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8 **BEFORE THE ARIZONA NAVIGABLE STREAM**
9 **ADJUDICATION COMMISSION**

10 IN THE MATTER OF THE
11 NAVIGABILITY OF THE VERDE
12 RIVER FROM ITS HEADWATERS
13 AT SULLIVAN LAKE TO THE
14 CONFLUENCE WITH THE SALT
15 RIVER, YAVAPAI, GILA AND
16 MARICOPA COUNTIES, ARIZONA

No. 04-009-NAV (Verde)

**FREEPORT MINERALS
CORPORATION'S PROPOSED
FINDINGS OF FACT AND
CONCLUSIONS OF LAW**

1 Freeport Minerals Corporation (Freeport) respectfully submits its proposed
2 findings of fact and conclusions of law in the matter of the navigability of the Verde
3 River. For the convenience of the Commission, an electronic Word copy of these
4 proposed findings of fact and conclusions of law is being transmitted to counsel for the
5 Arizona Navigable Stream Adjudication Commission.

6 **FINDINGS OF FACT**

7 Based upon the evidence in the record, the Commission makes the following
8 findings of fact:

9 **Summary of Evidence Submitted**

10 1. Pursuant to Title 37, Chapter 7 of the Arizona Revised Statutes, the
11 Commission has undertaken to consider relevant historical and scientific data and
12 documents and other evidence regarding the issue of whether the Verde was navigable or
13 non-navigable for purposes of title as of February 14, 1912. A.R.S. §§ 37-1101 to -1156.

14 2. The Commission has given proper public notice of its intent to review the
15 navigability or non-navigability of the Verde in accordance with A.R.S. § 37-1123(B).
16 The Commission provided notice by mail to all those requesting individual notice and
17 provided notice by means of the Commission's website (<http://www.ansac.gov/>).

18 3. The Commission collected and documented all reasonably available
19 evidence regarding the navigability of the Verde in response to the Notice of Intent to
20 Study and Receive, Review, and Consider Evidence. After collecting and documenting
21 the available evidence, the Commission scheduled public hearings to receive additional
22 evidence regarding the Verde.

23 4. Hearings were held by the Commission regarding the navigability or non-
24 navigability of the Verde in Prescott on March 29, 2005, in Phoenix on November 16-17,
25 2005, in Phoenix on January 18, 2006, in Prescott on May 1, 2014, and in Phoenix on
26 December 15-19, 2014, February 18-20 and 23-25, 2015, and March 31-April 3, 2015.

27 5. The Commission made clear to the parties that it would consider all matters
28 presented to it at each hearing and that anyone who desired to appear and give testimony

1 at any public hearing could do so.

2 **Qualifications of Richard Burtell**

3 6. Freeport retained Richard Burtell to identify and compile available evidence
4 concerning the Verde and to evaluate whether the Verde River was navigable or
5 susceptible to navigation in its ordinary and natural state.

6 7. Mr. Burtell prepared a declaration and testified in support of his findings
7 that the Verde was not navigable in its ordinary and natural condition on or before
8 statehood. Declaration Of Rich Burtell On The Non-Navigability Of The Verde River At
9 And Prior To Statehood dated September 2014 (Declaration), Exh. X009, Freeport 1.

10 8. Mr. Burtell is a Registered Geologist with a Masters of Science in
11 Hydrology. Curriculum Vitae of Richard Burtell, Attachment A to Declaration. Mr.
12 Burtell has over twenty-five years of experience as an environmental scientist dealing
13 with a host of water and environmental matters, and his experience and expertise extend
14 to matters involving geology, hydrology, and hydrogeology. *Id.* Mr. Burtell worked at
15 the Arizona Department of Water Resources (ADWR) for twelve years. *Id.* For the
16 majority of his tenure, Mr. Burtell served as the Manager of the Adjudications Section at
17 ADWR. *Id.* As Manager of the Adjudications Section, Mr. Burtell was extensively
18 involved in evaluating the nature and occurrence of surface water in Arizona streams. *Id.*

19 9. Mr. Burtell analyzed several lines of evidence in order to assess whether the
20 Verde was navigable in its ordinary and natural condition: geomorphology, historic
21 accounts of stream flow conditions, documented needs for commercial navigation prior to
22 significant diversions, reconstruction of stream flow to assess predevelopment stream
23 depth and velocity, and prehistoric, historic, and recent efforts to boat the Verde.

24 10. As described in Mr. Burtell's Declaration and his hearing testimony, the
25 totality of the evidence reviewed and work performed by Mr. Burtell resulted in his
26 development of the opinion that the Verde was not navigable in its ordinary and natural
27 condition at statehood.

28 11. The Commission finds Mr. Burtell's methods, analyses, and testimony to be

1 credible and persuasive.

2 **Native American Use**

3 12. The Verde Valley has been occupied for thousands of years, and during that
4 time the Verde Valley has served as an important communication and trade route.
5 12/17/14 Trans. 752:9 – 754:11 (Fuller); JE Fuller Hydrology & Geomorphology, Inc.,
6 Arizona Stream Navigability Study for the Verde River: Salt River Confluence to Sullivan
7 Lake (revised June 2003), Exh. 31, (Fuller’s 2003 Verde Report) at 2-14.

8 13. Jon E. Fuller of JE Fuller Hydrology & Geomorphology, Inc. was retained
9 by the ASLD to prepare a series of reports bearing upon the navigability of streams
10 throughout Arizona. Mr. Fuller testified in the hearings concerning the Verde River that
11 were held in 2005 and 2006, presenting the findings that he and his team memorialized in
12 a series of reports on behalf of the ASLD.

13 14. These reports include (1) JE Fuller Hydrology & Geomorphology, Inc.,
14 Arizona Stream Navigability Study for the Verde River: Salt River Confluence to Sullivan
15 Lake (revised June 2003), Exh. 31, (Fuller’s 2003 Verde Report); and (2) 1998 Final
16 Report, Criteria for Assessing Characteristics of Navigability for Small Watercourses in
17 Arizona, Item No. X023, Freeport 6 (Criteria for Assessing Characteristics of Navigability
18 Report)

19 15. In 2014, Mr. Fuller prepared a PowerPoint presentation that he deemed an
20 update of his Verde River reports.

21 16. Mr. Fuller’s 2003 Verde Report states that “[t]he fact that the Verde River
22 served as a communication and trade link and focus is evident in settlement patterns,
23 architectural and artifactual traits, and site structure.” Fuller’s 2003 Verde Report at 2-11.

24 17. Despite thousands of years of inhabitation of the region, and the central role
25 that the Verde played in the cultural aspects of the inhabitants’ lives, there is no evidence
26 to suggest that any prehistoric peoples ever used the Verde River for boating of any kind.
27 12/17/14 Trans. 752:9 – 754:11 (Fuller); 3/30/15 Trans. 2593:9 – 2597:8 (Burtell);
28 Fuller’s 2003 Verde Report at 2-14.

1 18. In a 2008 report, the Commission stated that “[t]here is no evidence in the
2 archeological record that would indicate that any of the prehistoric cultures located in the
3 study area used the Verde as a means for transportation by boat or other water craft and
4 there has been no documented use of the river as a highway for commerce for commercial
5 trade and travel or regular floatation of logs. All travel in the study area during this period
6 was by foot.” Report, Findings and Determination Regarding the Navigability of the
7 Verde River from its Headwaters to the Confluence with the Salt River dated March 24,
8 2008 (Report, Findings and Determination), p.23.

9 19. As Mr. Fuller acknowledged at hearing in 2014, “we have no accounts of
10 boats or boating from the archaeological period. We have no preserved records that say
11 the Native Americans were using boats. So I’ll say it again, Native Americans, we have
12 no evidence that they were using boats.” 12/15/14 Trans. 119 (Fuller).

13 20. The fact that the Native Americans did not use the Verde for boating of any
14 kind during the thousands of years in which they inhabited the region is compelling
15 evidence that the Verde River was not susceptible to use as a highway of commerce in its
16 ordinary and natural condition.

17 **Accounts of Boating on the Verde River**

18 21. In his 2003 Report, Mr. Fuller acknowledged that, while some limited
19 historic accounts of boating exist, “the vast majority of transportation in the region [was]
20 by horses, mule trains, and railroad.” Fuller’s 2003 Verde Report at 9-2. Mr. Fuller
21 recognized that this was true despite the fact that “[o]verland transportation was often
22 difficult, especially during rainy periods.” *Id.*

23 22. Fuller’s 2003 Verde Report also recounts that long-time residents and
24 historians of the Verde Valley were aware of some accounts of boating, “though most [of
25 the long-time residents and historians] were surprised that the river was under
26 consideration as a navigable stream.” Fuller’s 2003 Verde Report at 9-2.

27 23. Mr. Burtell compiled information concerning the few historic accounts of
28 boating on the Verde in Table 1 to his Declaration. Declaration at Table 1.

1 24. Several of the historical accounts of boating on the Verde involve the use of
2 rafts, not for travel up or down the river, but as ferries serving the functional equivalent of
3 a bridge. Declaration at Table 1; 3/30/15 Trans. 2593:9 – 2605:23 (Burtell).

4 25. Other historical accounts of boating on the Verde described recreational
5 excursions, not for the purpose of conducting trade or travel, and they often occurred
6 during periods of high water. Declaration at Table 1; 3/30/15 Trans. 2593:9 – 2605:23
7 (Burtell).

8 26. Some of the boating events described in historical accounts ended badly,
9 and some may not have even actually taken place. Declaration at Table 1; 3/30/15 Trans.
10 2593:9 – 2605:23 (Burtell).

11 27. Mr. Fuller acknowledged that the Verde River was not susceptible to use for
12 certain commercial activities: “the boats that were being used are small boats. So I’m not
13 here to say that you could take a steamboat down the Verde River. I think the rapids that
14 are there, albeit they’re mostly Class II, are enough to prevent that kind of use; nor even
15 haul ore. Hopefully we can just dispel that whole argument and not have to come back to
16 that. The river depths, the kinds of boats that you can get down this river are not
17 sufficient that you’re going to be hauling vast quantities of ore, certainly not the economic
18 operations of the mines at Jerome. You needed to take that heavy stuff different places.”
19 See 12/15/14 Trans. 180:3-16 (Fuller).

20 28. Historical evidence of boating on the Verde was considered previously by
21 the Commission, which noted in its 2008 Report, Findings and Determination that,

22 [a]lthough there was some boating on the Verde River during
23 historical times and use of boats to hunt ducks and other game,
24 and likewise there is evidence in historical times as well as
25 modern times of fish in the river and evidence that people did
26 catch fish in the river, there was no fishing industry ever
established. It appears that all fishing was for recreational or
personal consumption. None of the boating incidents carried
goods for commercial trade and there was no navigation
upriver.

27 Report, Findings and Determination at p. 37. The Commission concluded that “it does not
28 appear that any of these attempts were used for commercial transportation or use of the

1 river as a highway for commerce.” *Id.* at p. 36. Instead, “[t]he vast majority of
2 transportation in the region was by horse, mule, wagon and later by railroad.” *Id.*

3 29. The Commission finds that the additional evidence presented to the
4 Commission in 2014 and 2015 support its prior determinations that “it does not appear
5 that any of these attempts were used for commercial transportation or use of the river as a
6 highway for commerce,” *id.* at p. 36, and that, instead, “[t]he vast majority of
7 transportation in the region was by horse, mule, wagon and later by railroad.” *Id.*

8 30. Mr. Burtell testified in his Declaration that “[t]aken together, these historic
9 accounts do not demonstrate that the Verde River was reliably used, or susceptible to use,
10 for trade or travel prior to statehood. Most of the accounts either involved using boats to
11 cross the river or were downstream recreational floats. There is simply no evidence of
12 extensive or continued use of the river at that time for commercial purposes.” Declaration
13 ¶ 25.

14 31. The Commission finds that the Verde River’s scant history of attempted
15 boating is a reflection that, in its natural and ordinary condition, the stream was shallow
16 and characterized by frequent rapids and riffles and was not susceptible to use as a
17 highway of commerce.

18 **The Ability of the Verde to Meet Significant Needs for Commercial Navigation**

19 32. Mr. Burtell testified in his Declaration that the first non-Indian settlers in the
20 Verde River watershed were the military and farmers in the Verde Valley. Declaration
21 ¶ 40.

22 33. Mr. Burtell testified that “[t]here were no less than four bases established
23 either on or near the Verde River by the U.S. military prior to 1870...” 3/30/15 Trans.
24 2623:24 – 2625:11 (Burtell); Declaration ¶ 40. Organized from north to south, these
25 military installations were established as follows: (1) Fort Whipple was established in
26 December 1863 in the Prescott area near the headwaters of the Verde; (2) Camp Verde
27 was established in January 1864 along the Verde River, near the confluence with Beaver
28 Creek; (3) Camp Reno was established in September 1867 in Meadow Valley; and (4)

1 Fort McDowell was established in 1865 along the Verde River near the confluence with
2 the Salt River. 3/30/15 Trans. 2623:24 – 2625:11 (Burtell); Declaration ¶ 40.

3 34. During the timeframe that military bases were being established on or near
4 the Verde prior to 1870, the Verde Valley was being settled, and Prescott had been
5 designated as the capital of the Arizona territory. Declaration ¶ 39.

6 35. During the establishment of military bases, settlement of the Verde Valley,
7 and designation of Prescott as the capital of the Arizona territory, the Verde certainly
8 remained in its ordinary and natural condition, as reflected by the minimal amount of
9 irrigation diversions that were occurring prior to 1870. Declaration at Table 2; 3/30/15
10 Trans. 2623:24 – 2625:11 (Burtell).

11 36. Mr. Burtell testified in his Declaration that “[w]ith this level of early
12 development, it is difficult to explain how military personnel, farmers, and townspeople
13 all failed to use the Verde River as a highway for commerce if it were susceptible to
14 commercial navigation.” Declaration ¶ 39.

15 37. Mr. Burtell testified that “[n]o less than four attempts were made by the
16 military prior to 1870 to figure out the most efficient way of getting from Fort Whipple
17 near the headwaters down to Fort McDowell at the mouth, four attempts.” 3/30/15 Trans.
18 2625:12 – 2627:9 (Burtell); *see also* Declaration ¶¶ 41-44.

19 38. The map attached as Figure 3 to Mr. Burtell’s Declaration depicts the wagon
20 roads that were used during the timeframe that military bases were being established on
21 and near the Verde. Figure 3 to Declaration.

22 39. The wagon roads depicted in Figure 3 to Mr. Burtell’s Declaration were
23 extremely indirect and, therefore, inefficient. Declaration at ¶ 42 and Figure 3; 3/30/15
24 Trans. 2627:10 – 2629:9 (Burtell). The primary route available to the military at the time
25 actually required a massive detour through Wickenburg. *Id.* This inefficient route
26 prompted the four separate campaigns to identify a more suitable means of connecting the
27 installations. *Id.*

28 40. Figure 3 to Mr. Burtell’s Declaration depicts the Verde River and its

1 proximity to Fort Whipple and Fort McDowell. Figure 3 to Declaration.

2 41. Had it been susceptible to use as a highway of commerce, the Verde River
3 would have afforded the military with an express highway between Fort Whipple and Fort
4 McDowell. Declaration at ¶ 42 and Figure 3; 3/30/15 Trans. 2627:10 – 2629:9 (Burtell).

5 42. In 1870, the military built a route between Fort Whipple and Fort McDowell
6 that became known as “Stoneman’s Road.” 3/30/15 Trans. 2627:10 – 2629:9 (Burtell);
7 *see also* Declaration ¶ 45.

8 43. Stoneman’s Road reduced the length of the journey between Fort Whipple
9 and Fort McDowell by approximately 80 miles, which equated to a savings of nearly a
10 week of wagon road travel time. 3/30/15 Trans. 2627:10 – 2629:9 (Burtell).

11 44. In 1875, a congressional appropriation was sought and received to fund
12 further improvements of Stoneman’s Road. Declaration ¶ 47.

13 45. Mr. Burtell testified that the construction of military roads is significant in
14 the context of navigability, stating:

15 But I think a point that can’t be overlooked with regard to
16 these roads is I think the impression that I got from other
17 testimony is that these roads back then were somehow low-
18 maintenance, great, easy-to-use roads. Nothing could be
19 further from the truth. These early roads were very difficult to
20 build. They were very expensive, and think what happens
21 after the monsoon. Most of these river crossings didn’t have
22 bridges. Roads were getting washed out. And how about
23 livestock? Whatever you’re using to haul your stuff up there,
24 where are they going to get their water?

25 So believe me, I can’t believe that if the Verde River was
26 navigable, everybody would have ignored it because a road
27 was so much easier. They were expensive to build. They
28 were expensive to maintain....

3/30/15 Trans. 2632:11 – 2633:21 (Burtell).

24 46. While navigability proponents have suggested that perhaps the Verde was
25 ignored as a means of transportation because travelers would be at risk of attack, this
26 concern does not explain a preference for using wagon roads; the record demonstrates that
27 travelers on wagon roads were commonly robbed and killed by bandits and Native
28 Americans. 12/19/14 Trans. 1181:8 – 1183:10 (Hjalmarson); 3/30/15 Trans. 2632:11 –

1 2636:6 (Burtell).

2 47. The Commission finds that the Verde River was ignored as a solution to the
3 military's significant transportation problems because the river was not susceptible to use
4 as a highway of commerce.

5 48. A stagecoach route between Prescott and Maricopa Wells was established in
6 1868. Declaration ¶ 49. As depicted in Figures 3 and 4 to Mr. Burtell's Declaration, the
7 Verde, Salt, and Gila rivers "would have offered as direct a route between the two towns
8 as passing overland by stage through Wickenburg." *Id.* These early settlers did not travel
9 on these rivers because they were not susceptible for such use. Declaration ¶ 49. Instead,
10 these settlers had to establish an expensive stage line. *Id.*

11 49. In the early 1870s the need was identified for a means of transportation
12 between Camp Verde and Phoenix:

13 Hellings Flour Mill, from Phoenix, had a large contract with
14 Camp Verde and its associated Indian Reservation.
15 Transportation of goods all the way to Prescott over the
16 Wickenburg road and then on to Camp Verde would be far too
expensive. It made a lot of sense to establish a more direct
road through the Black Canyon.

17 Hanchett, *Catch the Stage to Phoenix*, 1998, pp. 130-131); Declaration ¶ 50.

18 50. The Verde River would have provided a direct connection between Camp
19 Verde and Phoenix, but it was not used. Declaration ¶ 50. Early settlers resorted to the
20 establishment of a stage line in 1878. *Id.*

21 51. Among early settlers' chief concerns was securing an adequate and reliable
22 food supply. While the Verde River provided fish to early settlers, it was incapable of
23 supporting a fishing industry involving the transport of fish to communities where the
24 food was needed. Report, Findings and Determination at p. 37. This is because the Verde
25 River was not susceptible to use for trade and travel.

26 **Historic Accounts and Government Assessments of the Verde River**

27 52. One of the earliest accounts of the Verde River is provided by a trapper
28 named Antoine Leroux from a journey in 1854, well before settlement or agricultural

1 diversions. Declaration ¶ 30. Leroux recounted numerous rapids and described wide
2 lagoons, consistent with Vincent Randall's accounts of marshes and lagoons in the Camp
3 Verde area. *Id.*

4 53. Mr. Burtell testified that "looking at tribal cultural history and Leroux's
5 account, it certainly paints a picture that portions of that middle [Verde] area was likely
6 marsh-laden, where the water was spread out, certainly in portions of it." 3/30/15 Trans.
7 2611:11 – 2612:23 (Burtell); Declaration ¶ 30.

8 54. During the high water season from late February to early March in 1864,
9 Judge Joseph Pratt Allyn traveled along the Verde River with a group of civilians and
10 troops. Declaration ¶ 31; 3/30/15 Trans. 2612:24 – 2614:8 (Burtell). Judge Allyn
11 recorded numerous observations about the Verde during his trip but never mentions the
12 use of boats during his trip or the Verde's suitability for navigation. Declaration ¶¶ 31-32;
13 3/30/15 Trans. 2612:24 – 2614:8 (Burtell). Allyn compares the Verde to the Rio Grande,
14 which Allyn had previously observed in the Santa Fe, New Mexico area. Declaration ¶
15 31; 3/30/15 Trans. 2612:24 – 2614:8 (Burtell). The Rio Grande is a river that has been
16 deemed nonnavigable throughout its entire reach in New Mexico. 3/30/15 Trans. 2612:24
17 – 2614:8 (Burtell).

18 55. In 1865, the Arizona Territorial Legislature requested an appropriation from
19 the United States Congress to improve the navigability of the Colorado River, stating, in
20 part, as follows:

21 the Colorado River is the only navigable water in this
22 Territory; that it is navigable, in high stages of water, five
23 hundred miles; that by the expenditure of a small amount of
24 money, it may be rendered navigable much higher up. That
25 portion of the river between Fort Yuma and Fort Mohave has a
26 changeable channel and is obstructed by boulders, snags, and
27 sand bars rendering the navigation difficult and dangerous;
that the removal of said obstructions would greatly facilitate
the navigation of this part of the river...that if navigation of
said river is improved it will accommodate the General
Government and greatly increase and hasten the development
of vast mineral other resources of this Territory.

28 Declaration ¶ 35.

1 56. In the era including 1865, the territorial capital was Prescott, very near the
2 Verde. 3/30/15 Trans. 2614:4 – 2616:23 (Burtell). Of any river in the territory, the
3 legislators were likely most familiar with the Verde River. The Arizona Territorial
4 Legislature certainly would have been aware if the Verde had been navigable.

5 57. In 1875, a Prescott newspaper called the Weekly Journal-Monitor published
6 a story about Yavapai County, and included the following information:

7 Our mountains contain fine, clear gravel-bottomed streams
8 and lakes, valleys of great beauty and varying in length and
9 width spread out in every direction among the mountains. The
10 San Francisco or Verde River and the Colorado Chiquito
11 (Little Colorado or Flax River) together with the Great
12 Colorado with its wonderful Canon, are the most important
13 rivers of Yavapai, but there is no navigable water in the
14 county; all freight is moved by large trains of pack mules or
15 heavy wagons drawn by from four to twenty mules to the
16 wagon.

13 Declaration ¶ 34.

14 58. Articles published in 1875 were often aimed at encouraging growth and
15 settlement of the Arizona territorial region. If the Verde River had been navigable, a
16 newspaper would have made sure to underscore that point.

17 59. In the 1870s, General Land Office surveyors were instructed to meander
18 both banks of rivers that they deemed to be navigable. Declaration ¶ 36. Not one of the
19 surveyors meandered both banks of the Verde. Declaration ¶¶ 36-37.

20 60. As the Commission noted in its Report, Findings and Determination,

21 [t]he Verde River was not listed in or covered by the Rivers
22 and Harbors Act of 1899, which applies to navigable rivers
23 and other navigable waters of the United States and prohibits,
24 among other things, bridges and other obstacles being placed
25 on the navigable rivers without consent of Congress. 33
26 U.S.C. § 401, *et seq.*; *Economy Light & Power Co. v. U.S.*,
27 256 U.S. 113, 41 S.Ct. 409, 65 L.Ed. 847 (1921).

25 Report, Findings and Determination at p. 35.

26 61. The Rivers and Harbors Act of 1899 explicitly prohibits the construction of
27 a dam across any navigable river without consent of Congress. 33 U.S.C. § 401. The
28 Verde was not considered a navigable river, and Bartlett Dam and Horseshoe Dam were

1 later constructed across the river.

2 **Beaver Dams**

3 62. In Table 3 to his Declaration, Mr. Burtell compiled several historical
4 accounts indicating that beavers and beaver dams were common throughout much of the
5 Verde River. Declaration at Table 3. These accounts indicate, for instance, that “the river
6 flows slowly, impeded by many beaver dams, and extensive marshes occupied the
7 floodplains,” and that “the Verde River was full of beaver dams and was not confined to
8 an even channel....” *Id.*

9 63. The Commission’s prior findings state that early Spanish explorers
10 “reported many beavers in the river,” that beavers continued in their abundance when
11 observed by mountain men in the early 1800s, and that farming and grazing were
12 eventually enabled by clearing out the beaver dams and draining the marshes. Report,
13 Findings and Determination at pp. 27-28.

14 64. These abundant beaver dams and the marshy conditions that persisted when
15 the Verde River was in its ordinary and natural condition would have presented
16 considerable impediments to use of the Verde River as a highway of commerce.

17 **Rapids**

18 65. The Verde River is heavily laden with rapids that run the gamut from Class I
19 to Class IV. Declaration ¶ 58.

20 66. Figures 5 and 6 to Mr. Burtell’s Declaration include photographs of Class I
21 and Class II rapids on the Verde. Declaration at Figures 5 and 6.

22 67. The photographs included in Figures 5 and 6 to Mr. Burtell’s Declaration
23 illustrate that, while the rapids on the Verde River are exciting to adventuresome
24 recreationalists journeying in modern recreational craft, they posed a serious impediment
25 to commercial trade and travel in the types of craft commonly used for those purposes
26 circa 1912. Declaration at Figures 5 and 6.

27 68. In his Declaration, Mr. Burtell testified that the photographs in Figures 5
28 and 6 depict rapids that “are characterized by boulder-choked channels, drops, and

1 turbulent water,” and “[a]ll of these conditions pose an impediment to navigation and the
2 frequency of rapids along the Verde River would have been more than just a nuisance to
3 commercial boaters before statehood.” Declaration ¶ 59.

4 69. In his Declaration, Mr. Burtell testified that “the increased frequency and
5 still larger rapids between Beasley Flats and Horseshoe Reservoir would have posed an
6 even greater impediment to navigation.” Declaration ¶ 59.

7 70. Through his PowerPoint and direct testimony presented to the Commission
8 in 2014, Mr. Fuller opined that Class I through V rapids are generally not obstacles to
9 navigation; Mr. Fuller’s opinion is that, in general, only Class VI rapids are obstacles to
10 navigation. 12/17/14 Trans. 755:24 – 757:2 (Fuller).

11 71. In presenting a calculation of the number of rapids on the Verde River to the
12 Commission, Mr. Fuller ignored Class I rapids altogether. 12/17/14 Trans. 755:24 –
13 757:2 (Fuller).

14 72. Mr. Fuller’s opinions are based on his experience as a recreational boater,
15 which has demonstrated that these rapids may be traversed in modern recreational crafts
16 made from modern, durable materials.

17 73. The determination that the San Juan River is not navigable, a finding
18 adopted by the United States Supreme Court in *United States v. Utah*, 283 U.S. 64, was
19 based, in part, on the Special Master’s findings concerning the rapids that existed along
20 the river:

21 The number of difficult rapids, with steep and rapid drops,
22 (whether that number be 37 as estimated by Miser or 30 as
23 estimated by Allen, or 16 or 12 by Hoyt) make it impossible,
in my opinion, for any boat to navigate safely unless
conducted with great caution and by expert boatmen....

24 Declaration ¶ 60 (quoting 1930 Special Master’s Report, Item No. X017, Tab 92, at pp.
25 180-81).

26 74. Mr. Fuller testified that he would disagree with the Special Master’s
27 analysis of the San Juan River rapids unless the rapids being analyzed were Class VI, or if
28 a particular reach consisted of a rapid succession of Class IV and V rapids. 12/17/14

1 Trans. 740:6 – 744:25 (Fuller).

2 75. Referring to rapids, Mr. Fuller testified that “[i]f they’re very large and
3 they’re very close together, and I would say if their character, the character of the reach
4 were more dominated by these large Class V’s, Class IV’s and V’s -- I’d even go as low
5 as IV’s. -- then, yeah, I would say that the river could be nonnavigable, depending on the
6 specifics of the river.” 12/17/14 Trans. 740:6 – 744:25 (Fuller).

7 76. Class I, II, and III rapids posed significant obstacles to navigability 100
8 years ago when trade and travel were conducted in wooden boats that were ill-suited for
9 traversing rock gardens and turbulent, boulder-laden waters like those depicted in Figures
10 5 and 6 to Mr. Burtell’s Declaration. Declaration at Figures 5 and 6.

11 77. The Unnamed Rapid (River Mile 3.3) on Figure 5 to Mr. Burtell’s
12 Declaration is a Class I rapid and Raphael’s Gauntlet (River Mile 32.5) is a Class I+ rapid.
13 12/17/14 Trans. 757:3 – 760:17 (Fuller); Declaration at Table 4 and Figure 5. These
14 rapids would have posed a significant impediment to trade and travel in a wooden boat
15 like those in use circa 1912.

16 78. The rapids that formed the basis for the determination that the San Juan is
17 not navigable consist largely of Class I and II rapids. Declaration ¶¶ 60-61. Southwest
18 Paddler describes the rapids between Sand Island and Mexican Hat as ““run-of-the-mill
19 Class I to II boulder gardens,”” and describes the rapids between Mexican Hat and Clay
20 Hills Crossing as ““mostly Class I and II, with a few class III’s thrown in for good
21 measure.”” Declaration ¶ 61. The stretch between Mexican Hat and Clay Hills Crossing,
22 deemed nonnavigable by the United States Supreme Court based in part on these rapids,
23 “is considered ‘one of the nation’s most popular river trips’” for modern-day recreational
24 boaters. *Id.*

25 79. The operation owned by Richard Lynch, designated expert for the ASLD,
26 uses a modern recreational craft known as a “ducky,” which is an inflatable kayak.
27 12/16/14 Trans. 306:25-307:10 (Lynch). The Duckies used in Mr. Lynch’s operation are
28 depicted in Freeport 55, which is part of Item No. X099.

1 80. Mr. Lynch testified that “you just don’t need any skill” to use a ducky, “you
2 can hit things, you can bounce off things, you can get stuck on things, and they do – they
3 just – they’re just a superior craft for any kind of boater.” 12/16/14 Trans. 306:17 –
4 307:10 (Lynch).

5 81. Mr. Lynch testified that his modern recreational crafts have advantages over
6 wooden boats, which include lower draw, greater durability, and the ability to bounce off
7 of rocks without damaging the craft:

8 Q. And when you’re talking about these inflatable duckies that
9 draw 5 to 6 inches and you’ve got mid-calf water, are you
bouncing on some of the rocks from time to time?

10 A. Yes.

11 Q. And I assume that’s one of the reasons you use these
12 duckies, is these inflatable craft are pretty good for when
you’re bouncing on rocks?

13 A. Correct.

14 Q. You would rather be in an inflatable ducky than in a
15 wooden canoe bouncing on rocks?

16 A. Correct.

17 Q. Mr. Slade asked you a question about the draw of a canoe,
18 and you said it was more than the inflatable kayaks that you
use, the inflatable duckies, so more than that 5 to 6 inches.
19 Can you be more specific in your estimate of what their draw
would be?

20 A. I’m not a canoer. I’m a ducky guy. But I see these guys,
21 you know, going. I can see and I can hear them when they’re
coming down. When they’re coming down the river at lower
22 flows, you can hear them, you know, going over the rocks.
You can see them hitting things and talking about, oh, yeah,
23 we had to get out and drag here, we had to get out here; where
the duckies will, for the most part, glide right over everything.

24 Q. So when portions of the stream are in mid-calf depth
condition, you’re hearing the canoes colliding with the rocks?

25 A. Yeah. Different times of the year, yes.

26 12/16/14 Trans. 314:4 – 315:9 (Lynch).

27 82. Despite using a superior modern craft, Mr. Lynch must nevertheless rely on
28 clearing the stream of boulders, strainers, and other debris in order to facilitate passage of

1 the inflatable duckies. 12/16/14 Trans. 292:23 – 293:19 (Lynch).

2 83. Mr. Lynch testified that portions of the river that he does not maintain are
3 more difficult to get through, stating that:

4 since nobody's out there maintaining them on a regular basis,
5 there's a lot more tree growth, strainers, trees that have fallen.
6 What we do on the stretches that we commercially boat all the
7 time, we're out there constantly cutting back the bushes, the
8 trees. When things fall into the river, we go out there with our
9 chainsaws, because we've got to get all that stuff out of the
10 river or people -- it's just not safe. You can't get around it. So
when you go into stretches of the river that we don't boat
commercially, that can get relatively overgrown with all kinds
of strange things.

11 12/16/14 Trans. 309:8-24 (Lynch).

12 84. Mr. Lynch testified that, without removing rocks from channels in the
13 Verde, "you would be getting out of your boat a lot" in all sections of the river. 12/16/14
14 Trans. 292:23 – 293:19 (Lynch).

15 85. Mr. Burtell testified that "[l]ike the San Juan River, the Verde River is very
16 popular among modern recreational boaters. It also shares the San Juan's Class I to III
17 rapids, relatively steep slopes (see Section II) and narrow canyons." Declaration ¶ 62;
18 3/30/15 Trans. 2666:11 – 2672:9 (Burtell). Mr. Burtell concluded that "these factors
19 alone demonstrate the Verde River is non-navigable under *The Daniel Ball* standard." *Id.*

20 **Depth of Stream Flows**

21 86. In order to assess the Verde's ordinary and natural streamflow, Mr. Burtell
22 performed a streamflow reconstruction to account for diversions and allow an assessment
23 of the river "absent the effects of man." 3/30/15 Trans. 2673:9 – 2674:6 (Burtell).

24 87. Similar to Mr. Burtell's evaluations of the San Pedro, Santa Cruz, and Gila,
25 Mr. Burtell's reconstruction of stream flows in the Verde was extremely conservative,
26 meaning that he erred on the side of adding too much water back into the stream. 3/30/15
27 Trans. 2620:9 – 2621:22 (Burtell).

28 88. Mr. Burtell reconstructed stream flow from five USGS gages for the period

1 from the 1910s through 1940. 3/30/15 Trans. 2675:5 – 2676:22 (Burtell).

2 89. Mr. Burtell selected the period of the 1910s through 1940 for his streamflow
3 reconstructions because good stream flow data are available, it was a period that was
4 neither particularly wet nor particularly dry, it was a period prior to substantial effects
5 from well pumpage, and because the amount of cultural diversions remained fairly
6 constant. *Id.* 3/30/15 Trans. 2675:5 – 2676:22 (Burtell).

7 90. In conducting his streamflow reconstructions for the Verde, Mr. Burtell
8 accounted for the water that is diverted into diversion ditches and is returned directly to
9 the river from those ditches. 3/30/15 Trans. 2678:3 – 2683:7 (Burtell). Mr. Burtell did
10 not attempt to offset the water that returned indirectly to the river, *e.g.* via return flows or
11 seepage back into base flow. *Id.* Nor did Mr. Burtell account for the evapotranspiration
12 (ET) losses that would have occurred with respect to the water being added back to the
13 stream. *Id.*

14 91. By not offsetting indirect return flows and not accounting for ET losses
15 associated with the water being added back to the stream, Mr. Burtell put more water back
16 into the river than would have actually been present under natural conditions, and Mr.
17 Burtell's calculations therefore overstate the amount of streamflow under natural
18 conditions. 3/30/15 Trans. 2678:3 – 2683:7 (Burtell).

19 92. Mr. Burtell's streamflow reconstruction results are tabulated in Table 5 to
20 his Declaration. Declaration at Table 5. The median reconstructed streamflows (*i.e.* Q50)
21 range from 93 cubic feet per second (cfs) to 440 cfs, and the higher range of flows
22 represented by the 25% flow (*i.e.* Q25) was not much higher, with a range from 101 cfs to
23 587 cfs. *Id.*

24 93. Mr. Burtell's streamflow reconstruction indicates that, "for 75% of the time,
25 undepleted streamflows along the Verde River remained (a) below 100 cfs in Segment 1
26 and the upper reach of Segment 2; (b) below 500 cfs in Segment 3 and the lower reach of
27 Segment 2; and, (c) below 600 cfs in Segments 4 and 5. Because the quantities diverted
28 upstream of the gages and added back to the river to reconstruct flows were not corrected

1 for the effects from infiltration and evapotranspiration (ET), these values for undepleted
2 streamflow should be considered an upper estimate. Actual undepleted flows along the
3 Verde River would have been lower.” Declaration at 15.

4 94. Mr. Burtell “found that undepleted flows in the Verde River typically had a
5 mean depth of less than 2.0 feet during 75% of the year.” Declaration at 20. These
6 calculated depths “represent conditions at discrete points along the river where the USGS
7 found the channel was relatively uniform and unaffected by rapids and, therefore, suitable
8 for a gaging station. However, . . . rapids are common along four of the five Verde River
9 segments and at these points flow depths would likely have been lower and more
10 irregular.” *Id.*

11 95. Mr. Burtell’s reconstructed flows, tabulated in Table 5 to his Declaration,
12 represent a very conservative representation of the Verde River in its natural condition,
13 and are much lower than the levels of discharge associated with rivers throughout the
14 United States that have been deemed navigable. Information Regarding Navigability of
15 Selected U.S. Watercourses, Exh. 022. The Verde’s natural discharge is also significantly
16 less than the discharge of streams that have been deemed non-navigable. *Id.*

17 96. Mr. Fuller had no criticisms of Br. Burtell’s streamflow reconstructions.
18 12/17/14 Trans. 736:1-19 (Fuller).

19 97. Mr. Hjalmarson agreed that Mr. Burtell’s reconstructions are generally
20 conservative and testified that some of Mr. Burtell’s reconstructed flows overstate that
21 amount of flow that would have been in the Verde river in its ordinary and natural
22 condition. 2/18/15 Trans. 1388:22 – 1389:21 (Hjalmarson).

23 98. Mr. Hjalmarson only reconstructed greater flows for the most upstream
24 portion of the river, based on his opinion that 8,000 acres of agricultural lands were in
25 cultivation above Paulden before 1900. 2/18/15 Trans. 1388:22 – 1389:21 (Hjalmarson).

26 99. Mr. Hjalmarson erroneously included numerous dryland farmed fields in his
27 calculation of irrigated acreage, resulting in too much additional streamflow being added
28 to the gaged streamflows. 12/19/14 Trans. 1113:12 – 1131:20 (Hjalmarson).

1 100. Mr. Burtell testified that, under median natural flow, the Verde ranged from
2 1.1 feet of depth to 1.9 feet at the five USGS gages he used for his streamflow
3 reconstructions. Declaration at Table 5; 3/30/15 Trans. 2685:5 – 2690:9 (Burtell).

4 101. The depths testified to by Mr. Burtell overstate the actual natural depths of
5 the Verde River for a number of reasons, including: (1) Mr. Burtell did not attempt to
6 offset the water that returned indirectly to the river, e.g. via return flows or seepage back
7 into base flow; (2) Mr. Burtell did not account for the ET losses that would have occurred
8 with respect to the water being added back to the stream; and (3) Mr. Burtell's depths
9 correspond to measurements taken in the vicinity of the gage stations near the edge of
10 pools, not in riffles or rapids, and they therefore do not reflect the shallow areas of the
11 river that are the limiting factor for navigation. 3/30/15 Trans. 2691:16 – 2394:10
12 (Burtell); 3/30/15 Trans. 2678:3 – 2683:7 (Burtell); Declaration ¶ 89; Item No. X054 at
13 Freeport 43.

14 102. In *United States v. Utah*, 283 U.S. 64 (1931), the San Juan River was
15 determined to be non-navigable with depths between one and three feet “for 219 days”
16 each year, and for the other “146 days a depth of over three feet.” 1930 Special Master's
17 Report, Item No. X017, Tab 92, at p. 167.

18 103. A 1930 Special Master's Report evaluating the navigability of the San Juan
19 River indicated that “there is a depth of no more than 2 feet” five months per year and “at
20 other times there are places where the depth is less than 2 feet...” 1930 Special Master's
21 Report, Item No. X017, Tab 92, at p. 169.

22 104. A 1930 Special Master's Report evaluating the navigability of the San Juan
23 River noted that “[t]he evidence as to depth makes it clear that boats with a draft of two
24 feet could navigate not more than half the year...”. 1930 Special Master's Report, Item
25 No. X017, Tab 92, at p. 180.

26 105. Mr. Burtell testified that, when he applied his conservative depth figures to
27 Supreme Court precedent, he concluded that, consistent with the other lines of evidence,
28 the Verde was not susceptible to navigation as a highway for commerce. 3/30/15 Trans.

1 2759:24 – 2760:11 (Burtell).

2 **Navigability Proponent’s Reliance on Modern Watercraft**

3 106. During the 2014 and 2015 proceedings on remand, the proponents of
4 navigability called five witnesses, J.E. Fuller, Donald D. Farmer, Hjalmar W. Hjalmarson,
5 Richard Lynch, and Brad Dimock.

6 107. Mr. Dimock testified that his experience, his knowledge of Arizona boating
7 history, and his construction and use of replica boats revolve around the Grand Canyon
8 and the Colorado River, not the Verde River. 3/31/15 Trans. 2929:7 – 2931:7 (Dimock).

9 108. Mr. Dimock testified that his experience boating the Verde is limited to
10 some kayaking in modern polyethylene recreational craft in the 1970s and one other trip
11 in a plastic kayak in the 1990s or 2000. 3/31/15 Trans. 2929:7 – 2931:7 (Dimock).

12 109. Mr. Dimock testified that he would not want to run his Edith replica through
13 the rapids on the Verde as depicted in Figure 5 to Mr. Burtell’s Declaration. 3/31/15
14 Trans. 2935:15 – 2936:20 (Dimock).

15 110. Mr. Dimock testified that the Verde is a shallow, rocky river. 3/31/15
16 Trans. 2933:21-24 (Dimock). During his testimony, Mr. Dimock contrasted the Verde
17 with the San Juan River with regards to depth and rocky stretches:

18 Q. Why would you want the boat for the Verde to be more
19 quick-turning than the boat for the San Juan?

20 A. Well, because you’re going to run into a lot of shallows, a
21 lot of rocky stretches. You want to be able to move quickly,
22 dodge whatever rocks you can, and pick it up and carry it if
23 you run aground.

24 3/31/15 Trans. 2914:19-24 (Dimock). Mr. Dimock also testified that the non-navigable
25 San Juan is a larger, higher-flowing river than the Verde. 3/31/15 Trans. 2946:9-12
26 (Dimock).

27 111. Mr. Dimock testified that the settlers in the American West were adaptive
28 and capable of building a boat suitable for supplying the military posts along the Verde.
3/31/15 Trans. 2931:8 – 2934:15 (Dimock). Mr. Dimock also testified he believed that
he, through similar adaptive skill and spirit, could have built a boat suitable for supplying

1 the military posts along the Verde. *Id.* The fact that the adaptive, entrepreneurial settlers
2 of the American West could not make use of the Verde to meet this crucial need
3 demonstrates that the Verde River was simply not susceptible to use as a highway for
4 commerce.

5 112. Mr. Lynch's testimony regarding navigation was restricted to recreational
6 boating in modern inflatable duckies, not use of the Verde River as a highway of
7 commerce in craft commonly used for that purpose at statehood. 12/16/14 Trans. 306:17
8 - 315:9 (Lynch)

9 113. Messrs. Hjalmarson, Fuller, and Farmer based their opinions on recreational
10 boating standards, known as the Hyra Method, which were developed by the U.S. Fish &
11 Wildlife Service in 1978, and/or upon personal recreational experiences with modern
12 recreational craft, such as fiberglass kayaks and polyethylene canoes. *See, e.g.*, 12/17/14
13 Trans. 738:11-17 (Fuller); Fuller PowerPoint at Slide 76, Item No. X017 at Tab 107;
14 12/18/14 Trans. 1038:21 - 1039:23 (Hjalmarson); Item No. X054 at Freeport 45 (Gila
15 6/18/14 Trans. 594:7 - 595:6 (Farmer)).

16 114. Mr. Fuller testified that any stream that is six inches deep is navigable for
17 purposes of title:

18 Q. Generally speaking, though, what you're looking at is does
19 it have the 6 inches of water that you opine is the threshold; is
that correct?

20 A. 6 inches, certainly for canoes, would be a threshold. Some
21 people have said that's the standard, and that seems reasonable
to me, based on my own experience.

22 12/17/14 Trans. 738:11-17 (Fuller).

23 115. Mr. Fuller testified that he would only lean towards concluding that a stream
24 is non-navigable if the stream is uniformly less than 6 inches in depth. 12/17/14 Trans.
25 745:5-24 (Fuller).

26 116. Mr. Fuller testified that he recommended to the ASLD that it should not
27 assert that the San Pedro or Black rivers were navigable, despite Mr. Fuller's recognition
28 in his reports concerning those rivers that the San Pedro and Black typically had depths of

1 6 inches or greater. 12/17/14 Trans. 745:5 – 752:8 (Fuller).

2 117. Mr. Fuller testified that the ASLD, which advocates for a six inch
3 navigability standard in these proceedings, chose not to assert that the San Francisco was
4 navigable in its natural and ordinary condition, despite Mr. Fuller reporting depths of one
5 foot and recommending to the ASLD that the stream should be deemed navigable because
6 it is at times floated by recreational canoeists. 6/17/14 Trans. 282:3 – 285:4 (Fuller).

7 118. Mr. Farmer testified that he would deem rivers with less than six inches of
8 water to be navigable:

9 Q. And what was the depth?

10 A. The flow was 50 CFS and it was running pretty much six
11 inches.

12 Q. And which one of your canoes did you take on that trip?

13 A. I was in the Discovery, the 16-foot [polyethylene canoe].

14 Q. So based on that experience, do you feel that any stream or
15 creek that has six inches is good enough for you to get up and
16 down in a recreational boat?

17 A. I would boat -- I would without hesitation boat in less water
18 than that in a canoe.

19 Q. And you would deem that to be navigable?

20 A. Yes.

21 Item No. X054 at Freeport 45 (Gila River 6/18/14 Trans. 594:7 – 595:6
22 (Farmer)).

23 119. Mr. Farmer testified that his standard for navigability is an amount of water
24 between 2 and 6 inches:

25 Q. And so something -- whatever your threshold for
26 navigability is, it's something less than 6 inches, something
27 between 2 and 6 inches?

28 A. Depending on the boat, yes.

12/16/14 Trans. 536:11-14 (Farmer).

120. The U.S. Fish and Wildlife Service publication, commonly referred to as the
Hyra Method, is a standard for the shallowest depths of water needed for modern

1 recreational craft. *See, e.g.*, 12/17/14 Trans. 738:11-17 (Fuller); Fuller PowerPoint at
2 Slide 76, Item No. X017 at Tab 107.

3 121. Mr. Hjalmarson relied on the Hyra Method in developing his opinions that
4 the San Pedro, the Santa Cruz, and the lower Gila were all navigable, opinions that have
5 each been rejected in turn by the Commission. 12/19/14 Trans. 1169:11 – 1170:18
6 (Hjalmarson).

7 122. In prior testimony before the Commission, Mr. Hjalmarson testified that he
8 has not studied how the depths necessary for navigability would change if the activity
9 involved were commercial instead of recreational. Item No. X023 at Freeport 7 (San
10 Pedro 6/7/13 Trans. 50:1-25 (Hjalmarson)).

11 123. Mr. Hjalmarson testified that he used the Hyra Method when analyzing the
12 navigability of the Verde:

13 U.S. Fish and Wildlife Service [Hyra] method is the one I
14 used. It shows its optimum for navigability using kayaks and
15 canoes.... So my decision is based on that standard.

16 12/18/14 Trans. 1038:21 – 1039:23 (Hjalmarson).

17 124. While the Commission appreciates the effort expended by Mr. Hjalmarson,
18 the Commission finds that Mr. Hjalmarson's reconstruction of stream flow and depths for
19 the Verde River in its natural condition is unreliable, as are his opinions of navigability.
20 Mr. Hjalmarson applied an erroneous modern recreational boating standard. The
21 Commission also finds that Mr. Hjalmarson greatly overstates the number of acres that
22 were being irrigated in the headwaters area above Sullivan Lake Dam. This means that
23 Mr. Hjalmarson overestimated the amount of water that was being diverted in the
24 headwaters area, and Mr. Hjalmarson therefore over-corrected for diversions in attempting
25 to calculate natural stream flow and depths.

26 125. Mr. Farmer based his opinion about the minimum depth for navigation on
27 his experience of floating in six inches of water in his Discovery canoe, which is a modern
28 recreational canoe made out of polyethylene. Item No. X054, Freeport 45 (Gila 6/18/14
Trans. 584:1-17 (Farmer)).

1 126. Mr. Farmer's testimony acknowledged that plastic recreational canoes were
2 not available when Arizona became a state in 1912. Item No. X054, Freeport 45 (Gila
3 6/18/14 Trans. 592:11-22 (Farmer)).

4 127. Mr. Farmer testified that he has no experience using a wooden canoe or a
5 dugout log in his recreational boating, and he has no experience with commercial
6 navigation. Item No. X054, Freeport 45 (Gila 6/18/14 Trans. 617:6-11 (Farmer)).

7 128. No witness testimony disputed the fact that modern recreational craft are
8 significantly more durable than the craft used in 1912. 12/15/14 Trans. 57:17 – 58:5
9 (Fuller); 12/17/14 Trans. 587:24 – 588:22 (Fuller); 12/16/14 Trans. 387:25 – 388:6 and
10 447:10-21 (Farmer); 1998 Final Report, Criteria for Assessing Characteristics of
11 Navigability for Small Watercourses in Arizona, Item No. X023, Freeport 6, p. 32.

12 129. Mr. Dimock testified that “[k]ayaking was just starting to pick up in the
13 early ‘70s. They invented the plastic kayak, which was more durable than the fiberglass
14 ones and the skin ones before that, and that’s sort of when I got into the kayaking.”
15 3/31/15 Trans. 2822:7-17 (Dimock).

16 130. Mr. Fuller explained in a 1998 report that “rivers were not generally used
17 for recreational travel until the development of new materials such as fiberglass and
18 artificial rubber after World War II,” and commercial recreational rafting, which did not
19 begin until the 1930s, did not become common until the 1970s. Item No. X023, Freeport
20 6, Final Report, Criteria for Assessing Characteristics of Navigability for Small
21 Watercourses in Arizona, pp. 32-33.

22 131. Mr. Fuller also explained in that 1998 report that “[m]ore recently the
23 development of one-person *lightweight* kayaks and ‘rubber duckies’ has made it possible
24 to boat shallow rivers previously thought unboatable.” Criteria for Assessing
25 Characteristics of Navigability Report, Item No. X016, Freeport 8, at p. 28 (emphasis
26 added); Item No. X054 at Freeport 45 (Gila River 6/18/14 Trans. 635:16-20 (Farmer)).

27 132. Recreational boating is a modern phenomenon that occurred in response to
28 the increased availability of modern materials.

1 133. The timeline of recreational travel on rivers coincides with the development
2 of the Hyra Method in 1978.

3 134. The introduction of the types of modern, durable, low-draw recreational
4 crafts that were not available at statehood was the primary driver behind the development
5 of recreational boating well after statehood:

6 The development of durable small boats – plastic, fiberglass
7 and other modern types of canoes and kayaks, inflatable boats
8 for single paddlers and for groups – all contributed to the
9 rising popularity of river running in Arizona especially on
 rivers not previously considered boatable, or boatable only
 very rarely because of low water.

10 1998 Final Report, Criteria for Assessing Characteristics of Navigability for Small
11 Watercourses in Arizona, Item No. X023, Freeport 6, p. 32.

12 135. The Commission finds that one of the benefits of modern recreational boats
13 is their lighter weight relative to historic boats. Accordingly, consistent with the
14 Archimedes principle, these lighter modern boats draw less water than heavier historic
15 boats.

16 136. The Commission also finds that modern recreational boats are significantly
17 more durable than historic boats.

18 137. The Commission finds that the modern recreational craft that are used today
19 on the Verde River are not meaningfully similar to those in customary use for trade and
20 travel at the time of statehood. To the contrary, modern plastic canoes and plastic and
21 inflatable kayaks draw less water and therefore require less depth, they offer significantly
22 greater durability, and they are able to bounce off of rocks without damage unlike wooden
23 boats.

24 138. Moreover, the Commission finds that use of these modern crafts for
25 recreational purposes bears no resemblance to the commercial activities to which
26 navigable waterways were put to use circa 1912. *PPL Montana*, 132 S.Ct. at 1233
27 (instructing that “evidence must be confined to that which shows the river could sustain
28 the kinds of commercial use that, as a realistic matter, might have occurred at the time of

1 statehood.”).

2 139. The Commission finds that the evidence presented to the Commission –
3 including archaeological, historical, hydrologic, and geomorphic evidence – supports the
4 conclusion that the Verde River was not susceptible to being used as a highway for
5 commerce in its ordinary and natural condition at or before the time of statehood.

6 CONCLUSIONS OF LAW

7 Based upon the evidence in the record and application of applicable federal and
8 state law, the Commission makes the following conclusions on questions of law and
9 mixed questions of law and fact:

10 1. The proponents of navigability for the Verde bear the burden of proof and
11 must demonstrate by a preponderance of the evidence that specific segments of the river
12 were navigable in their ordinary and natural condition. *State ex rel. Winkleman v. Arizona*
13 *Navigable Stream Adjudication Comm’n*, 224 Ariz. 230, 239, ¶¶ 17 (App. 2010).

14 2. The test of navigability for title is a federal test based on more than 150
15 years of case law. *PPL Montana v. Montana*, 132 S. Ct. 1215, 1227 (2012).

16 3. The test for navigability articulated in *The Daniel Ball* has become the
17 standard test for purposes of navigability for title:

18 Those rivers must be regarded as public navigable rivers in
19 law which are navigable in fact. And they are navigable in
20 fact when they are used, or are susceptible of being used, in
21 their ordinary condition, as highways for commerce over
which trade and travel are or may be conducted in the
customary modes of trade and travel on water.

22 *The Daniel Ball*, 77 U.S. 557, 563 (1870).

23 4. In *The Daniel Ball*, the Supreme Court held that Grand River was navigable
24 because it supported the passage of a steamer that carried 123 tons of merchandise and
25 passengers both upstream and downstream. *Id.* at 564-65.

26 5. Arizona’s statutory definition of a navigable waterway paraphrases *The*
27 *Daniel Ball* Test and states that:

28 “Navigable” or “navigable watercourse” means a watercourse

1 that was in existence on February 14, 1912, and at that time
2 was used or was susceptible to being used, in its ordinary and
3 natural condition, as a highway for commerce, over which
trade and travel were or could have been conducted in the
customary modes of trade and travel on water.

4 A.R.S. § 37-1101(5).

5 6. The test for navigability is one of “navigability in fact.” *PPL Montana v.*
6 *Montana*, 132 S. Ct. 1215, 1227 (2012). Accordingly, the focus is on “rivers really
7 navigable.” *Id.* (quoting *Shively v. Bowlby*, 152 U.S. 1, 31 (1894)).

8 7. It is “not every small creek in which a fishing skiff or gunning canoe can be
9 made to float at high water which is deemed navigable, but, in order to give it the
10 character of a navigable stream, it must be generally and commonly useful to some
11 purpose of trade or agriculture.” *United States v. Rio Grande Dam & Irrigation Co.*, 174
12 U.S. 690, 698-99 (1898) (quoting *The Montello*, 20 Wall. 430, 442).

13 8. In addressing the navigability of the Rio Grande, the largest and longest
14 river in New Mexico, the United States Supreme Court concluded that:

15 Obviously, the Rio Grande within the limits of New Mexico
16 is not a stream over which in its ordinary condition trade and
17 travel can be conducted in the customary modes of trade and
18 travel on water. Its use for any purposes of transportation has
19 been and is exceptional, and only in times of temporary high
20 water.

19 174 U.S. 690 at 699.

20 9. In addressing the navigability of the Red River in the State of Oklahoma, the
21 Supreme Court of the United States concluded that the entire length of the Red River,
22 more than 500 miles in all, was non-navigable due to variable water flows and river bed
23 conditions such that

24 trade and travel neither do nor can move over that part of the
25 river, in its natural and ordinary condition, according to the
26 modes of trade and travel customary on water; in other words,
27 that it is neither used, nor susceptible of being used, in its
28 natural and ordinary condition as a highway for commerce. Its characteristics are such that its use for transportation has
been and must be exceptional, and confined to the irregular
and short periods of temporary high water. A greater capacity
for practical and beneficial use in commerce is essential to

1 establish navigability.

2 174 U.S. 690 at 591.

3 10. The Red River is non-navigable for purposes of title, notwithstanding the
4 fact that the Red River is used extensively for modern recreational boating. 3/30/15
5 Trans. 2607:10 – 2611:10 (Burtell). Susceptibility to recent recreational use in modern
6 recreational crafts is not the standard for assessing navigability under *The Daniel Ball* test.
7 *PPL Montana*, 132 S.Ct. at 1234 (holding that “present day recreational use of the river
8 did not bear on navigability,” and that “reliance upon the State’s evidence of present-day,
9 recreational use, at least without further inquiry, was wrong as a matter of law.”).

10 11. The same is true of the San Juan River and the Rio Grande River, which are
11 both used for recreational purposes in modern recreational craft, but which are not
12 susceptible to use as a highway for commerce in the crafts commonly used for such
13 purposes at the time of Utah’s and New Mexico’s respective statehoods.

14 12. A determination of navigability must consider a river both in its “ordinary
15 condition,” *e.g.* absent extreme drought or flooding, and in its “natural condition,” *e.g.*
16 absent human diversions. *State ex rel. Winkleman v. Arizona Navigable Stream*
17 *Adjudication Comm’n*, 224 Ariz. 230, 241, ¶¶ 28 (App. 2010).

18 13. Evidence from a time before modern-era settlement and farming began
19 having a substantial impact on the river is considered the best evidence of the river’s
20 natural condition. 224 Ariz. 230 at 242, ¶ 30. “Assuming the evidence has indicia of
21 reliability,” however, “the determination of the relevance and weight to be afforded the
22 evidence is generally for ANSAC to make.” *Id.* at 243, ¶ 31.

23 14. “Navigability must be assessed as of the time of statehood, and it concerns
24 the river’s usefulness for ‘trade and travel,’ rather than for other purposes.” *PPL*
25 *Montana*, 132 S. Ct. 1215 at 1233.

26 15. “Mere use by initial explorers or trappers, who may have dragged their
27 boats in or alongside the river despite its nonnavigability in order to avoid getting lost, or
28 to provide water for their horses and themselves, is not itself enough.” *PPL Montana*, 132

1 S. Ct. 1215 at 1233.

2 16. A finding of navigability must be founded on the kind of trade and travel on
3 water that constitutes “a commercial reality.” *PPL Montana*, 132 S.Ct. 1215 at 1234.

4 17. In its most recent and definitive treatment of the federal test for navigability
5 for title, the Supreme Court expressly reaffirmed that it is evidence of susceptibility to
6 commercial use that must be considered in evaluating navigability. *PPL Montana v.*
7 *Montana*, 132 S.Ct. 1215, 1233 (2012) (holding that “evidence must be confined to that
8 which shows the river could sustain the kinds of commercial use that, as a realistic matter,
9 might have occurred at the time of statehood.”).

10 18. The United States Supreme Court has held that evidence of navigability
11 “must be confined to that which shows the river could sustain the types of commercial use
12 that, as a realistic matter, might have occurred at the time of statehood.” 132 S. Ct. at
13 1233. The Court has further held that “present day recreational use of the river did not
14 bear on navigability,” and that “reliance upon the State’s evidence of present-day,
15 recreational use, at least without further inquiry, was wrong as a matter of law.” *Id.* at
16 1234.

17 19. The Supreme Court of the United States rejected a lower court ruling that
18 the Madison River in Montana was navigable because the lower court had relied primarily
19 on evidence of modern-day boating. 132 S. Ct. 1215 at 1234. While the Supreme Court
20 noted that such evidence could be considered, it would only support a finding of
21 navigability if “[a]t a minimum, ... the party seeking to use present-day evidence for title
22 purposes” can show that “(1) the watercraft are meaningfully similar to those in
23 customary use for trade and travel at the time of statehood; and (2) the river’s post-
24 statehood condition is not materially different from its physical condition at statehood.”
25 *Id.*

26 20. In holding in *PPL Montana* that the Montana Supreme Court erred in
27 relying on evidence of modern recreational boating, the United States Supreme Court
28 recognized that “[m]odern recreational fishing boats, including inflatable rafts and

1 lightweight canoes or kayaks, may be able to navigate water much more shallow or with
2 rockier beds than the boats customarily used for trade and travel at statehood.” *PPL*
3 *Montana*, 132 S. Ct. at 1234.

4 21. The Commission finds that the proponents of navigability have failed to
5 demonstrate that the modern recreational boats that are used for recreational purposes on
6 the Verde River are meaningfully similar to the crafts customarily used for trade and
7 travel at the time of Arizona’s statehood.

8 22. Accordingly, the Commission also finds that recent recreational use of the
9 Verde River in modern recreational crafts is unpersuasive evidence concerning whether
10 the Verde River was navigable in its ordinary and natural condition under *The Daniel Ball*
11 test.

12 23. The Commission finds that Mr. Fuller’s approach to evaluating navigability
13 – that, if a stream is deep enough to float a boat, it is navigable – is inconsistent with *The*
14 *Daniel Ball* test and binding United States Supreme Court precedent, including *PPL*
15 *Montana*, 132 S. Ct. at 1233. Mr. Fuller testified that he would only lean towards
16 concluding that a stream is non-navigable if the stream is uniformly less than 6 inches in
17 depth. That is not the appropriate standard. Instead, the inquiry is whether “the river
18 could sustain the types of commercial use that, as a realistic matter, might have occurred
19 at the time of statehood.” *PPL Montana*, 132 S. Ct. at 1233. Navigability must be
20 founded on the kind of trade and travel on water that constitutes “a **commercial** reality.”
21 *Id.* at 1234 (emphasis added).

22 24. The Commission finds that the Verde River was not actually used as a
23 “highway for commerce.”

24 25. While the absence of commercial navigation is not dispositive “where
25 conditions of exploration and settlement explain the infrequency or limited nature of such
26 use,” *United States v. Utah*, 283 U.S. 64, 82 (1931), the Commission finds that there were
27 clear needs to use the Verde River as a highway for commerce – if it had been viable for
28 such purposes – in the early years of settlement before diversions had meaningfully

1 impacted the river.

2 26. The Commission finds that the Verde River was not, in its ordinary and
3 natural condition at the time of statehood, susceptible to being used as a "highway for
4 commerce."

5 27. Based on the historical and scientific data and information, documents, and
6 other evidence considered by the Commission, the Commission finds that the Verde, in its
7 ordinary and natural condition, was not used or susceptible to being used as a highway for
8 commerce as of February 14, 1912 and therefore was not navigable as defined in A.R.S.
9 §37-1101(5).

10 RESPECTFULLY SUBMITTED this 9th day of November, 2015.

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1 MAILING CERTIFICATE

2 ORIGINAL AND SIX COPIES of the foregoing
3 sent via U.S. mail for filing this 9th day of November, 2015 to:

4 Arizona Navigable Stream Adjudication Commission
5 1700 West Washington, Room B-54
6 Phoenix, AZ 85007

7 COPY sent via e-mail this 9th day of November, 2015 to:

8 George Mehnert
9 Director
10 nav.streams@ansac.az.gov

11 Microsoft Word COPY sent via e-mail this 9th day of November, 2015 to:

12 Fred Breedlove, Esq.
13 Counsel for the Commission
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15 COPY sent via e-mail this 9th day of November, 2015 to each
16 party on the mailing list (see <http://www.ansac.az.gov/parties.asp>)
17 for *In re Determination of Navigability of the Verde River*

18 By: Kathy Power
19 11025587.2/028851.0233