

BEFORE THE ARIZONA NAVIGABLE STREAM
ADJUDICATION COMMISSION

4

In re: Determination of)	No. 04-008-NAV
Navigability of the Upper Salt)	No. 04-010-NAV
River, Small and Minor)	No. 05-014-NAV
Watercourses in Gila County,)	No. 03-007-NAV
Small and Minor Watercourses in)	No. 04-009-NAV
Maricopa County, the Gila River,)	
and the Verde River.)	

MEETING OF THE
ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

Phoenix, Arizona

January 18, 2006

(Original)

Prepared by:
Gerard T. Coash, RPR, RMR
Certified Reporter
Certification No. 50503



PHOENIX DEPOSITION REPORTERS & VIDEOCONFERENCING

www.coashandcoash.com 602-258-1440



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

I N D E X

WITNESS	PAGE
Mr. Jon Fuller	
Examination by The Commission Members	38
Examination by Mr. Sparks	41
Mr. Jon Colby	
Examination by The Commission Members	56
Dr. Douglas Littlefield	
Examination by The Commission Members	79
Examination by Ms. Hachtel	84
Examination by The Commission Members	90
Examination by Ms. Herr-Cardillo	91
Examination by The Commission Members	95
Mr. Jim Slingsluff	
Examination by The Commission Members	119
Examination by Ms. Hachtel	122

EXHIBITS ATTACHED

EXHIBIT	DESCRIPTION	PAGE
A	Excerpt of Dave Weedman testimony from hearing of 11/16/05	7

1 MEETING OF THE ARIZONA NAVIGABLE STREAM

2 ADJUDICATION COMMISSION was taken on January 18, 2006,
3 commencing at 9:47 a.m., at the La Quinta Inn, 2510 West
4 Greenway Road, Phoenix, Arizona, before Gerard T. Coash, a
5 Certified Reporter in the State of Arizona.

6
7 * * *

8 APPEARANCES:

9 For Salt River Project:
10 SALMON, LEWIS & WELDON, P.L.C.
11 By: Mark A. McGinnis, Esq.
12 2850 East Camelback Road
Suite 200
Phoenix, Arizona 85016
602-801-9066

13 For the Arizona Navigable Stream Adjudication
14 Commission:

JENNINGS, HAUG & CUNNINGHAM, L.L.P.
15 By: Curtis A. Jennings, Esq.
16 2800 North Central Avenue
Suite 1800
Phoenix, Arizona 85004
602-234-7800

17 For the State of Arizona:

18 ATTORNEY GENERAL'S OFFICE
19 By: Laurie A. Hachtel, Esq.
Cheryl Doyle, Esq.
1275 West Washington Street
20 Phoenix, Arizona 85007
602-542-7793

21 For the Arizona Center for Law in the Public
22 Interest:

23 ARIZONA CENTER FOR LAW IN THE PUBLIC INTEREST
By: Joy E. Herr-Cardillo, Esq.
2205 East Speedway Boulevard
24 Tucson, Arizona 85719
520-529-1798
25

1 For San Carlos Apache Tribe, Tonto Apache Tribe,
2 and Yavapai Apache Nation:

3 SPARKS, TEHAN AND RYLEY, P.C.

4 By: Joe P. Sparks, Esq.

5 John Ryley, Esq.

6 7503 First Street

7 Scottsdale, Arizona 85251

8 480-949-1339

9 From the Arizona Navigable Stream Adjudication
10 Commission: George Mehnert, Executive Director;
11 Earl Eisenhower, Chairman; Dolly Echeverria,
12 Vice-Chair; James Henness, Member; Jay Brashear,
13 Member

14 Also Present: Jonathan E. Fuller, P.E., RG, PH, MS,
15 CFM; Douglas Littlefield, Philip Pearthree, John
16 Colby, Jim Slingluff

1 TRANSCRIPT OF PROCEEDINGS

2 CHAIRMAN EISENHOWER: Ladies and gentlemen,
3 the time has come to call the commission to order.

4 Mr. Mehnert, would you call roll, please?

0:03:21 5 EXECUTIVE DIRECTOR MEHNERT: Commissioner
6 Brashear?

7 COMMISSIONER BRASHEAR: Here.

8 EXECUTIVE DIRECTOR MEHNERT: Commissioner
9 Henness?

10 COMMISSIONER HENNESS: Here.

11 EXECUTIVE DIRECTOR MEHNERT: Commissioner
12 Echeverria?

13 COMMISSIONER ECHEVERRIA: Present.

14 EXECUTIVE DIRECTOR MEHNERT: Chairman
0:03:29 15 Eisenhower?

16 CHAIRMAN EISENHOWER: Here.

17 EXECUTIVE DIRECTOR MEHNERT: Commissioner
18 Miller?

19 We have four members present. We have a
0:03:35 20 quorum. Commissioner Miller is the only member absent.

21 CHAIRMAN EISENHOWER: Okay. Thank you very
22 much.

23 Right now I'm going to do something that I
24 hope you'll understand. On your agendas -- We are
p3:47 25 reconvening an old meeting from November and items number

1 4 and 13, we're going to go into executive session right
2 now to discuss that. And then when we come back out, we
3 will do the Verde River and then discuss items 4 and 13 in
4 public session. But 4 and 13 relate directly to legal
0:04:15 5 advice that I wish our commission to get from our counsel.
6 So if you will oblige us for the first, oh, about 10, 15
7 minutes, we're going to do an executive session right now.
8 And so if you will -- and there's a continuation factor on
9 our commission life. We're supposed to expire this summer
0:04:43 10 and we need two more years. So we will discuss that in
11 executive session. We'll call you back in about 15,
12 20 minutes. So ...

13 (A recess ensued.)

14 COMMISSIONER ECHEVERRIA: Move to go into
0:05:10 15 executive session.

16 COMMISSIONER HENNESS: Second.

17 CHAIRMAN EISENHOWER: All those in favor?

18 COMMISSIONER BRASHEAR: Aye.

19 COMMISSIONER HENNESS: Aye.

20 COMMISSIONER ECHEVERRIA: Aye.

21 CHAIRMAN EISENHOWER: Aye.

22 (An off-the-record discussion ensued.)

23 CHAIRMAN EISENHOWER: Thank you for your
24 indulgence in allowing us to get through a couple of
40:08 25 executive matters that we had to take care of.

1 Right now our executive director has a
2 little announcement that he would like to make vis-a-vis
3 our last hearing when we were here in November.

4 EXECUTIVE DIRECTOR MEHNERT: Regarding the
5 Verde River, a gentleman from Game and Fish named Dave
6 Weedman was taken sort of out of order and testified, I
7 believe, on November 16th. And what the chair asked me to
8 do as a courtesy is to copy the -- duplicate the pages
9 from that transcript and attach them to the end of the
10 transcript for the Verde hearing, which I believe are
11 pages approximately 210 to 221, and we'll do that.

12 CHAIRMAN EISENHOWER: Thank you.

13 COMMISSION COUNSEL JENNINGS: They will be
14 an Exhibit A to the transcript of today's hearing. Is
15 that correct?

16 EXECUTIVE DIRECTOR MEHNERT: Yes, that is
17 correct.

18 CHAIRMAN EISENHOWER: Okay. I have several
19 speakers' requests. I believe we'll start with Jon
20 Fuller.

21 MR. FULLER: Mr. Chairman, members of the
22 commission, my name is Jon Fuller. I work for JE Fuller
23 Hydrology & Geomorphology, and I was the primary author
24 for the State Land Department's Verde River navigability
25 study, and I have a presentation summarizing the results

1 of that study for you.

2 The Verde River in Arizona is a tributary of
3 the Salt River. Our study extends from Sullivan Dam down
4 to the confluence of the Salt River. A couple of points
0:42:14 5 of interest on this map right here going from --

6 Can we turn out the front lights? Can you
7 figure out which ones they are?

8 CHAIRMAN EISENHOWER: That will help.

9 COMMISSIONER ECHEVERRIA: Thank you.

0:42:44 10 MR. FULLER: Points of interest, the Salt
11 River down here, Verde River going from downstream to
12 upstream. Right now there are two reservoirs, Bartlett
13 and Horseshoe. Tangle Creek is a creek that might get
14 mentioned. East Verde River comes in right there, east
0:42:59 15 Verde River, one of several Sycamore Creeks along the way.
16 We have through the Verde Valley right here, Camp Verde up
17 to Clarkdale, the area that's typically called the Verde
18 Valley, up above Clarkdale and canyon reach again to
19 Perkinsville, and then Granite Creek comes in just below
0:43:23 20 Sullivan Dam, and that's the point where perennial flow is
21 traditionally thought to begin, it's the confluence with
22 Granite Creek. Some points of interest along the way.
23 And I'll probably mention a few of those. And if you
24 forget where they're at, I will be happy to go back and
43:41 25 look at the slide again.

1 Our study, again, the Sullivan Dam at the
2 Salt River confluence. This is the report that we're
3 presenting today as a revision of an original report that
4 was done by C. H. Hill in 1993. I was the project manager
5 and author of that report. In 1996, that report was
6 revised to reflect revisions in the state statutes. At
7 that point and again in June 2003, we made a second
8 revision. We will point out an issue that came up in the
9 past hearings. The appendices are unchanged from the
10 original report and they're on file previously. I think
11 George is nodding his head, saying that material is still
12 there, so it's not in this report. The idea was to save a
13 few trees. If anybody is interested in any after-appendix
14 material, they can find it at the office.

15 The project was done as part of a team; SWCA
16 did the archaeological work in chapter 2 and history in
17 chapter 3, as well as the oral history in chapter 4. And
18 they also worked on the land use data which is chapter 6,
19 I believe. Arizona Geological Survey worked on the
20 chapter on the geology and geomorphology; Philip Pearthree
21 will talk about that. Phil's running the slide right
22 here. Introduce his own section in a few moments. And
23 then I was responsible for the chapter on hydrology,
24 boating and putting together the overall report.

25 The report, like the other reports, included

1 these six basic categories: archaeology, history,
2 hydrology, geomorphology, land use, and boating. And the
3 idea was to look at two basic categories, actual
4 historical navigation as well as the susceptibility to
0:45:27 5 navigation, and that was because the state's definition of
6 "navigable" means that it was used or was susceptible to
7 being used, so we looked at those two different categories
8 of information and organized the report around that.

9 The archaeological data of the Verde River
0:45:46 10 corridor is the site of residence, life patterns for the
11 Hohokam and Sinagua cultures and later the Apache Indians
12 moved in. There was evidence of irrigation by the earlier
13 cultural groups. Generally, the systems were small,
14 typically less than a mile. There were systems near
0:46:07 15 Perkin- -- irrigation systems near Perkinsville, what's
16 now Perkinsville. A number in the Verde Valley and then
17 down near what's now Fort McDowell as well. River water
18 was also used for water supply as well as irrigation. The
19 river itself was thought to be a communication route.

0:46:25 20 Primarily that's based on the assumption because of the
21 different communities that were located along the river
22 corridor. We found no evidence in the archaeological
23 record of any use of boats on the Verde River.

24 The historical data was divided into a
#6:38 25 number of categories, that's how that chapter is

1 organized: descriptions -- historical descriptions of the
2 river; historical accounts of boating; descriptions of the
3 population centers, where they were located, what types of
4 activities went on there; discussion of regional
0:46:54 5 transportation; and uses of the river itself.

6 The historical data -- I distinguished that
7 from the archeological data in that there are more of what
8 I traditionally would consider written records -- begins
9 with Spanish exploration, which occurred in the late
0:47:14 10 1500s, the early 1600s, three different explorations
11 through the area that mention the Verde River or what it
12 was previously named.

13 Anglo fur trappers came through in the early
14 1820s through the 1840s. We know of several different fur
0:47:29 15 trapping groups that trapped up along the Verde River.
16 There may have been others that didn't record their
17 activities, but we know of several that came through,
18 trapping beaver primarily along the river corridor. The
19 Army sent out several explorations, Sitgreaves and Whipple
0:47:45 20 being the most notable.

21 In the 1850s and then shortly after that
22 time period, the real activity in the Verde Valley begins
23 around 1864. Gold was discovered at Lynx Creek, other
24 minerals were found at Jerome and later processed at
48:02 25 Clarkdale, and this pattern of settlement that we see is

1 throughout Arizona and the west. And we had mineral
2 resources found and people coming out to exploit those
3 resources and then the Army sent out to protect the people
4 exploiting those resources and then agricultural following
10:48:19 5 in shortly after to provide food for miners and soldiers,
6 and with agriculture in Arizona comes irrigation. So we
7 find that all starting in that period prior to 1870
8 primarily in the Verde Valley but also down near Fort
9 McDowell.

10:48:34 10 There were two Army forts located along the
11 river. One was originally called Camp Lincoln, later
12 named Fort Verde and then Camp Verde and then Fort
13 McDowell, which operated for a brief time in the 1800s.
14 The railroad reached the area first at Jerome in 1895;
10:48:48 15 second railroad spur came in Clarkdale in 1911. There are
16 a number of historical descriptions that are reported and
17 recorded in our report, and we divide those -- for
18 convenience, I'll divide those into river descriptions
19 before 1891.

10:49:08 20 There was a flood in 1891, and river
21 descriptions after that time period. Prior to 1891 in the
22 Verde Valley, the river was described as perennial, no
23 accounts of the river ever being dry or dried up. Clear
24 water, fish. There's quite a few descriptions of it being
19:24 25 marshy and swampy through the Verde Valley. We didn't see

1 those kind of descriptions in other portions of the river,
2 all the way down near Fort McDowell, and accounts of
3 beaver, the river itself being tree-lined, being a nice
4 riparian habitat.

10:49:40 5 The flood of 1891 was a large flood and
6 reportedly, according to the historical descriptions, they
7 described the main channel becoming deeper and wider and
8 removing some of the marshy, swampy areas. And typically,
9 they're writing about the problems with malaria going away
10:49:59 10 after that point. But still, the stream is described as a
11 relatively large stream and perennial.

12 There are a few boating accounts that we
13 found evidence for along the Verde. In the middle Verde
14 area, it's known that the fort there kept a collapsible
10:50:20 15 U.S. Army-issue boat, is how it's described. There's a
16 photograph, supposedly from 1887, and they used that boat,
17 according to the fort historians, at times of high water
18 and also for fishing, as a means of transporting
19 communication across the river during high water. There
10:50:39 20 was an account -- an unpublished report of a boat being
21 used to haul rock near building the Perkinsville Dam.
22 That's cited in the hydrology chapter of my report. So I
23 included that in the summary right here.

24 In 1903, two gentlemen -- and this is one of
50:53 25 our favorite accounts -- went duck hunting, and they used

1 a steel boat, and apparently this is something they did
2 frequently. They would mount this boat onto two wheel
3 axles and a horse would drag it upriver, they would plop
4 the boat in the water and go fishing and duck hunting on
5 the way down. Apparently the horse knew the route home so
6 they let the horse go and he would walk back to the
7 stable, and they would meet up with the horse later and
8 have a nice time floating downstream.

9 In 1931 is our next recorded incident of
10 someone boating on the river and that's two gentlemen,
11 Fogel and Gireaux, who went on a trapping expedition
12 starting in Clarkdale. Their intent was to go down to
13 Granite Reef Dam on the Salt River. They took their time
14 trapping along the way by using a flat bottom boat --
15 that's a description that we have. I don't know the
16 description of its length or width -- and they ended up
17 revising their end point of their trip. And the last
18 report, some seven weeks later, they were intending to
19 take out at what's now the Beeline Highway. So close to
20 the confluence but not quite there.

21 On the lower Verde we have two accounts that
22 were mentioned previously when we were discussing the Salt
23 River navigability, Willcox and Andrews is the first of
24 those, and those are gentlemen who went down the river
25 from Fort McDowell several miles down the Salt River and

1 then on down the Salt. They were using a canvas skiff.
2 And then the 1888 account of Spaulding and Hatfield, and
3 that's the one where the gentlemen -- gun accidentally
4 discharged when he was crossing a dam on the Salt River.
10:52:31 5 He was in a canoe on that one. So those are the
6 accounts -- the historical accounts we have for the Verde
7 River.

8 And that ends our history summary. And what
9 I would like to do right now is bring up Phil and talk
10:52:43 10 about the geomorphology report and then I'll follow with
11 the hydrology. And then we prefer to take questions at
12 the end, if that's okay with the commission.

13 CHAIRMAN EISENHOWER: Thank you, Jon.

14 MR. PEARTHREE: Thank you, Jon. Commission
10:53:23 15 members, my name Phil Pearthree, I work for the Arizona
16 Geological Survey, and I have worked for the survey since
17 1988. And I've been out here in Arizona since 1977 --
18 '78, I'm sorry -- came out here to do grad school, the
19 geosciences at the U of A, and liked it so well that I've
0:53:37 20 stayed here ever since. I have my master's and Ph.D. in
21 geosciences from the U of A, and my specialty is young
22 geology, geomorphology, that sort of thing.

23 My experience of the Verde is the same as
24 everybody else, driving across the river on I-17 on the
53:55 25 way to Flagstaff, but -- a casual experience of the Verde.

1 But starting in the early 1990s, I became involved in
2 several studies of the geology and geomorphology of the
3 river. And right after that, we had the '93 floods, I'm
4 sure all of you remember, it was very exciting, and -- was
5 involved with Jon and some other researchers and since
6 that time, have focused primarily on the flood history of
7 the Verde, which is not too much what you're interested
8 in, but that's really quite an exciting field in itself.

9 What I would like to talk to you about today
10 is kind of an overview -- be a little bit of redundancy
11 with what Jon said but not too much hopefully -- to
12 describe the physical setting of the river, some fairly
13 big picture and some more specific stuff to give you if
14 you don't already have a flavor for what the river is
15 like.

16 So this is a -- this is pretty basic stuff,
17 but the Verde, the Salt, and the Bill Williams River, all
18 the big rivers in Arizona are kind of remarkable -- even
19 the Colorado -- kind of remarkable rivers that hid in wet
20 areas and drain through our arid regions and allowed
21 civilization to exist here. And of course the reason why
22 that works is because the high topography brings the
23 moisture out of the atmosphere that comes in off the ocean
24 and so these rivers exist because of our physical setting.

25 The Verde River watershed itself -- Jon

1 talked about it a little bit -- this is a physiographic
2 map showing what he showed, if you can see it. I can
3 barely see it from here. But anyway it's a rugged
4 watershed, obviously, that drains the Verde, some of the
0:55:34 5 most rugged territory in Arizona.

6 One thing that's important about the Verde
7 River is it's not a certainly homogenous sort of thing.
8 It drains a variety of reaches, some of which are very
9 rugged, bedrock canyon and then several alluvial reaches,
0:55:51 10 the largest of which is Verde Valley, which Jon was
11 talking about. And then the lower Verde below Bartlett
12 Dam is also a pretty large alluvial reach.

13 But even in these alluvial reaches, the
14 river is somewhat confined. It's incised into these
0:56:07 15 sediments that are in these basins and so the valley and
16 the floodplain is wider in these areas but still not --
17 it's different, for example, than a lot of the Gila River
18 in a sense that there are actually topographic constraints
19 on how -- where the river can go over any reasonable
0:56:23 20 historical period for sure.

21 So I want to go through the river kind of
22 stretch by stretch with examples of these bedrock canyon
23 reaches. Hopefully you can see those little blue arrows
24 up there outlining where the river goes. This is the
56:36 25 upper Verde beginning just downstream from Paulden and

1 down to Clarkdale.

2 So in this reach in the river it's
3 incised -- deeply incised in the bedrock or in the lower
4 end of it, alluvium in the south, in the right -- lower
0:56:50 5 right corner. In all cases, though, the channel -- even
6 in floods, the channel can't move around very much, it's
7 pretty limited.

8 Then as an example of a basin reach, the
9 Verde Valley course, in there, again, the river is
0:57:03 10 incised, everyone that's been through Verde Valley can see
11 that, but the floodplain is wider. And the topographic
12 confinement for the river in this area is older, it's
13 called the Verde formation, and were deposited in this
14 valley millions of years ago.

0:57:18 15 Then we get back into a bedrock reach going
16 downstream from Verde Valley. This is a pretty rugged
17 area, not too many people get to this, it's beautiful.
18 The river, again, is deeply incised in the bedrock. And
19 you can hardly even see the river in this satellite image
0:57:35 20 but it's there in the lowest part of the image. I'll show
21 you a larger-scale example of all these areas.

22 And then finally we get into the lower reach
23 with the Horseshoe Dam, Bartlett Dam, and then the Fort
24 McDowell reach, which is, again, an alluvial reach, down
57:54 25 to the Salt River confluence. So this is just pictures

1 showing you kind of what Jon was talking about already.

2 Can I reiterate that hopefully it's obvious
3 that the river is a pretty diverse thing and there are
4 certainly some repeated characteristics that are reaches
10:58:10 5 and the alluvial reaches, but you can't really generalize
6 the geomorphology of the river. It's quite variable on
7 the river.

8 Some of the basic terminology that I'll use
9 in this talk -- and Jon will as well, probably --

10:58:22 10 floodplains -- we're not necessarily talking about the
11 hundred-year floodplain, although that's more or less what
12 we're talking about. These are the areas that just get
13 flooded during large -- inundated during large floods, so
14 typically there might be terraces away from the channel.

10:58:36 15 And in a lot of cases, they're quite densely vegetated.
16 But in areas like the Verde Valley where there has been
17 quite a bit of agricultural activity there, they're not so
18 densely vegetated.

19 And the flood channels, the kind of thing
10:58:49 20 the flood -- the stream occupies during those 10-year,
21 50-year, 100-year floods are, again, more exciting
22 geomorphically but they're not really what this commission
23 is focused in because they're only occupied during extreme
24 events. In fact, between floods, they may tend to kind of
59:07 25 disappear or seem to get smaller and then they expand

1 again during -- the river will expand them during floods.

2 Finally, the low flow channels, and that's

3 really the stuff we're talking about, the area that's

4 occupied by perennial flow, and they're typically only a

10:59:22 5 small part of the flood channel. They wind around through

6 the flood channel typically -- I'll show you examples of

7 this -- and oftentimes they are lined with trees because

8 of the perennial water supply. And within those low-flow

9 channels we typically have a sequence of the term -- you

10:59:40 10 may have heard the term braided stream versus other kinds

11 of stream, but really the dominant geomorphology of the

12 low flow channels are pools -- wide, low-gradient,

13 slow-water reaches where the water is fairly deep and

14 ripples where the water is shallow. Typically rapids

10:59:57 15 would be another term for that narrower, steeper, coarse

16 bed load river. One of the reasons why the Verde is what

17 it is and the Salt -- because it carries a pretty coarse

18 bed load and that's what occupies these riffles.

19 Here is some -- here's an example from the

11:00:11 20 lower Verde of these various geomorphic elements. The

21 low-flow channel being that dark inundated area in

22 foreground. This is right after the '93 floods. The

23 flood channel was obvious. And then further in the

24 distance which you can't see as well is a little bit of

00:28 25 floodplain -- Do I have a pointer?

1 Anyway, this little thing over here is a
2 little higher terrace that gets inundated during floods.
3 And then these bluffs here are older alluvium that's not
4 going to be affected by any river. If there is any bank
11:00:46 5 erosion that goes on there, it's relatively minor. So the
6 river operates in this swath. Obviously during perennial
7 flow it's only occupying a small part of that swath.

8 This is an example that Jon gave you. The
9 left one is cheating because it's actually from Provo --
11:01:05 10 right, Jon? But basically, illustrating this pool and
11 riffle thing where the pool -- the riffle is this area of
12 more turbulent water and the pool is this area. This
13 right vision is from the Verde, so this shows it even
14 better. This is the pool. This is the riffle. There's
11:01:18 15 another pool. And these things repeat time and time again
16 down the river.

17 This is just an example to show you cross
18 sections, hopefully, of different kinds of reaches.
19 Again, Camp Verde being an alluvial reach, the whole area
1:01:34 20 is much more generally -- the floodplain is -- you can't
21 see it very well -- this red area here, and then the
22 perennial low-flow channel is a small part of that
23 floodplain. In contrast to that, this bedrock canyon in
24 the Chasm Creek reach downstream of Verde Valley and how
01:52 25 the vertical exaggeration on these profiles is about the

1 same. So it just shows you how much -- how different the
2 Verde Valley -- the valley of the Verde River is in those
3 areas. And then Fort McDowell, again, a much broader
4 valley. And in these areas, the river obviously has more
1:02:08 5 potential to move around and the floodplain is wider. But
6 the thing that is kind of interesting, and you will see
7 this all down the river, is the low-flow channel actually
8 doesn't vary that much in width. It's the most consistent
9 element of the -- geomorphic element of this system. When
1:02:25 10 the floodplain width varied by maybe five or six, the
11 low-flow channel varied very little and it's because it's
12 carrying this perennial flow that varies seasonally but it
13 doesn't vary anywhere near as much as the flood peaks.

14 So I want to zero in a little bit more on
1:02:45 15 these various reaches and the geomorphology of these
16 reaches. The low-flow channel is -- zoom in on this, this
17 is frustrating. This is Verde Valley. The low-flow
18 channel is a small part of this system and typically has
19 single thread; sometimes it's got a couple of threads of
1:03:04 20 low-flow. The flood channels are much broader. Again,
21 there's these light-colored areas in there -- we'll zoom
22 in on this to show it better -- and then especially in the
23 Verde Valley there's a lot of human impact on the
24 floodplain areas -- agriculture and other things that have
03:21 25 been going on for a long time in the Verde Valley.

1 And then finally the Verde, even though it's
2 an alluvial reach, again, there are these much older
3 sediments with topography that constrain the river over
4 thousands -- tens of thousands of years, a long period.

11:03:35 5 And zooming in more on this particular reach, show things
6 a little bit better. Again, this is -- go ahead, Jon --
7 the low-flow channel. I've outlined it in blue just to
8 help you see it a little better on these black and
9 white -- these are from 1992. So just before the '93
11:03:53 10 flood. Outline the low-flow channel, again, it's a single
11 thing and then it's got some splits. The flood channel is
12 a much broader area. And if you came here after '93, this
13 would be a lot more obvious. And then the floodplain is
14 really pretty broad in this area, including this broad
11:04:11 15 terrace here.

16 Again, this is a bedrock-confined reach and
17 the situation is really dramatically different. The
18 low-flow channel and the flood channel aren't that
19 different in size, but the water would be maybe 40 feet
11:04:28 20 deep in the flood channel during flood, so that's the
21 difference in this reach.

22 Zooming in a little bit more, and again,
23 trying to show you with the blue lines where the low-flow
24 channel is in this reach, occupies quite a bit of the
04:39 25 valley floor. These narrow reaches are the riffles and

1 then the broader reaches are pools. Typically one channel
2 thread but some places a couple of them, and that's
3 dependent on the discharge to some degree. And then the
4 flood channel occupies the whole valley bottom and flow is
11:04:56 5 really deep during floods there.

6 And then finally going downstream, again, to
7 another alluvial reach, the Fort McDowell reach. The same
8 sort of story. Again, the blue lines are the low-flow
9 channel within a broader flood channel and then a broader
11:05:12 10 floodplain yet. Again, trying to show you -- characterize
11 the low-flow channel because that's probably what you're
12 most interested in. One thing I want to say is in these
13 alluvial reaches after floods, the position of the
14 low-flow channel changes after every flood. It's going to
11:05:29 15 change its position. Character of the low-flow channel
16 doesn't change that much, but the position changes after
17 floods.

18 Again, zooming in more closely at this reach
19 and showing the same kind of things. One thing this does
11:05:43 20 illustrate pretty well is -- because you see this -- this
21 is the low-flow channel when this photo was taken. There
22 is another channel right here that wasn't wet at that
23 time. Slightly higher discharge. That channel is going
24 to be occupied so you tend to have multiple thread flow
05:59 25 with this kind of intermediate discharge. When you have a

1 flood, this whole area is inundated fairly deeply so
2 there's kind of an intermediate range above the perennial
3 flow when you get more multiple -- more channels. And
4 again, the floodplain is quite a bit wider here.

11:06:13 5 And then just to give you an example,
6 obviously the channel changes at any particular reach are
7 different, and this is just one I happened to choose
8 because I have aerial photos going back to 1940. This is
9 near Cottonwood. Again, this is a low-flow -- I think I
11:06:43 10 might have -- anyway, just showing where from 1940 to 1953
11 there were a couple pretty good-sized flows. There's a
12 little bit of that channel change here, these blue arrows.
13 Channel that wasn't there in 1940. And the green arrow
14 shows a channel that kind of went away between 1940 and
11:07:00 15 1953. And it's also possible on this photo that the flow
16 rate was higher in 1940. It looks like it was because the
17 low-flow channel is more extensive in 1940.

18 Same reach, looking at it in 1984 and 1992.
19 Again, showing some similar -- generally similar patterns,
1:07:19 20 some variations in the low-flow because of the channel
21 position.

22 Blue line showing new channels that have
23 changed position between 1953 and 1984. Green is showing
24 the channels that kind of went away, low-flow channels.

07:39 25 Then of course in this reach and in a few other places,

1 especially in Verde Valley, there had been human impact on
2 the floodplain and even the channel. In this case, there
3 were some aggregate operations, where the brown arrows
4 are, that significantly altered the channel in this reach.

11:07:57 5 And finally, getting close to wrapping up,
6 this is just to show you -- and these slides aren't
7 necessarily the best -- this is showing the Camp Verde
8 area, which is kind of neat because that is after the 1891
9 flood that Jon mentioned. The original surveys were done
11:08:14 10 in the 1870s and they resurveyed this area because the
11 fort was there and there were significant channel changes
12 in 1891. So anyway, they resurveyed this area and the red
13 lines -- dotted red lines show where the channel -- the
14 flood channel was in 1892 right after that flood. And
11:08:31 15 then the black lines show 1980 so, you know, some
16 significant changes in the flood channel over that
17 100 years or so.

18 But again, as a contrast to that, this is an
19 example of the low-flow channel from the Clarkdale area,
11:08:48 20 which was first surveyed in 1877, and we have aerial
21 photos to document where they were after that. And again,
22 showing you some fairly significant changes in the
23 position of the low-flow channel over that time.

24 So I just want to summarize, you know, I
09:14 25 hammered home the point the Verde is a variable

1 floodplain, valley morphology changes a lot up and down
2 the river.

3 Floods modify the flood channels and they
4 modify the low-flow channels and you can expect that the
11:09:30 5 low-flow channels will change position during large
6 floods -- or after large floods because they're basically
7 reworked and they reestablish after the floods. The
8 low-flow channel morphologies and patterns actually don't
9 vary as much and that makes sense. The pattern of a

11:09:46 10 single channel or a couple channels, the width of those
11 channels doesn't vary that much, even if they reestablish
12 after flood. They don't vary that much through time. And
13 the characteristic pattern of those low-flow channels is
14 these pool-and-riffle sequences, and that's to do with the
11:10:04 15 bed load and the way the river behaves so. And those are
16 actually present, consistent up and down the river.

17 So I think I'm done.

18 MR. FULLER: So that was the geomorphology.
19 And the things we learned from that are that much of this
1:10:30 20 river is in a canyon, and the importance in distinguishing
21 is you read through materials -- when geomorphologists
22 talk about the channel, they might be talking about the
23 flood channel or they might be talking about the low-flow
24 channels and it's important to distinguish because they
10:43 25 have different characteristics, and the boating occurs on

1 the low-flow channel. And we find that that channel does
2 move around from time to time in response to floods.
3 There's a certain amount of stability to it in its shape
4 and what it looks like before and after floods. It might
11:10:57 5 be in a different place; quite often the characteristics
6 are the same.

7 So let's move along here. Scroll through
8 here. That happens to be a little riffle between two
9 pools. This is from a race that is run on the river I'll
11:11:12 10 talk about in a moment here. When we talk about a braided
11 stream, that's on the left; pool-and-riffle stream, which
12 happens to be the upper Salt River in this case, on the
13 right. There's a marked difference in low-flow
14 characteristics of a braided stream and a pool-and-riffle
11:11:30 15 stream.

16 Let's move to hydrology. The next chapter
17 of our report had to do with the hydrology of the river.
18 The Verde River is a perennial stream from the Granite
19 Creek confluence down to the Salt River, has been
11:11:51 20 throughout and remains today, has a strong base flow
21 component from discharge of springs. There is, of course,
22 like every river pretty much in world, seasonal variation
23 in flow and of low-flow during the summer. We have higher
24 flows during late winter, in response to snow melt in the
12:12 25 rugged terrain that Phil was talking about, particularly

1 the mountains, so you get a little boost of flow, quite
2 often with a little boost of flow during summer monsoon as
3 well.

4 The biggest difference in pre- and natural
11:12:24 5 conditions and our existing conditions, of course, are the
6 irrigation diversions in the upper part of the river
7 beginning at Perkinsville, and they can remove about 121
8 CFS from the river. As of 1914, there were 25 diversions
9 between Perkinsville and the Salt River. Most of those
11:12:43 10 are concentrated in the Verde Valley, and some of those
11 are very old water rights and they extend back to the
12 1860s when the earliest agriculture went in. I believe
13 there was some discussion of that in the last hearing when
14 Hjalmarson was testifying. I think Joe Sparks was
11:12:58 15 interviewing and they were discussing his particular water
16 right on the Verde River.

17 At the time of statehood, we found in
18 analyzing the data that were available that the long-term
19 average records that we get from USGS, their flow
1:13:12 20 measurements as well as tree-ring studies that have been
21 done, published in scholarly journals, indicates that our
22 long-term records are broadly representative of stream
23 flow conditions at the time of statehood in terms of
24 climate cycles.

13:29 25 The period around statehood on the Verde

1 River was experiencing above-average flow during the
2 period surrounding 1912. February 1912 happened to be a
3 low-flow month in that particular year. So there was a
4 cycle of these wet periods and dry periods. The period
11:13:45 5 around statehood happened to be a wet period, so flows
6 were above average. So the records that we have now tend
7 to underestimate the amount of flow that would be in the
8 river at that time. And of course, the irrigation
9 diversions further deplete water that's in the river
11:14:00 10 between the take out and the return.

11 The USGS stream gauge data, this is the
12 state of the art, the standard of practice for determining
13 stream flow. In this table right here, I'm recording the
14 median discharge. I guess there's been some consternation
11:14:19 15 about average discharges, although average discharges are
16 typically how hydrologists speak to each other about flow
17 rates, reporting here the median flow rates for five
18 gauges upstream, one being near Paulden and near the
19 headwaters of our study area; the next at Clarkdale, which
1:14:39 20 is at the beginning of the Verde Valley; the Camp Verde
21 gauge towards the downstream end of the Verde Valley.
22 Tangle Creek is the last gauge above the reservoirs and
23 then McDowell gauge, which is down below the reservoirs,
24 and that -- the data from there are around the time of
14:57 25 statehood prior to the construction of the Bartlett and

1 Horseshoe.

2 And you can see that there is perennial flow
3 median discharge ranged from 25 to about 238 CFS. I've
4 also reported on this graph here the range of discharge.

11:15:15 5 So the point I'm trying to make here is the flow duration,
6 so between 10 percent of the time -- 90 percent of the
7 time the flow at Paulden, for instance, varies from 22 to
8 31. It's relatively constant and reflects the discharge
9 from the springs, basically. We start seeing more

11:15:27 10 fluctuation further downstream as the watershed gets
11 larger and you have more surface water inflows, but 80
12 percent of time, you're going to see the flow at Clarkdale
13 between 70 and 236 CFS. At Camp Verde, 80 percent of the
14 time the flow will be between 84 and 439 CFS. And then at
11:15:45 15 Tangle Creek, between 120 and 117 CFS.

16 So that's the range of flow most of the
17 time. That's what you would expect to see if you went out
18 there on a daily basis. The other point here is that
19 while floods do occur -- I mean, that's a reality we all
1:16:00 20 know. We live here in Arizona and we read the news about
21 floods and that floods are a rare occurrence. We wish
22 they would happen more, it keeps us in business and fills
23 up our reservoirs, but they actually are a rare occurrence
24 and not really a concern to the ordinary condition of the
16:16 25 river, and I think that I illustrate that on the next

1 slide.

2 What I decided to do is to take the data in
3 our report and put it in a slightly different format. And
4 what you see here is the flow duration curve, which is the
11:16:30 5 percent of time flow is exceeded, this blue line right
6 here. So 100 percent of the time, the flow is above, in
7 that case it's about 40 CFS. 10 percent of the time flow
8 is above about 700 CFS. A very small percentage of the
9 time the flow is above 5,000 CFS. That becomes important
11:16:53 10 in trying to decipher when you can boat and when you can't
11 boat. You find that below 700 CFS, that's the time when
12 primarily it's canoes and kayaks that are out there on the
13 river. Above 700 CFS you start to see rafts coming in
14 there. You still can canoe and kayak. The higher the
11:17:08 15 flow rate gets, the more experienced you need to be to
16 have a good time in your open boat or canoe, but you do
17 see the closed-decked boats, closed kayak, and closed
18 canoes at higher flow rates. So this is for the Verde
19 River at Camp Verde. And I did the same sort of thing for
1:17:27 20 all the other gauges as well, and I brought that
21 information and I'll submit that.

22 In the next slide, I zoom in here a little
23 bit to the lower part of that graph so that you can see
24 that most of the time the flow rates are in this boatable
17:40 25 condition for canoes and kayaks. And so it's very

1 representative of the amount of time you could expect to
2 put this type of boat -- these low-draft boats out on the
3 river.

4 There is also some concern -- I want to
1:18:00 5 present this information that's in the report in the same
6 graphical manner by the monthly flow variations. So we
7 took a look and this is the graph showing three lines
8 here. The middle red line is the average monthly flow for
9 each of the months December, January, et cetera, up to
1:18:18 10 December again. So the red line is the average. And then
11 in order -- because of some concerns about average, I also
12 put in the average minimum flow for each of these months
13 and that's the lowest line here, it kind of absorbs into
14 the other lines here. I'll show you a blowup here in just
15 a second.

16 And then this blue line is the average
17 monthly -- maximum monthly flow. And these are all data
18 reported by the USGS, and again, that's the standard of
19 practice. They define flow rates in the United States and
1:18:45 20 how flow measurements are obtained, and these data are
21 routinely used for all sorts of legal matters and
22 technical matters and scientific studies. They are
23 generally unquestioned in the literature and how they are
24 used.

18:59 25 So we have this monthly fluctuation and you

1 can see that we have higher flow during winter and on
2 average, and sometimes we have lots of flow. And then we
3 have an annual low-flow period. And then we have a little
4 boost sometimes in the summer monsoon and then it starts
5 to peak up. And there are some other influences in here
6 in terms of peak irrigation systems will be dropping that
7 flow rate a little bit if you turn off irrigation in
8 September, October and you'd see a little boost there
9 after that.

10 So let's zoom in a little bit and we'll look
11 at it again. So again, we have canoes and kayaks at these
12 moderate flow rates. Here's our average, our low is the
13 purple, and the maximum is the blue and it actually goes
14 off our graph here. So we're zoomed in so we can see that
15 most of the time in most of the months -- in fact, all of
16 the months were in this boatable condition for canoes and
17 kayaks on the Verde River. And it makes good common sense
18 because it fits in with our modern boating records as
19 well.

20 So the flow data we presented -- we
21 presented it monthly. Seasonal flow rates, there are some
22 variations just like there are in any river. We presented
23 averages, but we're relying on medians, minimums, and
24 annual flow rates. We also include flood records in
25 there. And again, we're using these published data

1 sources. We also developed rating curves in the report
2 and basically the punch line there is flow depths are
3 sufficient for shallow draft boating every month at every
4 one of the stations. We're using USGS rating curves but
1:20:35 5 we also -- we've done extensive field work over the past
6 13 or so years now that we have been working on the study
7 and other studies we have done for other clients on the
8 Verde River, and we feel that these rating curves that are
9 in the report probably underestimate the depths, if
1:20:51 10 anything. Because as Phil mentioned, the stream is this
11 pool-and-riffle pattern, and the pools are where you go
12 swimming and the riffles are where you have fun. And so
13 the pools are quite deep and people go diving in them and
14 have lots of fun and that's where you find the otters and
1:21:06 15 the beaver and whatnot. And the other riffles are where
16 it's fun to move your boat through. And we find that the
17 rating curves we put in here are very representative. If
18 anything, they're a bit shallow. There's probably deeper
19 depths -- greater depths than what we report.

1:21:22 20 The last thing I want to talk about is
21 modern boating, the records of modern boating that go to
22 the question of susceptibility. There were some
23 historical accounts, but we have a pretty extensive modern
24 recreational boating record. It's very common to see
21:34 25 boats out on the Verde River. I myself am a canoeist and

1 kayaker and I don't think I've ever been on this river --
2 I do it 6 to 10 times a year -- when I haven't seen
3 someone else out there on a Saturday. There are times of
4 the year when it's more fun than other times. I have done
1:21:52 5 it personally as low as 65 CFS through Camp Verde.

6 There are annual boat races that are held on
7 the Verde River. The town of Camp Verde sponsors one
8 that's been held the last -- I think they started in 2000.
9 I happened to be reading a canoe journal the other day
1:22:10 10 talking about the Sopa River in Spain and it was being
11 outfitted from a group in England and the guy compared it
12 to -- he said, "Well, this river is unique. It reminds me
13 most of the Verde River in Arizona." So the Verde River
14 is not just where the locals paddle, it's people from --
1:22:28 15 has an international reputation.

16 There are a number of published boating
17 guides for the Verde River that describe what kind of
18 boats you can take, when and where. There are dozens of
19 websites that describe the river, when to boat, how to
1:22:42 20 boat. The U.S. Forest Service has recently started
21 monitoring river use in their stretch of the river, which
22 starts at Beasley Flat downstream from Camp Verde. And I
23 just, actually, yesterday finally pried the data out of
24 them. I have on the next slide some of those data here.

2:3:00 25 Their records -- they're recording river use

1 from Beasley Flat, which is downstream of Camp Verde, down
2 to Horseshoe. And they started collecting these data in
3 January 2001. And the latest data that was in the
4 information they sent to me was from March 2005. During
1:23:16 5 that time period, they recorded 863 boaters using the
6 river and 728 boats. The types of boats that were
7 recorded were canoes, ikayaks and inflatable kayak -- and
8 to distinguish that from kayak, which would be hard shell
9 kayak -- rafts and catarafts, which are both inflatable
10 types of boats.

11 The registration program is voluntary. As I
12 mentioned, I boat the river myself and I've never filled
13 out that form myself. It's the minimum estimate of the
14 number of people out there. Interestingly, their records
1:23:49 15 report people using the river every month of the year.
16 The lowest discharge that I was able to find scanning
17 through this was at 44 CFS in July of 2002. And nine
18 different states were represented, not just Arizona but
19 people from as far away as Connecticut, Idaho -- I think
1:24:09 20 MO is Missouri -- Texas, and Utah. And I graphed up the
21 data of use and as you can see, here is the frequency of
22 use in the forest service statistics. As I was looking at
23 these data this morning, interesting to see it does zero
24 out -- or not zero out, but it gets lower in the summer.
2:4:31 25 July is awfully hot. And if you've got a boat and you

1 were to go somewhere else, I think a lot of people do.
2 You do see a lot of people swimming and fishing and
3 whatnot that time of year. Low in December,
4 interestingly, probably because of Christmas commitments,
1:24:46 5 that would be my guess. And big boost here in March is
6 due to probably two things, that's during our annual
7 seasonal -- typically a seasonal boost in the flow and you
8 start to see more rafters who carry more boaters down in a
9 single boat. Plus you have spring break.

1:25:01 10 Those are the information that we developed.
11 There is also land use, but I won't burden you with that.
12 That's the information I have and that's my story.

13 CHAIRMAN EISENHOWER: Thank you, Jon.

14 A little housekeeping, would you provide us
1:25:19 15 with a copy of all your PowerPoint slides? Thank you.

16 Are there any questions for Mr. Fuller or
17 Dr. Pearthree?

18 COMMISSIONER BRASHEAR: I have one.

19 (Mr. Fuller is answering questions.)

1:25:30 20 BY COMMISSIONER BRASHEAR:

21 Q. Did I have it right that the entire reach of the
22 Verde from shed water down to where it ends is boatable
23 12 months of the year or were you talking about a certain
24 part of it where it's boatable?

25:47 25 A. The statistics that I just mentioned from the

1 forest service are from Beasley Flat on downstream. And I
2 would say that those statistics apply well to the reach
3 from -- through Camp Verde.

4 Upstream of Camp Verde, we are unable to
5 find any records like -- extensively as what I just showed
6 you through the rest of the Verde Valley. Boating through
7 that reach right now is more difficult because there are
8 fences across the river and there are a number of
9 irrigation diversions that you have to portage across. A
10 lot of private property and lot of the water is taken out
11 for the irrigation diversions.

12 Upstream of Clarkdale, access is a problem.
13 You can put in at Perkinsville. There are people that
14 boat that and probably other people who are better
15 qualified than I to speak to how frequently it's boated.
16 My understanding is it's less frequently boated. But the
17 flow data that we have combined with the hydraulic
18 readings that we have indicate that there is adequate
19 water there. The drier the river gets, the warmer the
20 summer is, the more likely you are to have to get out of
21 your boat and drag through a riffle and then paddle your
22 pool.

23 Q. And all this activity from different countries
24 and different states, is there any part of or any
25 commercial activity on that river, tours or something like

1 that?

2 A. Yes. And I believe, depending how long we go
3 today, we will hear from one of those boaters who would
4 like to come in this afternoon. I believe the same
5 gentleman that spoke at the upper Salt hearing. They do
6 run trips up there. They run them kind of on an as-needed
7 basis. It's not like the Salt River where you drive up on
8 a Saturday and there's any one of four or five boat
9 companies willing to take you down. This one you need to
10 reserve in advance. There are commercial people who use
11 the river and they obtain permits for a fee from the
12 forest service.

13 COMMISSIONER BRASHEAR: Thank you.

14 CHAIRMAN EISENHOWER: Mr. Hennes?

15 COMMISSIONER HENNESS: No, sir.

16 CHAIRMAN EISENHOWER: Just one comment here,
17 talking about the railroad coming into Jerome in 1895,
18 that was that old narrow gauge that came over the top of
19 the mountain and hauled the ore out Jerome back towards
20 the smelter toward Prescott.

21 MR. FULLER: That's correct. And that
22 actually brings up a good point. A lot of the regional
23 transportation pattern was from the Verde Valley to
24 Prescott or the Verde Valley to Flagstaff other than any
25 other --

1 CHAIRMAN EISENHOWER: I have driven that old
2 railroad bed. It's quite a trip.

3 Are there any other questions for Mr. Fuller
4 or Dr. Pearthree?

1:28:26 5 MR. MEHNERT: Mr. Chairman, are we going to
6 get Dr. Pearthree's slides as well?

7 CHAIRMAN EISENHOWER: I believe that's all a
8 part of the package. Correct, Jon?

9 Do you have any further questions of any one
1:28:44 10 of the witnesses?

11 MR. SPARKS: Mr. Chairman, I'm Joe Sparks
12 for the Yavapai Apache.

13 CHAIRMAN EISENHOWER: Come on up.

14 MR. SPARKS: I can't put any light on the
1:28:57 15 subject because it's too dark.

16 CHAIRMAN EISENHOWER: Turn the lights back
17 on, please.

18 (Mr. Fuller is answering questions.)

19 BY MR. SPARKS:

1:29:02 20 Q. I'm Joe Sparks and my partner John Ryley is here
21 from our firm Sparks, Tehan, and Ryley; we represent the
22 Yavapai Apache Nation and its Verde Valley water rights;
23 the Tonto Apache tribe, which also has some ditch rights
24 in that valley; the San Carlos Apache tribe, and Pascua
29:23 25 Yaqui.

1 This morning I wanted to ask a few questions
2 of the appropriate witness, whether it be the generalist
3 or the hydrologist, about -- just a few questions about
4 the technique for gauging in the Verde Valley that's used
1:29:40 5 by USGS. And specifically, I would be referring to table
6 11B on page 7-18 of their report. And I don't know which
7 of the two gentlemen is the correct person to ask.

8 A. Did you say I'm a generalist and he was a
9 hydrologist?

1:30:02 10 Q. Is that the other way around? You're the
11 hydrologist?

12 A. Well, I'm a registered professional engineer, I'm
13 a registered geologist, and I'm a registered hydrologist.

14 Q. Well, I would say that's very general, across the
1:30:14 15 board you know what you're talking about then.

16 A. I own a company called JE Fuller Hydrology &
17 Geomorphology. I think I know a little more than general.

18 Q. You made your point about being a broad
19 generalist in a specific area. Then why don't we refer to
1:30:26 20 that table, if you would, of your report, and I wondered
21 if you're familiar with the way and sites that USGS picks
22 for the gauging stations?

23 A. Yes, I am.

24 Q. What are the characteristics of those locations?

30:41 25 A. The primary characteristic is they're looking for

1 a site with relatively good stability so they can
2 construct a good rating curve. So what I mean is that
3 they would minimize the amount of river channel change
4 that would occur between events.

1:30:53 5 Q. And that would be an area where the flow from
6 that cross-section of the river is primarily concentrated
7 so that you can measure it?

8 A. The preference would be to find a site where you
9 would have maximum stage increase for an increase in the
10 discharge.

11 Q. So the answer is yes?

12 A. Yes.

13 Q. And then referring to the location, the 11B of
14 your report, this particular gauge is at the Verde near
15 Camp Verde?

16 A. That's correct.

17 Q. So that gauge characteristic there would be also
18 one where the flow is most concentrated even at low-flows?

19 A. There would be a concentration of flow at
20 low-flow, and hopefully it's as well as at high stage but
21 less so at high stage.

22 Q. Yes. And then thereafter the river might go back
23 to the braiding that you referred to and showed us
24 pictures of in your pictures?

31:52 25 A. That particular gauge, no. It's not very braided

1 there at all.

2 Q. I said thereafter -- downstream is what I meant,
3 thereafter.

4 A. No. That's not the case. I would say in the
1:32:05 5 reaches adjacent to that particular gauge, there is not
6 anything that I would characterize as braiding within
7 20 miles.

8 Q. So that's after Beaver Creek comes in and it's
9 after Beaver Creek flows right into the river at the
1:32:22 10 Verde, right?

11 A. Yes. It is after Beaver Creek.

12 Q. And then below that gauge, the Valley narrows.
13 Is that correct?

14 A. It does narrow below Beasley.

1:32:30 15 Q. And above that -- above that area between Camp
16 Verde and Clarkdale, it braids throughout the Valley,
17 correct?

18 A. Well, this is the distinction you need to the
19 make. Are you talking about the low-flow channel or are
1:32:45 20 you talking about the flood channel?

21 Q. I'm talking about the low-flow channel.

22 A. The low-flow channel is not very braided. There
23 are places where the channel splits, but that's not what I
24 would call a braided channel. It's a pool-and-riffle
32:53 25 channel.

1 Q. Well, you have pictures up there on the low-flow
2 channels. I didn't see any with the single low-flow
3 channel.

4 A. Well, then, you weren't looking very carefully
1:33:01 5 because they almost all had single-flow channels.

6 Q. I want you to show me one now.

7 A. Sure.

8 Q. Between Camp Verde and Clarkdale.

9 A. Okay.

1:33:27 10 DR. PEARTHREE: This is right near Camp
11 Verde. We can zoom in here. See, this is the -- you can
12 come up and look closer if you want to. This is the wet
13 area here and this is the single channel. It starts to
14 split here a little bit, but most of the flow actually
1:33:45 15 goes down here. Single channel down here.

16 (Dr. Pearthree is answering questions.)

17 BY MR. SPARKS:

18 Q. You're referring to the gray area or the darkest
19 area?

1:33:53 20 A. Darkest area in here is the wet area, the
21 low-flow channel.

22 Q. Which is what, the broad gray area?

23 A. That's why I put some blue lines around it.

24 Okay. More or less, the area within these blue lines is
34:08 25 the low-flow channels, plus it's not quite as wide there.

1 Q. But there is no indication in that gray between
2 the two blue ones that there's any water there now, is
3 there?

4 A. Where are you talking about?

1:34:21 5 Q. Where is the water?

6 A. It's this -- this is the water, the area within
7 the blue lines.

8 Q. And then here it separates into, what, two
9 different channels?

1:34:33 10 A. Actually this channel is dry and then all the
11 water goes --

12 Q. And this is dry unless they open this canal over
13 here, right?

14 A. No, that's just -- there is no canal there.

15 Q. Well, there actually is.

16 A. Okay, I'm sorry. But it's not -- okay. It's a
17 single channel most of that reach.

18 (Mr. Fuller is answering questions.)

19 BY MR. SPARKS:

1:34:55 20 Q. And as the single channel, I think it shows that
21 90 percent of the time, even if it were a single channel,
22 it would be at 84 cubic feet per second, right?

23 A. Yes.

24 Q. And that would be 4 inches -- .4 feet deep?

35:12 25 A. .4 feet.

1 Q. So 4.8 inches deep?

2 A. So 90 percent of the time it's .4 feet or deeper.

3 Q. 90 percent of the time at low-flow or deeper --
4 90 percent of the time or less -- or less than.

1:35:30 5 A. 10 percent of the time it would be less than four
6 -tenths of a foot, according to the that rating curve.

7 Q. Okay. Once the low-flow -- you have it
8 concentrated at that gauge and it's .4 feet deep at that
9 point at low-flow, right?

1:35:46 10 A. I'm not sure what you mean. I have it
11 concentrated -- Could you restate the question, please?

12 Q. You have it concentrated at a gauge at that
13 point?

14 A. I have it concentrated? I'm not sure what you
1:35:54 15 mean by "have it concentrated."

16 Q. In other words, you're measuring -- that gauge is
17 located at a point in the river where at low flows -- you
18 were able to collect the best data at low flows, meaning
19 that the area is as narrow and as concentrated as you can
1:36:13 20 find in that spot?

21 A. No. The USGS is going to site their gauge at a
22 place where they have a reliable stage rating curve. None
23 of these gauges, that I'm aware of, they do anything to
24 concentrate the flow. So the flow would be naturally
25 concentrated. The other thing I would like to point out

36:32

1 is the depth, there is the average depth so that there are
2 parts that are shallower and there are parts that are
3 deeper.

4 Q. What would be the median depth, then, at .4 feet
1:36:43 5 if this is the average?

6 A. That's not reported there.

7 Q. So this would be the highest flows and the lowest
8 flows that we're pointing to in this particular table at
9 point B, right?

1:36:53 10 A. They would be the flows that are of the flow
11 duration point that's on the left there.

12 Q. And the reason you're bickering with me about the
13 concentration of the flows is that you're not suggesting
14 that man changed the bed of the river to arrange a good
1:37:08 15 spot for the gauge but rather the geomorphology of that
16 location concentrates the flows there?

17 A. Yes.

18 Q. And that's a distinction you're making?

19 A. Yes.

:37:18 20 Q. Wouldn't that be helpful for them to know that?

21 A. Well, I believe we just explained it to them.

22 Q. Yes or no.

23 Okay. So the --

24 A. I would also like to point out -- what I think
37:32 25 you're trying to say is that you're concentrating the flow

1 here and this is an unusual spot. And that's really not
2 the case. We field-tested these. We've been on this
3 river, stood in river, swum in the river, paddled on the
4 river, and it's my professional opinion that these depths,
1:37:48 5 if anything, are shallower than what we experienced. When
6 I paddled the river at 65 CFS --

7 Q. From where to where?

8 A. From the White Bridge to Beasley Flat -- I would
9 say the average depth was more than two feet.

1:38:04 10 Q. When was that?

11 A. I have done it several dozen times between 1998
12 to today.

13 Q. Any time between June and August?

14 A. Yes.

1:38:15 15 Q. When?

16 A. Frequently.

17 Q. When?

18 A. I don't know exact dates, but I have done it in
19 June, I've done it in July, I've done it in August.

1:38:21 20 Q. Is it a period of a flood flow?

21 A. No. I just told you it was 65 CFS.

22 Q. Well, at 65 CFS, you don't even have an average
23 flow of 65 CFS, so did you pick a particular day for that?

24 A. Did I pick a particular day?

38:41 25 Q. For the flow?

1 A. Of course I picked a particular day to paddle the
2 river.

3 Q. For the flow?

4 A. Did I go out there and intend to paddle on 65
5 CFS?

6 Q. No. Did you pick the day because of the flow
7 available?

8 A. I picked the day because I felt like going
9 paddling.

10 Q. And if you showed up that day and there was no
11 water, you wouldn't have gone, is that it?

12 A. If there were no water, I would had not have
13 paddled, that is correct.

14 Q. So the reason you don't provide the median flow
15 or the daily flow here --

16 A. I do provide the median flow, that's the 50
17 percent duration.

18 Q. The median daily flow?

19 A. The median daily flow, no, I didn't. The median
20 daily flow -- this is the median annual flow.

21 Q. So the median annual flow is still skewed
22 substantially from what would be the median daily flow?

23 A. No, that's incorrect.

24 Q. It would not be skewed substantially?

25 A. That's correct.

1 Q. You think the median daily flow and the median
2 flow would be substantially the same?

3 A. To be substantially the same. I would say that
4 they are similar from the conclusions that are drawn from
1:39:46 5 here, these are representative data. These represent the
6 flow conditions. And you if you talk to any scientist and
7 you talk to them about, "What's the flow rate," they're
8 going to use these kind of statistics. These are the
9 statistics that are reported by the USGS.

1:40:00 10 Q. We're talking about statistics for navigability,
11 though. We're not talking about statistics for developing
12 a lake, an irrigation project, or any mechanism for
13 detention or regulation of the river, and the kind of
14 statistics you're talking about are for those purposes,
1:40:20 15 isn't that true?

16 A. No.

17 Q. No? What would be true?

18 A. We do use those for those characteristics but
19 they're not limited to that.

1:40:27 20 Q. But they're not used for determining
21 navigability?

22 A. You're telling me that there's a specific set of
23 discharges that are used for determining navigability?

24 Q. No. What I'm telling you is there isn't one.
40:40 25 Isn't that correct?

1 A. Well, only you can tell me what you're trying to
2 tell me.

3 Q. All right. You cannot answer this question if
4 you don't want to, which you obviously don't -- what I'm
1:40:51 5 saying is, is there a set of statistics and tests for the
6 determination of commercial navigability on a river? That
7 would be yes or no.

8 A. The first part of your question --

9 Q. How about yes or no?

1:41:06 10 A. Yes, I am trying to answer your questions and I
11 am doing my best. You're asking lousy questions, frankly.
12 So I'm doing my best to understand what you're trying to
13 ask me.

14 Q. You can comment on the question or I'll comment
1:41:16 15 on the witness.

16 A. You know what, if you'll let me answer the
17 questions, I'll answer them. That involves you not
18 talking.

19 Q. Well, let me say -- I'll ask the questions, you
1:41:24 20 answer them. If I ask -- you say you can't answer yes or
21 no, just say you can't answer yes or no.

22 A. Fine. Fair deal.

23 Q. What's the answer to the question?

24 A. The question, I believe, was, is there a specific
41:36 25 set of statistics that are used to determine commercial

1 navigability.

2 Q. Yes.

3 A. First of all, I'm not sure commercial
4 navigability is the entire question here. And no, I am
1:41:46 5 unaware of --

6 Q. The question I asked was commercial navigability,
7 so would you answer that?

8 A. Yes, I would.

9 I'm unaware that there's any legal standard
1:41:56 10 for what statistics that are used -- where it says, "Thou
11 shalt use these type of statistics for determining
12 commercial navigability." And all the navigability
13 studies we have done over the years, these are the types
14 of flow statistics and flow data that have been used.

1:42:12 15 Q. But under Ball v. Ball -- this is a test that
16 you're interpreting. Commercial navigability is a
17 standard that you're supposed to be testifying to, isn't
18 that right?

19 A. Okay.

1:42:25 20 Q. Right?

21 A. Correct.

22 Q. Okay. Thank you.

23 CHAIRMAN EISENHOWER: Are there any other
24 questions for Mr. Fuller or Dr. Pearthree?

42:43 25 Hearing none, thank you very much, both of

1 you, and I appreciate your coming and providing us with
2 your information.

3 I think for our record's sake, we'll take a
4 little break now. I think his fingers are getting a
1:42:58 5 little tired. We're getting close to lunchtime. What's
6 your druthers? You want to break for lunch and then come
7 back and finish up? What do you think?

8 (An off-the-record discussion ensued.)

9 MS. DOYLE: I'm Cheryl Doyle with the
1:43:32 10 Arizona State Land Department and there's a witness coming
11 here at noon, John Colby. Is there any way we could wait
12 for him?

13 CHAIRMAN EISENHOWER: He will be here at
14 noon?

1:43:44 15 MS. DOYLE: He said he would be here at
16 noon.

17 CHAIRMAN EISENHOWER: We'll take a short
18 break just to give our stenographer here a break, and we
19 will come back in about 10 minutes.

1:44:00 20 (A recess ensued.)

21 CHAIRMAN EISENHOWER: Our 10 minutes are up,
22 folks. Let's reconvene.

23 We have one witness who has come in and we
24 have been asked to accommodate his time schedule, so we'll
56:18 25 do him and then we will take a break for lunch, come back,

1 and finish up our Verde River hearing.

2 At this time, I would like to have Mr. John
3 Colby come forward.

4 MR. COLBY: My name is John Colby and I'm
1:56:41 5 here to give my experience as a private boater on the
6 Verde River and also as a representative of Cimarron River
7 Company. We do commercial river trips on several sections
8 of river but also including sections of the Verde. I'd
9 like to thank the commission for accommodating my time so
1:57:03 10 I'm not away from my business all day.

11 I've been boating privately on the Verde
12 River since 1985, and our company has done commercial
13 tours on the Verde River. My private boating experience
14 is from the Beasley Flat access point, which is just
1:57:19 15 downstream of the town of Camp Verde, all the way through
16 Childs, Arizona, and all the way down to Sheep Bridge and
17 also to Horseshoe Reservoir at the far end of the Verde
18 River. I've also had limited experience on the Verde
19 River as a private boater between Horseshoe and Bartlett
1:57:42 20 reservoirs and considerable experience both privately and
21 commercially on the Verde River downstream of Bartlett
22 reservoir through the Tonto National Forest and Fort
23 McDowell Apache community, as well as the Salt River
24 community, and on to the confluence of the Salt River.

57:59 25 Our company has done commercial trips on

1 sections of the Verde that included the area from Childs,
2 Arizona, down to the Horseshoe Reservoir, also on the
3 Verde River from Bartlett reservoir down to the forest
4 boundary through the Fort McDowell community and down
1:58:18 5 through the Salt River. Commercial trips have included
6 single-day trips, as many as 150 people on the lower
7 sections of the river. And our trips on the upper part of
8 the river on the Camp Verde -- excuse me, from Childs,
9 Arizona, to Horseshoe Reservoir, we've taken as many as 12
1:58:37 10 commercial guests, not including our staff, for up to
11 seven days at a time at water levels ranging from about 32
12 CFS as measured at the Camp Verde gauge up to about 3500
13 CFS as measured at the Camp Verde gauge. And I would be
14 happy to answer any questions regarding that if there are
1:59:01 15 any.

16 (Mr. Colby is answering questions.)

17 BY COMMISSIONER HENNESS:

18 Q. Mr. Chairman, just one quick question. When you
19 say "12," are you talking that for a single boat?

1:59:10 20 A. That trip in particular was actually nine craft,
21 canoes. Some paddled with two people, some with single
22 people.

23 COMMISSIONER HENNESS: Thank you.

24 BY COMMISSIONER BRASHEAR:

59:23 25 Q. This commercial activity that -- you're not

1 talking about just now and then? I mean, is this
2 something that's done kind of regularly?

3 A. Our -- we run two types of commercial tours.
4 Single-day tours, which are by far the majority of our
1:59:41 5 business, and we conducted a lot of single-day tours on
6 the Verde River primarily through the Fort McDowell
7 community until 1999. The multi-day trips on the upper
8 part of the river are more unique because they require a
9 lot more time, they're harder for us to market, and we
2:00:04 10 only average one or two of those per year.

11 COMMISSIONER BRASHEAR: Thank you.

12 BY COMMISSION COUNSEL JENNINGS:

13 Q. When do you use these multi-person trips, what
14 months of the year?

2:00:17 15 A. Generally they have been in the spring, usually
16 in late March through middle of May, but we also conducted
17 those in October. October and November.

18 Q. And what type of boat do you use on that?

19 A. On the upper section of the river, most
2:00:35 20 frequently it has been either in canoes or inflatable
21 kayaks, but depending on how much precipitation a given
22 year has, we have also done that tour in inflatable rafts
23 and catarrafts, which are basically -- essentially a raft.

24 Q. And how many people can ride on the inflatable
25 rafts?

1 A. The inflatable kayaks take one or two people;
2 catarafts take a maximum of two; the rafts have had as
3 many as six passengers, not including the guide; canoes,
4 maximum of two.

2:01:15 5 Q. On these multi-day trips, besides the people who
6 go on them, what else do you carry for their use or
7 otherwise?

8 A. Basically we have to take everything that a
9 person might conceivably need for a camping expedition
2:01:32 10 over several days, so that includes all the kitchen
11 facilities. We're required by regulatory parameters to
12 make sure that we have a toilet system in which everything
13 can be carried out. We have to have a metal pan to
14 contain all fire ash from campfires and all that ash has
2:01:55 15 to be packed up, sleeping gear for the guests, any of
16 their extra clothing, standard rescue gear and repair
17 equipment -- essentially everything that people need to
18 live for several days in the wilderness has to be carried
19 on boats.

2:02:13 20 Q. In other words, everything that a family or a
21 group would use when going out and camping for
22 recreational purposes or things like that?

23 A. At least as much as somebody would expect to
24 bring. But since we're not using developed campsites, we
02:25 25 have to take the kind of equipment that might be expected

1 to be found in a developed campsite, such as the bathroom
2 facilities and areas that are going to be environmentally
3 correct to use as a fireplace.

4 Q. Portable fireplace or grill, that sort of thing?

2:02:41 5 A. Exactly.

6 BY CHAIRMAN EISENHOWER:

7 Q. What type of experience do your passengers have
8 to have if they're going in canoes and kayaks?

9 A. In canoes, the clients do have to have some
2:03:01 10 previously documented canoeing experience, either with
11 another commercial outfit or give some evidence that they
12 are competent in being in a canoe by themselves in moving
13 water. And we have a training session that begins at the
14 first day on the river to further evaluate somebody who is
2:03:23 15 coming to us with only private boating experience. But
16 they are required, in the canoeing, to have previous
17 experience.

18 Inflatable kayaks, because they're quite a
19 bit more forgiving than the canoes -- they're far less
2:03:38 20 easy to tip over, far more maneuverable because they're
21 smaller -- we only ask that our guests be in good physical
22 health and give them plenty of training before they set
23 out and same with the rafting, which is the standard for
24 all of our rafting trips.

3:54 25

1 BY COMMISSION COUNSEL JENNINGS:

2 Q. Do they wear life jackets or inflatable flotation
3 devices?

4 A. Life jackets are required, personal flotation
2:04:06 5 devices are required during the duration of any of the
6 trips that we do at any time that anybody is on the water,
7 yes. As well as footwear. We don't require helmets, but
8 personal safety is of the utmost importance.

9 BY COMMISSIONER HENNESS:

2:04:22 10 Q. One quick question, you're talking about quite a
11 bit of camp gear.

12 A. Pardon me?

13 Q. You're talking about quite a bit of camp gear?

14 A. Yes.

2:04:35 15 Q. These are based on their carrying capacity and
16 weight and the height of the river, on the other than
17 passenger raft?

18 A. I'm sorry, I'm not understanding your question.

19 Q. You're carrying all your gear on a separate boat,
2:04:51 20 would that be the one with passengers?

21 A. No. No. The passengers are riding boats that
22 also have equipment. So that only rarely in the case of
23 some special kind of rafting trips, and even then, the
24 passenger-only boats will have some equipment, but
25 generally speaking, the guests are going to be in a boat
2:05:08

1 that also includes some of the camping and gear and food
2 and whatnot that -- to be used by the group.

3 Q. So it's distributed among whatever number of
4 boats there are?

2:05:21 5 A. Yes. In almost no cases a boat could just have a
6 person and nothing else on it. It will also have some
7 share of the community gear, personal gear.

8 Q. I've never been around a kayak; it looks like a
9 hole, I guess, you can stuff stuff in?

2:05:36 10 A. Please understand what I've said. Our company
11 has done commercial trips in an inflatable kayak, which is
12 not the same as a hard shell decked kayak. Inflatable
13 kayak would really be more properly understood as an
14 inflatable canoe or perhaps as a very narrow and shortened
2:05:53 15 raft. In other words, it's got inflatable tubes on the
16 side, and inflatable floor, and it's much flatter and
17 doesn't turn over. And one is not -- your legs are not
18 inside as it is in a decked kayak. And so yes, there is
19 much more room in an inflatable kayak than in a decked
2:06:12 20 kayak.

21 Q. When you talk about fire pits and things like
22 that, it seemed like it would poke a hole in it.

23 A. Well, there has to be some special consideration
24 in how to carry things like that. We have got our pans
25 for use. For our inflatable kayak trips, they're round.

1 In fact, they're essentially a big steel oil changing pan
2 that has never been used for such. So the edges are
3 rounded. And we've also had some special cases made for
4 our square fire pans. There's plenty of opportunity to
2:06:44 5 damage a boat on the river. We don't want to introduce
6 any of those opportunities as a result of people on a
7 trip.

8 COMMISSIONER HENNESS: I'm sure that's true.
9 Thank you, Mr. Chairman.

2:06:53 10 BY COMMISSION COUNSEL JENNINGS:

11 Q. Do you -- and of course, most of this is in a
12 wilderness area, but where this is -- approaches to the
13 river by road, do you ever send, say, by truck, the food,
14 the eating equipment, so forth, down ahead of time, sort
2:07:15 15 of a staging area for the people that night to move into?

16 A. Not for our multi-day trips. Again, for our
17 one-day trips, it's not in the wilderness. A vehicle
18 drives our equipment to the river, get on the river, and
19 then our vehicle meets the group at the end. On the
2:07:32 20 multi-day trips, there's no vehicle support. Once we
21 leave the road access, there's no further support.

22 Although, on the section of the Verde River between Childs
23 and Horseshoe Reservoir, once you're below the wilderness
24 boundary, there are roads that can access the river, but
25 that's not the way we've conducted our tours.
2:07:50

1 BY CHAIRMAN EISENHOWER:

2 Q. But then you still have to have a method to get
3 them back to their vehicles where they left them at the
4 start, correct?

2:07:59 5 A. We transport the guests so they're not
6 required -- I mean, the guests are brought to the river,
7 dropped off by one of our drivers, and then they're picked
8 up by that driver at the conclusion of the trip, so they
9 don't have to go back to the place where they started.

2:08:15 10 That's part of the service.

11 CHAIRMAN EISENHOWER: Okay.

12 Any further questions?

13 Are there any questions for this witness
14 from the audience -- would like to ask him any questions
2:08:28 15 about his operation?

16 BY COMMISSIONER ECHEVERRIA:

17 Q. Do you get any fly fishermen on these trips?

18 A. We've had some fly fishermen.

19 Q. Were they successful?

2:08:40 20 A. In October for small mouth, yes.

21 CHAIRMAN EISENHOWER: Well, there isn't
22 anybody else that wants to ask any questions. Mr. Colby,
23 thank you very much for coming. I appreciate your input.

24 MR. COLBY: Thank you for your time.

2:09:00 25 CHAIRMAN EISENHOWER: Well, I promised you

1 that we would have our lunch. And we'll come back
2 hopefully in an hour and everybody can eat and come back
3 within an hour. So we'll plan on 1:15 startup. And we'll
4 finish up our Verde River and then we'll do our little
5 housekeeping chores and that sort of thing.

6 (The lunch recess was taken.)

7 CHAIRMAN EISENHOWER: All right. We're now
8 ready to reconvene for the afternoon session. Our first
9 person up is Mr. McGinnis.

10 MR. MCGINNIS: I've gone the whole morning
11 and not said a word.

12 CHAIRMAN EISENHOWER: You're very good.

13 COMMISSIONER ECHEVERRIA: He's going to make
14 up for it now.

15 MR. MCGINNIS: No, I won't. I promise.

16 Mark McGinnis on behalf of SRP. We've got
17 one witness today. Dr. Schumm, who you've heard from
18 before, presented a report on the Verde, which you have.

19 CHAIRMAN EISENHOWER: Yes.

20 MR. MCGINNIS: He's ill this week, not
21 gravely ill, but ill enough that at 78 years old, we
22 didn't want to drag him down here to say things he's said
23 to you already twice. So our one witness for today is
24 Dr. Littlefield. You have -- or George has, at least --
25 his report on the Verde, you've had it for several months,

1 so he's going to do his standard presentation.

2 CHAIRMAN EISENHOWER: Do you want to set up
3 for a couple of minutes?

4 MR. MCGINNIS: No. Go right ahead.

5 CHAIRMAN EISENHOWER: Dr. Littlefield?

6 DR. LITTLEFIELD: Mr. Chairman and members
7 of the commission, my name is Douglas Littlefield. I
8 testified before you about the navigability of the upper
9 Salt, the lower Salt, and the Gila rivers and for that
10 reason, I'm not going to go into a great deal of detail
11 about my background and experience. I will point out that
12 if you have questions about it, there is a copy of my
13 curriculum vitae in the -- in my current version of my
14 report, and all three of them for that matter, that
15 outline my background. I will just add one thing, that I
16 have quite a bit of experience writing reports about
17 navigability of various streams, not only in Arizona but
18 also the Salmon River and five of its tributaries in Idaho
19 and the Kern River in California.

20 I'm speaking about today the Verde River and
21 I do want to point out that both my testimony and also my
22 report, there are some limits on that in terms of what I
23 studied, geographically speaking. My study area ranged
24 from the uppermost reaches of the Verde around Paulden,
25 Arizona, down to its confluence with the Salt River.

1 Chronologically speaking, both my report and my testimony,
2 I do not deal with what I refer to as prehistory,
3 anthropological or archeological information. I'm not
4 trained in that area and also it was my feeling that the
5 best historical record was the record that was closest in
6 time to the time of statehood.

7 First, just a general quick summary about my
8 findings on the Verde River. By any reasonable standard
9 that I could find in relation to the Verde River, no one
10 considered the Verde River to be navigable at or around
11 the time of Arizona statehood. There were instances of
12 boats being floated on the river, I believe the State
13 pointed that out today. And indeed, I found those
14 instances as well. There is also a picture in my report
15 of one of the boats being floated on the Verde. I believe
16 it's one of the specific ones the State mentioned in the
17 vicinity of Camp Verde.

18 But there is also a huge array of historical
19 documentation that demonstrate that no contemporary
20 observer believed this river was navigable in a reliable
21 way. Not only that, but the parties that were directly
22 interested in defining the edges of rivers or involved in
23 locating parcels of property next to river also did not
24 consider the river to be navigable or offered various
25 documents that pointed out that they didn't believe it was

1 navigable.

2 To locate as many different types of
3 historical documents as possible that related to the Verde
4 River, I undertook research in a wide range of historical
5 materials. These included federal government records,
6 both published and unpublished, including research at the
7 National Archives, both in Washington, D.C. and also at
8 its newer branch in College Park, Maryland, and also at
9 the branch in Denver, Colorado, which houses primarily the
10 records of the Bureau of Reclamation. College Park is the
11 Department of the Interior records, and the downtown
12 branch of the archives has the records of the General --
13 what was then the General Land Office and is today the
14 Bureau of Land Management. Also in downtown Washington
15 are the records of the Bureau of Indian Affairs.

16 In addition, I looked at published records
17 by those agencies, records by the Congress, and also some
18 records by the Department of Agriculture and some of its
19 subagencies such as the Office of Irrigation Experiments.

20 I also looked at state and local agency
21 records, including territorial and state statutes, records
22 of the Arizona State Land Department, both at the Land
23 Department and also at the state archives. I looked at
24 the records and did research on the records of the Arizona
25 Attorney General, and also in the Arizona governor's

1 papers at the state archives.

2 In addition, I took research in
3 reminiscences by explorers, early settlers, scientists who
4 were in the region, and this work took place at the
5 Arizona Historical Foundation at ASU, Arizona State
6 University special collections, which is also at ASU. The
7 water resources center archives at UC Berkley, which is
8 one of the premier archives of holdings on western
9 American water-related matters. The Bancroft Library,
10 which is, again, another western archival holding at UC
11 Berkley. I also undertook research at the Salt River
12 Project archives and in other locations including at the
13 Fort Verde State Historical Park and at the Historical
14 Society in Jerome.

15 I also undertook research of historical
16 photographs, including those with the Arizona Historical
17 Foundation, others in the records of the Bureau of
18 Reclamation in Denver, the photo collection at the Fort
19 Verde State Historical Park and the Jerome Historical
20 Society. And I'll show some of those little bit later on.

21 I've gone into a lot of detail in my other
22 presentations before this commission regarding the
23 significance of patents and meandering or meanders and
24 surveys so I'm not going to go through all that again
25 unless you have particular questions about it. I did want

1 to reiterate, however, that meanders were done -- not only
2 done of bodies of water that were deemed to be navigable
3 by federal surveyors -- that was certainly true beginning
4 with the first manuals in the 1850s -- but beginning in
3:32:53 5 1864, additional revisions of that manual added other
6 circumstances for meandering bodies of water that might
7 not be navigable. That included the 1864 manual which
8 provided that bodies of water were to be meandered on one
9 bank if they provided what were called channels for
3:33:13 10 internal communication. And then in 1890 a new
11 instruction was added to the manual that come out that
12 year, it said not only navigable bodies of water were to
13 be meandered but also non-navigable bodies of water that
14 were over three chains in width.

3:33:28 15 With regard to the Verde River, the surveys
16 that were undertaken by the land office of the Verde River
17 began in the 1870s and the surveys were done depending on
18 where you were on the river in 1851 -- I'm sorry, that's
19 the manuals. The manuals were published in 1851, 1855,
3:33:53 20 1864, 1881, 1890, 1894, and 1902. Not all of the
21 townships along the Verde were surveyed, in particular
22 because a lot of them were either very sparsely settled at
23 the time these surveys were undertaken, and then
24 subsequently quite of few of them were withdrawn from the
34:19 25 public domain, either for reasons that included, for

1 example, national forests, Indian reservations, and also
2 withdrawals under the Reclamation Act for the Salt River
3 Project. I don't believe we have that map with us, but
4 there is a map in my report that shows the withdrawals
5 along the Verde River and the various reason for those
6 withdrawals.

7 Most of the surveys along the Verde were
8 done above township 13 north range 5 east. There were a
9 few that were done below that but almost all of them were
10 upstream from that point. Or if you want to consider it
11 in a non-surveying sense, roughly from Camp Verde
12 upstream.

13 There were eight surveyors total who did the
14 surveys along the Verde River. Not one of these
15 surveyors, though, who surveyed the area indicated that he
16 thought the stream was navigable. That's not to say that
17 there weren't some meanders that were done, but they were
18 done, in my understanding of the survey record, on the
19 basis of the 1864 or the 1890 instructions, either to
20 outline routes of internal communication or bodies of
21 water that were over three chains in width but were not
22 navigable.

23 But there was also quite a few of the
24 townships that were not meandered at all, and thus were
25 clearly indications of the surveyors' belief they were not

1 navigable.

2 In addition to the surveys, which I can
3 answer some questions about if you would like, also the
4 homestead patent records along the Verde River also
3:36:05 5 indicate many parties' beliefs or at least assumptions
6 that river was not navigable. As you already know from
7 earlier testimony or from other historical sources,
8 homesteaders could get anywhere from 160 acres to 640
9 acres depending under which homestead act one applied
3:36:26 10 under. And generally the approach was that one filed a
11 claim with the General Land Office, went and lived on the
12 land for a couple of years, did various improvements, and
13 then went back with proof that they had undertaken the
14 improvements and paid a small fee and then received title.

3:36:43 15 There were over 120 federal patents that
16 touched the Verde River and in every single case of those
17 120 patents, there's not any reference to any of the
18 portion of the bed of the river having been withheld due
19 to considerations of navigability. This is 120 patents
3:37:03 20 that in one way or other touched either the river the way
21 it was recorded by the General Land Office or by other
22 historical maps showing the location of the river.

23 In addition to documents showing the actual
24 grant of the deeds, the patents themselves, which did not
37:19 25 withhold acreage, the supporting patent files which

1 contain testimony of the applicants as well as their
2 witnesses, made it clear in many instances that what the
3 applicants were seeking was a parcel of land that actually
4 included the bed of the river. I have two examples of
5 that that I would like to point out.

6 The first one, if you want to take a look at
7 page 94 of my report, this relates to homestead patent --
8 cash entry patent 318 -- and in a minute I will go over to
9 the map and point it out -- which was granted in 1886.

10 And in this particular case, one of the witnesses to this
11 particular patent -- I'll point it out right now. This is
12 cash entry patent 318, and as you can see, the river flows
13 through it. It's sort of an S-shaped parcel lying on its
14 side. This is the light blue, the river, the way it
15 appeared according to the general land office surveys.

16 This particular patent was awarded to an
17 individual by the name of Farrell Tiernan, T-i-e-r-n-a-n,
18 and one of his witnesses who came with him to the land
19 office to support his application stated in his witness
20 affidavit that, quote, the Verde River runs through it.
21 It is mountainous.

22 Meaning it had both aspects. He also had
23 another witness by the name of Frank Krell, K-r-e-l-l, who
24 wrote in his witness affidavit, "Verde River runs through
25 the center of it." There's not much question that the

1 parties involved there understood that the parcel being
2 awarded was -- or sought was the -- included the bed of
3 the Verde River. And indeed, the land office awarded the
4 complete parcel without any acreage being set side due to
5 the river's bed.

6 Another example was homestead entry patent
7 444072 which was awarded in 1913, and I can point that out
8 as well.

9 That's in the upper right-hand corner of the
10 map here. Again, you can see, depending on which
11 historical map you use, two of them show the Verde River
12 flowing through it.

13 This particular parcel had been studied by
14 the federal government for the possibility of
15 hydroelectric power development, and for that reason,
16 there were some additional papers in that homestead entry
17 patent file reflecting on the nature of the parcel.
18 District Forester Paul Miller submitted a report about the
19 parcel and he wrote in his report, "power possibilities
20 exist as this track crosses the Verde River which flows
21 about a thousand minors inches of water."

22 There are several other places along the
23 river where similar testimony was offered either by the
24 applicant or by the witness that what they saw and then
25 ultimately what they were granted was the bed of the Verde

1 River. In addition, there were 120 other patents that
2 didn't have exact precise testimony about the bed being
3 present, but, in fact, did encompass the bed when it's
4 located on maps and also that were reflected in the deed
5 that the full acreage was granted.

6 In addition to that, there were 50 patents
7 that were applied for under the Desert Land Act, and as I
8 pointed out in my testimony last time, the 1877 Desert
9 Land Act required that water for proof of irrigation had
10 to come from a non-navigable body of water. When these
11 applicants applied for Desert Land Act patents, they cited
12 the Verde River as the source of water for their patents.

13 There were also a very small number of state
14 patents that were applied for relatively recently in
15 history, as it turns out, for which the state did not
16 indicate in its records that there was any indication of
17 navigability. And I do have a map showing that.

18 These three patents were in section 12 of
19 township 15 north, range 3 east, apparently. And in all
20 three cases, I went through the patent files for the state
21 patents that were awarded, and in none of them was there
22 any indication when the state awarded these three patents.
23 This is a blowup of this smaller parcel that you see here.
24 And the state did not indicate in its award at this time
25 in 1988 they had any claim of navigability as well.

1 So with regard to patents, in conclusion,
2 there were over 120 different patents that were granted
3 that overlay the Verde some, these being federal patents
4 to private individuals. And in not one case was any land
3:43:32 5 withheld due to potential navigability. And in many of
6 the cases, the applicants' files or the statements by
7 their witnesses said explicitly that the parcel being
8 sought after was one that included the bed of river.

9 There were also 50 patents that were applied
3:43:47 10 for under the Desert Land Act. I should point out here
11 that not all of those were awarded but at least the
12 applicant claimed that the river was the source of water
13 for those patent files for the Desert Land Act patents.
14 And then there were the three state patents as well, which
3:44:07 15 all cumulatively indicate that many individuals -- many
16 were applying for patents, many state authorities, and
17 many federal authorities all believed that there were not
18 any navigable characteristics of this body of water.

19 I would also like to point out that there
3:44:29 20 were other documents that you might deem to call, I guess,
21 anecdotal that carry descriptions that indicated the
22 nature of the Verde River around the time of statehood.
23 Some of these come from the records of the geological
24 survey, some from the Bureau of Indian Affairs, some from
44:44 25 the Bureau of Reclamation, and other sources. And I have

1 just a couple quick examples of those.

2 This is a quotation from U.S. geological
3 water supply paper Number 73, which was published in 1903.
4 "The Verde River drains the central portion of Arizona,
5 and the upper Salt River, the east central portion. Both
6 streams are more or less torrential in character, combined
7 flow dwindling at times to about a hundred cubic feet per
8 second, other times reaching a volume of more than a
9 hundred times as great. The greater portion of the basin,
10 however, is of a mountainous character, being cut with
11 profound canyons and dotted by rugged mountains." Another
12 example from a water supply paper, number 100, which was
13 published in 1904 stated that, quote, at low water the
14 channel of the Verde is oblique to the gauging section and
15 measurements are made by wading at a point 400 feet above
16 the cable. The channel is straight for a distance of
17 300 feet above and below the station and has a width at
18 low water of 100 feet and at high water, 450 feet. The
19 current is swift and the right bank high, rocky, clean,
20 and is not subject to overflow. The left bank is low,
21 clean, and subject to overflow. The bed of the stream is
22 composed of sand and is constantly shifting.

23 These kind of description are contained in a
24 number of different sources, but to me, they indicate that
25 there was a considerable movement in the river's channel

1 that would make it difficult to navigate at best.

2 And then I have some historical photographs
3 that I wanted to point out as well. The first two of them
4 are actually part of a panorama that's from -- make sure I
5 get the right side of them here, going to the right way.
6 This is a panoramic view of Clarkdale from 1914 from the
7 Arizona Historical Foundation, and you can see the bed of
8 the Verde River going across the lower portion of both
9 pictures there. And you can see clearly that even in 1914
10 the channel was pretty braided and shifting.

11 The next set of photographs were all taken
12 by Edgar Mearns, M-e-a-r-n-s, who I believe was a surgeon
13 at Fort Verde, and he took some of the earliest historical
14 photographs that I could find of the Verde River area. I
15 can't read the captions from here, but the one on the left
16 clearly shows the Verde channel with cattle in it and the
17 one on the right shows some early visitors on the sandbar
18 in the Verde River. These were all taken in the vicinity
19 of Fort Verde State Historical Park today. These photos,
20 by the way, are also all in my report.

21 The photograph on the left is a Mearns
22 photo, the one on the right is not. The one on the left
23 shows the ruins -- the Indian ruins in the area of Fort
24 Verde. It also shows a wagon in the bed of the river on a
25 sandbar there or on the bank on the far side.

1 The one on the right -- for a long time, the
2 Bureau of Reclamation proposed building a dam in the
3 vicinity of Fort Verde. Ultimately, they never built it
4 because there were a lot of complaints that it would flood
5 useful land. But this is one the dam sites as it appeared
6 in one the Bureau of Reclamation's early photos on the
7 right.

8 COMMISSION COUNSEL JENNINGS: These
9 photographs are all in your --

10 DR. LITTLEFIELD: These are all in my
11 report.

12 There were three or four different possible
13 sites for dams that the bureau studied in the early 20th
14 century near Fort Verde. These are two of the other sites
15 as well, site number one and site number two. The earlier
16 photograph you saw is site number four. I think that
17 these, perhaps better than the earlier ones, show the
18 nature of the channel of the Verde River. The one on the
19 left being rocky and very difficult to pass through for
20 any kind of watercraft. The one on the right showing sand
21 in the channel of the bed and canyon walls on either side.

22 Even though the bureau did not build the
23 dams around the Fort Verde area, obviously they did build
24 Bartlett Dam and Horseshoe Dam; these are photographs that
25 were taken in the 1930s of the Bartlett Dam site. And I

1 believe these are both looking downstream, from the
2 mid-1930s. And then the next two are the Bartlett Dam
3 site from mid-1930s, looking upstream. These were the
4 earliest photographs I could find in the bureau's files of
3:50:59 5 the Bartlett Dam site. And then the last photograph, of
6 course, is Bartlett Dam shortly after it had been
7 completed, I believe this is 1939.

8 So in short -- in sum, I would say that none
9 of the historical figures I found thought of the Verde
3:51:28 10 River as being reliable in a navigational sense. There
11 certainly were boats on it on occasion. The boating in
12 the Fort Verde area was used primarily to cross the river
13 as indicated this morning for fishing, but nobody used the
14 river reliably for navigation anywhere along it. And I
3:51:48 15 think the anecdotal evidence that I have, as well as the
16 patents and the survey files, all indicate that
17 contemporaneous observers believed the river was not
18 navigable.

19 If you have any questions, I would be glad
3:51:59 20 to answer them.

21 (Dr. Littlefield is answering questions.)

22 BY COMMISSIONER HENNESS:

23 Q. Mr. Chairman, these manuals that were given out
24 to surveyors, et cetera, over the years, et cetera, did
52:11 25 those manuals call for those surveyors to make a

1 determination on navigability or were those just additions
2 made by the surveyor as an observation?

3 A. The manuals said explicitly that they were to do
4 meanders of navigable bodies of water. The phrasing
5 varied depending on the manual, but it was typically
6 something along the lines of "under the statute" or "as
7 defined by law." There is no precise definition that was
8 in any of surveying material that said exactly what
9 constituted navigability, which means, in my view, it was
10 left pretty much to the judgment of the surveyor. The
11 earlier ones only provided for meanders in the manual
12 specifically for navigable bodies of water; beginning in
13 1864 that manual said, "You will meander one bank if the
14 river is used as a means of internal communication." And
15 they don't define what that means either. And then
16 beginning in 1890 -- but they also kept the qualification
17 to meander both banks if it was navigable. And then in
18 1890, navigable bodies of water as well as non-navigable
19 bodies of water that were over three chains in width were
20 to be meandered on both banks.

21 So the manual said explicitly that they were
22 to do meanders if streams were navigable and the other
23 cases that I just mentioned.

24 Q. And "navigable" was defined or "navigable" was in
25 the eye of the holder?

1 A. The manual said "as are defined under the law" --
2 depending on the manual you looked in. One said "under
3 the statute," and another, I believe, said "according to
4 law." The earliest statutory reference that I could find
3:53:59 5 that made mention of navigability, which, again, does not
6 offer precise terms for navigability, was an 1896 law
7 which is cited in my report. I don't remember precisely
8 the citation. But there was not a precise definition
9 where they were told exactly what to look to -- what to
3:54:19 10 look for, so I think the direct answer to your question is
11 it was in eye of the beholder but these surveyors were
12 doing -- many of them did many, many townships in Arizona,
13 if not in the entire West, and they had a lot of
14 familiarity of what to look for.

3:54:36 15 MR. HENNESS: Thank you, Mr. Chairman.

16 BY COMMISSIONER BRASHEAR:

17 Q. Do you know who these surveyors that are out here
18 in the wilderness -- were they graduate engineers or were
19 they soldiers or just what were their qualifications to
3:54:53 20 make these determinations?

21 A. I don't know what their qualifications were.
22 They apparently were thought well enough by the U.S.
23 government that they were hired in multiple cases, but I
24 don't know what their personal backgrounds were.

55:13 25 CHAIRMAN EISENHOWER: Dolly, do you have

1 any?

2 BY COMMISSIONER ECHEVERRIA:

3 Q. Just that do you have any -- perhaps not on the
4 Verde River -- but any examples of land that was withheld
5 because it bordered the navigable river?

6 A. I don't want to get into the specifics of it
7 because it's covered by confidentiality in another project
8 that I have done. But in a general sense, yes. In other
9 projects that I've done where streams were deemed

10 navigable by the surveyors, they did meander both banks
11 quite clearly and put all the meander data in their field
12 notes and on the plats. And they also -- the patents that
13 were awarded to lands that were adjacent were awarded with
14 an irregularly-shaped border along the edge of the river
15 in what were referred to as government lots that appeared
16 on the plats.

17 Unlike the testimony on the Gila, the
18 references to fractional townships referred to
19 subdivisions of 640 acres, meaning 320 or 160 or 80 or
20 whatever. If the patents were adjacent to a navigable
21 body of water when they were surveyed, they were
22 identified as government lots because they contained an
23 irregular number of acres like 87.23 or something like
24 that. And government lots would appear as the -- as a
25 parcel that were patented next to navigable bodies of

1 water.

2 COMMISSIONER ECHEVERRIA: Okay, thank you.

3 BY CHAIRMAN EISENHOWER:

4 Q. Would -- the definition of "government lot,"
5 would that be land that had not yet been filed on for
6 individual maintenance?

7 A. Yes. That would be the designation by the
8 federal surveyor who went out there and did the surveys.
9 And then the patent -- the patentee, anyone who obtained
10 that parcel, it would be identified on their patent as
11 government lot such and such.

12 Q. Just one little question. You said that they
13 would meander, in one of the manuals, any stream that was
14 over three chains wide. What's the equivalent of a chain,
15 measurewise?

16 A. I should have looked this up. I believe I
17 testified about it in the Gila. I believe a chain is 100
18 feet, but I'm not positive. There are probably surveyors
19 who can correct me on that.

20 No?

21 MR. FULLER: 66.

22 DR. LITTLEFIELD: 66 feet.

23 CHAIRMAN EISENHOWER: 66? Okay.

24 Thank you, Jon.

25 DR. LITTLEFIELD: I was two-thirds right.

1 MR. FULLER: Standard chain is 66.

2 COMMISSIONER ECHEVERRIA: Excuse me, repeat
3 that?

4 CHAIRMAN EISENHOWER: Standard chain equals
5 66 feet.

6 Mr. Jennings, any questions?

7 Is there any questions from the audience for
8 Dr. Littlefield?

9 MS. HACHTEL: Good afternoon, I'm Laurie
10 Hachtel for the Arizona State Land Department. I just
11 have a couple of questions, Dr. Littlefield.

12 DR. LITTLEFIELD: Sure.

13 BY MS. HACHTEL:

14 Q. Dr. Littlefield, in your research of the GLO
15 survey records, did you look all the pre- and
16 near-statehood records for the Verde section and township
17 crossings?

18 A. I'm sorry, I didn't hear your question.

19 Q. Did you look at all the pre- and near-statehood
20 records for the Verde River for township and section
21 crossings?

22 A. In which collection of documents?

23 Q. How about, like, plats and field notes?

24 A. Yes, I did.

25 Q. And Dr. Littlefield, in your testimony you

1 mentioned that there was a change in the manual, I believe
2 it was around 1890, in which the surveyors were told to
3 then meander both sides of the river, if I understand, if
4 it was used for internal communications or over three
5 chains in width. Is that correct?

6 A. No. There were two different instructions.
7 Originally only navigable bodies of water were meandered
8 on both banks. That would be the original manual from the
9 1850s, and its revised version in 1855, I believe it was.
10 In 1864 a new manual came out. That manual provided that
11 meanders of only one bank of a stream or river were to be
12 done if that river was used as a means of internal
13 communication, and that phrase is theirs.

14 But then in 1890 there was yet another
15 edition -- let me back up here.

16 In addition to the one bank for internal
17 means of communication in 1864, both banks of navigable
18 bodies were to be meandered still in 1864. Then in 1890
19 they had dropped the internal communication one-bank-only
20 rule but had kept navigable bodies of water meandering and
21 they added a new rule which was bodies of water that were
22 more than three chains wide were to be meandered on both
23 banks. So in 1890, you get both banks meandered if it's
24 navigable or if it's wider than three chains. And that
25 rule was kept up through the early 1900s.

1 Q. Dr. Littlefield, then, as far as which manual
2 each surveyor used other than the fact that one came
3 out -- we have 1850, 1855, 1864 and 1890 -- is it
4 mentioned in the field notes or the plat exactly which
5 manual the surveyor consulted in doing their survey?

4:00:59 6 A. There's a short answer to that, which is no, but
7 a qualifier. I also looked at the surveyors' contracts
8 when entered into a contract with the U.S. government to
9 do these particular surveys. And for those that still
4:01:21 10 exist, which is not all of them, in some cases the
11 contract said, "You will do it according to the manual."
12 Others were less -- and without a precise reference to a
13 particular manual. Others were less precise and simply
14 said, "You will do it according to the instructions of the
4:01:38 15 department." And I believe in one case there was
16 reference to something like the current manual.

17 As I pointed out in my testimony on the
18 upper Salt and the Gila, these people were a long ways
19 from Washington and so what might have been the current
4:01:51 20 manual might have come out in, say, January of 1902, which
21 is I think the date the 1902 one came out -- that manual
22 may not have reached the West Coast for several months, so
23 they might have still been working under the previous
24 manual, which would have been 1894. And that's true for
25 probably a lot of these surveys -- they may have been
2:07

1 working under a previous manual, give or take a few
2 months.

3 Q. Dr. Littlefield, you did note in your testimony
4 that there were instances that the Verde -- that you found
4:02:24 5 that the Verde was meandered on both sides. Is that
6 correct?

7 A. That's correct.

8 Q. And your basis for concluding that it was then
9 not navigable was based on what, that it was more than
4:02:38 10 three chains then?

11 A. If you put it in the bigger context of all of the
12 surveys of the Verde, there were nearby townships that
13 were not meandered because they were done prior to that
14 three-chain rule, and therefore, the surveyor didn't
4:02:54 15 believe they were navigable. And if you also look at the
16 ones that were meandered on both banks, the only time that
17 they were meandered on both banks is because the river
18 was, in fact, over three chains wide. And if you look at
19 each place where they crossed the river doing their
4:03:10 20 surveys, you'll find that they were all three chains or
21 wider.

22 Q. Well, I want to follow up on that.

23 On one of the plats -- and I've looked at
24 some of the plats on the Verde in which they were
25 meandered on both sides -- did it say -- I didn't see on
03:23

1 the plat -- did it say in the field notes specifically --
2 since I know you did look at those as well -- that -- did
3 the surveyor write that it was more than three chains
4 within the filed note?

4:03:38 5 A. Yes, they do. They measure if they go across it,
6 what they refer to as "online." And you'll find in the
7 field notes the surveyor will say "to right bank of Verde
8 River" so many chains, and then he records down the
9 number. And then he measures across the stream and he
4:03:52 10 says "to left bank of Verde River," and then he
11 measures -- and then you get the distance across. And if
12 you look at each one of those crossings, it's three chains
13 or wider.

14 Q. Is it possible, in your opinion, Dr. Littlefield,
4:04:04 15 that a river could be more than three chains and still be
16 navigable?

17 A. Yes, it is. But when you look at it in the
18 context of the other surveying documents, in my opinion,
19 the reason for the meanders is the three-chain rule.

4:04:18 20 Q. And do you know what percentage of the surveyed
21 river was meandered based on your looking at the plats and
22 everything else?

23 A. No. Best guess is, I would think, over half the
24 river was not surveyed at all because of it being in
25 withdrawals. But of the portion that was, which was
4:04:37

1 generally the Camp Verde area upstream, I would say that
2 it was a minor fraction of it, maybe a quarter of it was
3 meandered. I'm not sure exactly. If you look in my
4 report or in the underlying documents, you can get the
5 exact amount.

6 Q. And -- is it Tiernan -- or the patent that you
7 testified to?

8 A. Mr. Tiernan.

9 Q. Yeah, Tiernan.

10 A. He was the patentee.

11 Q. Do you know where that patent was located within
12 the Verde River?

13 A. Yeah, I believe I pointed it out in map. But --

14 Q. Is it near Paulden?

15 A. No. It was way downstream from Paulden.

16 Q. Okay.

17 A. Just a moment, I'll tell you exactly.

18 Section 3 of township 17 north, range -- it
19 might have been up near Paulden -- range 1 west. 17
20 north, 1 west, section 3.

21 Q. Okay.

22 A. It's on page 94 of my report and the document
23 that covers that is in footnote 58.

24 MS. HACHTEL: That's all the questions I
25 have, thank you.

1 BY COMMISSION COUNSEL JENNINGS:

2 Q. Dr. Littlefield, I have been sort of scanning
3 through your very comprehensive report here while you have
4 been going on, and you have a conclusion where you
4:06:32 5 conclude that the Verde River was not navigable on or
6 before February 14, 1912. Your review and your report is
7 based primarily -- or would I even say almost
8 exclusively -- on your review of documents and acts,
9 reports of individuals who looked at the river at various
4:07:00 10 times, such as surveyors, and other historical documents.
11 Is that correct?

12 A. That's correct. Generally speaking, my
13 historical work, I prefer to let the documents speak for
14 themselves and that's why I was careful to say in my
4:07:16 15 summary that contemporaneous observers did not believe the
16 river was navigable. All the historical documents
17 indicate that.

18 Q. You didn't, in your investigation, look in at all
19 to the flow rate of the river or the other hydrological or
4:07:37 20 other geomorphological aspects that have been included
21 other reports?

22 A. Only to the extent that those particular pieces
23 of information were cited by historical figures. I
24 believe there are some documents that I quote that do talk
07:50 25 about rates of flow, but those were rates of flow that

1 were measured by parties on the scene at that particular
2 time. But I didn't independently do any work in that
3 area.

4 COMMISSION COUNSEL JENNINGS: Okay. Thank
5 you.

6 CHAIRMAN EISENHOWER: I understand you would
7 like to do some questioning?

8 MS. HERR-CARDILLO: Yes.

9 I'm Joy Herr-Cardillo appearing on behalf of
10 the Defenders for Wildlife, an individual party.

11 BY MS. HERR-CARDILLO:

12 Q. Dr. Littlefield, just now you said -- and I tried
13 to write it down exactly because I heard it earlier in
14 your testimony -- you said contemporaneous observers did
15 not believe the river was navigable. Did I paraphrase you
16 correctly?

17 A. Approximately right.

18 Q. Okay. Is there any historical document that you
19 found where a contemporaneous observer expressly stated
20 the river -- the Verde River was not navigable?

21 A. Where they expressly stated it was not navigable?

22 Q. Yes.

23 A. Not to my recollection.

24 Q. So your conclusion that contemporaneous observers
25 did not believe the river to be navigable is based on

1 actions they took with respect to the river, correct?

2 A. No. They also described the river. They may not
3 have used the actual words "not navigable" or
4 "non-navigable," but they also described it and its
4:09:13 5 characteristics. And I think it's fair to make certain
6 judgments about what they were saying about a river based
7 on their descriptions.

8 Q. What aspect of their descriptions led you to
9 believe -- you to believe that they did not think the
4:09:28 10 river was navigable?

11 A. Well, in my report, there's a whole section about
12 historical reports and documents that -- where parties on
13 the scene described the river. And they describe various
14 characteristics of what the river was like, such as in the
4:09:43 15 areas where it was not in the canyons, meandering and
16 abraded, and also a lot of references to large changes of
17 flow and so forth.

18 Q. Following up on the whole practice of the
19 meandering by the surveyor, is there anything in the notes
4:10:07 20 in those instances where the surveyors did actually
21 meander both banks that indicate why they meandered both
22 banks?

23 A. No.

24 Q. So that is simply an inference that you've drawn
10:16 25 when you say it's because it was three chains in length?

1 A. That's correct.

2 Q. And when you talk about three chains in length,
3 is that three chains of water or is that bank to bank in
4 terms of the bank not necessarily -- the bank's edge not
14:10:35 5 being necessarily the water's edge?

6 A. It's -- the three chains, the way that I read the
7 survey records, was from where the surveyor said "to right
8 bank of Verde River," and then he gives a number of chains
9 and lengths. And then he'll say "to left bank of Verde
14:10:53 10 River," and he gives a number of chains and lengths. And
11 so the three-chain measurement, to me, is where he
12 recorded saying "to right bank" or "to left bank."

13 Q. But you don't -- is that water's edge?

14 A. The surveyor didn't define it.

14:11:09 15 Q. And with respect to the surveyors, your testimony
16 that the surveyors did not believe the Verde to be
17 navigable, is that based upon their actions with respect
18 to the surveying?

19 A. Yes.

14:11:23 20 Q. Okay. So there's nothing in the surveyors' notes
21 where they've expressly said, "The Verde is not
22 navigable"?

23 A. Not in those words, no.

24 Q. Are you familiar with any land patents that were
11:41 25 granted along the Colorado River?

1 A. No.

2 Q. When you talk about navigability in your report
3 and whether the Verde River is non-navigable, what
4 definition are you using?

4:11:57 5 A. As I was explaining to the commission a moment
6 ago, I'm using the definitions by -- the definitions or
7 the inferences by parties on the scene as close to the
8 date of statehood as possible.

9 Q. So you're not using the Daniel Ball?

4:12:12 10 A. No. I don't think any of the parties there were
11 either.

12 Q. In your definition of the term "navigability" or
13 "navigable," do you see commercial use as a requirement?

14 A. No.

4:12:32 15 Q. And do you restrict your definition of
16 navigability based on the type of vessel that was used?

17 A. My definition is based on what a reasonable
18 person at the time thought of the river. And that
19 presumably would mean also their understanding of what
4:12:52 20 watercraft were available at the time.

21 Q. How do you reconcile the fact that there were
22 instances of boating on the river with your conclusion
23 that the river was not navigable?

24 A. Simply because parties believed they could get a
25 boat on a particular place -- in much with the same as the

1 testimony in the Gila and the Salt, just because you could
2 get a boat on it on occasion doesn't mean it was reliable.

3 Q. So in your definition of "navigability" for the
4 river, does it require that the river be boatable
5 12 months of the year?

6 A. I don't think that I have a precise definition on
7 that point. It's simply the observations of the
8 historical parties.

9 MS. HERR-CARDILLO: Thank you. I have
10 nothing further.

11 BY CHAIRMAN EISENHOWER:

12 Q. Dr. Littlefield, since Joy has taken the negative
13 side, I'll ask one positive side. Did you find any
14 documents in your research that said it was navigable?

15 A. Other than the instances I mentioned of boats
16 occasionally being put on it, none that showed it was used
17 for navigation on any kind of a reliable and regular
18 basis, no.

19 CHAIRMAN EISENHOWER: Okay.

20 BY COMMISSIONER BRASHEAR:

21 Q. Navigability in that area refers to the number of
22 people around to possibly use it as a waterway or a
23 highway of commerce? In other words, if you don't have
24 anybody there, it's hard to imagine how it could possibly
25 be navigable because nobody is there. Do you think that

1 makes any difference in these findings?

2 A. Well, I can answer that both with reference to
3 the Verde and then also with reference to Kern River in
4 California, which I can talk about because it's going to
4:14:39 5 trial and has all been decided. The Kern River was -- let
6 me speak to the Verde first. There were a lot of people
7 along the Verde as early as the 1850s and 1860s and so
8 there are quite a few observations by parties who were on
9 the scene. Certainly in parts of it there weren't a lot
4:15:00 10 of people, but notably in the Camp Verde area and then
11 downstream, and so there are a lot of descriptions that
12 you can look to for contemporaneous observers.

13 There were -- I did some work on the Kern
14 River for navigability, which I also, by the way, offered
4:15:16 15 the opinion it was non-navigable, and the only people that
16 were there in the Kern River in the Bakersfield area in
17 the 1850s when California became a state were Native
18 Americans. And there, I did offer some testimony with the
19 qualification that anthropological and archaeological
4:15:35 20 studies indicated that the Indians along the Kern did not
21 use the river for boating, for carrying their goods or
22 people back and forth. But there weren't any other
23 observers on the scene to offer other views of the river.
24 But that's not the case with the Verde, there are a lot of
15:50 25 contemporaneous observers.

1 CHAIRMAN EISENHOWER: Anybody else?

2 COMMISSION COUNSEL JENNINGS: Just one

3 quick.

4 BY COMMISSION COUNSEL JENNINGS:

4:15:58 5 Q. The manuals that you referred to and other
6 instructions, many of them were written before 1870. Is
7 that correct?

8 A. The first one that was published was 1850 and it
9 was called "The Manual of Instructions For" -- I don't
4:16:13 10 remember the exact title, but it was for surveyors in
11 Oregon because at the time, that's where most of the
12 homesteaders were going when it was written. The Gold
13 Rush hadn't gotten back to the East Coast. And then there
14 was a revision of that book in 1855, and then I believe
4:16:27 15 the next revision was 1864, and then 1881. And I think
16 there was one -- another one in late '80s and then '92 and
17 1902.

18 Q. You were asked, in any of these manuals, is there
19 a definition of the word "navigable" in these manuals for
4:16:49 20 the surveyors to take guidance from?

21 A. No. They were only told to do it -- in one of
22 the manuals it said under the statute, quote, unquote, and
23 then the other one was "according to law." And there is
24 no definition that I've seen. I went through not only
4:17:05 25 these materials but also the surveyors' contracts and

1 there was nothing precise about it. In fact, I think
2 that's why the case of the steamer Daniel Ball came along,
3 which was 1870-something, because there wasn't a precise
4 definition.

4:17:23 5 COMMISSION COUNSEL JENNINGS: You stole my
6 question from me.

7 DR. LITTLEFIELD: I'm sorry.

8 COMMISSION COUNSEL JENNINGS: I was going to
9 remind you that the opinion in Daniel Ball didn't come
4:17:27 10 down until 1870, so obviously these individuals were using
11 just a definition that they understood as navigable. They
12 were not specifically referring to the Daniel Ball, and
13 probably even thereafter they weren't.

14 A. I believe you're right. I don't think the
4:17:45 15 surveyors knew about Supreme Court cases necessarily.

16 COMMISSION COUNSEL JENNINGS: Thank you.

17 COMMISSIONER HENNESS: One question,
18 Mr. Chairman.

19 BY COMMISSIONER HENNESS:

4:17:57 20 Q. Several times you mentioned "in statute."

21 A. Right.

22 Q. Did you -- in all the billions of documents that
23 you reviewed in your time, have you ever had an
24 opportunity to review the statutes that were in place at
18:11 25 that time?

1 A. Yes, I have. And the statute is cited in my
2 report. And I don't remember exactly what the footnote
3 number is. It's near the beginning of the section of
4 surveying. And I have read the statute and it does not
5 offer a precise definition.

6 Q. So whatever the statute was?

7 A. Yes. I believe 1796 was the first statute, and
8 it's now apparently codified as part of the civil code.

9 COMMISSIONER HENNESS: Thank you, sir.

4:18:41 10 CHAIRMAN EISENHOWER: Any there other
11 questions for Dr. Littlefield?

12 Hearing none, thank you very much,
13 Dr. Littlefield.

14 DR. LITTLEFIELD: Thank you.

4:19:00 15 CHAIRMAN EISENHOWER: We have one more
16 witness. The State wants to present Mr. Jim Slingluff.

17 COMMISSION COUNSEL JENNINGS: Mr. Chairman,
18 while we're waiting for Mr. Slingluff, could I inquire --
19 this is for the benefit of just general edification of
4:19:24 20 commission. And Laurie, could you tell us what is the
21 current status of the Arizona State Land Department's
22 appeal to the interior board of Indian Affairs involving
23 the acquisition by the Bureau of Indian Affairs of some
24 1,168.9 acres of land, much of which lies in the Verde
19:51 25 River? I understand that the State Land Department is

1 opposing that and even appealed the decision of the
2 superintendent of the Canon -- Truxton Canon field office.
3 How is that appeal going?

4 MS. HACHTEL: Laurie Hachtel for the Arizona
4:20:17 5 State Land Department. Mr. Jennings, there is another
6 attorney within my firm that is actually handling the
7 appeal. From what I understand it's still pending. What
8 I can do, if you're interested, I can submit something in
9 writing and let you know the status from the attorney.

4:20:32 10 Last time I knew it was just pending and I hadn't heard
11 there were any new developments on it. But I can check
12 into it and let you know if you would like me to.

13 COMMISSION COUNSEL JENNINGS: Mr. Chairman,
14 it might be a good idea to find out just what the status
4:20:48 15 is. I think it's a Mary Mangotich Grier.

16 MS. HACHTEL: Mangotich Grier.

17 COMMISSION COUNSEL JENNINGS: The reason I
18 ask, Mr. Chairman, is the position of the State Land
19 Department in opposing it, the acquisition for Indian
4:21:03 20 purposes, is at least in part because they claim that the
21 Verde River is navigable and that they own all of the
22 land.

23 MS. HACHTEL: I don't know if Mr. Ryley or
24 Mr. Sparks, with the Apache, if they have any information
25 to shed on that, if they're familiar with it. What I can

1 do is find out what the status is. Would you prefer I do
2 a letter in writing so you can distribute it?

3 COMMISSION COUNSEL JENNINGS: Just as to the
4 status. It seems to me that if the Bureau of Indian
4:21:40 5 Affairs rules against the State Land Department at least
6 it would be some evidence that it's not navigable because
7 that's the big basis -- or one of the basis for the
8 appeal.

9 MS. HACHTEL: That, I'm not certain of, but
4:21:56 10 I will find out and I will write something and submit it
11 to the commission to distribute.

12 COMMISSION COUNSEL JENNINGS: Thank you.

13 CHAIRMAN EISENHOWER: Mr. Slingluff, you're
14 on.

15 MR. SLINGLUFF: Does it matter where I
16 stand?

17 CHAIRMAN EISENHOWER: Over there, please.

18 MR. SLINGLUFF: This is a really interesting
19 experience for me. I moved back into Arizona in 1984.

4:22:42 20 And I was the one of the few, like -- there was only
21 single digits of people in the state who were competent at
22 whitewater canoeing, and I was one of them. And when I
23 asked somebody --

24 COMMISSIONER HENNESS: Excuse me, please,
25 I'm sorry, Mr. Chairman. Identify yourself, please.

1 MR. SLINGLUFF: Sorry, Jim Slingluff.

2 When -- how low the Verde was boatable, the
3 first answer I got was, "Probably 750 CFS." And then I
4 pushed a little bit because in the East I've done a fair
4:23:20 5 amount of boating on water that was four inches deep, you
6 know. And I asked again, he said, "500 CFS." It was John
7 Parsons that I was talking to. But then subsequently I
8 took him on a trip down Beaver Creek from the ranger
9 station, a canoe trip from the ranger station down to the
4:23:41 10 Verde and -- because my point was, "If you go in -- if
11 you're willing to go in at low water with appropriate
12 craft, you can boat way longer than if you're waiting
13 around for the 750 flow."

14 So when the county attorney or state's
4:23:58 15 attorney, whatever it was, raised the whole navigability
16 issue because of the sand and gravel problem that was just
17 upstream from Dead Horse Ranch State Park and it shifted
18 some product in there and it caused erosion of the state
19 park, it caught my attention right away because there were
4:24:20 20 places in the East where boaters got shot at, you know, as
21 trespassers by floating down the river.

22 And so the first attempt at legislative fix
23 I actually helped write. The -- it was -- I was
24 representing Tucson Rod & Gun and a couple of -- in the
25 volunteer kind of way. And I think Landis Aiden was

1 representing the Arizona Wildlife Federation. And I also
2 represented a couple of paddling clubs. And we signed off
3 on the provision that said that quitclaims could be given
4 in return for free recreational access up and down the
14:25:05 5 river where the water was being used as the main form of
6 transportation. It also gave us incidental use of the
7 shoreline to avoid hazards and the river bottom itself to
8 dislodge from rocks or something like that. Of course,
9 the court didn't see it that way. But I'm just -- it's
14:25:30 10 interesting because I actually was one of the main people
11 who initiated the whole idea of low-water boating in this
12 state. And I have been involved in this issue in various
13 levels since it first came up. It's sometimes hard to
14 hold 20 years of memory and get it out in a coherent way,
14:25:52 15 so if I kind of skip around.

16 I do know that I ended up being appointed to
17 a statewide comprehensive recreational plan. I was on
18 the off-highway vehicle advisory group. I was assigned to
19 an appointment, but partway through that, they wanted me
14:26:09 20 to go over to the riparian areas advisory committee. So I
21 resigned the off-highway boat to go do that. And I've
22 done a lot of volunteer work for Arizona Game and Fish. I
23 helped them establish their electrocanoeing fishing, and I
24 have some photographs of that. And I've -- also did a lot
26:32 25 of volunteer work for the forest service and some for the

1 BLM where we would go in with, you know, a certain number
2 of people in canoes and we take out trash and, you know,
3 write up a report on what kind of animals we saw and, you
4 know, how many craft -- other craft, things like that.

14:26:50 5 I've been paddling since I was 12, and I'm
6 54. And I started kayaking when I was 20-something and
7 rowing big rigs when I was 31. I've paddled big open flat
8 water. I've paddled in a canoe, most of the Grand Canyon,
9 Oak Creek, and a lot of very pleasant slow stuff that was
14:27:17 10 just fun.

11 So I have a wide perspective. And because I
12 hung around this issue so much, I've picked up various
13 information about what may cause something to be navigable
14 or not navigable, but I'm not an expert on navigability
14:27:36 15 and I'm really not going to be addressing it. What I am
16 going to address is present-day boating on the Verde
17 River. And then you all, and probably the courts for
18 20 years after, can try to figure out what that means
19 relative to navigability.

4:27:55 20 This is up in the Verde Valley and it's in
21 the -- you're coming down past -- beginning to do the
22 go-around around Beasley Flat right here. And you can
23 see --

24 CHAIRMAN EISENHOWER: Excuse me, would you
28:13 25 stay over by the microphone because we have that on tape?

1 MR. SLINGLUFF: You can see it's kind of
2 shallow up in that area, but a 16-foot canoe of normal
3 design that would be not too much rock, or in other words,
4 its ends are mostly down in water and it would be about a
14:28:57 5 yard wide, can float 200 pounds in about two inches of
6 water.

7 It's not my fault, but these things are not
8 in order. This is the falls of the Verde at very high
9 flow. The actual drop is upstream. What you have there
14:29:17 10 is a very large cataraft that is hung up on the cleaver
11 rock that's just below the falls itself. That flow rate
12 is probably somewhere upwards 6,000 CFS, something like
13 that.

14 COMMISSIONER ECHEVERRIA: Can you identify
14:29:34 15 the picture that you took or pictures?

16 MR. SLINGLUFF: Well, I didn't take this
17 one.

18 COMMISSIONER ECHEVERRIA: Okay.

19 MR. SLINGLUFF: But I took the one prior.

14:29:46 20 That's the prefalls of the Verde at summer
21 base flows. You can see it's a drop, it wouldn't be that
22 easy to run in a canoe just because it's shallow enough to
23 catch on the lip at this CFS rate. This CFS, I'm
24 guessing, was probably about 50 to 70 CFS. That's a
30:10 25 Chesapeake Bay retriever on the front, she kind of liked

1 anything that had to do with water. So what we were doing
2 both with her and with kids is, you know, we'd put them
3 on -- that Sevylor -- excuse me, that's actually a
4 sea-going type of kayak that the skin divers use. You can
5 see it has, you know, portals fore and aft.

6 That's one of the my guys who decided he
7 wanted to go through backwards, but I made him wear a
8 helmet to do it.

9 This is the portage to get around the falls.
10 The prefalls is just out of sight back up on what would be
11 the left side of the river as you were looking downriver.
12 And the falls itself is just off the picture this way. I
13 have paddled the prefalls and I have paddled the falls. I
14 generally don't paddle the falls. That is predominantly
15 because I'm often going in for a long number of days at a
16 time and hunting and things like that and I don't want to
17 mess up my gear. When I've paddled it, it's typically
18 I've been on a day trip and have a lighter boat.

19 This is looking back up towards the falls,
20 that's the falls, and this is the run out below the falls.
21 And that there is the cleaver rock that the big raft was
22 stuck on. This side is a fairly gnarly area. I don't
23 think -- from one angle, I don't think it rises to a class
24 3, but you could make the argument that it does. And the
25 argument would be based on the number of rocks below the

1 falls. It's not just the falls as an issue if you try to
2 run it, but then you have this chaos of rock which there
3 is a passageway at this flow rate, down in there through,
4 but if a person missed it, then they would be almost
5 certainly pinned on one or more of those rocks.

6 This is down near second Sycamore Canyon, so
7 we're out of the Verde Valley at this point -- and that's
8 one of my goddaughters -- and this drop gets called the
9 Ladders. It's one of the names that's a gauge in the
10 area. And she was probably 16 at the time of that
11 picture. She's older than that now, she's about 28.
12 That's my nephew, you can see it's in that -- scupper is
13 the name of that type of craft. That's a little angular
14 drop that is just above what everybody except the forest
15 calls Punk Rock. The forest service calls it Turkey
16 Gobbler. And last I heard, they're going to try to
17 resolve the fight by making it Punk Rock at Turkey
18 Gobbler. Seems to be a lot of fight over a name.

19 And you can see I made him wear a helmet in
20 that just because it's a rocky area and his skills weren't
21 that good. But it's a safe enough thing to do if you have
22 somebody who is along who can guide the trip and say that
23 "You are going to do this drop, you're not going to do
24 that one."

25 That's the same drop. The gentleman in the

1 back is my cousin, the then boy in front is another one of
2 my godsons. And the flow rate at that point in that
3 section was 300 CFS. I remember it because it was a July
4 trip and it's the only time I have ever done a July trip.
4:34:08 5 Not because the water is low, but because the lightning
6 can be really, really frightening on a river.

7 That's Punk Rock. Right there, that's Punk
8 Rock, and that's a little additional rock that comes
9 outside. That's one of my goddaughters, that's another
4:34:26 10 one of my goddaughters, and that's the mother of that
11 goddaughter.

12 You can see that it's not inherently a
13 highly dangerous drop. I wouldn't want to swim it. It
14 tends to be shallow, there's a lot of velocity, but you'll
4:34:43 15 notice that that particular flow rate there's a wide
16 channel off to the -- to this side of Punk Rock and the
17 current is going in that direction. So the current would
18 inherently want to take you where you want to go, which
19 incidentally is one of the differences between a class 2
4:35:03 20 and a class 3. Class 3, you have to paddle against
21 current, where current is trying to take you some place
22 you don't want to go for it to be a class 3. This is just
23 a very big class 2 at this level.

24 This is further up, this is the very upper
35:20 25 part of Punk Rock. And that's a couple of my godchildren

1 these other factors is when you look at the six-step
2 international scale to assess rapids -- and assessing
3 rapids is the same thing as assessing the skills required
4 to do the rapid -- the difference between a 3 and a 4 is
4:37:27 5 that 1 through 3 talks about difficulty of maneuvering the
6 craft. 4 through 6 talk about difficulty of scouting,
7 difficulty of rescue, high risk of life. So there's a
8 shift that occurs in there and it's one of the reasons why
9 there's no more than one or two class 3s on the Verde,
4:37:48 10 period, and there are no 4s at anything around the normal
11 range within a season because they -- there is almost
12 always -- you're dropping into a pool. There's just not
13 long, big sections of fast water at normal flow at any
14 season.

4:38:07 15 That's Luke again. He was always a ham
16 about smiling into the camera, and his dad -- this is down
17 in the White Flash area.

18 This is at White Flash.

19 And this is -- we're below Childs now. And
4:38:29 20 we're not as far down as Fossil Creek. So this may be a
21 couple miles, three at the most, below Childs. You can
22 see that that's Luke again, he was probably 8 or so at the
23 time of this trip. And two of my goddaughters, and so we
24 were in there with kids. Just normal canoes, none of
38:56 25 those are hi-tech, you know, highly designed. We didn't

1 have saddles or anything like that in them, and we had
2 them pretty heavily loaded. And so we just were able to
3 get through most everything, and if you got hung up, you
4 just pushed off, you know.

4:39:11 5 Okay. This is a nasty little dogleg at 300
6 and some CFS. We're back to a summer trip. That's Cassie
7 sitting on the cooler there. It's pushy, but again, if
8 you'll notice the current, the current washes you down
9 pretty much where you want to go so it requires minimal
4:39:34 10 maneuvering. It's a class 2.

11 I can't remember exactly where this is.
12 That girl is another one of my godchildren, graduated from
13 high school this past year so that's about how long ago.
14 From Childs down is a great trip for fishing, pretty good
4:39:54 15 for hunting, and it's good -- it's really a nice June
16 trip. Because before the humidity comes up, you're in the
17 water, so you can get cooled off any time you want. And
18 there's lots things to do in an old-fashioned way,
19 skipping stones and going for walks and fishing and things
4:40:16 20 like that.

21 The only person who has ever been injured on
22 a trip that I have guided -- informally guided -- was me.
23 And somebody else pinned their boat in that angular falls
24 thing, an ugly pin, and the boat was almost upright but
40:42 25 had water flowing over it so it had kind of melded into me

1 and part of the little waterfalls there and in the process
2 of trying to pry it off, which we did, broke the gunnels
3 and every fork in the process. I tore something in my
4 knee that I eventually had to have fixed.

4:40:58 5 I can tell you that I know something about
6 the dangerous edges because there's been twice on the
7 Verde where I was at immediate risk of dying. One was a
8 fall -- went over the falls at 6,000-some CFS, very cold,
9 washed out the whole gorge, so I was being flushed out. I
4:41:19 10 know my temperature was dropping. I was having trouble
11 keeping any legs up. And what happened was the current
12 actually took me off to river left. And at one time when
13 I was boating by myself, which nobody thinks that's a good
14 idea but it can be fun, I came around the bend on the
4:41:38 15 inside because I had the whole river memorized and a tree
16 was down. I was hunting deer so I had a pretty heavy boat
17 and it was taking me right into where the tree hit the
18 trunk, and I just threw myself backwards real far. And as
19 the canoe rolled, it rolled my weight out the back end and
4:41:57 20 it spun us around the tree. But strainers, to be honest,
21 are the most dangerous things the Verde, but the Verde
22 doesn't have a death count. The Tonto has a death count.
23 Kayakers have died on the Tonto. The Gila, particularly
24 in the Hayden-Winkelman area and then down the last
4:42:19 25 segment before it goes into the Florence Dam, there's

1 death count there every year. The Verde doesn't have a
2 death count. I only know of one water, if you will,
3 water-based death and it was some good many years ago and
4 it was a horseman who was trying to cross at high flow.
4:42:39 5 There have been just very few injuries on the Verde where
6 the person was injured in the water where they had to be
7 choppered out or anything like that.

8 Most of the folk who have a bad time on the
9 Verde aren't prepared and their problem then becomes not
4:42:59 10 that they hurt themselves in the river, the problem is
11 that they have lost their boat or broken their boat or
12 lost their paddles or something, they're out in middle of
13 nowhere. So it's not fundamentally a water or river
14 issue, it's the fact that it's in the wilderness issue.

4:43:21 15 This is down below Childs, it's a summer
16 trip, you can see we're fishing. Now, you can see that
17 you have -- that's just a split, there's a split that
18 occurs there. And the -- to be honest, I don't encounter
19 much in the way of meanders anywhere along the Verde that
4:43:53 20 annoy me. And when I have encountered them, they have
21 pretty much all been either in the Red Creek area or down
22 as you begin to approach Sheep Bridge and then below Sheep
23 Bridge. That's the only place I have seen them. From a
24 canoeist's perspective, they're not an issue.

44:15 25 That's just one more river picture. You can

1 see the canoes coming down through there.

2 This is between the two lakes, and this is
3 kind of what it's like. Right below Horseshoe Dam is
4 notorious for having way too many strainers and trees to
4:44:39 5 be real safe. And I don't much care for this run, period.
6 It tends to not be as interesting as the upstream runs and
7 I -- you can drive into it. So you can be paddling and
8 have a nice quiet day and stuff like that and then you set
9 up your camp and people come in and start shooting guns
4:45:02 10 and things like that.

11 This, I -- you can see the Chesapeake Bay.
12 I have it hooked up like it was sled dog. I figured that
13 maybe I could make some money if the thing worked and then
14 I could write an inspirational series of books for boys,
4:45:24 15 you know, like they had -- whatever it was, Fang, sled dog
16 of the north. I could have Cassie, canoe dog of the
17 Verde, and then we could have events and races and I would
18 make a lot of money selling T-shirts. But all I did was
19 get into there.

4:45:39 20 This is low. You're about four miles
21 upriver from Sheep Bridge and you're looking basically
22 straight back up the watershed. The Verde just goes and
23 winds back and forth and goes up in there.

24 This is back to the nasty little dogleg.
4:45:59 25 That's the same mother, daughter, and friend team that you

1 saw before. You can see they got sideways going into that
2 reversal, which wouldn't be a good thing because it would
3 tend to flip them, which it did. A reversal like that,
4 you want to hit it straight on if you're going to punch
4:46:19 5 through it. So paddlers with enough skill would go into
6 it sideways and then just lean down and surf it or they'd
7 catch it, point it upstream, and surf it.

8 This is one of the early game and fish trips
9 where we're moving them into canoes so they can get into
4:46:39 10 shallower water. There's your fish, most of them are
11 probably carp. At this point in time, it was rigged up,
12 the generator is in there, I think, and then that's the
13 positive and the negative is off the back end. And then
14 there would be people onshore trying to net them up, and
4:46:56 15 then that's me in the back. And if the current would
16 allow, then I would drop the paddle and help them -- net
17 them up and then they're taken to the shore and checked
18 for parasites and weighed and measured and all that kind
19 of thing.

4:47:12 20 This is what they do now. This is more
21 contemporary. This is probably about three years old.
22 And what they have -- the generator is still in the canoe;
23 that's the canoe there. What they've done is they take
24 people who carry all the rest of gear in those rafts.
4:47:28 25 Now, those are fairly good-sized rafts, they're probably,

1 what, 8 feet long, something like that. But they'll carry
2 the gear well. And then people who are rowing those, if
3 they get hung up on a rock or something, they have to get
4 off and push off the raft and just get back in.

4:47:46 5 Now we're way up high. This is just down
6 from Granite Creek, and I mean just down from where
7 Granite Creek hits the Verde. By, you know, a hundred
8 yards maybe. It was pretty amazing because of all the
9 flowers and things like that. It was really pretty. And
4:48:09 10 this is the highest point below which the Verde at the
11 present time is entirely watered and boatable the whole
12 way down to the Salt.

13 This is -- so we're -- at this point, we're
14 25 miles upstream of Perkinsville. This is in
4:48:41 15 Perkinsville itself. It doesn't show -- well, the cliffs
16 are redwall limestone, it's really beautiful. Any of you
17 have a chance to take that train ride, you should take it.
18 Pay for first class and sit on the right-hand side as you
19 leave, you get your best views that way. This is back
4:49:00 20 upstream of Perkinsville.

21 This is below the first Sycamore Canyon,
22 which is the big, famous Sycamore Canyon. The interesting
23 thing is this particular drop -- this is in where that
24 canyon when it's up in Perkinsville area it's redwall
49:20 25 limestone, down here it's black basalt. They once talked

1 about having a dam in this part the world too. But this,
2 I have -- sometimes I can get through just what you see in
3 front of you and not get hung up, and other times I can't.
4 But one of the things with contemporary materials, the
14:49:41 5 plastics in particular, is they slide, they're slippery.
6 So if you get up some velocity and if there's some algae
7 or stuff like that in there and then you hit it at the
8 right speed and you might have to rock your boat up, you
9 know, to get a little more depth on one side and a little
14:50:00 10 less width, but you can do it. It's just not that hard.

11 So the reason -- I guess part of the thing
12 I'm saying here today is the entire Verde is boatable
13 because the entire Verde is being boated. The least
14 common section is probably the 25 miles above
14:50:19 15 Perkinsville, some of that is an access issue. But it's
16 pretty shallow and it's -- you're pretty far out in middle
17 of nowhere. And the next least is probably the
18 Perkinsville section itself. Though Perkinsville has its
19 aficionados just because it's so pretty, you know, you've
14:50:39 20 got all this redwall limestone and it's all real close,
21 it's just a wonderful, wonderful place. But there's --
22 it's hard to stop contemporary craft.

23 That's actually real close to Dead Horse
24 Ranch State Park, and that's a winter picture. And that's
25 closer down towards Camp Verde. And that's that same old

1 nasty little dogleg. On the picture you can see it, but
2 you might be able to see there's a little bit of brown in
3 there, that's Cassie, she sat on top of the cooler the
4 whole way through that as the wave crashed over, she
4:51:25 5 thought it was great.

6 This is off the wall rapid. It's the first
7 rapid of any note that you get to when you're coming down
8 from Beasley Flat. It's a solid class 2. It's visually
9 intimidating but really not that difficult. And it's
4:51:45 10 commonly run. People who don't camp around that shouldn't
11 run anything.

12 This is Joe, we're back we below the falls
13 now. Remember all those rocks -- I said part of the
14 problem is you don't do it right, you end up -- well, we
4:52:00 15 portaged around the falls and that cleaver rock there, I
16 told Joe he had to be really, really, really close to that
17 rock and then cutting this way, this way, because the
18 current wanted to go that way and it would take him right
19 into rocks, but he didn't listen. He was just giving big
4:52:18 20 smiles because he was having his picture taken.

21 CHAIRMAN EISENHOWER: Are you close to
22 winding up?

23 MR. SLINGLUFF: Yes.

24 CHAIRMAN EISENHOWER: Because our court
52:24 25 reporter is getting numb fingers right now. But if you're

1 pretty close, I'll let you go ahead and finish. How many
2 more you got?

3 MR. SLINGLUFF: Of the pictures?

4 MS. HERR-CARDILLO: I think one or two,
5 that's all.

6 MR. SLINGLUFF: Yeah, that's all.

7 He didn't pay attention because he was
8 flirting with the camera lens and he got hung up, and I
9 laughed at him but not very long because it was my boat he
10 was hung up in.

11 That's another one of my goddaughters, and
12 that's dropping down in through Punk Rock. That's a
13 target rock before that.

14 Part of the thing -- I could go on for all
15 kinds of stuff, but I have no reason to bore you all. But
16 maybe there's questions?

17 EXECUTIVE DIRECTOR MEHNERT: We're going to
18 get a copy of these slides, correct, on CD or whatever?

19 MS. HERR-CARDILLO: I have half of them
20 here. I'll submit the others.

21 CHAIRMAN EISENHOWER: Do you have any?

22 (Mr. Slingluff is answering questions.)

23 COMMISSIONER BRASHEAR: I'll just ask one.

24 BY COMMISSIONER BRASHEAR:

53:36 25 Q. Obviously you had a lot of good times with your

1 family on the Verde, but are you aware of any commercial
2 activities? Have you done any commercial guiding or is
3 there any?

4 A. Well, I've -- yeah, I've been on two commercial
5 trips, in neither case did I accept money. I just -- I
6 wrote a book on the Verde and that took up a bunch of
7 time. And I just had it in my head that once I took money
8 for guiding, then I couldn't really be as good a guide as
9 what I could be. So the two times that I was asked to be
10 on commercial trips, I went. One of them was to take "The
11 Desert Speaks," the TV show, down the Verde, and the other
12 was a well-known national figure who wanted to go down
13 with his family and I was asked to go on. And both those
14 cases I refused to take money. But most of the pictures
15 you've seen, I, in essence, was the guide for because I
16 was the most experienced person.

17 CHAIRMAN EISENHOWER: Do you have any
18 questions?

19 BY COMMISSIONER HENNESS:

20 Q. Just being a tad facetious, what part of the
21 river is this?

22 A. Offhand, I would say it's probably near Bocas del
23 Toro off of Panama, and the paddling would be done in
24 dugouts.

25 COMMISSIONER HENNESS: Very good. That does

1 it for me. No further questions.

2 CHAIRMAN EISENHOWER: Curtis, do you have
3 any questions?

4 COMMISSION COUNSEL JENNINGS: No questions.

14:54:58 5 CHAIRMAN EISENHOWER: Thank you,
6 Mr. Slingluff, unless there's anybody else?

7 Laurie has a question.

8 MS. HACHTEL: I didn't.

9 MS. HERR-CARDILLO: I just wanted to offer
14:55:05 10 into evidence -- these are some articles that
11 Mr. Slingluff has written in some various publications and
12 there are Post-It notes that reference.

13 CHAIRMAN EISENHOWER: Okay. Give those to
14 George. Thank you, Joy.

14:55:16 15 MR. SLINGLUFF: There's this, I think, would
16 be good to enter in. I was subbing at the high school I
17 used to teach at and went to get something to read and
18 this is a history of all about canoeing. Because the
19 canoe has not -- and this would verify it -- the canoe has
14:55:32 20 not fundamentally changed in design from Native American
21 days to today. The same heavily rocker boats we used,
22 they have been used. And I put a little note that just
23 tells where some of the pictures are. You don't have to
24 read the whole book, I really had them get it just because
15:55:50 25 then you can actually see the canoes that were used and

1 it's easy to cross. And somebody from back then could
2 have -- who is a canoeist -- could take to any modern
3 canoe and modern paddle and get in it and know exactly
4 what to do.

4:56:07

5 CHAIRMAN EISENHOWER: Laurie?

6 MS. HACHTEL: Laurie Hachtel for the Arizona
7 State Land Department. Mr. Slingluff, I just have a few
8 questions for you on what you testified to.

9 BY MS. HACHTEL:

4:56:23

10 Q. One question I have is, can you describe as far
11 as where the Verde is -- as far as getting access to boat
12 it and how that factors in boating?

4:56:50

13 A. Yeah. I -- the Verde has a wide body of people
14 who are interested in it, and many of them aren't from
15 Arizona. It has a unique kind of nature. It's a very
16 good training river, particularly from Beasley Flat down,
17 it's very good training because there are rarely serious
18 consequences if you mess up, other than you're in the
19 wilderness.

4:57:07

20 The reason -- if that river was just outside
21 of Phoenix and it had easy road access and places where
22 you could park and get to the river, it would be intensely
23 busy. There would be outfitters all up and down it. The
24 locals would be getting really ticked off because their
25 favorite parking places where they used to fish would all

57:34

1 just have boater vehicles in it.

2 The reason why it doesn't get that kind of
3 use is not because of the river but because it's hard to
4 access. And if you go in at Beasley Flat, most people
4:57:52 5 like to take a couple of days. At higher flows, you can
6 do it in one but most want to take some days, so you have
7 to have the days, and you have to have the gear for that
8 kind of camping rather than you just went out on a
9 standard thing. And from Childs down that's 40-some
4:58:08 10 miles, and you really want four to six days to go in and
11 do it, and not everybody is willing to sacrifice the rest
12 of their life in the way us river addicts are.

13 Q. You mentioned that you authored a book on the
14 Verde River, can you summarize essentially what that book
4:58:25 15 was about?

16 A. Well, it was just a -- it's -- you have it in
17 your records.

18 COMMISSION COUNSEL JENNINGS: I've got his
19 book.

4:58:33 20 BY MS. HACHTEL:

21 Q. Is it describing boating conditions, is it a
22 boating guide, or what?

23 A. Well, it's -- yeah, it's actually -- my audience
24 was not class 2 and up river runners. My audience was Boy
58:46 25 Scouts, families, people who are -- were relatively new to

1 paddling, had just had an interest, so I could give them
2 something that would help them, keep them safe, and, you
3 know, while on the river. And the other part of it came
4 from a discussion with game and fish personnel. We were
4:59:06 5 out sitting around a fire and it was -- for the Verde to
6 be well protected, there's not enough conservationists,
7 environmentalists, whatever you want to call them in the
8 state to protect it, but if we could help it become a
9 economic resource to the Camp Verde area, then that would
4:59:26 10 cause people to have a business interest, to see that the
11 river kept flowing, and was doing well. That was the
12 reason why. So it was written at a casual, talkative
13 level and I threw in discussions about birds and turtles
14 and things like that too, just because it made it more
4:59:44 15 interesting. A lot of guide books are dull.

16 Q. I'll have to read it. I just want to clarify
17 your own experience on the Verde from what I understand
18 from your testimony. I need you to clarify that you
19 boated the entire Verde River. Is that correct?

5:00:00 20 A. There's no inches of Verde that I haven't boated
21 sometime or the other.

22 Q. Have you boated the river at all months of the
23 year?

24 A. Yes. I can tell you the sections that I boat
00:13 25 least, through the Verde Valley itself, it's just not very

1 interesting, and below Horseshoe Dam.

2 Q. And what type of craft have you used?

3 A. Canoes. Every once in a while I get into a kayak
4 or inflatable kayak. Inflatable kayaks are good at higher
5:00:36 5 water because there are several bailers, they have the
6 inflated floor, so if you fill up with water, it goes up
7 and there's little holes around, they join, and the water
8 runs out.

9 Q. Just a couple more points I want to clarify, a
5:00:51 10 couple more questions, please.

11 You showed some slides of prefalls and
12 Turkey Gobbler -- what was it called -- Punk Rock. Are
13 those typical of what you'll see on the Verde? Are those
14 just particular rapids that you selected? What do those
5:01:12 15 indicate?

16 A. You know, I think I -- in here somewhere. I go
17 to the bother to write notes, then I never look at any.

18 I think there's somewhere -- on the forest
19 service map that you have, they make little cross lines
5:01:28 20 where there's quick water or something like a rapid.
21 There's something like 130 of those, you know, on the
22 Verde, and probably only 30 of them have names. The rest
23 of them are just considered too insignificant to have
24 names. Some of them are noticeable rapids, but they just
01:48 25 don't attract a name. By and large, the Verde is a low --

1 mid- to low river. It has elements you know, certain
2 rapids that rise to higher level, but not overall.

3 Q. So you don't consider it a dangerous river?

4 A. There's no body count. The river itself is not
5 dangerous. But the thing that people have to watch out
6 for, it's -- a lot of the people who have had crashes and
7 burns on the Verde, it's a big story because they're in
8 the middle of nowhere. So they can't just easily hike
9 out. They can't just go to the highway and flag somebody
10 down. But it's not the river itself that's the problem.

11 If they were to crash and burn on the exact same river but
12 in a more urban environment people wouldn't even notice.

13 Q. As far as your experience boating on the Verde,
14 can you approximate what the minimum flow rate was that
15 you've been on and maximum flow rate and what type of
16 craft?

17 A. Well, canoe and -- it's not the Verde, but I can
18 give the clearest picture. Oak Creek in the summer --

19 Q. I was hoping that you would limit it to the
20 Verde.

21 A. Well, then I can just tell you that there have
22 been places on the Verde where I have boated in one inch
23 of water. Now, if I'm lightly loaded and in the right
24 boat, one inch. Now, how much CFS is that depends on the
25 velocity at the time and stuff like that. But in an open

1 canoe of appropriate design, you can put a hundred pounds
2 in a boat and still have space between you and the bottom.

3 Q. How about maximum flow rates, have you been out
4 on the Verde?

15:03:39 5 A. The highest I've ever been on the Verde has been
6 6,000 CFS. I do know a person who kayaked it at 40,000
7 CFS.

8 CHAIRMAN EISENHOWER: That's nuts.

9 MR. SLINGLUFF: Yeah, because all this
15:03:53 10 manure and everything else is coming out with it.

11 BY MS. HACHTEL:

12 Q. What craft were you in?

13 A. A canoe. Now, I had air bags in it and a saddle
14 so I could actually hang upside down, and at the time I
15:04:02 15 was doing it, I could roll a canoe, like you can roll a
16 kayak.

17 Q. Just a couple more questions.

18 CHAIRMAN EISENHOWER: We'll take a break
19 then.

15:08:21 20 (A recess ensued.)

21 CHAIRMAN EISENHOWER: We'll reconvene again.
22 Our stenographer is ready to go again.

23 MS. HACHTEL: Laurie Hachtel for the Arizona
24 State Land Department.

25

1 BY MS. HACHTEL:

2 Q. A couple of questions for you, Mr. Slingluff.

3 Can you tell me how much of the river is a
4 single channel?

15:18:07 5 A. Almost all of it, though that can vary some. For
6 example, last time I was down past where the east Verde
7 comes in, it was all the single channel. There's been
8 times in the past where there's been two channels but not
9 anything in the way of grading. There's very little where
10 it's -- there's not that much in the way of violence at
11 normal base flows or even normal range flows.

12 Q. Related to that, you showed a picture of -- I
13 think it was Sycamore Canyon with the rock photos --

14 A. Well, it's downriver the first famous Sycamore
15 Canyon.

16 Q. That particular slide that was on the screen, do
17 you have an approximation of what the flow rate was?

18 A. It was not over 200 CFS. That's a particularly
19 shallow drop in there.

15:19:09 20 Q. And then how far upstream of Beasley have you
21 paddled and at what rate?

22 A. Well, let me start at the top end.

23 So if you're putting in at Granite Creek, --
24 which is about as high as you can go -- you're 25 miles
19:28 25 above Perkinsville, and in that segment in there, my guess

1 is that the flow rates that we had when we were in there
2 were probably 40 CFS, something like that. And in
3 Perkinsville, I commonly boated at ranges of 40 to 80 CFS
4 and seldom above that. That would be very dangerous. At
5:19:55 5 1,000 CFS, Perkinsville is very, very dangerous.

6 Then once you get into Verde Valley, I have
7 boated certainly down into the 40 to 90 CFS, that range.
8 From Perkinsville -- excuse me, not Perkinsville -- from
9 Beasley Flat down to Childs, I have boated that as low as
5:20:26 10 about 70, 75 CFS. There might have been one time in there
11 that I did it at 50, but that would have been uncommon.
12 Kayakers do it at 50, but canoe is a little harder. And
13 below that, from Childs down, the lowest I did it was 90
14 CFS at Childs and that would have been down to the dam.

5:20:53 15 Q. When was the last time you were on the river?

16 A. Oh, this past summer.

17 Q. And can you tell me as far as was there any
18 change in the number of people that you've seen on river
19 the last time you were out there from before, based on
5:21:13 20 your experience?

21 A. Well, you know, when I first started canoeing the
22 Verde, the only people I was running into was good old
23 boys. People who really didn't hold their paddle right,
24 any of that, but they could get themselves down the river.
21:28 25 They knew when to walk. They knew how to make decisions

1 in the wild. And there was really nobody else out there
2 who was canoeing, doing base flow stuff, except the good
3 old boys and me, though I can count as a good old boy.

4 Then, as time came on, it was more and more.

15:21:44 5 And the last time we did from Beasley Flat to Sheep
6 Bridge, and while we were in the Childs to Sheep Bridge
7 segment, we were a party of, I think, four boats and --
8 four boats, maybe five people, and we saw a boy scout --
9 bunch of boy scouts go by, and they probably had 15 to 20

5:22:14 10 boats. Then there was this strange-looking group, they
11 were in inflatable kayaks and they were all dark kayaks
12 and they were all dressed in almost like dark uniforms
13 with helmets and things like that and they were -- there
14 was -- they had 20 boats, something like that, which would
5:22:32 15 have been five more than what they would have been allowed
16 to have.

17 The use of the Verde, particularly at lower
18 flows and in warmer conditions, have gone tremendously
19 because you get people who don't have the gear to be out
5:22:51 20 when it's cold and wet. And they just learn what they can
21 do and they can't do and walk around what they can't do.

22 MS. HACHTEL: I don't have any further
23 questions. Thank you.

24 CHAIRMAN EISENHOWER: Okay, thank you.

25 Any other questions for Mr. Slingluff?

23:00

1 Thank you, Mr. Slingluff.

2 MR. SLINGLUFF: Sure.

3 CHAIRMAN EISENHOWER: This will close the
4 evidentiary hearing on the Verde River, and we will not
5 start the clock ticking on the post-hearing memorandum
6 until we receive the transcript from the court reporter.

7 And so you have that grace period. But in the meantime,
8 when you're writing your post-hearing memorandum, what I
9 would like to have any interested party do, if they so
10 desire, is that there is some cloudiness in our minds
11 about the term "commerce" as it's written into our law as
12 well as the Daniel Ball case.

13 What I would like to have the folks who are
14 writing the post-hearing memorandum do is to take the
15 activity described by Mr. Slingluff on the Verde River as
16 well as the upper Salt River and perhaps maybe even the
17 Gila box and as an addendum to your post-hearing
18 memorandum, tell us why or why not that type of boating is
19 or is not commerce in the sense of the word that we see it
20 both in the law and in the Daniel Ball case. And if you
21 could do that for our edification, it will help us
22 tremendously. And I hope you understand why we're doing
23 that. If you can, if you wish to do that, fine; if you
24 don't, we'll understand that too.

25 When we went into executive session earlier

1 this morning, we discussed a few things that I will now
2 bring forth for the rest of the public.

3 Number one is that we are going to accept
4 jurisdiction to look at Roosevelt Lake. Our decision will
5:25:13 5 be written into our final report. And that is how we
6 presume to answer the question. The reason we're doing it
7 is that if we don't do it, people say, "Well, you omitted
8 it from your consideration." This way if it's in the
9 report, it shows that at least we did consider it. So
5:25:37 10 that's where our final decision on Roosevelt Lake will
11 appear.

12 We also discussed a few legal matters that
13 will remain amongst the commission, but we also discussed
14 a problem that we're running into. We do not, at this
5:25:56 15 point, have a bill number to continue us past June 30th of
16 this year. Hopefully, it will be coming out shortly. And
17 any help that you can -- any of you can give us so that we
18 may finish our work and get this over and done with -- you
19 know, it helps you as well as it helps us to finish this
5:26:20 20 up. One way or the other. And I've got -- as soon as we
21 get a bill number, Mr. Mehnert and I have to go see some
22 of the legislators and plead with them to at least support
23 the idea of an extension for two years, which we should be
24 able to wrap up. And that will coincide with our terms as
5:26:47 25 commissioners. We are only appointed until 2008 so by a

1 two-year extension our commission ends in 2008. So we all
2 go bye-bye in 2008. So any help you can give us in that
3 direction, we would certainly appreciate it.

4 We have a little bit of budget problem right
5 now that will be worked out with Mr. Mehnert, myself, and
6 the legislature, but that will be solved in due time. But
7 anything you can do to help, my heavens, we would
8 appreciate it.

9 Mr. Mehnert?

5:27:05
10 EXECUTIVE DIRECTOR MEHNERT: Senator Flake
11 has been kind enough to offer to draft a bill, and I
12 believe he has. It's probably at legislative counsel
13 right now. I haven't checked since last Wednesday for a
14 bill number. It's simply the continuation bill for two
5:27:38 15 additional years until June 30, 2008, together with a
16 budget of the same amount we had in the past. And we hope
17 to get that changed. We are at a position with a budget,
18 kind of, crisis right now. As the chairman said, we have
19 had to put our attorney on hold. He is not here, and I've
5:28:00 20 even -- in the last year I've spent exactly two -- two
21 separate times, \$0.87 on office supplies of State money.
22 We have no money to do it with since we moved the
23 advertising funds to do the advertising for these
24 hearings. In fact, all supplies we buy, I buy out of my
25 pocket, but I'm not going to be doing that for very much
28:23

1 longer. But we are in a very critical situation when it
2 comes to budget. There's nobody considering supplemental
3 budgets. In fact, I don't believe the committee dealing
4 with supplemental budgets of the legislature has even been
5:28:39 5 meeting. But we are, for the next year and the year after
6 that, regarding a continuation bill, going to look into
7 asking for additional funds so we can at least pay our
8 attorney to write our reports once the determinations are
9 done. That's really where the bottleneck is, but it's not
5:28:57 10 his fault, it's because we can't pay him and have had to
11 tell him to stop working. It's real simple stuff. But
12 that's all I have about the budget.

13 CHAIRMAN EISENHOWER: One further thing,
14 since we have finished up our evidentiary hearings, our
5:29:19 15 next hearings will have to be at the end of your -- the
16 time clock so we can do our determinations and we have a
17 couple of reports that are ready, and we'll have to vote
18 on those. But all of you will be notified in plenty of
19 time to be there. Where the meeting will be held, at this
5:29:39 20 point, I'm just not sure. The reason we came up here
21 originally was that we were having problems getting State
22 meeting rooms because the way it's run now, you get bumped
23 an hour before your meeting schedule, and I wasn't about
24 to do that with the Gila and the Verde. As I said, that
29:59 25 wouldn't be fair to all of you people who have taken your

1 time and come to these hearings, so that's why we ended up
2 at a motel to have a meeting. We may end up doing it
3 again, but I'm not sure.

4 So thanks to all of you for your
5 participation. We've had great times together, done some
6 good traveling together, and I've really had fun at it.
7 And it's been a lot of work on everybody's part, and I
8 appreciate all of your effort too.

9 EXECUTIVE DIRECTOR MEHNERT: Mr. Chairman,
10 this is our 53rd hearing. We stood our first one in this
11 series under the, quote-unquote, new law on
12 September 23rd, 2003.

13 CHAIRMAN EISENHOWER: So we've been at it
14 for three years.

15 EXECUTIVE DIRECTOR MEHNERT: So 53 hearings.

16 CHAIRMAN EISENHOWER: But you folks have
17 been very helpful to us. And with that, Mr. Brashear, do
18 you have anything to add?

19 COMMISSIONER BRASHEAR: No. I move for
20 adjournment.

21 CHAIRMAN EISENHOWER: Mr. Hennes?

22 COMMISSIONER HENNESS: I'll second his
23 motion.

24 CHAIRMAN EISENHOWER: Well, I have a motion
25 and a second to adjourn, all those in favor?

1 COMMISSIONER BRASHEAR: Aye.

2 COMMISSIONER HENNESS: Aye.

3 COMMISSIONER ECHEVERRIA: Aye.

4 CHAIRMAN EISENHOWER: Thank you very much,

5 everybody.

6 (The hearing was concluded at 3:31 p.m.)

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

5:31:09

1 STATE OF ARIZONA)

2 COUNTY OF MARICOPA)

3 BE IT KNOWN the foregoing proceeding was
4 taken by me pursuant to stipulation of counsel; that I was
5 then and there a Certified Reporter of the State of
6 Arizona. That the questions propounded and the answers
7 given were taken down by me in shorthand and thereafter
8 transcribed into typewriting under my direction; that the
9 foregoing pages are a full, true, and accurate transcript
10 of said proceeding, all to the best of my skill and
11 ability.

12 I FURTHER CERTIFY that I am in no way
13 related to nor employed by any parties hereto nor am I in
14 any way interested in the outcome hereof.

15 DATED at Phoenix, Arizona, this ____ day of
16 _____, 2006.

17

18

19

20

Gerard T. Coash, RMR

21

Certified Reporter #50503

22

23

24

25

Testimony of
David Weedman, Biologist,
Arizona Game and Fish
Department, taken on November
16, 2005 regarding the Gila River
and the Verde River.
Pages 209 through 221.

Exhibit A

1 DR. AUGUST: There was that discussion
2 earlier.

3 MS. HACHTEL: So I'll leave that to you.
4 I'm not -- I think that has been plenty of discussion on
5 that for you guys to decide, but that is the extent of my
6 questions.

7 CHAIRMAN EISENHOWER: Okay. Thank you.

8 MS. COPELAND: Kirsten Copeland again with
9 my still one question.

10 Mr. Helm made the comment in his examination
11 that what you were dealing with over a period of time he
12 characterized as snapshots, and as I recall, you agreed
13 that that was probably a pretty accurate description of
14 what this was. Did any of these snapshots that you
15 reviewed in the course of your investigation -- did any of
16 those snapshots give any indication that the Gila was in
17 fact navigable?

18 DR. AUGUST: Navigable or perennial, no.

19 MS. COPELAND: That's it.

20 CHAIRMAN EISENHOWER: Thank you.

21 We have a bunch of other people, but there
22 was one gentleman who made of point of wanting to
23 come before us, and I assume his presentation will be
24 short. He's a senior biologist with the Arizona Game and
25 Fish Department. Mr. Dave Weedman, if you would come

1 forward right now and make your presentation.

2 MR. WEEDMAN: Thank you, Mr. Chairman, board
3 commissioners. You're stretching it by saying senior
4 biologist. I am a biologist for the department. I have
16:03:08 5 been there 14 years. My training and experience has been
6 as a fishery biologist stationed out of our Mesa regional
7 office in central Arizona.

8 I have had the opportunity over the years to
9 work on lot of rivers around the state. But I'm here
16:03:23 10 mostly to discuss the Verde -- and I know this is not the
11 Verde hearing, that will come later -- but I do have a
12 couple of things I do want to say also about the Gila
13 River. And I do have, in my training and experience, some
14 familiarity with the history of the fish community of Gila
6:03:39 15 River. I want to talk a little bit about that and then --
16 a lot of what I say about the Gila also extends up to the
17 Verde through most of the historic time, the fish present
18 in parts of the Gila had access to and occupied the Verde
19 river, so my comments, I hope it's possible to take them
6:03:57 20 into account on both.

21 CHAIRMAN EISENHOWER: Okay.

22 MR. WEEDMAN: The Gila River historically
23 was occupied by a large body native species of fish,
24 primarily Colorado pikeminnow, also called the salmon in
04:12 25 old terms; razorback sucker, also known as a buffalo fish,

1 and several large species of other named suckers, many of
2 which reach five, six pounds. Pikeminnow have the
3 potential to reach up to a hundred pounds in larger
4 habitats such as the lower Gila. So there were fish
16:04:32 5 present historically in the river that were available, and
6 I think in a lot of the reports -- it's documented that
7 they were used by Native Americans as protein sources.
8 That being said, I've had the opportunity to boat, not
9 only the Gila River below San Carlos during fishery
16:04:49 10 surveys, but also the Verde River. I haven't done any
11 firsthand on the lower Gila from, say, below Painted Rock
12 down to the Colorado River, but I know it has been done
13 recently.

14 In preparing for this day, I did a little
6:05:05 15 bit of research -- and I say a little bit. One thing I do
16 want to say is I looked at the history of beaver trapping
17 along the Salt, the Verde, and the lower Gila. And
18 there's a fair amount of history there of frontiersmen
19 coming through in the mid-1800s -- and this is based on a
6:05:23 20 book by Goode P. Davis, Mr. August may be aware of it. I
21 found it really interesting to read. But in that book, he
22 talks about James Ohio Pattie and some of his excursions
23 out here and some others and canoeing the Gila River,
24 trapping beavers, and having to build additional dug out
05:46 25 canoes to load those beavers into, the skins, to try and

1 transport them down to Yuma.

2 In reading the book, it's interesting they
3 ran into a problem with Native Americans and also the
4 Mexican government and they wound up having to bury their

16:06:03 5 beaver pelts prior to finishing their journey, so they
6 never got those things to market. But the history of
7 beaver trapping was a commercial activity in the mid- to
8 late 1800s. The fallout -- or the decline of that

9 commercial activity was mostly related to markets in the
10 east. It wasn't that the river became unboatable, it

16:06:21 11 wasn't that beavers disappeared, it was the fact that it
12 was no long profitable to trap beavers and ship them back
13 east; the price had crashed. And that I -- I present

14 secondhand information, I know, but I provide a citation

16:06:42 15 in the book. Over the years I've done probably no less
16 than at least 11, possibly 12 canoe trips down the Verde
17 River doing fishery surveys. I have a personal question,
18 and I don't know if this is not a place to have it

19 answered, but the definition of navigability, there is a
20 wide range of things that aren't discussed in the

21 definition that's provided in the reports and that you
22 guys are working from. And that is a period of time and
23 whether or not it was navigable at that time of statehood

24 under those conditions or current boating standards. Had

07:18 25 they been applied and those equipment available at that

1 time. That's just an unknown that I have, and not being a
2 lawyer, that's just a question I have. But to me, I
3 boated the Verde River in probably the lowest flows, 75 to
4 80 cubic feet per second, in the dead of summer. When
6:07:41 5 most people would assume it's not boatable, but with a
6 canoe and a little bit of effort, it certainly is. So the
7 chairman said I would be brief and that's about all I have
8 to say at this point. I do appreciate the opportunity to
9 come and -- poorly, admittedly -- represent the Game and
6:07:59 10 Fish Department. I wish I had days and weeks to prepare
11 and develop evidence and bring it, but unfortunately I
12 didn't.

13 At this point, I would be happy to answer
14 any questions anybody might have regarding historic
6:08:15 15 department activities I may have information to or fish.

16 (Mr. Weedman is answering questions.)

17 BY COMMISSIONER BRASHEAR:

18 Q. Is beaver trapping in that operation were they
19 skinned the thing and they took them -- what time period
6:08:26 20 did that occur in and where on the river?

21 A. As I was reading this book, I should have wrote
22 the dates down. It was approximately 1840 to 1860, give
23 or take 10 years on either side. Mr. August might be able
24 to provide accurate dates or maybe another historian could
08:44 25 provide those. I asked several of our older and more

1 senior game biologists in our department that deal with
2 beaver and they weren't aware of written reports within
3 our department records on beaver trapping. Most of you
4 are aware that department didn't really come into
16:09:02 5 existence until after the -- statehood, so they had mostly
6 no --

7 Q. You reported to us this place; where did you
8 learn of this?

9 A. In a book that I was reviewing. It was a
16:09:14 10 historical account of wildlife populations in the Arizona
11 territories prior to statehood. And the author of the
12 book is Goode P. Davis, and apologize again, I don't know
13 the title of the book, but it was a master's work, I
14 believe, out of ASU.

16:09:37 15 CHAIRMAN EISENHOWER: Mr. Jennings?

16 (Mr. Weedman is answering questions.)

17 BY COMMISSION COUNSEL JENNINGS:

18 Q. One quick question.

19 In your research and just generally being
16:09:43 20 familiar with the Verde, the Gila, and the other rivers of
21 Arizona, are you aware of any commercial fishing activity
22 or endeavor that took place near statehood, around 1912,
23 that is where fish would be caught for commercial purposes
24 and sold to either processors or restaurants or thing of
10:05 25 that nature?

1 A. There's references of harvested fish and
2 transport to mining towns near San Pedro, Tombstone; in
3 that area of large body, fish become harvested out of the
4 river and transported to feed the miners. In Tombstone
16:10:34 5 and that area, and those would have been harvested out of
6 San Pedro.

7 Q. That would have been around Tombstone, 1880 to
8 1888?

9 A. Correct.

16:10:45 10 Q. But that's the only one that you know of?

11 A. The only one prior to statehood. There has been
12 reports or studies done on susceptibility of commercial
13 fisheries being established on some of our now current
14 reservoirs, but those, of course, were post-dated
16:11:04 15 statehood.

16 COMMISSION COUNSEL JENNINGS: Thank you.

17 MR. WEEDMAN: Thank you.

18 CHAIRMAN EISENHOWER: Is there anybody in
19 the audience that would like to ask questions of
6:11:10 20 Mr. Weedman?

21 Yes, Mr. Sparks.

22 (Mr. Weedman is answering questions.)

23 BY MR. SPARKS:

24 Q. Mr. Chairman, members of the commission, my name
11:25 25 is Joe Sparks. On this part of the report, I'm going to

1 ask questions on the behalf of Yavapai Apache Nation and
2 San Carlos Apache tribe.

3 In your reading of the beaver trappings,
4 what portion of the Gila River were you referring to
16:11:37 5 specifically?

6 A. The portion that James Ohio Pattie traversed on
7 several occasions, several different trapping excursions,
8 was approximately the area from Safford all the way to the
9 confluence of the Colorado.

16:11:55 10 Q. And what period of time would that have been?

11 A. It would have been the mid- to late 1800s, 1840,
12 1850 to about 1860 or 1870.

13 Q. So that would be have been before Geronimo was
14 captured and during Mangus-Colorado and the Chiricahua
16:12:10 15 Apaches while they were active and in their homelands?

16 A. My limited understanding of history, I would have
17 known all this back in high school. I'm an Arizona
18 resident.

19 Q. Is the answer you don't know?

16:12:23 20 A. I don't know. I suspect that they were still
21 active at that time.

22 Q. So you think it's likely that they would have
23 been making regular trips into Apache country and trapping
24 beavers during that period?

12:38 25 A. I think it's possible.

1 Q. I'm not asking you to speculate. I'm asking you
2 if you know.

3 A. No, sir, I don't know.

4 Q. The second question I would like to ask you is,
16:12:47 5 when you have, yourself, experienced boating on the Verde
6 River, what portion of the Verde did you use your canoe
7 on?

8 A. I have canoed from the Childs powerplant down to
9 an area called Sheep Bridge just above Horseshoe
16:13:04 10 Reservoir, 11 or 12 times. I also canoed from Beasley
11 Flats down to Childs twice.

12 Q. And the Sheep Bridge is at Rock Creek -- Red
13 Creek in the Verde?

14 A. Red Creek is about 10 miles above Sheep Bridge;
16:13:23 15 Tangle Creek would be a closer confluence to the Verde.

16 Q. And then the area you began on the Verde was at
17 the base of what is known as the Verde Valley or Camp
18 Verde is located?

19 A. A few miles below, yes.

6:13:34 20 Q. But not upstream from that?

21 A. Not upstream from the town of Camp Verde.

22 MR. SPARKS: Thank you.

23 CHAIRMAN EISENHOWER: Anybody else have
24 questions?

13:43 25 MR. HELM: John Helm for Maricopa County.

1 Members of the commission.

2 (Mr. Weedman is answering questions.)

3 BY MR. HELM:

16:13:58 4 Q. Mr. Weedman, you talk about large-bodied fish,
5 can you give a sense of what we're talking about in terms
6 of size?

7 A. The term large-bodied fish is a fish that is able
8 to grow larger than 12 to 18 inches.

9 Q. How big do these things grow?

16:14:10 10 A. Pikeminnow, up to 6 feet long potentially in
11 suitable habitats, and weighing a hundred pounds. And
12 then razorback sucker, approaching 36 inches and weighing
13 up to about 10 pounds.

14 Q. Okay.

16:14:27 15 A. Heather sucker, eight to ten pounds.

16 Q. How much water would a fish that is a hundred
17 pounds need to survive in a normal habitat? Like -- what
18 did you call it?

19 A. Pikeminnow?

16:14:44 20 Q. Pikeminnow.

21 A. To reach that size, he's going to need a habitat
22 with large pools similar to the mainstem Colorado River.
23 The Colorado pikeminnow got its name -- it was commonly
24 called salmon, historically it was a white salmon, and
15:02 25 they're known to migrate hundreds of miles, and it would

1 not have been unusual for a large-bodied fish to migrate
2 out of the Colorado River where it spends part of its time
3 upstream into the Gila or spawning activity in the
4 springtime. That's also historically the time when the
16:15:18 5 rivers have the most water from snow melt and would be
6 connected on good years.

7 Q. Would they get by in six inches of water?

8 A. They could, yes, sir.

9 Q. For long periods of time?

16:15:29 10 A. They can traverse areas of six inches of water if
11 they were landlocked; trapped in area of six inches of
12 water, especially in the desert areas, I suspect they
13 would have died either due to heat, stress, or have been
14 preyed upon by other animals.

16:15:44 15 Q. In terms of depth, what would be the ideal but
16 normal depth, ordinary depth that you find those
17 pikeminnows in?

18 A. I would say deeper than three feet. Certainly if
19 they traverse shallower areas, find an area below a dam.

16:16:07 20 Q. Did you testify -- I thought you did -- that you
21 have also boated on the Gila?

22 A. Yes, sir. Once had an opportunity to go from the
23 base of San Carlos reservoir down to Winkleman doing a
24 fish survey.

16:25 25 Q. Would the same kinds of CFS to canoe on the Verde

1 apply to the Gila River? In other words, would 70 or
2 80 feet per second be enough for you to canoe on the Gila?

3 A. It depends on the channel morphology. In that
4 area of the Gila, because it's in a narrowly-defined
16:16:49 5 channel, I would say yes, that would be enough. I
6 wouldn't be able go continuously, I would have to stop and
7 drag my canoe over sandbars and other obstacles, but I can
8 certainly go downstream.

9 Now, in those areas of the Gila where the
16:17:02 10 floodplain is wider and is more spread out, I would say
11 it's probably not an enviable proposition.

12 Q. Would you estimate in those areas you would need
13 to carry on or don't you know?

14 A. I don't even want to speculate.

16:17:16 15 MR. HELM: That's all I have. Thank you.

16 CHAIRMAN EISENHOWER: Is there anybody else
17 that has any questions for Mr. Weedman?

18 Hearing none, thank you, Mr. Weedman, for
19 coming in, appreciate it.

16:17:37 20 MS. HACHTEL: Mr. Chairman, I just want to
21 follow up on one thing based on Mr. Weedman's testimony.
22 From I understand, he's not available tomorrow so is his
23 testimony as well for the Verde? Is there some
24 arrangement we can make as far as having this transcript
17:52 25 on the Gila designated to include that in the Verde

1 evidence, as far as his testimony?

2 CHAIRMAN EISENHOWER: We can duplicate his
3 responses for both rivers.

4 MS. HACHTEL: Thank you.

5 EXECUTIVE DIRECTOR MEHNERT: Mr. Chairman, I
6 suspect we're going to have a single transcript, aren't
7 we, or are we going to do different transcripts?

8 (An off-the-record discussion ensued.)

9 CHAIRMAN EISENHOWER: What I am trying to do
10 is sort through some of these to get out of the way.

11 I have several speaker requests here, and
12 not knowing who some of those people may be, I will call
13 your name, and if you're with somebody else or are an
14 expert witness for somebody, please let me know because it
15 doesn't say on my request form.

16 Donald C. Jackson?

17 MR. JACKSON: Yes, sir.

18 CHAIRMAN EISENHOWER: Yes.

19 MR. JACKSON: For Maricopa County.

20 CHAIRMAN EISENHOWER: Okay.

21 MR. JACKSON: I thought I noted that.

22 CHAIRMAN EISENHOWER: No, you didn't. Thank
23 you very much.

24 Jim Fuller?

25 MR. FULLER: John Fuller.