attacks on the river as elsewhere. I
13 think this is one of many lines of evidence, but a
14 strong one that the need existed.

15 You're not going to build a road -- it's kind
16 of like the funny thing in Alaska, the road to nowhere.
17 Back then, the time and expense it took to build a
18 road, these folks were practical people living under
19 very difficult times. You're not going to build a road
20 unless you really need it. And, again, I just have a
21 difficult time understanding, if a navigable river was
22 sitting right next door to them, that they wouldn't use
23 it.

24 Q. Okay. And you were asked a little bit about,
25 I think by Mr. Slade, are you aware when the Yavapais

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1 and Apaches were generally rounded up and force-marched
2 to San Carlos and interred there?

3 A. It was late 1870s or early 1880s.

4 Q. Would you buy 1875, perhaps?

5 A. That would be in my general time frame. As I
6 understand, the Yavapai -- or the Reservation had been
7 established, the Camp Verde Indian Reservation,
8 adjacent to the military, and then a decision was made
9 by somebody to force-march them to the San Carlos
10 Apache Reservation, so...

11 And so I didn't remember the year, but that
12 sounds reasonable.

13 Q. You're aware of the history of that, it
14 sounds like?

15 A. I'm not an expert on it, but I heard it was
16 quite an event for all involved.

17 Q. So it's safe to say that after 1875, the vast
18 majority of Yavapais and Apaches were interred at
19 San Carlos?

20 A. Certainly a fair number of them were, yeah.
21 I think there might have been a few roaming bands, but
22 the lion's share of the tribe was there.

23 Q. But there's very little evidence after 1875,
24 at least that we've heard, that the river then suddenly
25 began being navigated, the Verde River?

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1 A. Not that I've seen in the record with the
2 boating accounts. There certainly wasn't some uptick
3 in boating all of a sudden, so...

4 MS. MONTGOMERY: Sean, how long are you
5 going to need?

6 MR. HOOD: Take as much time as you
7 want. I've literally got five minutes. Take your
8 time.

9 BY MS. MONTGOMERY:

10 Q. I have one more line of questioning, if you
11 can tolerate it, Mr. Burtell.

12 A. Hanging in there.

13 Q. You are hanging in there. Thank you.

14 I'm going to hand you just one more excerpt
15 from Mr. Randall's testimony from February 20th, 2015,
16 and I'll just direct you what we want to talk about, if
17 that's all right.

18 A. Sure.

19 Q. And this goes to a point of slight
20 clarification with relating to Mr. Helm.

21 So where's Mr. Helm?

22 MR. MCGINNIS: He's had enough.

23 BY MS. MONTGOMERY:

24 Q. Okay. I don't blame him.

25 So I am going to ask to clarify one little

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1 thing with regard to Mr. Helm's questioning with you
2 today.

3 Mr. Helm asked you about one of the reasons
4 that the Apaches didn't use the river, and I think it
5 was about they go overland is easier than going down
6 the river; is that right? Do you recall that?

7 A. I do, and I recall, I think, responding to
8 him that I couldn't recall exactly what Mr. Randall
9 said.

10 Q. Sure.

11 A. So thank you for perhaps showing me what he
12 did say.

13 Q. So I just want to point out and have you help
14 just to clarify this.

15 There were other reasons why Mr. Randall said
16 that the Apache didn't use the river, and I want to
17 just take you through a couple of those, and you have
18 the transcript in front of you.

19 A. Okay.

20 Q. At 1790, Line 5 through 12, roughly,
21 Mr. Randall pointed out that riparian vegetation or the
22 growth and undergrowth of riparian vegetation might be
23 a reason or was one of the reasons that the Apaches
24 didn't utilize the river for -- didn't utilize the
25 river?

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1 A. Would you like me to read those for the
2 record?

3 Q. Yeah.

4 A. Sure.

5 Q. If you could just read that piece.

6 A. Sure.

7 "QUESTION: Did the river itself have any
8 impediments to it or things that made it
9 harder to use the river?"

10 "ANSWER: There are obstacles such as
11 the plant growth of the riparian area and,
12 also, the contour of the river bottom itself.
13 Instead of going up and down and so forth,
14 it's easier to walk across flat land than it
15 is -- than going through these and fighting
16 the obstacles of the riparian area."

17 Q. Thank you.

18 And you referenced something similar to this,
19 I noticed, in Table 3 of your report, actually, when
20 you were talking about beaver dams. Can you take a
21 look at that real quick?

22 A. Surely.

23 Okay.

24 Q. And this is the 1860s account from the Jerome
25 dentist.

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1 A. Oh, a one Mr. Hawkings, and his quote was
2 referenced in a -- actually, that's a National Park
3 Service reference by Stoutamire. And he says, and I
4 quote, bottom of the Verde River, parenthetically, was
5 from one half to one mile wide, and was covered with a
6 dense forest of trees, with thick underbrush, which it
7 was very difficult to even get through on foot, every
8 half mile or mile there would be a beaver dam.

9 Q. And this is in reference to your segment 2?

10 A. That's correct.

11 Q. And let's turn to -- I think it's tabbed for
12 you. Not in your report, rather. I want to jump back
13 to the transcript. I'm sorry.

14 A. Sure.

15 Q. 1053, Page 1053?

16 A. Okay.

17 Q. And it starts at Line 5, and I think there
18 Mr. Randall referenced a couple other impediments to
19 what he viewed how the Apaches would have used the
20 river or impediments to using the river.

21 Could you take a look at those and maybe read
22 those for me?

23 A. Sure.

24 He says on Line 4 "...and at these places
25 where the shallow end of it, you would

1 have [had] to drag your boat around, and
2 then you would have to follow the
3 concourse of the river; whereas overland
4 [flow] you could make faster travel on
5 flat land and a more direct route."

6 Q. So it's clear that, for Mr. Randall, when
7 he's recalling the Apaches' use of the river, there was
8 a myriad of reasons why they chose not to boat the
9 river; is that right?

10 A. Yeah, I think it would be a
11 mischaracterization to say that it's simply a question
12 that Point A to Point B is the shorter distance.

13 Q. Okay.

14 A. There were some other hurdles, let's say,
15 that these folks would have to deal with.

16 Q. Right, and a lot of those have been testified
17 to in this hearing.

18 I have one other question, and this is
19 just -- if you'll bear with me, okay.

20 A. Okay.

21 Q. You've been asked about -- you were asked
22 about boating accounts on the river, various boating
23 accounts on the river, and you talked about them in
24 your report in your Table 1.

25 A. Okay.

1 Q. Correct?

2 A. I do.

3 Q. I know we've exhausted this topic, so I just
4 have one thing that's sticking in my head that I want
5 to ask you about. It's about the --

6 A. I'm there. I'm there, if it helps.

7 Q. Are you there?

8 A. Sure.

9 Q. It's about the duck hunting trip recalled by
10 Mr. Willard in the borrowed boat from Dave Wingfield.
11 It's where they went about 16 miles down the Verde. I
12 think they were duck hunting.

13 A. Can you give me the year?

14 Q. 1903, I think.

15 A. It's the 1903 one.

16 Q. This is the infamous horse takes the boat
17 back to the corral.

18 A. I'm with you.

19 Q. It's funny, I think we've all started to
20 think, you know, soldier in boat, horse takes the boat
21 to the corral. I can see these every time this comes
22 up.

23 A. Yes, 1903 account, and I have as purpose the
24 hunting.

25 Q. The hunting, yes.

1 A. Okay, I'm with you. We're on the same page.

2 Q. And that's also referenced in the Arizona
3 State Land Department report, the 2003 report, at
4 Page 3-21, and I know it's been referenced in
5 Mr. Fuller's PowerPoint, but I don't remember the
6 slide.

7 But in that one, there seems to have been a
8 really big deal made about the fact that the horse that
9 brought this borrowed boat down to the river followed
10 along the river and then would find his way back to the
11 corral.

12 A. That's certainly how it sounds like
13 Mr. Fuller and the State have characterized it, and
14 Mr. Helm for that matter.

15 Q. And they asked you to kind of speculate about
16 that, didn't they?

17 A. They sure did, yeah.

18 Q. Yeah. Can I ask you to do just one more?

19 A. Okay.

20 Q. Thank you.

21 Do you think it's possible that the horse
22 didn't learn to return the boat to the corral because
23 he was used to hauling a boat, but rather he was used
24 to traversing along the river for various reasons
25 because there was a road by a river or the trail by the

1 river, and he just found his way back to the corral
2 because of that, not just because he was constantly
3 hauling someone's boat?

4 A. You know, I don't know a lot about horses,
5 but when I've seen them, they typically don't turn
6 around to see what they're hauling.

7 Q. Right.

8 A. So it would certainly seem reasonable that
9 whether he was harnessed, he or she, harnessed to an
10 axle with two wheels hauling a boat or harnessed to
11 something else, that he's going to be hauling
12 something.

13 Q. Yeah.

14 A. And so whether -- so one could make the
15 argument that his familiarity with wanting to return to
16 his point of origination was he's just used to going up
17 and down the river, maybe hauling hay or something,
18 which arguably could be used to suggest, well, why
19 aren't you using the river.

20 CHAIRMAN NOBLE: Okay, okay, that's
21 enough. That's enough. Gosh.

22 BY MS. MONTGOMERY:

23 Q. All right. But probably didn't keep him in
24 the corral just to haul a boat?

25 A. I think you certainly offer another

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1 alternative.

2 MS. MONTGOMERY: Okay. I had to have a
3 little fun.

4 I thank you, Mr. Burtell. Your patience
5 is amazing. And I thank the Commission's patience as
6 well. That's all I have.

7

8 REDIRECT EXAMINATION

9 BY MR. HOOD:

10 Q. Mr. Burtell, greetings.

11 A. Mr. Hood, nice to see you again.

12 Q. Yes. I think when we last saw each other, it
13 was Monday afternoon, if I recall.

14 A. Seems like a long, long time ago.

15 Q. Yeah. We're almost done. Just a couple
16 things I want to circle back on and clear up a little
17 bit, and we'll be done in five.

18 Ms. Montgomery mentioned the cost and expense
19 and time associated with building these roads. Do you
20 remember that discussion from just a few minutes ago?

21 A. Sure.

22 Q. And the [Stillman] Road, of course, is the
23 prime example of that in this region; is that right?

24 A. Stoneman's Road was --

25 Q. Stoneman, sorry.

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1 A. Stoneman's Road was the first, I think, major
2 expenditure by the military. And then a few years
3 later General Crook, after he assumed leadership of
4 troops in Arizona, I think realizing the strategic
5 importance of the road, got a congressional approval
6 for funds. It's in my report. Thousands of dollars,
7 which would probably be much higher now, obviously, to
8 improve the road, which, again, to me that was evidence
9 that the military realized just how important that road
10 was or cutting off what I think I said was some 80
11 miles around over to Wickenburg. So an important thing
12 for them.

13 Q. And if the Verde had been susceptible to use
14 for their purposes of supplying the military bases, it
15 calls into question whether they would make those
16 expenditures?

17 A. It certainly makes me scratch my head, yes.

18 Q. And it would also call into question why we
19 don't have any record of them using the Verde for those
20 purposes?

21 A. Again, absent that one photograph of a guy in
22 a military, I don't know anything else I've seen where
23 the military used the river.

24 Q. And we do have records of the military of
25 what their other operations were and the other things

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1 they were doing?

2 A. Yeah, we sure do, throughout the West. And
3 one thing I put in my report is a footnote. I don't
4 know why I'm even remembering it. But General Crook,
5 in his autobiography that I looked at, the same fellow
6 who pushed for the congressional funds to improve
7 Stoneman had experience using rivers in military
8 manner, and I list those reasons in the footnote. And
9 to me it was provocative that Crook was no stranger to
10 the use of boats for military purposes.

11 Q. I want to move very quickly now to your
12 reconstruction, and, again, you used a period of
13 1913 -- you're not even going to need to open it up,
14 Mr. Burtell.

15 A. Okay.

16 Q. You used a period of record of 1913 to 1940,
17 you accounted for the diversions that took place during
18 those time periods, and you did an accounting approach
19 to putting the appropriate amount of water back into
20 the stream?

21 A. I think that's a fair summary of what I did.

22 Q. Okay. And one of the things you -- and I'm
23 not going to get into all the detail. We've got plenty
24 of that.

25 One thing that I did want to circle back on,

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1 there was some discussion about how you accounted for
2 the impacts of groundwater pumping. Do you remember
3 those discussions, generally?

4 A. Generally, yes.

5 Q. Okay. And you gave an explanation for how
6 that was accounted for, and you relied on the work of
7 others, essentially; fair enough?

8 A. That's right.

9 Q. One thing that occurred to me, maybe to put
10 it into perspective for everybody, we live in this age
11 where we're familiar with electric pumps and large
12 capacity groundwater wells and so forth. Can you put
13 it into historical context when that sort of well
14 pumping proliferated in the region?

15 A. Yeah. The 1940s is when most of Arizona
16 started to receive electricity and, also, the
17 development of turbine pumps had occurred. And so that
18 is a common demarcation point when groundwater pumpage
19 for irrigation really started to take off. And so that
20 1940s period is where you start seeing quite an uptick
21 in pumping.

22 But, again, to be fair, and I describe in my
23 report, that's not to say that there wasn't pumping
24 before that time; but it was less. And I thought the
25 USGS did a fair job of not ignoring pre-1940 pumping,

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1 I tried to explain to him, as fairly as I
2 thought I could, that what I did was an accounting
3 measure; not all that unlike what the Bureau of
4 Reclamation had done. And, actually, Mr. Hjalmarson
5 himself used an accounting measure, now that I really
6 look at how he did it.

7 And his response to me was, well, that puts
8 what I did into a different context. He said that he
9 was more under the impression that I was trying to
10 model the Verde River and, you know, model in detail
11 what those flows were prior to the impacts of man.

12 And if there's any point I would like the
13 Commission to take away, is, again, I did an accounting
14 procedure that I think is not only very conservative,
15 but, again, results in more flow in the river than even
16 Mr. Hjalmarson would suggest.

17 So he was thinking that I was trying to do a
18 much more detailed spatial and temporal analysis of
19 flow. And what I think Mr. Hjalmarson convinced him
20 was that that type of detail you would need to make a
21 lot of assumptions if you're going to use the data that
22 he collected.

23 And when I explained to him how I used his
24 data, then he felt more confident that how I used his
25 data was not unreasonable.

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1 but looking at it and then, most importantly for the
2 purposes here, looking at what effect they felt that
3 that had on the river in terms of baseflow.

4 Q. Okay. And then just putting it in the
5 historical context, the reason why that figure might
6 not be as large as you would otherwise think, it was
7 1940 is when you cut off. It took off after that,
8 groundwater pumping took off after that date?

9 A. Certainly agricultural pumping in earnest
10 increased after that period of time, and the USGS
11 tracked that as well.

12 Q. Mr. Slade had some questions for you about
13 your communications with Mr. Ross and your reliance on
14 his study. Do you recall that discussion?

15 A. I do, yeah.

16 Q. And one of the things that he mentioned was
17 he said it was reasonable for you to use his work in
18 the way that you did, and he referenced, you know,
19 understanding that there's some assumptions in play.
20 Can you just describe what that involved?

21 A. Yeah. As I think I've testified, when I
22 talked to him, the first thing he said to me is he
23 said, "Mr. Burtell, it's not clear exactly what you
24 did," and that's where, again, I was interested in
25 seeing how Mr. Hjalmarson had characterized what I did.

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1 Q. There was some discussion about your use of
2 median flows versus the way the Washington criteria
3 have been used using mean flows. Do you remember those
4 discussions?

5 A. I do.

6 Q. And we have had discussion in this proceeding
7 and other contexts, as well as regarding the other
8 streams, about why people have a tendency in this state
9 to use median flows versus mean flows. That's been a
10 topic of discussion that's been replete through these
11 proceedings, would you agree with that?

12 A. Is it started with the San Pedro, and it
13 continues today.

14 Q. That's right.

15 A. Sure.

16 Q. And so while mean flows might be a pretty
17 good indicator of typical or ordinary flows in certain
18 regions in our country, in the arid Southwest, where we
19 have flashy streams and we have watersheds that get a
20 large percentage of their precipitation in flashy
21 monsoonal events and so forth, what is the more
22 reasonable measure of typical or ordinary flows?

23 A. Although I disagree with Mr. Fuller in many
24 and other areas, he and I are in agreement that median
25 flow is a better representation, a more characteristic

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1 of average or typical flows in the Southwest; and you
2 draw that comparison to the Northwest, where those type
3 of violent, localized storms, an average flow there
4 would probably be a lot closer to the median flow
5 there. But in Arizona the average flow and the median
6 flow can be quite different.

7 And I've looked at a lot of stream flow
8 records when I compiled the Arizona Water Atlas, and I
9 would be at a loss to think of any streams that I
10 recalled where the median flows are similar to the
11 average flows. The average flows are, almost without
12 exception, much higher, so...

13 Q. And that's a function of the average being
14 skewed up -- the average or mean being skewed upwards
15 by these large events?

16 A. And because of how extreme -- even going back
17 to Judge Allyn, when he saw the aftermaths of these
18 huge floods that blew down through the Verde, you throw
19 that into all of your numbers of averaging, and it's
20 amazing what a few large events can do. And if you're
21 not capturing that water in a reservoir, you would be
22 surprised that that much water can get through. But
23 the averaging procedure is like you had a reservoir,
24 and that is all that water gets captured. So it really
25 affects the number. It really swings it out.

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1 Q. So if mean annual flows are representative of
2 ordinary or normal, typical flows in Washington, if you
3 want to do an apples-to-apples comparison, in Arizona
4 you're going to look at the median?

5 A. I think the median would be fair, and
6 certainly the 25th percentile would be fair. And I
7 looked at both here in Arizona.

8 CHAIRMAN NOBLE: Fred wants to know what
9 you're talking about.

10 MR. BREEDLOVE: We're all right.

11 CHAIRMAN NOBLE: The 25th percentile.

12 MR. BREEDLOVE: We're okay.

13 CHAIRMAN NOBLE: No, we're not.

14 MR. BREEDLOVE: I'm okay.

15 CHAIRMAN NOBLE: Well, then the Chair
16 wants to know.

17 MR. BREEDLOVE: Seriously.

18 THE WITNESS: I'm sorry.

19 MR. BREEDLOVE: 25th percentile.

20 CHAIRMAN NOBLE: I'm talking about on
21 the 25th percentile.

22 THE WITNESS: Okay, fair enough. And it
23 gets a little confusing, but let me --

24 CHAIRMAN NOBLE: That's what the problem
25 was.

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1 THE WITNESS: Let me characterize it
2 this way:

3 Mr. Breedlove, as you probably have
4 heard at length -- I'm sorry.

5 MS. HERNBRODE: Mr. Chairman.

6 THE WITNESS: Who am I responding to?

7 MR. BREEDLOVE: The Chairman.

8 THE WITNESS: I'm a little punch drunk
9 at this stage.

10 MR. BREEDLOVE: Everybody is.

11 CHAIRMAN NOBLE: You need to go home
12 tonight and go to bed, and maybe just come back and
13 listen tomorrow.

14 THE WITNESS: I'm dreaming of that and
15 cross-examining counsel, so...

16 MR. HENNESSY: You're not the only one.

17 THE WITNESS: Yeah. So who am I
18 responding to?

19 Okay. And your question is, Chairman
20 Noble?

21 CHAIRMAN NOBLE: Explain to the confused
22 Chairman what the 25th percentile findings represent --

23 THE WITNESS: Sure.

24 CHAIRMAN NOBLE: -- with regards to
25 accommodating the differences between average and

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1 median flows as they are considered in the Washington
2 water report.

3 THE WITNESS: The Washington report
4 looked at average flows, and average flows, again, in
5 an area like that, which don't have extremes, is
6 probably much closer to the median flow.

7 So putting that aside, what's a median
8 flow, what's a 25th percentile, what's a
9 90th percentile.

10 Mr. Hjalmarson spent a lot of time
11 talking about flow frequency curves, and so did
12 Dr. Mussetter. If you were to take all the flows
13 during a certain period of time and rank them from the
14 smallest to the largest, that's the basis of coming up
15 with these flow percentiles.

16 The median is the easiest one for people
17 to get their heads around, because if the median is
18 right down the middle and that means 50 percent of the
19 flows, if you line them all up from the smallest to the
20 biggest, 50th percentile, half of them are lower and
21 half of them are higher.

22 Where things start getting a little
23 trickier and where I and others, we confuse ourselves,
24 is the 25th percentile, let's say, versus the
25 90th percentile. When you say the 25th percentile,

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1 what you're saying is that the flow at that -- you've
2 added them all, you've listed them all. So the
3 25th percentile means that you've got 25 percent of the
4 flows that are higher and 75 percent of the flows are
5 lower. That's the 25th percentile.

6 So what that means is that you're now
7 looking at a series of higher flow events. And so the
8 25th percentile, it's going to vary depending on what
9 river you're at, but when you move past, as in Arizona,
10 past the median and you get more towards the
11 25th percentile, the flows are increasing and you're
12 getting closer to what might be an average flow,
13 because, again, those averages are affected by the very
14 high flow events.

15 One other point of reference is
16 Mr. Hjalmarson spent a lot of time talking about the
17 90th percentile flow. So the 90th percentile flow is
18 used by him, I'm not sure so much by others, but as
19 more of an indication of baseflows, and that's on the
20 other side of the spectrum, where only 10 percent of
21 the time are the flows any lower. 90 percent of the
22 time the flows are that amount or higher.

23 So circling back now to Washington with
24 that in mind, the Washington criteria are based on
25 average. Streamflow conditions in Washington, they

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1 statistics in college?

2 THE WITNESS: I passed, so...

3 MR. BREEDLOVE: So did I.

4 CHAIRMAN NOBLE: If the Washington
5 report was done on Arizona rivers, what's your opinion
6 as to what they would do with regards to determining
7 this flow?

8 THE WITNESS: I think they would do what
9 Mr. Fuller and the State Land Department did, and that
10 is look at median flows and base their criteria based
11 on median flows. I don't believe it would change the
12 depths that they relate to, but I think they would use
13 medians rather than averages.

14 CHAIRMAN NOBLE: If you had used the
15 average or mean flow and not included the
16 25th percentile, what would have happened to your
17 results?

18 THE WITNESS: The 25th percentile, in my
19 opinion, is close to, if not exceeding, right in the
20 area of, in my opinion, what those averages would have
21 been. So I don't believe it would have changed my
22 results.

23 Maybe it would have increased or
24 decreased my reconstructed depths by a few tenths, at
25 most. I didn't do the exercise, but my -- based on the

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1 don't have the flashy nature that we do. If you were
2 to compare average flows in Washington to median flows,
3 my intuition would be is they would be much closer to
4 each other than they would be here in Arizona.

5 In Arizona, average flows and median
6 flows, there's going to be more of a separation due to
7 the effect of those higher flood events.

8 So when I did my analysis, I followed
9 initially -- as I was asked at length by Mr. Helm, I
10 started with median flows as an indication of ordinary
11 conditions. Mr. Fuller talked about the fact that
12 median, in Arizona, is a better indication of ordinary
13 flows than averages. So I started with medians. But
14 the last thing I want to be accused of before this
15 Commission is trying to cook the books and
16 underestimate how much water was in the river when we
17 do these flow reconstructions and you do your analysis.

18 So I also looked at the 25th percentile,
19 which, again, is including now more of these higher
20 flows. So I've moved past median now and I'm getting
21 into the higher flow range. So I'm trying to then
22 move, actually, towards what would likely be average
23 flows even in Arizona because of the effect of those
24 larger flows when you average everything out.

25 CHAIRMAN NOBLE: How did you do at

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1 rating curves, that is, how the depth of the river, on
2 average, changes based on its flow, I don't want to say
3 depths are insensitive to flow, but you increase the
4 flow by, you know, 50 or 100 cfs, it's not causing the
5 river to go from 1 foot to 2 foot depth, for example.

6 The increase in depth is a more
7 gradational thing. So as I'm known to be long-winded,
8 I would say that the depths would not be substantially
9 different than what I've put in my report.

10 CHAIRMAN NOBLE: Don't worry about it.
11 Mr. Hood already used up his five minutes on my time
12 now.

13 THE WITNESS: Fair enough.

14 CHAIRMAN NOBLE: One more thing.

15 THE WITNESS: Okay.

16 CHAIRMAN NOBLE: Did you know that you
17 were not using the same criteria that the Washington
18 study had used?

19 THE WITNESS: I certainly was aware of
20 them using it on average, based on average flow, taken
21 at their word. But, again, as indicated, flow
22 conditions are different in Washington, and I felt that
23 my analysis, because I looked at both median and the
24 25th percentile, that I would have covered my bases, if
25 you will.

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1 CHAIRMAN NOBLE: Are you feeling better
 2 now, Mr. Hood? I wanted to give you a little break.
 3 MR. HOOD: I appreciate that. I am not
 4 feeling any better, but I only have two more very brief
 5 lines of questioning, if that's okay.
 6 CHAIRMAN NOBLE: It's 5:01.
 7 MR. HOOD: We'll be done in two minutes
 8 if --
 9 THE WITNESS: If I can keep my responses
 10 short. Got it.
 11 BY MR. HOOD:
 12 Q. I'm not saying anything.
 13 Mr. Burtell, I want to very quickly turn.
 14 You had a discussion with Mr. Helm about commercial
 15 navigation having an economic component. Do you
 16 remember that line of discussion?
 17 A. I do.
 18 Q. And there was some discussion about
 19 commercial navigation being involved in a for-profit
 20 enterprise. Do you remember that discussion?
 21 A. I do.
 22 Q. Okay. Let me ask you this: Do you have any
 23 understanding or requirement that that economic
 24 activity, that commercial activity, actually results in
 25 a profit?

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1 ditch, they're not diverted onto the lands, and they
 2 run right back into the stream and they flow right back
 3 into the stream, and they may get diverted later, but
 4 they're accounted for already at the next gage.
 5 A. Yeah, and I thought my --
 6 Q. Hold on, hold on. I just want to make sure
 7 you remember that discussion.
 8 A. I do.
 9 Q. I only have one more question, and I don't
 10 want to use it up okay.
 11 A. Fair enough.
 12 Q. You talked a lot about the 43 percent. I
 13 just very quickly want to talk about the 57 percent
 14 left over, okay?
 15 A. Okay.
 16 Q. Some of that ends up being consumptively used
 17 by the crops, true --
 18 A. Yes.
 19 Q. -- some percentage of that 57?
 20 And some portion of that probably evaporates;
 21 is that true?
 22 A. A portion not only used by the crops, but
 23 ponded on the field, works its way up, yeah.
 24 Q. Some component of that 57 percent returns to
 25 the river through some process, either as return flows,

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1 A. You know, you could think of a business that
 2 is breaking even or making a loss. Economically, I
 3 think an economist would say they're not, quote, making
 4 a profit, but it's still a business and it's still
 5 being used, so...
 6 Q. Would that qualify as commercial activity for
 7 your purposes?
 8 A. Certainly, yeah.
 9 Q. Okay. So if we have evidence of someone
 10 conducting commerce on the --
 11 CHAIRMAN NOBLE: You're now on three.
 12 MR. HOOD: I got the answer I needed on
 13 that.
 14 MR. HELM: Get that in the record,
 15 please.
 16 MR. HOOD: I learn faster than Mr. Helm
 17 does.
 18 CHAIRMAN NOBLE: Oh, please, that will
 19 not go on the record.
 20 MR. HELM: I have no problem with it
 21 being on the record.
 22 BY MR. HOOD:
 23 Q. You had another discussion with Mr. Helm
 24 about the diversions. 43 percent go right back into
 25 the river, because while they're diverted into the

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1 runoff from the fields, or it comes back into the
 2 ground and eventually returns as baseflow; true?
 3 A. Sure, you can get both direct return flow
 4 absent this terminal flow from the ditch. I think my
 5 opinion, having spent time up there and looking at
 6 those fields, I think a lot of it is through seepage
 7 infiltration and then it seeps back into the river as
 8 baseflow.
 9 Q. And you went ahead and put all of that
 10 57 percent back into the river, even recognizing that a
 11 significant portion of it is already being counted at
 12 the gage because it's already return flow?
 13 A. Yeah, and so, again, it's a difficult
 14 concept, but thus I am double counting because --
 15 Q. In favor of higher discharge and greater
 16 depths?
 17 A. Because if that water --
 18 Q. True?
 19 A. True.
 20 Q. Okay.
 21 MR. HOOD: That's all I have.
 22 CHAIRMAN NOBLE: I'm not exactly sure
 23 what to say except 9:00 a.m. in the morning.
 24 (An off-the-record discussion ensued.)
 25 CHAIRMAN NOBLE: We're going to go back

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1 on the record. We're going back on the record.
 2 THE WITNESS: I've been here this long.
 3 CHAIRMAN NOBLE: Fred really was
 4 confused on a couple of items.
 5 MR. BREEDLOVE: I think we were confused
 6 about what each one of us was going to ask.
 7 THE WITNESS: Let's put a ribbon around
 8 this.
 9 MR. BREEDLOVE: Back to the Washington.
 10 CHAIRMAN NOBLE: Oh, this is great.
 11 MR. BREEDLOVE: Just briefly.
 12 On Paragraph 92 of your report --
 13 No, on the one that he doesn't know the
 14 number.
 15 -- it says -- you say that -- well, it
 16 talks about the Washington considers streams with a
 17 mean depth of less than 2 feet are probably not
 18 navigable, streams with a mean depth of between 2 and
 19 3 and a half feet may be navigable depending on the
 20 balance of factors, and then -- oh, and streams that
 21 are at greater than 3 and a half feet are probably
 22 navigable. And the last sentence says "The Verde River
 23 is also nonnavigable in its ordinary and natural
 24 condition using these criteria."
 25 And if you go back and look at the

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1 other than a vehicle or reference for the Washington
 2 criteria. And the USGS, certainly, at the end of the
 3 day didn't take their depths and apply it through the
 4 criteria. But that's exactly what I did. I used the
 5 report simply as a reference for the criteria, and I
 6 thought I fairly applied the criteria.
 7 I reconstructed flows using the method
 8 that I've spent some time here discussing and then came
 9 up with a depth, and those depths are illustrated or, I
 10 should say, tabulated in Table 5.
 11 So if I could quickly take two examples.
 12 So for at Camp Verde, at the 25th percentile, I had a
 13 reconstructed depth of 1.4. I then go to these
 14 criteria. I don't go to the whole rest of the USGS
 15 report. I just go to Page 1 or whenever those criteria
 16 are presented and I say, okay, my average depth is 1.4.
 17 The criteria says if the mean depth is less than
 18 2 feet, probably not navigable.
 19 So I didn't take the analysis any more.
 20 All I can take from those criteria is, based on my
 21 reconstructed depth, if that was the law of the land, I
 22 could say probably not navigable.
 23 But now let's take another example that
 24 I believe Mr. Slade had me address. Let's take the
 25 near Camp Verde, also 25th percentile. In that case my

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1 Washington or the -- what's it called? -- the Magirl
 2 and Olsen 2009 report from the USGS, if you look in the
 3 abstract, the last sentence says, and this is on Page 1
 4 of the report, "This methodology does not determine
 5 navigability - a legal concept determined by federal
 6 common law - instead, this methodology is a tool for
 7 predicting channel depth, top width, and bottom width
 8 of rivers and streams in Washington."
 9 And so I guess my question is how does
 10 that jive with your conclusion that the Verde River is
 11 nonnavigable, and is it that your use of those
 12 navigability factors is just one of the tools, as you
 13 like to say, in your total determination; or how does
 14 that work?
 15 THE WITNESS: Yeah, and I can see why
 16 there was some confusion, and I believe the State Land
 17 Department entered into evidence that report in its
 18 entirety.
 19 The report opens up by presenting those
 20 Washington criteria and then puts them aside and spends
 21 the rest of the time, the USGS, trying to explain how
 22 the GS could estimate stream depths throughout
 23 Washington, and that was then really the focus of the
 24 report.
 25 I didn't look at that report as anything

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1 reconstructed mean depth is 2. Turning back to the
 2 criteria, if the mean depths are between 2 and 3.5, I
 3 read these criteria, meaning the instructions provided
 4 to apply the criteria, is if the flows are between
 5 2 and 3.5, may be navigable, depending on the balance
 6 of the factors.
 7 So the ability for me to take these
 8 criteria and come to the conclusion that the Verde was
 9 not navigable using these criteria is I took those
 10 criteria at the face value of if the depth is between
 11 2 and 3.5, it might be navigable, depending on the
 12 balance of the factors.
 13 So I couldn't ignore the balance of the
 14 factors. I took them at face value and, thus, I looked
 15 at the balance of the factors, and you've all heard
 16 ad nauseam the other things I considered.
 17 So upon applying what I thought the
 18 criteria said as its face value, for those cases, the
 19 two cases that Mr. Slade zeroed in on, I then did what
 20 I thought I was instructed to do. For the cases where
 21 I had 2.0 and 2.2, I was instructed to look at other
 22 factors. I wasn't -- those criteria don't say just
 23 stop there. It says other factors. So I looked at the
 24 other factors, and my report addressed other factors.
 25 And when I did that, I came to the conclusion that it

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1 wasn't navigable.
 2 MR. BREEDLOVE: That's it. Thanks.
 3 CHAIRMAN NOBLE: Well, no. No, no, that
 4 can't be it.
 5 Were 2.0 and 2.2 the highest values for
 6 depths that you came up with?
 7 THE WITNESS: They were, and it was the
 8 25th percentile.
 9 CHAIRMAN NOBLE: Thank you.
 10 MR. HOOD: So may I just follow up on
 11 that, very briefly?
 12 CHAIRMAN NOBLE: Oh, do you want to come
 13 sit on this side of the table?
 14 MR. HOOD: Oh, geez. No, no.
 15 BY MR. HOOD:
 16 Q. Just to clarify, so for those two values,
 17 2.0 and 2.2, 75 percent of the time at those stream
 18 gages it would have been less than those amounts --
 19 A. That's correct.
 20 Q. -- less than those depths?
 21 A. That's correct.
 22 CHAIRMAN NOBLE: Now, are we ready to go
 23 home?
 24 First of all, Mr. Burtell, since we
 25 won't have the opportunity to put this on the record

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1 again, we appreciate your time and your testimony. We
 2 appreciate your being able to sit through this, and we
 3 appreciate those attorneys who worked really hard on
 4 questioning Mr. Burtell. I'm sure it's an experience
 5 that he will long remember.
 6 THE WITNESS: I would like to say
 7 fondly, but I'm on the record.
 8 CHAIRMAN NOBLE: Okay. We are adjourned
 9 until tomorrow morning at 9:00 a.m., regardless of fire
 10 drills.
 11 (The proceedings adjourned at 5:12 p.m.)

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1 STATE OF ARIZONA)
 2 COUNTY OF MARICOPA)
 3 BE IT KNOWN that the foregoing proceedings
 4 were taken before me; that the foregoing pages are
 5 a full, true, and accurate record of the proceedings,
 6 all done to the best of my skill and ability; that
 7 the proceedings were taken down by me in shorthand
 8 and thereafter reduced to print under my direction.
 9 I CERTIFY that I am in no way related to
 10 any of the parties hereto, nor am I in any way
 11 interested in the outcome hereof.
 12 I CERTIFY that I have complied with the
 13 ethical obligations set forth in ACJA 7-206(F) (3)
 14 and ACJA 7-206 (J) (1) (g) (1) and (2). Dated at
 15 Phoenix, Arizona, this 19th day of April, 2015.

Jody L. Lenschow

JODY L. LENSCHOW, RMR, CRR
 Certified Reporter
 Arizona CR No. 50192

16 I CERTIFY that Coash & Coash, Inc., has
 17 complied with the ethical obligations set forth in
 18 ACJA 7-206 (J) (1) (g) (1) through (6).
 19
 20
 21
 22

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