BEFORE THE ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

IN THE MATTER OF THE NAVIGABILITY OF THE VERDE RIVER FROM ITS HEADWATERS AT SULLIVAN LAKE TO THE CONFLUENCE WITH THE SALT RIVER, YAVAPAI, GILA AND MARICOPA COUNTIES, ARIZONA	No. 04-009-NAV

FIRST ADDENDUM TO THE REPORT, FINDINGS AND DETERMINATION REGARDING THE NAVIGABILITY OF THE VERDE RIVER FROM ITS HEADWATERS TO THE CONFLUENCE WITH THE SALT RIVER DATED MARCH 24, 2008

The Arizona Navigable Stream Adjudication Commission ("ANSAC" or "Commission"), having considered all of the historical and scientific data and information, documents and other evidence (collectively, "Evidence in the Record") regarding the issue of whether the Verde River from its headwaters at Sullivan Lake to the confluence with the Salt River ("Verde River" or "Verde" or "the River") was navigable for title purposes as of February 14, 1912, the date of Arizona's statehood, and being fully advised by counsel, hereby submits this addendum to the *Report, Findings and*

Determination Regarding the Navigability of the Verde River from its Headwaters to the Confluence with the Salt River published March 24, 2008 ("2008 Report").

While the Commission's navigability determination remains unchanged, unless otherwise discussed herein, this report supersedes the 2008 Report in its entirety.

Table of Contents

I. PROCEDURAL HISTORY

The Commission has held two separate hearings over the course of a decade to receive evidence, testimony, and legal memoranda regarding the navigability of the Verde River.

A. 2005-2006 Hearings

The first set of hearings was held in 2005 and 2006 ("2005-06 Hearings"). Hearings were held on March 29, 2005, in Prescott, Yavapai County, Arizona; on November 16-17, 2005, in Phoenix, Maricopa County, Arizona, and continued on January 18, 2006, in Phoenix, Maricopa County, Arizona. Each of the 2005-06 Hearings was properly noticed pursuant to the applicable statutes.

Various individuals submitted documents or oral testimony in connection with the 2005-06 Hearings. The Commission received over 38 documentary filings, including surveys, reports, books, photographs, articles, maps, and PowerPoint printouts. A list of the evidence submitted in connection with the 2005-06 Hearings, which originally appeared as Exhibit F to the 2008 Report, is reproduced here as Exhibit A. The Commission also considered 11 post-hearing memoranda.

On May 24, 2006, at a public hearing in Phoenix, Arizona, after considering all of the evidence, testimony, and legal memoranda submitted by the parties, and the comments and oral argument made at the 2005-06 Hearings, and having been fully advised by counsel, the Commission determined by a unanimous vote that the Verde River from its headwaters at Sullivan Lake to the confluence with the Salt River in Yavapai, Gila, and Maricopa Counties, Arizona, was nonnavigable as of February 14, 1912 for purposes of title at statehood. Following the hearing, the Commission issued its 2008 Report.

The State Land Department/Attorney General ("SLD") appealed the 2008 Report and determination on December 19, 2008. Proceedings in the case were ultimately stayed,

however, while the Arizona Court of Appeals considered a related challenge to the Commission's determination that the Lower Salt River was nonnavigable for purposes of title at statehood.

B. Lower Salt River Appeal

On June 19, 2006, the Arizona State Land Department ("ASLD") appealed the Commission's determination that the Lower Salt River was nonnavigable at the time of statehood. ASLD alleged that the Commission misapplied the federal test for navigability-for-title by concluding that the Lower Salt River's "ordinary and natural condition . . . includes irrigation diversions, canals, and other human impacts," which "dramatically and drastically altered" the River. Complaint for Judicial Review of Administrative Decision regarding Lower Salt River, *State ex rel. Winkleman v. Ariz. Navigable Stream Adjudication Comm'n*, 2006 WL 6616118 (Ariz. Super. June 19, 2006), at ¶ 22(A).

The superior court affirmed the Commission's determination regarding the Lower Salt River by order dated August 7, 2007. The determination was further appealed to the court of appeals, which vacated the order affirming the Commission's determination and remanded to the superior court with instructions to determine "what the [Lower Salt] River would have looked like on February 14, 1912 in its ordinary (i.e., usual, absent major flooding or drought) *and* natural (i.e., without man-made dams, canals, or other diversions) condition." *State ex rel. Winkleman v. Ariz. Navigable Stream Adjudication Comm'n*, 224 Ariz. 230, 229 P.3d 242 (Ct. App. 2010) (emphasis added).

After the initial appeal of the Lower Salt River determination, four other appeals were filed regarding the Commission's determinations of nonnavigability of the Santa Cruz, Verde, Upper Salt, and Gila Rivers. These four cases were also stayed pending completion of the Lower Salt River appeal.

In October 2011, the six cases that had been appealed were returned to the

Commission to reassess the Evidence in the Record in light of the principles addressed in *Winkleman*.

C. U.S. Supreme Court Ruling in *PPL Montana, LLC v. Montana*

In February 2012, after the remand but before the Commission had voted to reopen the record, the U.S. Supreme Court issued a decision that impacted the way navigability determinations are made in Arizona. *PPL Montana, LLC v. Montana*, 132 S.Ct. 1215 (2012), required the Commission to resolve whether individual segments of the affected watercourses were navigable at the time of statehood.

On October 22, 2012, the Commission voted to reopen the record for the Verde and the five other watercourses that had been remanded. The Commission also announced that it would hold additional public hearings for the six remanded cases for consideration of the principles addressed in *Winkleman* and *PPL Montana*.

D. 2014-15 Hearings

In accordance with A.R.S. §§ 37-1123(B) and 37-1126, the Commission gave proper public notice (copies of which are attached as Exhibit B to this report) of its intent to reopen the record and hold additional public hearings for consideration of the principles addressed in *Winkleman* and *PPL Montana*. The notices advised that anyone could appear at the public hearings and give testimony regarding the navigability of the Verde River, and that the Commission would consider all new and existing Evidence in the Record in making its determination.

Hearings were held on the following dates:

- May 1, 2014, in Prescott, Yavapai County, Arizona
- December 15-19, 2014, in Phoenix, Maricopa County, Arizona
- February 18-20 and 23-25, 2015, in Phoenix, Maricopa County, Arizona
- March 30-31, 2015, in Phoenix, Maricopa County, Arizona
- April 1-3, 2015, in Phoenix, Maricopa County, Arizona

(collectively, the "2014-15 Hearings").

At the conclusion of the final public hearing on April 3, 2015, the Commission advised the parties that they could file post-hearing legal briefs pursuant to Commission Rules. Salt River Project Agricultural Improvement and Power District and Salt River Valley Water Users Association (collectively, "SRP"), Freeport Minerals Corporation ("Freeport"), the Salt River Pima-Maricopa Indian Community ("SRPMIC"), the City of Phoenix ("Phoenix"), and the Yavapai-Apache Nation and the Fort McDowell Yavapai Nation ("Nations") submitted briefs in favor of non-navigability (collectively, "Opponents"). The ACLPI, on behalf of Defenders of Wildlife, and the Arizona State Land Department (collectively, "Proponents") submitted briefs in favor of navigability. An *amicus* brief was submitted by Maricopa County and the Flood Control District of Maricopa County ("County and FCD").[1]

On December 15, 2015, at a properly noticed public hearing in Phoenix, Arizona, after considering all of the new and existing Evidence in the Record, the parties' briefs, and the testimony, comments, and oral arguments made at the 2005-06 and 2014-15 Hearings, and having been fully advised by counsel, the Commission determined by a unanimous vote that the Verde River was nonnavigable in both its "ordinary" and "natural" condition at the time of statehood.

II. BURDEN OF PROOF

Arizona Revised Statute § 37-1128(A) provides:

> If the preponderance of the evidence establishes that the watercourse was navigable, the commission shall issue its determination confirming that the watercourse was navigable. If the preponderance of the evidence fails to establish that the watercourse was navigable, the commission shall issue its determination confirming that the watercourse was nonnavigable.

[1] The parties' legal memoranda are available on the Commission's website at http://www.ansac.az.gov/RemandCaseLegalMems.asp.

The proponent of navigability bears the burden of proof of establishing navigability by a preponderance of the evidence. *Winkleman*, 224 Ariz. at 238-39, 229 P.3d at 250-51.

The "preponderance of the evidence" standard is sometimes referred to as requiring "fifty percent plus one" in favor of the party with the burden of proof. If the evidence on each side weighs exactly even, then the party without the burden of proof necessarily prevails. Proponents, as the party with the burden of proof, must convince the Commission that the Evidence in the Record, considered in its totality, weighs in favor of a finding of navigability. *See generally United States v. Fatico*, 458 U.S. 388, 403-06 (E.D.N.Y. 1978), *aff'd*, 603 F.2d 1053 (2d Cir. 1979), *cert. denied*, 444 U.S. 1073 (1980); *United States v. Schipani*, 289 F.Supp. 43, 56 (E.D.N.Y. 1968), *aff'd*, 414 F.2d 1262 (2d Cir. 1969).

While the Proponents bear the burden of proof as to navigability, the Commission "may not begin its determination with any presumption against navigability." *Winkleman*, 224 Ariz. at 239, 229 P.3d at 251. Indeed, "determinations regarding the title to beds of navigable watercourses in equal footing cases must begin with a strong presumption *against* defeat of state's title." *Defs. of Wildlife v. Hull*, 199 Ariz. 411, 426, 18 P.3d 722, 737 (Ct. App. 2001) (emphasis added). A presumption, however, only applies "in the absence of any evidence to the contrary," *In re Westfall's Estate*, 74 Ariz. 181, 186, 245 P.2d 951, 955 (1952), and "should never be placed in the scale to be weighed as evidence," *In re Hesse's Estate*, 62 Ariz. 273, 282, 157 P.2d 347, 351 (1945); *see also Sheehan v. Pima County*, 135 Ariz. 235, 238, 660 P.2d 486, 489 (Ct. App. 1982) ("a presumption disappears entirely upon the introduction of any contradicting evidence and when such evidence is introduced the existence or non-existence of the presumed fact is to be determined exactly as if no presumption had ever been operative").

III. NAVIGABILITY STANDARD

"The standard of navigability for equal footing claims is established by federal law." *Defs. of Wildlife*, 199 Ariz. at 419, 18 P.3d at 730 (citing *Utah v. United States*, 403 U.S. 9, 10 (1971)); *accord PPL Montana*, 132 S.Ct. 1227 ("questions of navigability for determining state riverbed title are governed by federal law"). The federal standard has remained virtually unchanged since 1870, when the U.S. Supreme Court provided the classic definition of navigability in *The Daniel Ball*, 77 U.S. (10 Wall.) 557 (1870):

> Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in 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.

Id. at 563; *see PPL Montana*, 132 S.Ct. at 1228 (collecting cases applying the *Daniel Ball* formulation to determine navigability-for-title under the equal-footing doctrine).

In Arizona, the federal test for navigability-for-title is codified at A.R.S. § 37-1101(5), which states:

> "Navigable" or "navigable watercourse" means a watercourse that was in existence on February 14, 1912, and at that time was used or was susceptible to being used, in its ordinary and 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.

"'Watercourse' means the main body or a portion or reach of any lake, river, creek, stream, wash, arroyo, channel or other body of water. Watercourse does not include a man-made water conveyance system described in paragraph 4 of this section, except to the extent that the system encompasses lands that were part of a natural watercourse as of February 14, 1912." A.R.S. § 37-1101(11). "'Highway for commerce' means a corridor or conduit within which the exchange of goods, commodities or property or the transportation of persons may be conducted." *Id.*; and § 37-1101(3).[2]

[2] The Commission also considered the following definitions in A.R.S. § 37-1101 in making

As relevant here, the Commission's task is to determine: (1) the characteristics of the Verde River at the time of statehood "in its ordinary and natural condition"; and (2) whether, at the time of statehood, the Verde was used or was susceptible of being used as a highway for commerce in that condition. *Winkleman*, 224 Ariz. at 239, 229 P.3d at 251.

In *Winkleman*, the court of appeals clarified that the phrase "ordinary and natural condition" means that a river must be evaluated at the time of statehood in "both its 'ordinary' *and* 'natural' condition." *Id.* at 241, 229 P.3d at 253. It thus directed the Commission to determine "what the River would have looked like on February 14, 1912 in its ordinary (i.e., usual, absent major flooding or drought) and natural (i.e., without man-made dams, canals, or other diversions) condition." *Id.*

In *PPL Montana*, the U.S. Supreme Court held that, with *de minimis* exception, a watercourse's navigability must be determined on a segment-by-segment basis, even where only "short interruption[s] of navigability in a stream otherwise navigable" exist. 132 S.Ct. at 1229, 1230. As to determining the segment in question, the Court observed that shifts in physical conditions, and topographical and geographical indicators provide a means to determine start and end points. *Id.* at 1230. The Court acknowledged that a "*de minimis* exception" may exist where some nonnavigable segments are "so minimal that they merit treatment as part of a longer, navigable reach for purposes of title," and identified the types of considerations that would warrant such an exception as "those

---

this determination:

> 2. "Bed" means the land lying between the ordinary high watermarks of a watercourse.
>
> 6. "Ordinary high watermark" means the line on the banks of a watercourse established by fluctuations of water and indicated by physical characteristics, such as a clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris, or by other appropriate means that consider the characteristics of the surrounding areas. Ordinary high watermark does not mean the line reached by unusual floods.

related to principles of ownership and title, such as the inadministrability of parcels of exceedingly small size, or worthlessness of the parcels due to overdivision." *Id.* at 1230-31.

The Court in *PPL Montana* also addressed the relevance of evidence of present-day, primarily recreational use to the issue of a river's susceptibility to use as a highway for commerce. Specifically, the Court ruled that evidence of "present-day use may be considered to the extent it informs the historical determination whether the river segment was susceptible of use for commercial navigation at the time of statehood." *PPL Montana*, 132 S.Ct. at 1233. However, because navigability-for-title is determined at the time of statehood and concerns a river's usefulness for "trade and travel," rather than for other purposes, the Court ruled that such evidence "must be confined to that which shows the river could sustain the kinds of commercial use that, *as a realistic matter*, might have occurred at the time of statehood." *Id.* at 1233 (emphasis added). Thus, before this type of evidence can be considered in a navigability-for-title determination, "the party seeking to use present-day evidence for title purposes must show: (1) the watercraft are meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the river's post-statehood condition is not materially different from its physical condition[3] at statehood." *Id.*

IV. EVIDENCE RECEIVED AND CONSIDERED BY THE COMMISSION

Pursuant to A.R.S. § 37-1123, the Commission undertook to receive, compile, and review evidence in the record regarding the issue of whether the Verde River was navigable for title purposes as of statehood in its ordinary and natural condition. A list of evidence and records submitted in connection with the 2014-15 Hearings, together with a

---

[3] In light of *Winkleman* and our obligation to consider a river's "ordinary and natural condition" at the time of statehood, we interpret the phrase "physical condition" in *PPL Montana* to mean "ordinary and natural condition."

summarization, is attached as Exhibit C. The minutes from the 2014-15 Hearings are attached as Exhibit D. Documents and testimony submitted in connection with the 2005-06 Hearings ("Old Evidence in the Record") were also considered by the Commission in making this report.

A number of experts submitted evidence and testimony in connection with the 2014-15 Hearings, the details of which are described as relevant below. Jack August, who has his Ph.D. in history, offered his opinion on the history of the region. Richard Burtell, a registered geologist and principal at Plateau Resources LLC, prepared a report on behalf of Freeport Minerals Corporation. Jonathan E. Fuller, a hydrologist and civil engineer, also offered his professional opinion on navigability and boating on the Verde for the ASLD. Hjalmar W. Hjalmarson, a retired engineer with the United States Geological Survey, provided his assessment of navigability as well on behalf of Maricopa County. Robert A. Mussetter, a professional engineer with Tetra Tech, Inc., who has a Ph.D. in Hydraulic Engineering, along with Douglas R. Littlefield, a forensic historian with Littlefield Historical Research, who provided a historical assessment of navigation on the Verde, provided evidence on behalf of the Salt River Project Agricultural Improvement and Power District and Salt River Valley Water Users' Association (collectively, SRP).

V. ANALYSIS OF THE EVIDENCE

A. Physical Characteristics and Geomorphology of the Verde River

"The Verde River heads in the highlands and flows through the central mountain area of Arizona, where the physiography and geology is transitional between the high-elevation, relatively flat Colorado Plateau and the lower-elevation Basin and Range province." Mussetter Decl. at 5. This central mountain area is characterized by the most rugged relief in Arizona, and it contains large, high mountain ranges and deeply dissected alluvial basins. *Id.* Segments 3-5 are entrenched in a relatively narrow, deep canyon, and it remains entrenched downstream to its confluence with the Salt River. *Id.* In some

locations along the Verde River, the bedrock can cause sharp breaks in the longitudinal profile that create waterfalls and rapids, making navigation very challenging and dangerous, or even impossible. *Id.* The coarse-grained sediment and debris delivered from the side canyons and tributaries also creates alluvial fans and bars that constrict the river, causing rapids that also severely limit navigability. *Id.*

Further, much of the downstream, approximately 18 miles of the reach, is bounded by alluvium; "the morphology of the channel at any point in time is inherited from the last significant flood-driven alteration, and this controls the channel form during the subsequent recovery period." *Id.*; *see* Transcript ("Tr.") at 12/15/14:30 (Fuller) (for "[m]ost arid region streams, the Verde River included, it's called flood dominated. What does that mean? When you have a big flood like 1993, it comes through and to some extent it rewrites the system. It moves things around. It moves boulders and it moves sand and moves vegetation, and they leave that persistent mark on the floodplain. There can be some widening of the flood channel and some rearrangement of the flood channels. It moves a lot of vegetation. In some cases there's something called geomorphic threshold. You can substantively change the river."). Following the channel-altering flood events, the river channel recovers slowly. Mussetter at 6. The "larger, more infrequent flows are more geomorphically effective than the frequently occurring flows. During floods, the flows are so powerful that they can rapidly and significantly alter the channel and adjacent overbanks." *Id.* During the recovery periods between floods, the channel form tends toward a single-thread, sinuous configuration within the overall wider cross section created by the disturbance flows. *Id.*

Like other alluvial rivers in the arid southwestern U.S., the Verde experiences cycles of low (or non-existent) to moderate flows punctuated by large, infrequent, monsoon-driven flood events. *See id.* at 9. Rivers can, due to flood events, rapidly transform from a single-thread, meandering platform into a wide, braided, multi-channel

platform in which the flow depths are both spatially and temporally irregular. *Id.*[4] As Dr. Mussetter emphasized, "[b]oth conditions are *natural and ordinary* conditions of the river." *Id.* Especially during flood events and subsequent recovery periods, the multiple, individual channels in the braided platform tend to be very shallow and unstable. *Id.* Where a river is confined by bedrock, the profile of the river is controlled by the bedrock and local deposits of coarse-grained material from debris flows that come from side canyons and from material falling into the river from canyon walls; these features create the rapids, shallow riffles, and, sometimes, waterfalls, that can make navigation extremely challenging or impossible, even for modern whitewater boats. *Id.*

Underlying bedrock is exposed in the bed and banks of the river in many places, implying that the long-term downcutting trend that occurs in the river continues. *Id.* at 10. That exposed bedrock exerts a strong control over the longitudinal profile of the river. *Id.* The combination of long-term downcutting and the erodibility of the pre-incision bedrock and basin-fill units control the extent and character of the terrace deposits and modern floodplain along the Verde. *Id.* Generally, the older terraces flanking the river are more erosion resistant; where this occurs, the river valley is steep and narrow with relatively limited amounts of alluvial storage in the valley bottom. *Id.* However, where the

---

[4] With regard to Mr. Hjalmarson's USGS graph distinguishing braided and meandering rivers based on channel slope and bankfull discharge, Dr. Mussetter testified: "And so Mr. Hjalmarson drew a green circle in the range of gradients for the lower Verde River, and he's suggesting that the bankfull discharge in the lower Verde River is somewhere between 180 and 650 cfs. He also said that it probably corresponds to something akin to the two-year flood. I'm not quite sure how he makes the connection between this level of discharge and the two-year flood. . . . His characterization of bankfull discharge in that plot would mean that the Verde River is flowing at bankfull conditions, essentially, for something between a month and a half and eight months out of the year, which is clearly absurd." *See* Tr. at 2/23/15:1959 (Mussetter); Mussetter Power Point, at 61-62 [x060]. *See also* Tr. at 2/23/15:1961-63 (Mussetter) (With regard to the concept of bankfull discharge, "So if you plot those, the real discharges for the two to five-year event that most geomorphologists would say is the bankfull discharge, you're solidly in the braided category. So this strongly supports the idea that certainly at high flows, the Verde River, you would expect the lower end of that to be in the braided range. . . . This is just for the lower portion of the river."); Mussetter Power Point, at 63-64 [x060].

bounding materials are more erodible, the valley is wider, the slope of the river is flatter and there is more alluvial storage in the valley bottom. *Id.* at 10-11. The confined reaches of the valley (such as Segments 3 and 4, described *infra*) allow little potential for lateral migration of the river, while the lateral migration potential increases significantly where the valley is wider (the downstream, approximately 18 miles of Segment 5, discussed *infra*). *Id.* at 11.

Where the valleys are narrow and confined, the flood events tend to disturb the valley flood sediments, which has the effect of eliminating or modifying vegetation that has become established during the interflood period; by contrast, wider, less-confined areas tend to be depositional during the infrequent flood events, which causes braiding, shifting of the low-flow channels, and disturbance to the riparian plant communities. *Id.*; *see* Mussetter 2014, at 24 [x016] ("The Verde Valley becomes less confined in ASLD Segment 5, providing more potential for lateral adjustment, and widening and braiding under un-regulated flow conditions."). Hydrologic process such as flooding and channel incision have been occurring over several million years and are witnessed by the 90-150 m (300-500 ft) of incised tributaries and the Verde River Canyon below Perkinsville. *See* EIN x001-58, Historical and Pictoral Perspective of the Upper Verde River at 23.

For purposes of determining navigability of the Verde River, the State Land Department has divided the river into six segments. Tr. 12/15/14, p. 47:9-10.

Segment	Description	Source
0	Sullivan Lake to Forest Road 638 • Segment 0-A Sullivan Lake to Granite Creek Ephemeral/Intermittent with rapids • Segment 0-B Granite Creek to Forest Road 638	EIN X035 "Fuller PPT," slides 40-42

	Perennial, pool & riffle, shallow flow with no rapids	
1	Forest Road 638 to Sycamore Canyon Perennial, pool & riffle, bedrock canyon	*Id.* at slides 46-47
2	Sycamore Canyon to Beasley Flat (Verde Valley) Perennial, pool & riffle, alluvial valley	*Id.* at slides 53-54
3	Beasley Flat to Childs	*Id.* at slides 59-60
4	Childs to Needle Rock	*Id.* at slides 65-66
5	Needle Rock to Salt River	*Id.* at slides 71-72

The segment designations were based upon differences in geology, channel characteristics, and changes in the river's hydrology. Tr. 12/15/14 at p. 47:18-48:9.

i. Segments 0-2[5] [6]

Segment 0[7] is perennial below Granite Creek and is characterized by a pool-drop/pool & riffle pattern as well as a bedrock canyon. According to Mr. Burtell's Declaration, Segment 1 is 37 miles long with a slope of 21 feet per mile. *See* Burtell 2014, at 3 [x009]. While it is estimated that there has been depleted base flow since and prior to 1912, there has apparently been minimal other human impact and, in modern times, there have been some flow depletions due to groundwater pumping. EIN x011-69

[5] Dr. Mussetter stated that, based on evidence presented by others, his expert opinion was that Segments 1 and 2 were also "not navigable using boats in customary use for commerce at [the] date of statehood." Mussetter PowerPoint Presentation on Navigability at 45.

[6] By contrast, Hjalmar W. Hjalmarson, using methods he devised, concluded that "Verde River . . . from river mile 3.3 in the Stewart (Campbell) Ranch area to the mouth at the Salt River (mile 230) was susceptible to navigation at the time of statehood (February 14, 1912) in its natural condition." Hjalmar W. Hjalmarson, Navigability Along the Natural Channel of the Verde River, AZ, October 4, 2014 ("Hjalmarson Assessment") at 106.

[7] ASLD, a proponent of navigability, states that it believes that Segment 0 was not boatable by 1912-era watercraft, due to the low flows and boulder channel conditions. EIN x011-69 at 154.

at 40; *see* Tr. at 12/15/14:49 (Fuller). Even in modern times, it is not normally boated. *Id.*; *see* Tr. at 12/15/14:49 (Fuller). Access to the upper portion is steep and difficult. *Id.*; *see* Tr. at 12/15/14:50 (in describing potential navigability of Segment 0-A, Mr. Fuller testified that "[i]f you read the Williams Guide, he decided after the '93 flood to give it a shot down there and ended up climbing out of the steep canyon walls. Too steep, too rocky, not enough water, too dangerous, and decided not to boat that. I don't know of anybody else who has boated that."); Tr. at 12/15/14:59 (with respect to Segment 0-B, Mr. Fuller testified that "[s]ome of the boating guides that are out there describe the boating reaches beginning at Forest Road 638 and describes the reach upstream as more of a drag, pole and paddle."); Tr. at 12/15/14:59 (Fuller noted that Segment 0 did not "have any historical descriptions of boating" on it).

Segment 1 is perennial and characterized by a pool & riffle pattern as well as a bedrock canyon. *Id.* at 46. ASLD estimated that there has been diminished base flow since, and prior to, 1912, but minimal other direct human impact to the channel. *Id.*; *see* Tr. at 12/15/14:62 (Fuller testified that there has "[b]een some diminishment in the flow prior to and before and prior to 1912, primarily due to withdrawals at the upper watershed; to a lesser degree a small diversion at Perkinsville. Other than that, there's not a lot of direct human impact to the channel itself . . . ."); Tr. at 12/15/14:220 ("In terms of its ordinary and natural condition, based on the geomorphology of the reach, I would say it's very similar to its existing condition, particularly in recent years with some of the cattle enclosures.").

Segment 2 is also perennial and is characterized by a pool & riffle pattern in an alluvial valley. *Id.* at 51. Segment 2 has a length of 49 miles with a slope of 13 ft/mi. *See* Burtell 2014, at 3 [x009]. In modern times, ASLD asserted that there have been significant human impacts. *Id.*; *see* Tr. at 12/15/14:79 (Mr. Fuller testified that "[i]t has a pool and riffle pattern, saying it's an alluvial valley, and it has experienced diminished

base flow since and prior to 1912.") Portions of Segment 2 have a braided channel, which is not conducive to navigation. Mussetter 2014, at 24 [x016]; Tr. at 12/15/14:149 (Fuller) (testifying that a photograph of Segment 2 from 1800 shows a braided portion of the river); Tr. at 2/18/15:1350-52 (Hjalmarson) (admitting that a number of the photographs included in his report depict braiding).

Over 100 rapids have been identified along the Verde from its headwaters to Horseshoe Reservoir. Burtell Decl. at 13. From the headwaters to Sycamore Creek, there are 22 rapids ranging from Class I to Class II. *Id.* at 13. Mr. Burtell stated that, "[a]ll of these conditions [the Class I to II rapids mapped along Segment 1 and the upper reach of Segment 2] pose an impediment to navigation and the frequency of rapids along the Verde River would have been more than just a nuisance to commercial boaters before statehood." Burtell Decl. at 13-14 (noting that the Verde shares the San Juan's Class I to III rapids, relatively steep slopes and narrow canyons). Ten additional rapids, typically Class I+, were encountered between Sycamore Creek and Beasley Flats, in Segment 2. *Id.* at 13.

ii. Segment 3

The approximately 17-mile segment between Beasley Flat and Verde Hot Spring is entrenched in a relatively narrow, deep canyon with a relatively steep (approximately 19 feet/mile) gradient. Mussetter Decl. at 11; *see also* Burtell 2014, at 3 [x009] (stating that Segment 3 has a length of 16 miles with a slope of 20ft/mi). The bedrock outcrop at Verde Falls[8] creates an approximately 4-foot high waterfall with a number of other

[8] The *PPL Montana* opinion makes clear that natural obstructions to navigation that would require portages can and often do make the river nonnavigable: "[T]he Montana Supreme Court was wrong to state, with respect to the Great Falls reach and other stretches of the rivers in question, that portages "are not sufficient to defeat a finding of navigability." 355 Mont., at 438, 229 P.3d at 446. In most cases, they are, because they require transportation over land rather than over the water." 132 S. Ct. at 1231.

boulder obstructions. *Id.; see also* Tr. at 2/23/15:1897-98 (Mussetter); Mussetter Power Point, at 18 [x060] (indicating that the drop at Verde Falls is anywhere from 4 to 8 feet). As noted by Dr. Mussetter, Arizona State Parks recommends that even present-day whitewater boaters portage around this area.[9] *Id.* "In other locations, large caliber sediment and debris from the adjacent side canyons constrict the river and/or create shallow riffles, rapids, and obstacles within the channel that represent significant navigation hazards." *Id.* Constrictions in the valley width and bends in the valley alignment also create upstream backwater (a local increase in water-surface elevation and depth, and flattening of the water-surface slope that occurs upstream from a flow constriction) conditions at high flows when coarse-grained sediment is being transported, causing the transported sediment to deposit and form large gravel bars. *Id.* During times of lower flows, the river is constricted to a relatively narrow channel along the sides or across the middle of the bars, which forms rapids and shallow riffles. *Id.*

Between late February and mid-April during high flow boating years, this segment is characterized by challenging whitewater. *Id.* However, there may be no boating opportunities at all during low-flow years. Dr. Mussetter made the point in his report that, while the depths would be somewhat greater at higher flows (by a few tenths of feet, based on the gage measurement data at the *below Tangle Creek* gage), the intensity of the hydraulic conditions at significant rapids like Verde Falls would also be greater, increasing navigation hazards. *Id.* at 14.

Segment 3 contains 33 rapids between Beasley Flats and Verde Hot Springs, most between Classes II-III.[10] Burtell Decl. at 13. There are a total of 11 named rapids,

---

[9] Mr. Farmer testified that it took three men to portage Verde Falls with his 17-foot canoe with 300 pounds in it. *See* Tr. at 12/16/14:390 (Farmer).

[10] Mr. Fuller testified that "Segment 3 is the so-called whitewater reach of the Verde River. So it has its moniker, probably because some of the larger rapids, the larger rapid, are located in this reach." *See* Tr. at 12/15/14:92 (Fuller).

including one Class IV[11] and 7 Class III rapids. *Id.* at 14-15. Dr. Mussetter's opinion was that "the rapids and riffles represent significant impediments to navigation by the watercrafts that were in use at and prior to the time of Arizona's statehood." *Id.* at 14; *see also* Tr. at 2/23/15:1944 (Mussetter) ("[T]hese reaches are relatively narrow, bedrock-confined, flows through a bedrock-confined canyon. There are numerous rapids in these reaches that would make navigation for commercial purposes very impractical. My opinion is these reaches certainly don't meet the standard for navigability using the types of boats that were in customary use for commerce at the date of Arizona statehood."); Mussetter Power Point, at 52 (x060).

With regard to the changes since statehood, Mr. Fuller testified that "this is a fairly pristine reach. In terms of the morphology of the stream, it hasn't changed much since its ordinary and natural condition, with the exception of some reduction in the normal flows." *See* Tr. at 12/15/14:223 (Fuller).

iii. Segment 4

Segment 4 resembles Segment 3 in that this approximately 35-mile segment of the Verde River between Verde Hot Spring and the head of Horseshoe Reservoir is also entrenched into a deep, relatively narrow canyon. Mussetter Decl. at 16. While the

---

[11] The American Whitewater Association defines Class III and Class IV rapids as follows:

Class IV: Intense, powerful but predictable rapids requiring precise boat handling in turbulent water. Depending on the character of the river, it may feature large, unavoidable waves and holes or constricted passages demanding fast maneuvers under pressure. A fast reliable eddy turn may be needed to initiate maneuvers, scout rapids, or rest. Rapids may require "must make" moves above dangerous hazards. Scouting may be necessary the first time down. Risk of injury to swimmers is moderate to high, and water conditions may make self-rescue difficult. Group assistance for rescue is often essential but requires practiced skills.

Class III: Rapids with moderate, irregular waves which may be difficult to avoid and which can swamp an open canoe. Complex maneuvers in fast current and good boat control in tight passages or around ledges are often required; large waves or strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy but group assistance may be required to avoid long swims.

overall gradient is slightly flatter than Segment 3, it is still relatively steep at about 17 feet/mile. *Id.*; *see also* Burtell 2014, at 3 [x009] (stating that Segment 4 has a length of 35 miles, with a slope of 18 ft/mi).

Segment 4 contains 36 rapids, mostly class I+ to II+, from Verde Hot Springs to Horseshoe Reservoir. Burtell Decl. at 13. This reach contains 13 named rapids – 5 of them are rated as Class III and 8 as Class II.[12] Mussetter Decl. at 16. This portion of the Verde contains shallow riffles and severely constricted areas in which the bed of the river is strewn with boulder and cobble-sized material that "would be very difficult to navigate safely at the low to moderate flows that occurred throughout most of the year with the watercraft that were in customary use at and before Arizona became a state." *Id.*

In 2002, Mussetter Engineering, Inc. (MEI) and ERO Resources were retained by SRP to evaluate the effects of several potential dam operating scenarios on the Verde. *Id.* In conjunction with this work, three sites were surveyed: (1) "between the head of Horseshoe Reservoir and the *below Tangle Creek* gage"; (2) "1.7 miles downstream from Horseshoe Dam and just downstream from the mouth of Davenport Wash"; and (3) about 2.3 miles downstream from Bartlett Dam and about 0.6 miles upstream from Box Bar Ranch." *Id.* Site 1[13] was located at the downstream end of Segment 4 and Sites 2 and 3 were located in Segment 5 (discussed *supra*, in the Segment 5 section). While these sites were not located in the areas that would present the greatest challenges to navigation, "even in these areas, navigation at the flows that persist during a significant part of the

---

[12] The American Whitewater Association defines **Class II** rapids as: Straightforward rapids with wide, clear channels which are evident without scouting. Occasional maneuvering may be required, but rocks and medium-sized waves are easily missed by trained paddlers.

[13] Mr. Hjalmarson makes the point that Site 1 has been inundated a few times by water stored behind Horseshoe Dam and has also been subjected to backwater and associated deposition of river transported sediment during large floods. Hjalmar W. Hjalmarson, Addendum to Navigability Along the Natural Channel of the Verde River, AZ, November 14, 2014, at 43. The Committee recognizes that Site 1 may not be representative of the larger area for this reason.

year would be challenging." *Id.*

Mr. Fuller testified, with regard to Segment 4, that "the changes since statehood, again, this is primarily an undisturbed reach, has that wild and scenic designation. That's one of the criteria to get that designation. But the base flow is reduced, and then we get below the dams today, the flow rights are substantially altered by the operations of those dams." *See* Tr. at 12/15/14:224 (Fuller).

iv. Segment 5

The Verde River valley broadens in Segment 5, which provides more opportunities for braiding and widening under unregulated flow conditions. *Id.* at 24; *see also* Burtell 2014, at 3 [x009] (stating that Segment 5 is 55 miles long with a slope of 13 ft/mi). A series of high discharge years in the period prior to statehood (1889, 1890, 1891) apparently caused major channel erosion, which continued in 1905, 1906, 1907 and 1909 (also high discharge years). *Id.*

Site 2 of the MEI project is characterized by an active (unvegetated) channel that is approximately 450 feet wide. *Id.* at 24. The approximately 200-foot wide low-flow channel is fringed by riparian vegetation and a large, sparsely vegetated cobble-gravel bar separates the main channel from a chute channel that is located along the margin of the valley flow. *Id.* at 32. This channel runs along the base of the bounding alluvial fan and terraces for most of the site length. *Id.* The maximum depths at two cross sections located in this area are less than 2 feet for flows up to 225 cfs to 250 cfs. *Id.* The cross sectionally-average depth is less than 2 feet in discharges up to about 600 cfs at XS 2 and greater than 1,000 cfs at XS4. *Id.*

Mr. Fuller testified that Segment 5 is a "perennial stream, pool and riffle, and now we're out of the canyons into an alluvial valley. The flow has been altered since the mid-century, mid-last century, with the major upstream dams. Of course, they were not there in statehood." *See* Tr. at 12/15/14:111 (Fuller).

1. Hydrology of the Verde River[14]

Precipitation in the region is bimodal, with intense monsoonal storms in the summer that are linked to tropical Pacific events and cooler winter storms linked to northern Pacific events. EIN x001-58 at 23. The Verde River is characterized by highly variable flows. One article published in 1892 noted that "[t]he Rio Verde, like all Western streams, is quite copious during the spring months from the periodical rains and melted snow, but during the summer and autumn it is only a creek of 500 inches." Littlefield Report at 99; Littlefield 2014, at 88 [x002] ("Like the annual reports of the U.S. Reclamation Service, the agency's unpublished documents further depicted the Verde River as highly unpredictable and not useful for commercial navigation.").

As the *Weekly Journal-Miner* reported on February 19, 1896, "some dark morning you hear a roar like a mighty wind tearing through a forest, and here it comes--a solid head of water--swift by reason of its great incline, and dark with the soil of the ranchers' valuable land." *Id.* at 99. The effects of the floods on the banks is tremendous: "[t]he high banks, having become saturated, crumble from beneath, and day and night one can hear the sound of large portions of land falling into the water." *Id.* Not only do the floods erode the banks, but "[e]very flood we have changes its current. One year it ripples up against this side, and the next it purrs and murmurs its deceptive little song clear across on the other side, and so back and forth, back and forth, always demanding a toll, and taking it too, with a lavish and liberal hand." *Id.* Mr. Burtell calculated that undepleted flows in the Verde River typically had a mean depth of less than two feet during 75% of the year.

---

[14] The United States Geological Survey ("USGS") has operated six gauges on the Verde, but only two were operational before statehood. *See* Fuller 2003, at 7-5 [EI 31]. According to ASLD's consultants, the average monthly streamflow rate in February 1912 was 300 cfs at the McDowell gauge. *See* Fuller 2003, at 7-6 (Table 7-3) [EI 31]. Two days after statehood, the reading at that gauge was 269 cfs. *Id.* The other pre-statehood gauge was established in February 1911, near Camp Verde. *See* Fuller 2003, at 7-6 [EI 31]. Although only limited measurements were taken, the ASLD's consultants estimate that the average streamflow in February 1912 was approximately 200 cfs. *Id.*

Burtell Decl. at 20.[15]

i. Segments 0-2

Mr. Burtell concluded that, for 75% of the time, undepleted streamflows along the Verde River remained below 100 cfs in Segment 1 and the upper reach of Segment 2. Burtell Decl. at 15; *see also* EIN x011-69 at 142 (stating that the median flow rate in Segment 2 was approximately 26 cfs); EIN x011-69 at 149 (at a flow rate of 42 cfs in Segment 1 (the estimated mean annual), the average depth in feet would be 1.2 and at an estimated mean annual flow rate of 192 cfs, the average depth in Segment 2 would be 2.2 feet). He considers these values to be an upper estimate, as he did not correct for the effects from infiltration and evapotranspiration. *Id.* Mr. Burtell also concluded that, for 75% of the time, undepleted streamflows would be below 500 cfs in Segment 3 and the lower reach of Segment 2. *Id.* Mr. Hjalmarson felt that the Upper Verde River would have a mean annual flow of 60-116 cfs and an average depth of flow of at least 2.9 feet. Hjalmarson Assessment at 7. Mr. Hjalmarson used theoretical calculations to attempt to account for the hypothetical flow at the time the Verde was not used for irrigation.

Historical studies indicate that the upper Verde River was so marshy that the Yavapais were able to farm only 20 of the 125 acres available on the floodplain. EIN x011 at 84. Unsurprisingly, given the marshy conditions, malaria was common and the

---

[15] Mr. Hjalmarson spends some time in his Second Addendum attacking various parts of Mr. Burtell's declaration. The Committee takes note of his comments and the limitations of Mr. Burtell's estimations. *See* Hjalmar W. Hjalmarson, Second Addendum to Navigability Along the Natural Channel of the Verde River, AZ, February 5, 2015, at 74-95. However, the Committee also recognizes the limitations of Mr. Hjalmarson's estimates, such as his changed assumptions on the numbers of acres irrigated, the consumptive use factor he used (which was for a different region and for different crops), failure to account for dryland farming and for deficit farming and piecing together disparate data from multiple years, distorting the estimate of the number of acres irrigated in any one year. *See* Tr. at 12/18/14:1073 (Hjalmarson), Tr. at 12/19/14:1123-25, 1199 (Hjalmarson), Tr. at 2/18/15:1268-1276, Tr. at 2/18/15:1281-82 (Hjalmarson), Tr. at 3/30/15:2736 (Burtell); *see* D.R. Pool, et al., *United States Geological Survey, Regional Groundwater-Flow model of the Redwall-Muav, Coconino, and Alluvial Basin Aquifer Systems of Northern and Central Arizona, Scientific Investigations Report* 2-10-5180, v. 1.1, at 37 (2011) [x037, Freeport 32].

water was forced into standing pools which bred mosquitoes. *Id.* at 86; *see also* EIN x011-69 at 90 (stating that the river "flowed slowly, impeded by many beaver dams, and extensive marshes occupied the floodplains"). It was reported to be "so shallow you could cross it on clumps of grass." *Id.* The occasional floods would cause "the river to cut into banks, change the course of the main river channel and the river bed spread to half a mile wide in places." *Id.* at 87 (also noting that the water would run into pools which became stagnant and sources for malaria).

ii. Segment 3

Modern data from 1945 through 2013 at the *Verde River below Tangle Creek* gage (USGS Gage No. 09508500), which is located just upstream from Horseshoe Reservoir, indicates that the discharge in the river (Segment 2 moving into Segment 3) was less than 240 cfs about half the time and less than 340 cfs about 75% of the time, as measured on an annual basis. Mussetter Decl. at 11; *see also* EIN x011-69 at 142 (stating that the median flow rate was 197 at Clarkdale, measured in cfs); EIN x011-69 at 151 (at an estimated flow rate of 439 cfs in Segment 3, the average depth would be approximately 2 feet). As Dr. Mussetter noted, "[t]he overall hydrologic regime in the river (i.e., not considering the effects of upstream diversion) during the period of the gage measurements appears to be similar to long-term conditions that existed prior to significant human influences." *Id.* at 13. When annual flow volumes were estimated from 1320-2005 using tree ring data, it indicated that the mean flow and annual variance during the period of the estimates are not statistically different from those taken at the gage from 1945-2005. *Id.*

Dr. Mussetter indicated that the discharge in Segments 3 and 4 would have been less than 265 cfs about 50% of the time and less than 375 cfs about 75% of the time, on an annual basis. *Id.* When amended to account for water lost due to irrigation, he estimated that the discharge in Segments 3 and 4 would have been less than 350 cfs about 50% of the time and less than 420 cfs about 75% of the time, on an annual basis. Updated

Mussetter Page 13 Decl.

iii. Segment 4

When the field surveys were conducted in Segment 4 (late November 2012), the discharges recorded at the *below Tangle Creek* gage ranged from 259 cfs to 296 cfs. *Id.* at 17. Dr. Mussetter found that the "maximum depth at the locations within the site that would be most limiting to navigation was only about 2 feet . . . and the cross sectionally-averaged depth at Cross Section (XS) 5 (the shallowest cross section) is less than 2 feet for flows up to about 800 cfs . . . indicating that, even this area that is not the most limiting within Segment 4, would not have been navigable under ordinary and natural conditions at the time of Arizona's statehood. *Id.*; *see also* EIN x011-69 at 152 (at an estimated mean annual flow rate of 559 cfs, the average estimated depth would be 1.1 feet).

iv. Segment 5

Site 3 of the MEI project is about 6.5 miles downstream from Bartlett Dam in a section of the Verde River valley that is about 4,000 feet wide. *Id.* The active channel at the site is about 600 feet in width, and the site is located in a depositional zone upstream from a valley constriction that is caused by erosion-resistant alluvial deposits in the right bank and outcrop of the Needle Rock Formation on the left bank. *Id.* In this site, survey data indicate that maximum depths are less than 2 feet at discharges in the range of 300 cfs to 500 cfs in several cross sections. *Id.* The hydraulic model also indicates average depth of less than 2 feet at discharges up to 1,000-2000 cfs, depending on the cross section. *Id.*; *see also* EIN x011-69 at 153 (showing the massive variability in potential flow, ASLD estimated that the flow rate could range from 142 cfs in June to 2121 cfs in February, causing a range in depth from 1.7 feet to over 4 feet). Likely, during the time period leading up to Arizona's statehood, these low-flow channels were wider, shallower and less stable than under modern conditions. *Id.* This also supports the conclusion that

Segment 5 was not navigable under ordinary and natural conditions at Arizona's statehood. *Id.*

2. Human Impacts on the Verde River

The Colorado plateau and the Verde River Valley were likely occupied by paleo-Indians since around 14,000 B.P. EIN x001-58 at 31. While the influence of hunter-gather nomadic groups was likely small, Paleo-Indians of the Pueblo periods inhabited river valleys like the Verde Valley and Perkinsville Valley, where they built homes, harvested fish and game, and farmed using extensive irrigation canals. *Id.* The valleys of the Verde River were farmed as early as 750 A.D. and probably through the mid-1400s. *Id.* at 31-32.

The Spanish explorer Antonio de Espejo was the first European to visit the Camp Verde area of the Valley during an expedition in May 1583; he was in search of mineral wealth at the location where mines were established near Jerome. *Id.* at 32. In 1598 A.D., Don Juan de Oñate sent his lieutenant, Marcos Farfán de los Godos, to conduct further investigations of the ore mines at Jerome, and he crossed the Verde in 1604 *en route* to the Colorado. *Id.* at 32. For the next 220 years, the Verde Valley remained unnoticed, except for the Paleo-Indians of the area, until the French trappers arrived. *Id.*

Given the importance of water for irrigation in the desert, people were interested in damming the river. On January 17, 1898, the Rio Verde Canal Company recorded a claim with the Maricopa County Recorder for 5,000 cubic feet per second of Verde River Water. In the claim notice, the company said that it would "build and maintain a diversion dam across the Verde River . . . ." Littlefield Report at 100. The company also intended to build other dams: one at what later became known as the Horseshoe Reservoir site, another at the Lower Verde Reservoir site, and a third that was known as Storage Reservoir. *Id.* Interestingly, while the dams would be expected to impede navigation on a navigable river, there is no evidence of any protests against the proposed dams by

navigational interests. *Id.* at 100.

In specifically considering human impacts on Segment 3, Dr. Mussetter stated that "[t]he magnitude of human impacts to the physical characteristics that affect the navigability of this segment have been relatively minor. As a practical matter, the rapids and short, unreliable boating season (even for modern whitewater craft) strongly indicate that this segment [3] was not navigable or susceptible to navigation under ordinary and natural conditions at the time of Arizona's statehood." Mussetter Decl. at 15.

i. Irrigation[16]

Irrigation has been a part of the Verde River's ecology for some time. It was first practiced in this region by ancient peoples; "[i]n the valleys of the Little Colorado, Salt, and Gila Rivers, and along the Verde River and smaller tributaries are found unmistakable remains of ditches and reservoirs, together with ruins of the cliff dwellings and the communal houses of tribes . . . ." EIN x001 Exhibit 26 Irrigation and Agricultural Practice in Arizona at 15. Yavapai Indians were using canals to irrigate their crops along banks of the stream in the 1890s. EIN x001 Exhibit 20, Fish Remains Along the Verde at 7. While the first European irrigators were likely the Jesuits, who established themselves at the Guevavi and San Xavier missions in 1732, it was not until sometime between 1768 and 1822 that there was much development of irrigation along the Santa Cruz River, near Tucson. EIN x001 Exhibit 26 at 16.

Along the Upper Verde, in July 1901 the subcommittee representing the Salt River Valley water users measured the ditches and areas irrigated, about 7,650 acres, concluding that about 70,000 acre-feet for an irrigating season of 200 days was used. *Id.* at 58. It was stated that since 1901 not much additional irrigation had been undertaken. *Id.* Notably,

[16] While irrigation has been used for some time, widespread groundwater pumping did not begin in Arizona until well after statehood. Tr. at 04/02/15:3437-38 (Burtell).

"[a] considerable percentage of the water applied to the soil may work its way back gradually to stream channels and again be taken and applied." *Id.* at 59.

Burtell stated that irrigation by Anglo settlers along and near the Verde increased from about 200 acres in 1864 to nearly 4,000 acres by 1883. Burtell Decl. at 6. He estimated that "these diversions initially depleted about 4 cubic feet per second (cfs) from the Verde River and, by 1883, the depletions had probably increased to nearly 80 cfs." *Id.* His assessment was that even this level of stream depletion would not have substantially changed the depth of the stream and impacted its susceptibility to navigation. *Id.*

ii. Upstream Flow Regulation[17]

Under present conditions, the downstream area of the Verde has an island-braided character, with multiple channels in many locations that are stabilized by riparian vegetation that remains relatively stable due to the upstream flow regulation. *See* Mussetter 2013, at 3 [x016]. Under natural conditions prior to significant upstream flow regulation, this reach (Segment 5, primarily) responded to periodic high flow events such as those that occurred in the late-19th and early 20th centuries by developing a wide, braided pattern with multiple, unstable low-flow channels that would have precluded navigation using the watercraft that were in customary use at and prior to Arizona's statehood. *Id.*

iii. Mining

Mining began in the 1860s in the Verde Valley and Jerome and a smelter at Clarkdale existed in 1912. EIN x011-69 at 75. The period from the 1880s to the present marked a period in the Verde River where humans extracted various river products such as sand and gravel for construction of towns and businesses. EIN x011-58 at 33. As early

[17] The first large dams on the Verde were not constructed until well after statehood. Fuller 2003, at 3-1.

as 1910, extensive gravel mining of Verde River reaches near Tapco, Cottonwood and the Camp Verde area was reported. *Id.*

iv. Cattle Grazing

The first permanent settlers to the Verde Valley arrived in January 1865, and this event marked the beginning of cattle ranching in the Verde Valley. *Id.* at 34. Livestock were intended to meet the needs of Army personnel stationed at what was then known as Fort Lincoln (it later became known as Fort Verde) and the settlers themselves. *Id.* James Baker's 76 Ranch in Perkinsville was reportedly stocked with 10,000 head of cattle in about 1882; however, the cattle were widely distributed in the watershed and not solely in Perkinsville. *Id.* Severe droughts in the area saw many of these cattle perish, however. *Id.*

While many assessments have attributed overgrazing by cattle and other human activities to arroyo cutting, recent examination of Quaternary geologic records linked arroyo formation to changing post-glacial climate, vegetation, groundwater conditions, and human land use. EIN x011-58 at 26. This would link arroyo formation to repeated wet-dry cycles; as water tables drop and vegetation decreases during dry periods, sites become more susceptible to erosion. *Id.* at 27. Subsequent wet periods would then induce flooding and initiate arroyo formation. *Id.*

v. Beaver Dams[18] and Their Removal

Historically, the flow of the Verde was slow, and was impeded by many beaver dams, exacerbating the extensive marshes that occupied the floodplains. EIN x001

---

[18] Beavers are "part of the ordinary and natural condition of the river, if beavers are there and they're making dams. So to artificially remove them I would say would be in the same camp as artificially damming the river and counting that as an ordinary and natural condition." Tr. 12/15/14:186 (Fuller); *see also* Tr. at 3/30/15:2647 (Burtell) ("Again, I'll just reiterate the common occurrence of these beaver dams, as indicated by these historic accounts, suggest that they were common, and they would be a common obstacle that a boater would have to deal with. Would it defeat navigability in its entirety by itself? Maybe yes, maybe no. But it's just one more thing that a boater at this time would have to grapple with.").

Exhibit 20, Fish Remains Along the Verde at 7. Burtell provides a number of historic accounts of beaver dams along the Verde; these reveal that, from the 1860s through the 1880s, beaver dams were common along Segments 1, 2 and 5 of the Verde. Burtell Decl. at 13; *see also* EIN x011-69 at 89 (noting that Segment 2 was "impeded by many beaver dams"). Not only did beavers create dams, and, consequently, lagoons, along the Verde, but they can also quickly repair those dams following flooding, creating an ongoing impediment to boat travel. *Id.* at 13. Trappers in the area acted to temporarily remove beavers from the ecosystem, which would have caused the pools formed behind their dams to drain, locally lowering stream levels. *Id.*

3. Ordinary and Natural Condition

Here, as in *Winkleman*, little Evidence in the Record exists from the time period before prehistoric people arrived and developed diversions on the Verde River. Like in *Winkleman*, however, the evidence that does exist suggests that prehistoric diversions disappeared through non-use over the centuries and largely ceased to exist by the 1840s. *See Winkleman*, 224 Ariz. at 242, 229 P.3d at 254 (holding that the "best evidence" of the Lower Salt River's natural condition was from the time period after the effects of prehistoric diversions had ceased to affect the River, but before the commencement of modern-era settlement and farming).[19] "[P]rior to significant development, the Verde River was a shallow stream easily crossed by horse or mule and characterized by both rapids and lagoons. The river was at times deeper and more difficult to cross, but usually only following storm events and/or during spring snowmelt." *See* Burtell 2014, at 6 [x009].

---

[19] Significantly, the *Winkleman* court did not rule out consideration of evidence of a river's condition after man-made diversions. *See Winkleman*, 224 Ariz. at 243, 229 P.3d at 255. On the contrary, it observed that such evidence, while not dispositive, may nonetheless be informative and relevant and that, as long as "the evidence has indicia of reliability, the determination of the relevance and weight to be afforded the evidence is generally for [the Commission] to make." *Id.*

B. Verde River's Susceptibility to Commercial Navigation

1. Overview

As early as 1865, members of the Arizona Territorial Legislature had reached the conclusion that the Verde River was not navigable. Littlefield Report at 95. On December 28, 1865, the legislators stated that "the Colorado River is the only navigable water in this Territory[.]" *Id.* at 95; *see also* Burtell Decl. at 8.

This seems to be at least partly due to the frequency and severity of floods affecting the Verde. For example, in 1874 Prescott's *Weekly Journal-Miner* described the Verde as rising "about fifty feet in a short space of time." *Id.* at 97. About five months later, the *Weekly Arizona Miner* described another Verde River flood as follows, "[it] rose three feet during yesterday. This morning the angry torrent is rushing southward with terrific force and the muddy water has overflowed the meadows, making it dangerous to ford or attempt to cross." *Id.* There were large numbers of stories describing the Verde River floods throughout the years before Arizona's statehood. *Id.* A river that floods and rearranges its channel on a regular basis would be unlikely to be susceptible to navigation.

In September 1875, the *Weekly Journal-Miner* described the rivers in the area, but noted that none of the streams were navigable: "[t]he San Francisco or Verde River and the Colorado Chiquito (Little Colorado or Flax River) together with the Great Colorado with its wonderful Cañon, are the most important rivers of Yavapai, but there is no navigable water in the county; all freight is moved by large trains of pack mules or heavy wagons drawn by from four to twenty mules to the wagon." *Id.* at 98; *see also* Burtell Decl. at 7.

2. Susceptibility to Navigation Prior to Spanish Exploration

Rich Burtell stated in his declaration that "[n]o evidence of prehistoric boating by Native Americans was found." 2014 Declaration of Rich Burtell on the Non-Navigability

of the Verde River at and Prior to Statehood ("Burtell Decl.") at 4; see also EIN x011-69 at 72 (noting that archaeology has provided no evidence of boats or boating); 2015 Declaration of Jack L. August ("August Decl.") at 4-5 ("These early inhabitants [the Hohokam and others in Mexico and northern Arizona before contact with Europeans] traveled by foot and there was no archeological evidence of boats or water-based transportation. . . . there is a lack of evidence that the semi-nomadic group used the Lower Verde for commerce or travel."). Likewise, in his affidavit for the 2014/15 Hearings, Mr. Randall wrote: "From my many decades of research regarding Yavapai and Apache history and culture, including my review of thousands of federal, state and private archival sources, my interviews with Tribal elders, and my interactions and discussions with historians, ethnographers and archaeologists, I have not come across any accounts of the use of the Verde River being used for trade or travel by our Yavapai and Apache People at all." *See* Randall 2015, at 7 [x055-YAN 1]; *see also* Randall 2015, at 7 [x055-YAN 1] (The "Yavapai and Apache People have never used canoes or rafts to travel on the Verde River and [the] Yavapai and Apache People have no traditional cultural knowledge of how to construct a canoe, boat or raft."); Randall 2015, at 7 [x055-YAN 1] ("No other tribes ever traded with [the] Yavapai and Apache People using canoes, boats or rafts and all of our trade with other tribes was by land routes."); Randall 2015, at 7 [x055-YAN 1] ("People have no oral history of ever seeing a canoe, boat or raft on the Verde River, including when our People returned to the Verde Valley around Camp Verde and Clarkdale in the late 1890's and early 1900's.").

3. Evidence of Actual Navigation or Susceptibility to Navigation During Early Exploration and Before Anglo-Settlement

Before the late 1850s, Arizona was still an unknown region, although it was exploited by self-reliant beaver trappers, investigated by government expeditions, and crossed by wagon trains of emigrants on their way to California. EIN x011-49, Man and

Wildlife in Arizona at 1. Generally, these people passed with little impact, with the exception of the mountain men, who temporarily depressed the beaver population. *Id.*; *see* August Decl. at 5 ("They [Spanish explorers] traveled overland, using horses and mules for transportation . . . After Onate [in 1604], the Yavapai would not see Europeans in their lands for another two hundred years."); August Decl. at 7 ("[Father Eusebio Francisco Kino's brief encounter with the Lower Verde River offers no indication that he navigated the river for transportation or commerce, nor do his diaries suggest that he viewed the Lower Verde as susceptible for transportation or commerce."); August Decl. at 9 ("the Verde River continued to confound cartographers as to its course through central Arizona[, suggesting that mapmakers charged with noting travel routes] omitted or glossed over the Verde because it was not considered navigable as a route for transportation or commerce."); August Decl. at 9-10 (describing various trapping expeditions, none of which used the Verde for transportation); *see also* Tr. at 12/15/14:120-21 (Fuller); Fuller Power Point, Slide 80 [x035].

4. Settlement and Conditions from the Mid-1800s

"By the mid to late 1860s, four military camps were established on or near the Verde River, farming settlements had begun in the Verde Valley, and Prescott had been named the capital of the territory. With this level of early development, it is difficult to explain how military personnel, farmers, and townspeople all failed to use the Verde River as a highway for commerce if it were susceptible to commercial navigation." Burtell Decl. at 9; *see id* at 10-11 (soldiers failed to use the Verde), 11-12 (same for settlers). Burtell felt that, "shallow stream depths, rapids and beaver dams were all characteristic of the Verde River prior to its development. These natural impediments to navigation explain why the river was neither used nor susceptible to use as a highway for commerce at and prior to statehood." *Id.* at 21; *see also* August Decl. at 12 (noting that mapmakers did not known the Verde's course until 1889, indicating that the watercourse

"elicited no interest as a source of navigation"); August Decl. at 13 ("Despite the need to move food, provisions, and supplies, none of these pioneer entrepreneurs used the Verde for travel."); August Decl. at 14 ("Though the detachment encountered the Verde in several instances, the military commanders never used the Verde to move material, munitions, men, or animals from one post to another.").

a. Federal Surveys

When the United States acquired a large amount of territory from Mexico at the end of the Mexican-American War in 1848, federal officials wanted to ready the new lands for homesteading and to record the land's characteristics. Douglas R. Littlefield's Revised and Updated Report: Assessment of the Navigability of the Verde River Prior to and on the Date of Arizona's Statehood, February 12, 1912 (April 3, 2014) ("Littlefield Report") at 13.

Dr. Littlefield noted in his report that, by the time that Arizona became a state, "there had been substantial revisions and alterations to the instructions to federal surveyors concerning how they were to mark and record the intersection of survey lines with non-navigable and navigable bodies of water." *Id.* at 25. While, initially, only navigable bodies of water were supposed to be meandered, some non-navigable bodies of water were also. *Id.* Additionally, surveyors would also loosely use the term "meander" to identify irregular survey lines along reservation boundaries. *Id.*

Significantly, "while there were at least eight federal surveyors who mapped the Verde between the Salt and the Verde's headwaters prior to 1912 and while those surveys were done under the instructions of different survey manuals, at different times of year, and in different years, not one of the surveyors recorded information about the Verde River that would be consistent with a determination of navigability." *Id.* at 26; Littlefield 2005, at 73 [EI32].

b. Land Patents and State Grants

After the Mexican War ended in 1848, the U.S. Congress also passed a variety of homestead laws that were designed to facilitate settlement of the lands in the West that had been acquired from Mexico. *Id.* at 51. Understanding this process is significant because if the Verde River had flowed through a given parcel and had been considered navigable, federal officials would not have granted the title of the bed of the stream to private parties. *Id.* at 61. Consequently, a patent to a quarter section through which the stream ran would have been recorded as somewhat less than 160 acres. *Id.* Further, had the river been considered navigable, an irregularly shaped parcel next to the river would have been identified as belonging to the government instead of an even division of a 640-acre section. *Id.*

As Dr. Littlefield observed, "none of the federal patents that overlay the Verde River (regardless of their respective dates) contain any provisions for reserving the bed of the river to Arizona." *Id.* at 62. Additionally, there "is also no evidence that Arizona, upon statehood, chose lands in lieu of those previously patented upon the river bed, which the state would have been entitled to do had the river been navigable." *Id.* Land patents can also shed light on the question of navigability because a patent file includes details such as whether the farmer built an irrigation ditch from the Verde or whether he used the river for other reasons. Here again, "nothing in the supporting files suggests that the Verde River was navigable or that settlers used the stream for conveying commerce." *Id.*

For example, a number of federal patents in Township 13 North, Range 5 East (Segment 2), near Camp Verde, were granted. *Id.* at 63. One such was to a Joseph H. Morrison, who made a homestead entry application on January 21, 1913. *Id.* The notes about his application state that part of it lay in the river bed. *Id.* at 64. Despite the fact that this information was part of the record, the federal government granted a patent to Morrison without withholding the bed and the banks of the river due to the sovereign

rights of Arizona. *Id.* at 64. Several similar examples were provided by Dr. Littlefield; in none of them was land withheld from patenting due to the presence of the stream, suggesting that the river was considered non-navigable. *Id.* at 65-71.

Further, under the terms of the *Desert Land Act of 1877*, land was also patented in larger blocks (since desert land was considered less productive from an agricultural perspective). *Id.* at 72. Under the Act, the desert land being claimed had to be irrigated before a final patent would be awarded; importantly, the water used in that irrigation had to come from a non-navigable stream. *Id.* There were over 50 applications for land under the *Desert Land Act* in land adjacent to the Verde River, and many of those cited that stream as their source of water. *Id.* at 73. All of the applications were initially accepted by the U.S. General Land Office in Phoenix. *Id.* While many of the applications were subsequently canceled due to the failure to comply with the requirements of the Act, the fact that they were initially accepted indicates that there was a contemporaneous belief that the Verde River was not navigable. *Id.* Further, there is no indication that those cancellations and relinquishments were related to the navigability of the Verde. *Id.*

For example, Dea Mee Get applied for a desert land entry patent for land in Section 18 of Township 15 North, Range 4 East. *Id.* The fact that the U.S. patented this land even when the Verde ran through it suggests that the federal government did not believe the stream to be navigable. *Id.* at 74. Further, the claimant declared that the Verde River was the source of water for irrigation, and the *Desert Land Act* required that the water be from a non-navigable stream. *Id.* Similarly, a patent was issued to Ada D. Andrews, who filed (on February 11, 1914) a desert land application for a parcel through which the Verde River flowed. Not only did the Verde flow through this claim, but it was also stated to be the source of water to reclaim this tract – a statement that would only have been possible had the stream been considered non-navigable. *Id.* at 75.

c. Federal Land Grants to Arizona

Arizona also obtained land by Congressional grants to support various public interest objectives (for example, supporting public schools) prior to and following statehood. *Id.* Arizona was able to select "in-lieu" or indemnity acreage if mineral lands, Indian reservations or other conflicting claims overlay various sections. *Id.* Likewise, if a navigable body of water overlay one of the sections, the state could take land elsewhere that was equal in size to the total area of the bed of the body of water. *Id.* at 76. "Significantly, Arizona made no in-lieu selections to compensate for the area covered by the Verde River's bed in Sections 2, 16, 32 and 36 or in other federal lands granted to the state where they overlay the Verde." *Id.*

d. State Disposition of Federally-Granted Lands

In a special 1915 session, the Arizona State Legislature created an initial version of what became the Public Land Code. *Id.* This code laid out the process by which the state would dispose of its public land. *Id.* Here, again, historical evidence shows that Arizona officials did not consider the Verde River to be navigable when they granted title to parcels through which the stream flowed to private parties. *Id.* at 77. As noted by Dr. Littlefield, in "each case, several parties expressed implicit opinions on the navigability of the Verde through the request for, and award of, lands through which the river flowed. These included the patentee, his witnesses, and officials of the U.S. General Land Office." *Id.* at 78. Significantly, "cumulatively hundreds of people made judgments concerning the Verde River's navigability in this manner – opinions spread chronologically in many years, throughout different seasons, and over a large geographic area." *Id.* Based on this evidence, Dr. Littlefield concluded that "federal patents, Congressional grants to Arizona, and state patents strongly indicate that federal as well as state officials did not perceive the Verde River to be navigable." *Id.*

e. Records of the U.S. Geological Survey

In 1872, the U.S. Government sent George M. Wheeler to both obtain topographical information about Arizona and Nevada and to assess the region's resources, climate and other qualities affecting homesteaders. *Id.* at 80. In Wheeler's report, he mentioned several streams in Arizona, including the Verde, Gila, and the Salt River. *Id.* Notably, Wheeler did not describe any of these rivers as being navigable. *Id.* at 80. Under the section entitled "Means of Communication," Wheeler did note that navigation on the Colorado had taken place as high as Camp Mohave. *Id.* However, he also went on to write that "beyond the Columbia and Colorado Rivers, that furnish somewhat irregular avenues of connection with the interior, no streams of considerable magnitude exist. . . ." *Id.* at 81.

John Wesley Powell, director of the Geological Survey, began what was known as the Powell Irrigation Survey. *Id.* This was aimed at determining which arid lands in the West could be reclaimed by storing and diverting water from the region's streams. *Id.* He noted that the rivers of the Gila Basin "being at that season [spring and early summer] at their very lowest stages – even dry – and rising in sudden floods at the beginning of and during the winter. These floods are of the most destructive and violent character; the rate at which the water rises and increases in amount is astonishingly rapid, although the volume is not always very great." *Id.* He went on to describe the flash floods as follows: "Coming without warning, it catches up logs and bowlders [*sic*] in the bed, undermines the banks, and, tearing out trees and cutting sand-bars, is loaded with this mass of sand, gravel, and driftwood – most formidable weapons for destruction." *Id.* at 81-82. These flash floods both make navigation difficult or impossible, and also provide an unreliable channel for commerce and recreation. *Id.* at 82.

In describing the Verde, Salt, Hassayampa, San Pedro, and Agua Fria rivers as sources of potential irrigation water, the *Twelfth Annual Report of the United States*

Geological Survey stated that "[t]hese streams fluctuate greatly, being at times subject to sudden floods, especially during summer rains, when they often sweep out bridges, dams and canal head works, while at other times they may diminish until the water almost disappears." *Id.* at 82. A record in the *Eighteenth Annual Report of the Unites States Geological Survey to the Secretary of the Interior, 1896-97*, noted that in January 1895 the maximum discharge had been 33,000 cubic feet per second, while the minimum had been only 527 cubic feet per second. *Id.*

f. U.S. Geological Survey Water Supply Papers

The U.S. Geological Survey also published a series of research treatises known as "Water Supply Papers." *Id.* at 83. These papers also detail the widely fluctuating flow of the Verde through various tables – they show that at some times of the year, the stream had less than 100 cubic feet per second in it, while at other times flows could exceed 100,000 cubic feet per second. *Id.* Observations of the stream were also provided. In Water Supply Paper No. 73, Arthur Powell Davis stated that "[b]oth [the Verde and the Upper Salt] streams are more or less torrential in character, the combined flow dwindling at times to about 100 cubic feet per second, and at other times reaching a volume more than one hundred times as great." *Id.* at 84. Regarding the river basin, he stated that "the greater portion of the basin, however, is of a mountainous character, being cut with profound canyons and dotted by rugged mountains." *Id.*

g. Unpublished Records of the U.S. Geological Survey

In preparation for his report to Congress (discussed *infra*), George M. Wheeler observed that "[t]here are three streams whose navigability gives them more or less importance as commercial lines, namely: the Colombia, the Sacramento, and the Colorado rivers." *Id.* at 85. (Wheeler had reduced the number of navigable rivers to two in his final report to Congress.) Another useful observation on the potential navigability of the Verde comes from an unpublished report that was done by E.C. Murphy to determine potential

hydroelectric power sites within Arizona. *Id.* at 86. Murphy noted that there was a long set of runoff data at Camp McDowell covering the period from 1889-1914. *Id.* This data indicated that there was an extreme variation in the Verde's flow on a monthly basis, with the highest flow taking place in March (with a 26-year average of 121,600 acre-feet) to a low in June (with an average of 8,700 acre-feet). Regarding the possibility of hydroelectric power, Murphy stated that "only a comparatively small part of the run-off can be utilized for power on account of the floods and long dry periods – one-fifteenth to one-fifth in the case of the Verde River. . . ." *Id.* at 87.

h. Records of the U.S. Reclamation Service

Like the Geological Survey, the Reclamation Service issued annual reports describing its activities. *Id.* at 88. The *First Annual Report of the Reclamation Service, from June 17 to December 1, 1902* stated, in the context of the Verde being a tributary to the Gila, that "[t]he sources from which water may be obtained for reclamation of the arid lands in Arizona are, taken as a whole, the most erratic or irregular in the entire country. There are comparatively few rivers which flow throughout the year." *Id.*

The *Third Annual Report of the Reclamation Service, 1902-4* discussed two possible dam locations that had been investigated on the Verde: the Horseshoe and McDowell sites. *Id.* While the report discussed which location was more practicable, it gave no indication that either of the two proposed dams might impede navigation on the Verde River. *Id.*

i. Records of the U.S. Indian Service

The Indian Service administered both the Salt River and the Camp McDowell Indian reservations, and the Verde River flowed through both. *Id.* at 91. In one report from 1905, Indian Service Inspector W.H. Code commented on the Verde as follows: "In times of heavy stormes [*sic*], run vast quantities of water which sweep out canal banks and fill sections of the ditch with a heavy sand deposit. . . . [T]he banks of the Verde River at

the head of ditch have suffered great erosion . . . and the river channel seems to have scoured down to a considerable depth . . . ." *Id.* at 92. A letter dated May 20, 1905, from J.R. Meskimons, superintendent of irrigation for the U.S. Indian Service, to Indian Service Commissioner Francis E. Leupp stated that "[t]he map shows the position of the river at the time the survey was made. It has, however, changed its course since . . . the river again rose and cut away its bank until it approached to within ten feet of the canal in one place . . . one good heavy rain would . . . wash out and fill up the canal wherever the flood waters from the hills strike it." *Id.* at 93. Similarly, on September 22, 1905, William H. Gill, a farmer in charge of the McDowell Reservation submitted a summary for inclusion in a report by the Department of the Interior. *Id.* He wrote that "[t]he Verde River, from which the water is diverted, is a mountain stream which becomes a raging flood with every freshet, washing away the embankment at every arroyo, and filling the [Indians'] ditch with sand. This is apt to occur both in the rainy season in summer and also during the winter." *Id.*

On February 10, 1909, C.R. Olberg, superintendent of irrigation, wrote in a letter to W.H. Code that "a flood fifteen feet in depth . . . came down the Verde River a short time ago. This flood also ruined large bodies of tillable land; so that now the channel of the Verde River is approximately a mile in width." *Id.* Further describing the characteristics of the streambed, he wrote that "[t]he Verde River flows through a flat of sand and gravel bars, from one-half to three-quarters of a mile in width, bordered by cut banks from five to twenty feet in height. It swings from one side of the flat to the other, and where it impinges against a cut bank, is continuously eroding away the land." Yet another observer wrote in 1910 that "[t]oday the main channel may be on one side and tomorrow one of the many floods of water may sweep down and change the entire course of the channel to the opposite side of the river, and pile up a sandbar between it and the head of the ditch; or, on the other hand, the swift current is liable to cut into the bank . . . [t]he first

floods coming down may render it [a canal from the river] absolutely useless." *Id.* at 94. Given the frequent issues with flooding and constantly changing banks that have long been a characteristic of the Verde, it seems highly unlikely that the river could provide a reliable means of commerce.

j. Types of Commerce Contemplated Prior to and At Statehood

The Record indicates that the following types of commerce were contemplated prior to and at statehood: transport of mining loads, materials, and equipment; transport of agricultural goods; travel or transport of people; and transport of military supplies. *See, e.g.*, 8/1/13 Tr. at 174-81; 8/2/13 Tr. at 112. Burtell presented evidence that before and after the Civil War, the U.S. Military shipped supplies from San Francisco and transported by boat up the Colorado River to Yuma and La Paz. *See* 8/1/13 Tr. at 174-81. From there, supplies were distributed to military installations along the River overland via wagon trains--not by watercraft. *Id.* Significantly, Burtell found no evidence of the military ever using another Arizona stream other than the lower Colorado as a means to transport supplies to its various installations. *Id.*

C. Instances of Boating on the Verde River

As Mr. Burtell noted, no evidence was found of prehistoric boating on the Verde; eleven "historic accounts of boating the Verde River were identified[,] including five reports of ferrying people and/or materials across the river and four hunting or trapping trips. The two other historic accounts were likely also recreational." Burtell Decl. at 4-5; *see also id.* Table 1.

1. Historic Boating Attempts

Rarely, there were instances of boats on the Verde, but this was infrequent. Littlefield Report at 99. One of the earliest accounts involved a trapper named Leroux, who discussed the rapids on the Verde as well as the lagoons he came across, which

matches other accounts of shallow water that was conducive to breeding mosquitoes with malaria. *See* Tr. at 3/30/15:2006 (Burtell).

Mr. Fuller testified that, in 1868, troops at Fort McDowell attempted to build a raft to ferry the river at high flow, but the raft capsized. See Tr. at 12/15/14:153 (Fuller); Fuller Power Point, Slide 127 [x035]. In June 1873, Charles Hayden attempted to float logs down the Salt River and to establish a lumber mill in Tempe, but could not get the logs through the canyons upstream. *Weekly Arizona Miner*, June 14, 21, 28, 1873. Later, Hayden came to the Verde, but his effort to float logs there also failed. *See* Fuller 2003, at 3-20 [EI 31]. Mr. Fuller also testified that, in 1878, troops at Fort McDowell used a boat to ferry the river "primarily during high flow." *See* Tr. at 12/15/14:153 (Fuller); Fuller Power Point, Slide 127 [x035]. Further, in 1883, N. Willcox and Dr. Andrews took a canvas skiff from Fort McDowell to Barnum's Pier on the Salt River Canal. *See* Tr. at 12/15/14:154-55 (Fuller); Fuller Power Point, Slide 128 [x035]. In 1887, the U.S. Army used a collapsible boat to take couriers across the river during high flows in Segment 2. *See* Tr. at 12/15/14:155 (Fuller); Fuller Power Point, Slide 129 [x035]. In 1888, Major Spaulding traveled from Fort McDowell to Mesa Dam in a canoe, but one of the soldiers died from an accidental gunshot discharge during a portage. *See* Tr. at 12/15/14:156 (Fuller); Fuller Power Point, Slide 130 [x035].

According to Scott Soliday, research historian at the Tempe Historical Museum, an article in the *Mesa Free Press* of 1890 or 1891 describes how, after Fort McDowell was abandoned, A.J. Chandler had logs or sawn timber from the fort floated down the Verde and then used in the head gates of the Consolidated Canal. *See* Fuller 2003, at 3-21 [EI 31].

On March 4, 1891, the *Weekly Journal-Miner* had an article about a boat being used to try to repair railroad facilities where they crossed the Verde River. Littlefield Report at 99. It stated that "[i]n attempting to cross the Verde River the other day, on a

raft constructed of [railroad] ties, his frail craft went to pieces, and but for the precaution of carrying a rope with him, he stood a good chance of being drowned." *Id.* at 99. There is one somewhat apocryphal account of a JK & George Day, who supposedly traveled from Camp Verde to Yuma trapping five separate times. *See* Tr. at 12/15/14:158 (Fuller); Fuller Power Point, Slide 132 [x035].[20]

While there was at least one proposal to float down the Verde River from Jerome to Phoenix, it was made clear that such a trip would be fraught with difficulties, and it is not clear that the adventure ever took place. *Id.* at 100. A 1905 article in the *Arizona Silver Bulletin* said that three men "expect to make the trip in seven days. In places they will have to shoot rapids, and in others it will be necessary to carry their boat." *Id.*

To summarize, while there is some historical and photographic evidence of boats on the Verde, the existence of watercraft on the Verde was "clearly the exception and not the rule." *Id.* at 102; *see also id.* at 103-115.

a. Boats Available at Statehood

The Record indicates that the following boats were available for purchase at the time of statehood in 1912: (a) a flat-bottom fishing boat made of oak and spruce and ranging between 13-16 feet long and between 40-44 inches wide; (b) a 15-foot "smooth silk double pointer boat" made of cedar or cypress that was 42 inches wide; and (c) a square-stern "clinker" row boat, also made of cedar or cypress, ranging in width from 42-44 inches. *See* EIN x002, *Sears, Roebuck and Co. Catalog* (1912) (excerpts); *see also* EIN 107 at 8 ("Before 1830, commercial boating in the West was limited to canoes, flatboats and keelboats.").[21] Some evidence was submitted that a "cataract boat" with a

---

[20] For example, Dr. August testified that the 800-mile distance allegedly traveled in the Day brothers account is "inaccurate." *See* Tr. at 2/25/15:2420-21 (August). Also, Mr. Burtell testified that the actual distance of the Day brothers' trip is less than half of what was reported in the *Sentinel*. *See* Tr. at 3/30/15:2600 (Burtell).

[21] In writing on boating in shallow creeks and rivers generally, Mr. Slingluff has noted that such

beam of four feet and depth of 18 inches were used on September 1901 for a trip down the Colorado River. EIN x001, Photo of Builder Plate of Stone Boat and Company Information (excerpts). While other types of boats might have been theoretically available, the best evidence for boats that could be purchased and used in the area are the boats that actually were used on Arizona's rivers.

A 1909 report by the commissioner of corporations contained information about the types of vessels being used for navigation at the time of statehood. Littlefield Report at 137. The report described a "well-known flat-bottom, stern-wheel steamboat, adapted to the shallow waters of those streams, the design of which has not greatly changed for half a century." *Id.* The boats used were "still mainly built of wood." *Id.*

There is a historical record of a journey by Lieutenant J.C. Ives, who was sent in the mid-1850s to pilot a small steamboat, the *Explorer*, up the Colorado River to assess the Colorado's utility as a navigable waterway. Littlefield Report at 117. He found it quite difficult and reported that "boats rarely make a trip between tide water and Fort Yuma without grounding many times a day." *Id.* Other historical records of boats available around the time of statehood are pictured in photographs taken when John Wesley Powell and Lieutenant George M. Wheeler attempted to navigate the Colorado. *Id.* at 122-135 (showing dories and other rowboats used by the two expeditions).

The Verde could range from a few inches deep to containing water well over the height of humans, and boats in use at the time would need a dependable and reliable draft of around two feet. *Id.* at 139. The dories used by John Wesley Powell on the Colorado or the rowboats used by the Wheeler expedition would have a difficult time using the Verde on a regular basis. *Id.* The Verde's shifting nature also made its course

---

watercourses "are boatable in many different canoes, but aluminum, canvas and wood boats are easily damaged and difficult to repair." Slingluff, "Shallow Streams: Liquid Paths Into Wilderness, *Southwestern Sportsman National Magazine*, Winter 1990-1991, at 16 [EI 34].

undependable as well as dangerous. *Id.* The watercraft available at the time of Arizona's statehood in 1912 make it clear that the vessels could not have been utilized on a regular and dependable basis on the Verde. *Id.*

2. Modern Boating Attempts

a. Modern-Day Boats[22]

The evidence in the record indicates that low-draft boats such as canoes[23], kayaks[24], or inflatable rafts have sometimes traveled downstream or across the River[25] in modern times.[26] However, these boats appear to be dissimilar to boats existing at the time

---

[22] Mr. Fuller testified that modern boats compared to historical boats have "improved durability, no doubt about that." Tr. at 12/15/14:250 (Fuller); *see also* Tr. at 3/31/15:2910 (Dimmock) ("a wood boat won't last as long as a rubber boat."); Tr. at 12/16/14:483 (Farmer) ("Again, if I know that I'm in a wood boat or a fiberglass boat, I'm going to be extra, extra careful with it. If I'm in the plastic boat fully loaded, I might just punch that rock."); Tr. at 12/16/14:314-15 (Referring to the difference between "duckies" (inflatable kayaks that Mr. Lynch and others use) and canoes, "you can hear them, you know, going over the rocks. You can see them hitting things and talking about, oh, yeah, 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.").

[23] Mr. Fuller testified that canoes today are "more durable than they were before." *See* Tr. at 12/15/14:57-58 (Fuller).

[24] Tr. at 12/18/14:878-79 (Fuller) (Inflatable kayaks are "pretty indestructible and foolproof."); Tr. at 3/31/15:2822 (Dimmock) (In the early '70s, "[t]hey invented the plastic kayak, which was more durable than the fiberglass ones and the skin ones before that").

[25] When asked if he thought other portions of the Verde were navigable other than the portions where he operates his tours (he is the only tour provider), Mr. Lynch replied:

> They're tougher because there's a lot -- you know, since nobody's out there maintaining them on a regular basis, there's a lot more tree growth, strainers, trees that have fallen. What we do on the stretches that we commercially boat all the time, we're out there constantly cutting back the bushes, the trees. When things fall into the river, we go out there with our chainsaws, because we've got to get all that stuff out of the 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.

Tr. at 12/16/14:309 (Lynch); *see* Tr. 12/16/15 (Lynch) (stating that there were no other commercial boating operations on the Verde).

[26] Even today, however, obstacles like boulders and other debris are challenging and have to be moved. *See* Tr. at 12/16/14:293, 332 (Lynch) (When asked whether he could still boat the Verde if his company did not move rocks, Mr. Lynch testified: "You would be getting out of your boat a lot" on "all" sections of the river. Further, if he did not remove brush and debris, "you would have to have people getting in and out of the boat all of the time.").

of statehood. As the Slingluff Guide states, "I believe plastic canoes are the best single craft to have. They do not conduct heat or cold very well, they are durable, and they slide easily off rocks. . . . Metal, wood and fiberglass all lack the durability necessary to boat shallow creeks. None of the latter materials will slide off rocks as well as does plastic." Jim Slingluff, Verde River Recreation Guide, First Edition, 1990, at 5 [x035_ASLD 162][27].

The Arizona State Land Department submitted, as its Exhibit 2, excerpts from the Arizona State Parks *Arizona Rivers and Streams Guide* (1989). In it, portions are described as usable as a "low water boating run." EIN x001, Exhibit 2 at 158. However, "[a]ctual dates of runnable flows remain unpredictable." *Id.* The portion from Beasley Flats to Childs is also described as variable: "[o]n good snow years the high water season can last from late February to mid-April. Other years may provide no boating at all." *Id.* at 164. For the portion of the river from Childs to Horseshoe Reservoir, it states that, "[f]or those willing to drag a canoe over a gravel bar the experience of running this stretch of river can be enjoyed almost year-round." *Id.* at 166.

Another piece of evidence submitted by the ASLD is an advertisement for Verde River Sedona Adventure Tours, which states that people can experience a stretch of waterway that "has seen very few boaters on it" as they travel in an "inflatable kayak" EIN x001 Exhibit 24 at 4. Another guide submitted by ASLD stated that "Verde River

---

[27] In the second edition, Mr. Slingluff cautions boaters: "Boaters, paddler clubs, and paddler magazines SHOULD NOT say or infer that a stream is unboatable if what they mean is the stream is too low, or high, or rough, or flat or tree-lined for their particular paddling tastes. Such comments could find their way into the commission or court as evidence that a stream has minimal public value or was not navigable at statehood. Also, go paddle small streams and keep careful records of dates and conditions. Finally, don't forget to write the state land commissioner and let him know you possess information relating to the issue of stream navigability and/or public values. None of us can let our individual and group responsibilities drop on this. It is the boaters, (past, present, and future) who hold the responsibility to secure the beachhead for the coming fight. All share in the fight to see that all public interests are known and protected." Jim Slingluff, Verde River Recreation Guide, Second Edition, 1990, at 148 [x038].

flows can vary widely during any year or season. Low flows (<100 cfs) are typical . . . [d]uring the early summer months, the section between Clear Creek RAP and Beasley Flat may be the only boatable segment in this guide . . . [f]loods can occur during spring snowmelt, after rain-on-snow events or following summer storms." EIN x001 Exhibit 30, Verde River Paddle Trail 89A to Beasley Flat at 5. Later, the guide notes that Point 3 of the paddle trail "can be a dangerous area requiring a portage. Floods, high winds, beavers and chain saws can often drop large limbs and tree trunks into and across the river channel." *Id.* at 12.

The ASLD submitted a newspaper article entitled "A Verde Unusual Cruise," dated June 14, 1989, describing the experience of an ex-Marine who travels up and down a two-mile-long stretch of the Verde at Camp Verde. EIN x001, Exhibit 17. This boat only draws "2 feet of water," but the captain still has to "walk (literally) the river one more time and find a better route. Every so often, his propeller stirs up some mud, and there's an occasional "whomp" when he overruns a submerged piece of wood." *Id.* No one has ever been fished out of the water, because "'[a]ll they have to do is stand up[.]'" *Id.*

Two authors, Mr. Jim Byrkit and Mr. Bob Munson, who have written extensively on the history of the Verde, stated that the river is not navigable, even though they were aware of recreational boating on the river. *See* Fuller 2003, at 4-2 [EI 31]. Mr. Byrkit noted that such boating is normally possible only in February and March, and that in other months, "the Verde River cannot be run because it dries up or because it is dangerous, and that a lot of people have died in the Verde River because they enter the river during flooding." *Id.*

Before evidence of modern day boating can be considered, proponents (as the proponents of the evidence) must establish that: (1) the watercraft are meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the River's post-statehood condition is not materially different from its ordinary and natural

condition at statehood. *See PPL Montana*, 132 S.Ct. at 1233. All of the submitted evidence indicates that, even for modern boats that are lighter and more sturdy than those at the time of statehood, significant obstacles to navigability exist.[28] *See, e.g., Oklahoma v. Texas*, 258 U.S. 574 (1922), *reconsideration denied*, 260 U.S. 711 (1923) (finding the Red River nonnavigable where "[i]ts characteristics are such that its use for transportation has been and must be exceptional, and confined to the irregular and short period of temporary high water"); *see also PPL Montana*, 132 S.Ct. at 1234 (though a river need not be susceptible to navigation at every point of the year, "neither can that susceptibility be so brief that it is not a commercial reality"). Proponents have not done this.

The vast majority of the proponents of navigability's case relies entirely on evidence of modern recreational boating, contrary to the guidance of *PPL Montana*, 132 S. Ct. at 1233, 1233-34 ("If modern watercraft permit navigability where the historical watercraft would not, . . . then the evidence of present-day use has limited or no bearing on navigability at statehood.").

VI. FINDINGS AND DETERMINATION

As noted above, Proponents bear the burden of proof of establishing navigability by a preponderance of the evidence. Winkleman, 224 Ariz. at 238-39, 229 P.3d at 250-51. That is, Proponents must show that it is more likely than not that the Gila River, or a segment thereof, was navigable or susceptible to navigation at the time of statehood under ordinary and natural conditions. If the evidence on each side is exactly even, the Commission must find in favor of nonnavigability. Evidence is something, including testimony, documents, and tangible objects, that tends to prove or disprove the existence of an alleged fact. Black's Law Dictionary (7th Ed. 2013) at 457. The Commission's

[28] *See* Burtell 2014, at 5 [x009] ("[S]ome of the very features that make [the Verde] attractive for recreational use (remoteness, rapids and shallow, rocky channels) would have made the Verde River unsuitable as a highway of commerce at and or before statehood.").

findings and conclusions reflect its evaluation of the Evidence in the Record while sitting as the trier of fact, including evidence presented by way of testimony, and the Commission's determination regarding the weight, if any, to be given to that evidence. See Winkleman, _____ (noting that it is the function of the Commission to determine the relevance and weight of evidence).

A. Findings of Fact

The Commission accepts the division of the Verde River into six segments, as those divisions provide a useful base for analysis. The Commission finds, as a matter of fact, that the Verde has always been subject to unpredictable flooding and seasonal periods of high flows; it is spatially and temporally heterogenous. The Commission finds as a matter of fact, that the channel changes that persist after flood flows recede are part of the "ordinary" condition of the Verde.

The Commission finds, as a matter of fact, that the prehistoric inhabitants in the area did not use the Verde as a highway for commerce. No evidence submitted to the Commission by the ASLD's consultants or any other witness or exhibit indicated any use of boats on the Verde (commercial or otherwise) or any flotation of logs by these early inhabitants. Prehistoric tribes did use the river for canal irrigation. In the 1500s, Spanish explorers are known to have traveled in central Arizona in search of mines. Again, no evidence was presented to show that these explorers ever used boats on the Verde. The Commission finds, as a matter of fact, that the Spanish explorers did not use the Verde as a highway for commerce. The early trappers in Arizona were aware of and capable of building and piloting customary boats used for trapping in the Southwest Region, but there is no evidence they used such boats on the Verde. Further, the Commission finds that one reason early maps did not accurately map the Verde was because settlers at the time did not see it as a highway of commerce. The Commission also finds, as a matter of fact, that the trappers and mountain men did not use the Verde as a highway for

commerce. Similarly, the Commission finds, as a matter of fact, that the early military expeditions in the area did not use the Verde as a highway for commerce; early settlers in the area also did not use the Verde as a highway for commerce. The Commission finds, as a matter of fact, that the federal survey evidence and federal patent evidence support the conclusion that the Verde was not, in its ordinary and natural condition at the time of statehood, susceptible to being used as a highway for commerce.

The Commission finds, as a matter of fact, that the Verde is in its "ordinary" condition when it is not in a state of flood or drought. The Commission finds, as a matter of fact, that any particular segment of the Verde was in its "natural" condition prior to the commencement of upstream diversions (such as for irrigation) and groundwater pumping and prior to the construction of upstream dams. The Commission finds, as a matter of fact, that the Verde was in its "natural" condition from about the mid-1400s to the mid-1800s for Segments 2, 3, 4, and 5 and from about the mid-1400s to the late 1800s for Segments 0 and 1.

The Commission finds, as a matter of fact, that some historical instances of boats on the Verde were reported; however, the rarity of the reports and the fact that they were often seen as newsworthy supports the conclusion that the Verde was (a) not actually used as a highway for commerce prior to statehood and (b) was not, in its ordinary and natural condition at the time of statehood, susceptible to being used as a highway for commerce. Likewise, historical descriptions of the Verde and the hydrology and geomorphology evidence provided also support the conclusion that the Verde was not, in its ordinary and natural condition at the time of statehood, susceptible to being used as a highway for commerce. The Commission finds, as a matter of fact, that modern day boats differ from those existing at the time of statehood, and that the evidence relating to modern day boating supports the conclusion that the Verde was not, in its ordinary and natural condition at the time of statehood, susceptible to being used as a highway for commerce.

The Commission concludes, as a matter of law, that the Verde was not actually used as a "highway for commerce."

The fact that a skilled kayaker in a modern plastic or inflatable craft can float, bump, and scrape down a shallow stream does not make it navigable. If that were the case, modern recreational boating enthusiasts have demonstrated that nearly every stream in the United States is navigable for title purposes. A commercial boater or traveler at the time of statehood would have far greater concern for crashing, wrecking, or swamping their boats and damaging or losing their valuable cargo or customers. This explains the dearth of boating in the Verde's history until the later twentieth century when plastic boats were introduced. The Commission concludes, as a matter of law, that the Verde was not, in its ordinary and natural condition at the time of statehood, susceptible to being used as a "highway for commerce."

As Dr. Littlefield concluded, after having examined a wide array of published and unpublished documents and photographs, including federal surveys and reports, land settlement records created by the United States and Arizona governments, explorers' journals, diaries, early pioneer reminiscences, historical newspaper articles, old photographs, and many other records: "Taken as a whole, these records overwhelmingly illustrate that prior to and at the time of Arizona's statehood the Verde River was considered not navigable by virtually every contemporaneous observer. The historical record amply demonstrates that the Verde River was highly erratic, subject to flooding and major channel changes, and blocked by obstacles." *See* Littlefield 2014, at 1-2 [x002]. Occasional use in exceptional times does not support a finding of navigability.

B. Conclusions of Law

In sum, based on all of the Evidence in the Record (both old and new) and the Commission's review of the applicable law, including the principles addressed in *Winkleman* and *PPL Montana*, the Commission finds, as a matter of law and fact, that on

February 14, 1912, no segment of the Verde River was used or was susceptible to being used in its ordinary *and* 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. Thus, it is not and was not "navigable" as defined by A.R.S. § 37-1101(5), and federal case law. The Commission further finds that all notices of these hearings and proceedings were properly and timely given.

In view of the foregoing, the Commission, pursuant to A.R.S. § 37-1128(A), finds and determines that the Verde River in Cochise, Pima and Pinal Counties, Arizona, was not navigable as of February 14, 1912.

VII. DISSENTING OPINION BY COMMISSIONER BILL ALLEN

I respectfully dissent from the Commission's decision as to Segments 2 and 5 of the Verde. I believe that those segments of the Verde meet the test for navigability, based on the history of those two segments.

A. Legal Standard for Navigability

The proponents of navigability need only establish by a preponderance of evidence that the Segments in question were navigable or susceptible to navigation in the Verde's ordinary and natural condition. *State ex rel. Winkleman v. Arizona Navigable Stream Adjudication Comm'n*, 224 Ariz. 230, 236, 229 P.3d 242, 248 (App. 2010).

The test for navigability for title purposes is a federal test that has its origin in *The Daniel Ball*, 77 U.S. (10 Wall.) 557 (1870), a case that is paraphrased in Arizona statutory law:

> "Navigable" or "navigable watercourse" means a watercourse that was in existence on February 14, 1912, and at that time was used or susceptible to being used, in its ordinary and 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.

Arizona Revised Statutes § 37-1101(5).

"It is not the size of the articles transported in commerce that establishes the navigable character of a waterway. Navigability depends upon the stream's usefulness as a transportation mechanism for commerce." *Puget Sound Power & Light Co. v. Fed. Energy Regulatory Comm'n*, 644 F.2d 785, 789 (9th Cir. 1981).

Essentially, the test requires a determination of whether a river in its ordinary and natural condition was used or susceptible to being used as a highway for commerce. *PPL Montana LLC v. Montana*, 132 S.Ct. 1215, 1228 (2012); *Winkleman*, 224 Ariz. at 239, 229 P.3d at 251. The ordinary condition of the river is the usual condition of the river absent major flooding or drought; the natural condition of the river is the river untouched by civilization, absent man-made dams, canals, and other diversions. *Winkleman*, 224 Ariz. at 241, 229 P.3d at 253. On the Salt River, the court found that it was in a natural condition after the Native American diversions had ceased to affect the river and prior to modern-era settlement and farming in the Salt River Valley that diverted water. *Id.* at 242, 229 P.3d at 254. While the Verde did not have significant Native American diversions, Tr. 12/15/14 at 119 (Fuller), beginning in 1864 with the Perkins ditch, modern-era settlement began diverting the water for irrigation. 031 at 7-23. Some portions of the Verde are boated today; it would be even easier to boat these parts in the Verde's natural condition with more water. X035-167 at 35; Tr. 12/15/14 at 45-46 (Fuller).

B. Historical Boating Accounts Show that Segments 2 and 5 of the Verde Could Be Navigated

Portions of the Verde were also navigated historically. For example, J.K. Day and his brother George left Camp Verde (in Segment 2) on September 1, 1891, in a small boat on a trapping expedition to take their beaver and otter furs to market in Yuma, where they arrived six months later. X001-18. It was J.K. Day's fifth trip; he and his brother planned to repeat the trip the following year. *Id.* They traveled slowly, likely setting traps,

travelling several times between their camp and the traps to check for beaver, then skinning and drying any beaver hides before once again travelling downriver. Tr. 2/25/15 at 2511 (August); X011-52.

In early 1903, Dr. Palmer and Joe Crain boated about sixteen miles on the Verde in a borrowed steel boat, duck-hunting during the course of their trip. X017-97 at 29; 031, at 3-21. This boat had been borrowed from the man who ran the Camp Verde general store, and the boat was hauled upriver on a two-wheeled axle drawn by a horse that could be relied upon to return the empty axle to the corral. *Id.*

It was also reported that Miller, Hooker, Cox and Smith started down the Verde on May 21, 1905, in iron boats from the Jerome area (likely Clarkdale). Tr. 12/15/14 163:5 – 165:21. The trip had been previously postponed because their shipped iron boats were lost in transit. X017-126. Another man, Armstrong, joined them in his own boat at Camp Verde. The boats were "shooting boats" that carried fishing tackle, guns, and ammunition. Downstream of Camp Verde, the water had become low and some of the party ended the trip. X017-126; X017-127. Unfortunately, the trip took place in May, during the irrigation season, which was not the optimal time of year to be using iron boats. Tr. 4/1/15 (Burtell).

In 1910, four hunters in a boat loaded with guns and supplies started from the Verde Valley at about RM 75 on their way to Mesa. They were able to navigate through Segment 2 and Segment 3, but wrecked on a rock at about Red Creek (RM 130) or at the East Verde River, both in Segment 4. X035-164; Tr. 12/15/14 at 166-69 (Fuller). A photograph, probably taken at Beasley Flat, depicts Fred Stevens and his wife, Jessie, in a wooden rowboat on the Verde during the spring runoff in 1917. X017-121; Tr. 12/15/14, at 169-70 (Fuller). Fred and his friend Jake boated through Segment 2 successfully, but did not make it beyond Brown Spring Falls/Verde Falls in Segment 3. *Id.* Fred Fogel and Karl Gireaux launched a flat-bottomed boat at Clarkdale in 1931, intending to trap their

way down to Granite Reef Dam, on the Salt River. X031 at 3-21; X017-125. They exited the Verde eighteen miles north of the old Fort McDowell to Payson road after five weeks on the Verde. *Id.*

Of the total boating accounts that were put into evidence, thirteen reached their destination and four did not. X053-174 at 144. The Verde currently experiences diminished flow and people have had a significant impact on this segment due to diversions and other uses; all of these changes have made it more difficult to navigate this segment of the Verde. Tr. 12/15/14 at 80, 221-22, 920-21 (Fuller); X035-167 at 182. Most of the irrigation that takes place on the Verde occurs in this segment. X031 at 7-23, Table 7-16. In its ordinary and natural condition, the Verde would have had a deeper flow in this Segment. Tr. 12/15/14, at 222 (Fuller); X035-167, at 183. Even with the human impacts, Segment 2 is the most frequently boated and supports commercial recreational boating.

Segment 5 has also supported boating historically. Soldiers at the Fort rafted across the Verde in 1868. Tr. 12/15/14, at 153 (Fuller); X035-167 at 127. In 1885, a ferry boat was upset at McDowell, although no lives were lost. X017-134. Beginning in this Segment, in February 1883, North Willcox and Dr. G.E. Andrews, both of Fort McDowell, boated down the Verde from the Fort to the Salt River Valley Canal in a canvas skiff and had a pleasant trip, except for some rain while they were camping. X017-122. In December 1888, Major Spaulding and Captain Hatfield canoed from Fort McDowell, duck hunting as they traveled to Phoenix. While the Major accidentally shot and killed himself while lifting the boat over the Mesa Dam on the Salt River, the account does not mention any boating difficulties. X017-123. The Day brothers also continued on their fifth trapping trip from Camp Verde and successfully passed through this segment on their way to Yuma. X001-18.

C. Modern Day Boating Demonstrates that Segments 2 and 5 are Navigable

In *PPL Montana*, the Supreme Court's most recent title navigability case, the Court placed two requirements on the use of present-day evidence to demonstrate navigability: (1) the watercraft used are "meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the river's post-statehood condition is not materially different from its physical condition at statehood." *Id.* While no court has disqualified small boats like flatboats, canoes, or kayaks from demonstrating a river's navigability, the United States Supreme Court has cautioned that there may be some "lightweight canoes or kayaks" that could navigate waters that historical watercraft could not. *PPL Montana*, 132 S.Ct. at 1233-34.

Mr. Brad Dimock, an Arizona historical boat builder, author of several books about historical boating in Arizona, experienced Verde boater, professional Grand Canyon rafting guide, and resident of Flagstaff, Arizona, testified that he has built a few dozen boats, including exact replicas of historical Arizona boats used at statehood, and is very familiar with boats used and available in Arizona. Tr. 3/31/15, at 2817-28. Mr. Dimock concluded that modern kayaks, canoes, duck boats, dories, rowboats, and flatboats are meaningfully similar to boats that existed around 1912 in Arizona and throughout the United States. *Id.* at 2850-51. Additionally, he testified that historical boats that existed at statehood could have been used on the Verde. *Id.* at 2833-40.

While there was not a great deal of lumber or other materials along the Verde from which people could build a boat, small boats could be made from lumber or driftwood. Tr. 3/31/15 at 2837 (Dimock); X035-152 at 30-31. Boats could be purchased through mail order and delivery from the Sears or Montgomery Ward catalogues or by special order from boat building companies, including boats like the Peterborough freight canoes, canvas and wood boats, folding boats, kayaks that held cargo, and steel boats. Tr. 3/31/15

at 2835-38, 2860-63 (Dimock); X001-01; X001-13; X035-160, Tr. 6/16/14 at 39 (Fuller). Mention was also made (in the account of the trip discussed *supra* by Miller, Hooker, Cox, and Smith) of iron boats. Tr. 12/15/14 at 163:5–165:21. Both Mr. Dimock and Mr. Fuller addressed how advances in technology have made some modern boats more durable than historic boats. Tr. 3/31/15 at 2835 (Dimock) (modern rafts more durable than wood boats); X035-160, Gila Tr. 6/16/14 at 86-87 (Fuller) (plastics and modern materials are more durable); Tr. 12/15/14 at 57-58 (Fuller) (canoes more durable today). While it is true that boat building technology has improved, it was not these improvements in durability that allowed boating on the Verde.

Today, parts of the Verde are boated year-round, by various types of boats, commercially, and recreationally, sometimes in water levels that are substantially less than those that existed when the Verde was in its natural condition. Tr. 12/17/14 at 555 (Farmer); Tr. 12/15/14 at 116, 255 (Fuller). The U.S. Forest Service actually has a ranger who goes "down the river many, many times throughout the year." Tr. 12/15/14 at 233:10. The Game and Fish Department also uses the River "to go down there and monitor fish and other wildlife populations, and they go down in canoes, heavily loaded canoes, with many pounds of equipment and people in their boats." *Id.* at 232:16-18. Additionally, Mr. Richard Lynch owns Verde River Adventures in Clarkdale, Arizona, and testified about his commercial operation. Tr. 12/16/14 at 283-378, 284 (Lynch). Mr. Lynch has operated his business in Segment 2 since 2007, including above Clarkdale by Sycamore Canyon and down through Camp Verde to Beasley Flats. *Id.* at 285. Each year, his company provides some 5-6,000 people with boating services, guided tubing and kayaking, boat rentals, and general advice about boating the Verde. Tr. 12/16/14 at 285-86, 372. Most of his business occurs from March through October, with the busiest time period from May through September. *Id.* at 285-86, 290. Mr. Lynch noted that once the irrigation withdrawals stopped, the water levels in the Verde rose significantly. *Id.* at 300.

Even with the significantly lower water levels associated with irrigation withdrawals, the Verde still supports his commercial boating operation. Mr. Lynch uses inflatable kayaks (duckies or IKs) because his trips are intended for unskilled people and families. Tr. 12/16/14 at 293, 324 (Lynch). Mr. Lynch also stated that the dominant craft on the Verde is the canoe. Tr. 12/16/14 at 297. He stated that "[c]anoes are a huge part of the Verde River. It's very canoeable." *Id.* Mr. Lynch testified that he sees canoes "every day" on the Verde, including canoes that are fully loaded for five to seven-day trips, as well as canoes without much gear that boat the day stretches of the Verde. *Id.* at 297, 350-51.

Mr. Lynch testified that, in addition to canoes, he had also seen flatboats with motors on the Verde, which are used for duck hunting and fishing. Tr. 12/16/14 at 356, 373-76. The boats he has seen measured up to about 15 feet long by 6 feet wide. *Id.* at 374. Mr. Jon Fuller also testified that he had seen a fully loaded flatboat traveling downstream from Segment 2 through 5. X035-167 at 180, 183, 186, 189, 192; X053-174 at 177 (estimating what percentage of the time flatboats can be used on each segment of the Verde). While Mr. Lynch acknowledged that he and his crew have sometimes made improvements in the Verde, including cutting back strainers, creating more obvious channels by moving rocks, and dealing with fallen trees, he stated that he has done this to provide a better and safer experience for unskilled customers, including children and families. Tr. 12/16/14, at 293, 309-10, 376. In Mr. Lynch's estimation, these improvements would be unnecessary for a skilled boater: "[S]omeone who knows how to read water can pretty successfully boat it all the time, even with a little water, even if we weren't doing things out there . . . ." *Id.* at 376.

Don Farmer also testified that the Verde is navigable. Tr. 12/16/14 at 379-540 - 12/17/15, at 547-574, 555-56. He has boated the Verde about three to five times a year since 1973, and has boated most of Segment 1 and all of Segments 2-5 at various times of the year, from low flows of 20 cfs to flows as large as 10,000 cfs. *Id.* at 380-81.

Specifically, with respect to Segment 5, Mr. Farmer testified that four friends built traditional wooden canoes and boated them successfully through Segment 5 with no issues. Tr. 12/16/14 at 384-87. Mr. Farmer also testified that the depth of the River has not been an issue; in Segment 2, where Mr. Lynch runs most of his commercial operation, Mr. Farmer testified that he almost never needs to get out of his boat for any reason. *Id.* at 404.

Significant modern boating also occurs in Segment 5 throughout the year below Bartell dam, and also through the Fort McDowell Nation land when it is permitted by the Tribe. Tr. 12/15/14 at 112-116 (Fuller). For example, Mr. Colby ran commercial trips on this Segment in canoes. Natural flooding on this Segment no longer occurs due to the dam controls, but, even so, Mr. Farmer testified that, while the brush can be thicker, he has no trouble finding the boating channel. Tr. 12/16/14 at 414 (Farmer). Further, *The Arizona Rivers and Streams Guide* describes both the stretch from Horseshoe Reservoir to Bartlett Lake (twenty miles) and from Bartlett Dam to the Salt (twenty-four miles) as popular with boaters, although both sections depend on dam releases. X0001-2; X035-155 at 121; X035-162, at 118.

D. Weight of the Evidence

The evidence from both historical and modern boating (where the modern boats were meaningfully similar to those that existed at the time of statehood and the Verde was in its ordinary and natural state) demonstrates that the Verde River was navigable in Segments 2 and 5. Because I feel that the Commission should have weighted the evidence provided regarding actual boating that took and is taking place on the Verde more heavily in its determination of navigability, I cannot concur with the opinion of the other Commissioners as to these two segments.

NOW, THEREFORE, the Commission, pursuant to A.R.S. § 37-1128(A), finds and determines that the Salt River from the confluence of the White and Black Rivers, to its confluence with the Gila River, was not navigable for purposes of title as of February 14, 1912.

VIII. ADOPTION AND RATIFICATION

The Commission, having considered all of the historical and scientific data and information, documents and other evidence, including the oral and written presentations made by persons appearing at the public hearings and being fully advised in the premises, hereby adopts and ratifies this report containing its findings and determination regarding the Verde River.

DATED this 28th day of June, 2018.

Wade Noble, Chair

Jim Henness
Deceased, May__, 2018

Jim Horton

Bill Allen

Commission Staff:

George Mehnert
Executive Director

Matthew L. Rojas
Counsel to the Commission

Exhibit A

Evidence Log

Hearing No. 04-009-NAV

Arizona Navigable Stream Adjudication Commission

Verde River

Yavapai County March 29, 2005—Maricopa County November 16, 2005

Item Number	Received Date	Source to ANSAC	Description	Entry By
1	6/10/96	Evidence on Hand—Central Arizona Paddlers Club.	Boating Survey of Arizona Rivers 1992.	George Mehnert
2	11/27/96	Evidence on Hand—Town of Camp Verde.	Letter.	George Mehnert
3	12/2/96	Evidence on Hand—Timothy Flood.	Letter.	George Mehnert
4	12/3/96	Evidence on Hand—Maricopa County Dept of Transportation.	Report.	George Mehnert
5	12/4/96	Evidence on Hand—Thomas Y. Perkins, Perkins Ranch, Inc.	Letter.	George Mehnert
6	12/6/96	Evidence on Hand—U.S. Dept of Agriculture, Forest Service.	Analysis of the Criteria for Navigability.	George Mehnert
7	2/12/97	Evidence on Hand—Land Department.	Report from CH2MHill, Verde River Salt River to Sullivan Lake.	George Mehnert
8	2/18/97	Evidence on Hand—ACLPI.	Letter from David Baron.	George Mehnert
9	5/20/97	Evidence on Hand—Jim Slingluff.	Book—Verde River Recreation Guide, plus 13 loose photographs.	George Mehnert
10	5/20/97	Evidence on Hand—C.A. McDonald..	3 loose photographs.	George Mehnert
11	5/20/97	Evidence on Hand—Source Unknown.	News article by Diane Rabb "River classroom teaches rafters about Verde".	George Mehnert
12	5/20/97	Evidence on Hand—Source Unknown.	Booklet entitled Recreation Opportunity Guide, Verde River, 1997, Prepared by Forest Service.	George Mehnert

Evidence Log Continuation Page

Hearing No. 04-009

Page No. 2

Arizona Navigable Stream Adjudication Commission

Verde River

Yavapai County March 29, 2005—Maricopa County November 16, 2005

Item Number	Received Date	Source to ANSAC	Description	Entry By
13	5/20/97	Evidence on Hand—Source Unknown.	Photo #10 Abondoned Canoe.	George Mehnert
14	5/20/97	Evidence on Hand—Source Unknown.	Photo #11 Another View of Verde Falls.	George Mehnert
15	5/20/97	Evidence on Hand—Source Unknown.	2 pages of color photocopies of a total of 5 photographs including statement "Photos by Tim Flood".	George Mehnert
16	9/16/97	Evidence on Hand—Mr & Mrs Aston.	2 B&W Photos, letters, and maps and claim information regarding Gold Tooth Mine Cottonwood, AZ., including letter dated 9/25/97, which was presumably added to file when it was received at ANSAC.	Gerorge Mehnert
17	10/6/97	Evidence on Hand—Dr. Douglas Littlefield.	Assessment of the Verde River's Navigability prior to and on the date of Arizona's Statehood, February 14, 1912. Includes loose, large maps.	George Mehnert
18	10/15/97	Evidence on Hand—Source Unknown.	Verde River Recreation Opportunity Guide, U.S. Forest Service.	George Mehnert
19	10/15/97	Evidence on Hand—Sun Country Rafting.	Sun Country Rafting Schedules and Prices.	George Mehnert
20	10/15/97	Evidence on Hand—Source Unknown.	Tonto National Forest, Forest Service Map.	George Mehnert
21	9/98	Evidence on Hand—State Land Department	Final Report, Criteria for assessing Small and Minor Watercourses in Arizona.	George Mehnert
22	4/1/03	Mark McGinnis	Information Regarding Navigability of Selected U.S. Watercourses.	George Mehnert
23	3/8/04	Allen Gookin.	Report.	George Mehnert

Evidence Log Continuation Page

Hearing No. 04-009

Page No. 3

Arizona Navigable Stream Adjudication Commission

Verde River

Yavapai County March 29, 2005—Maricopa County November 16, 2005

Item Number	Received Date	Source to ANSAC	Description	Entry By
24	5/4/04	Richard A. Rupp.	Letter.	George Mehnert
25	5/19/04	Candace S. Hughes.	Letter.	George Mehnert
26	6/15/04	Chuck Kranz.	Letter.	George Mehnert
27	6/15/04	Douglas Rhodes.	Letter.	George Mehnert
28	6/20/04	Coby Muckelroy.	Letter.	Gerorge Mehnert
29	6/23/04	Jeanne Keller.	Letter.	George Mehnert
30	12/10/04	Stanley Schumm.	Geomorphic Character of the Verde River.	George Mehnert
31	3/3/05	Land Department.	Report, Jon Fuller, etc.	George Mehnert
32	7/21/05	Dr. Douglas Littlefield.	Revised Report, Assessment of the Verde River's Navigability Prior to and on the Date of Statehood, February 14, 1912	George Mehnert
33	11/15/05	Terrence Colver.	Letter.	George Mehnert
34	1/18/06	Jim Slingluff.	The Southwestern Sportsman Quarterly, Feb 15, 1991, with pages selected by Jim Slingluff, 14, 15, 16, 17, 18, & 19. Plus PowerPoint presentation slides used by Mr. Slingluff on 1/18/06.	George Mehnert

Evidence Log Continuation Page

Hearing No. 04-009

Page No. 4

Arizona Navigable Stream Adjudication Commission

Verde River

Yavapai County March 29, 2005—Maricopa County November 16, 2005

Item Number	Received Date	Source to ANSAC	Description	Entry By
35	1/18/06	Jim Slingluff.	Arizona Hunter & Angler Magazine, April 1991 with pages selected by Jim Slingluff 22, 23, 24, & 25.	George Mehnert
36	1/18/06	Jim Slingluff.	Arizona Hunter & Angler May 1991, with pages selected by Jim Slingluff, 7, 8, 10, & 11.	George Mehnert
37	1/18/06	Jim Slingluff.	Book—The Canoe A Living Tradition with pages selected by Jim Slingluff, 17, 19, 27, 33, 38, 54, 55, 56, & 77.	George Mehnert
38	1/18/06	John Fuller.	PowerPoint printouts from Jon Fuller for he and Phil Pearthree. Plus CD of PowerPoint Presentation from 1/18/06.	George Mehnert

Exhibit B

Affidavit of Publication

Payson Roundup

STATE OF ARIZONA 10069283

COUNTY OF GILA 4/1/2014

I, Paula VanBuskirk, do solemnly swear that I am Assistant Bookkeeper of the Payson Roundup, that the same is a newspaper printed, in whole or in part, and published in the COUNTY OF GILA, State of Arizona, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said COUNTY OF GILA for a period of more than fifty-two weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879, or any amendments thereof, and that said newspaper is a newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Arizona. That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said daily newspaper for the period of 1.00 consecutive insertions; and that the first publication of said notice was in the issue of said newspaper dated April 01 A.D., 2014, and that the last publication of said notice was in the issue of said newspaper dated April 01 A.D., 2014. In witness whereof I have hereunto set my hand this April 01 A.D., 2014.

Paula VanBuskirk

Subscribed and sworn to before me, a Notary Public in and for the COUNTY OF GILA, State of Arizona April 01 A.D., 2014.

Julie Lynn Williams, Notary Public

OFFICIAL SEAL
JULIE LYNN WILLIAMS
Notary Public - State of Arizona
GILA COUNTY
My Comm. Expires March 29, 2015

15296: 4/1/2014
NOTICE OF PUBLIC HEARING
Hearing Date: May 1, 2014
State of Arizona
Navigable Stream Adjudication Commission

Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).

The hearing will be held from 8:00 am to 12:00 p.m. at the Yavapai County Board of Supervisors Board Room, 1015 Fair Street, Prescott, Arizona 86305. This is the only hearing date scheduled for the Verde River in Yavapai County. It is anticipated that the hearing will not be completed on May 1, 2014, and will be continued on a future date in Phoenix.

Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.

Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.

Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.

George Mehnert, Executive Director.
March 25, 2014

Affidavit of Publication

State of Arizona
County of Gila

Marc Marin, or his authorized representative being first duly sworn deposes and says: That he is the Publisher of the Arizona Silver Belt and the San Carlos Apache Moccasin newspapers, located at 298 North Pine Street, Globe, Arizona 85501, or mail: P.O. Box 31, Globe, Arizona 85502.

The above stated newspapers are published weekly in Globe, in the State of Arizona, County of Gila and that the following described __√_legal, or ___ advertising was duly published.

NOTICE OF PUBLIC HEARING
Hearing Date: May 1, 2014
State of Arizona
Navigable Stream Adjudication Commission
Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in *State v. Arizona Navigable Stream Adjudication Comm'n,* 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in *PPL Montana, LLC v. Montana,* 556 U.S. ___, 132 S.Ct. 1215 (2012).

A printed copy of said legal or advertising is attached hereto and was published in a regular weekly edition of said newspaper (and not a supplement thereof) for 1 consecutive weeks in the __√_ Arizona Silver Belt newspaper, and/or the __√__ San Carlos Apache Moccasin newspaper. The dates of publication being as follows, to wit:

April 2, 2014

Marc Marin
Publisher

State of Arizona)
) ss:
County of Gila)

The foregoing instrument was acknowledged before me **April 2, 2014,** by Marc Marin.

Notary Public

BETHEL JEAN BAKER
Notary Public - State of Arizona
GILA COUNTY
My Commission Expires
December 31, 2015

My Commission Expires:
December 31, 2015

NOTICE OF PUBLIC HEARING
Hearing Date: May 1, 2014
State of Arizona
Navigable Stream Adjudication Commission
Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in *State v. Arizona Navigable Stream Adjudication Comm'n,* 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in *PPL Montana, LLC v. Montana,* 556 U.S. ___, 132 S.Ct. 1215 (2012).
The hearing will be held from 8:00 am to 12:00 p.m. at the Yavapai County Board of Supervisors Board Room, 1015 Fair Street, Prescott, Arizona 86305. This is the only hearing date scheduled for the Verde River in Yavapai County. It is anticipated that the hearing will not be completed on May 1, 2014, and will be continued on a future date in Phoenix.
Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.
Evidence submitted in advance of the hearing will be availsble for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m. Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.
Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.
George Mehnert, Executive Director.
March 25, 2014
One Pub: 4/2/2014 Bell 8974

AFFIDAVIT OF PUBLICATION

THE ARIZONA REPUBLIC

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

Brian Billings, being first duly sworn, upon oath deposes and says: That he is a legal advertising representative of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published in Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic

April 1, 2014

Sworn to before me this
1ST day of
April A.D. 2014

MANUEL VARGAS
Notary Public - State of Arizona
MARICOPA COUNTY
My Commission Expires
November 30, 2015

Notary Public

NOTICE OF PUBLIC HEARING
Hearing Date: May 1, 2014
State of Arizona
Navigable Stream Adjudication Commission
Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).
The hearing will be held from 8:00 am to 12:00 p.m. at the Yavapai County Board of Supervisors Board Room, 1015 Fair Street, Prescott, Arizona 86305. This is the only hearing date scheduled for the Verde River in Yavapai County. It is anticipated that the hearing will not be completed on May 1, 2014, and will be continued on a future date in Phoenix.
Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.
Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.
Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.
George Mehnert, Executive Director.
March 25, 2014
Pub: April 1, 2014

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
County of Yavapai) ss.

I, **Teri Bryant,** being first duly sworn on her oath, say:
That she is the Legals Clerk of PRESCOTT NEWSPAPERS, INC., an Arizona corporation, which owns and publishes **THE DAILY COURIER**, a Daily Newspaper published in the City of Prescott, County of Yavapai that the notice attached hereto, namely,

NSAC
NOTICE OF PUBLIC HEARING
MAY 1, 2014

has, to the personal knowledge of affidavit, been published in the news paper aforesaid, according to law, on **1** day of **APR, 2014** to **1** day of **APR, 2014** both inclusive without change, interruption or omission, amounting in all 1 insertions, made on the following dates:
APR 1, 2014

By: _____
Dated this 4 Day of **APR, 2014**

By: _____
Notary Public

JESSICA D WALTHER
Notary Public - Arizona
Yavapai County
My Commission Expires
December 10, 2015

My commission expires:

NOTICE OF PUBLIC HEARING
Hearing Date: May 1, 2014
State of Arizona
Navigable Stream Adjudication Commission

Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).

The hearing will be held from 8:00 am to 12:00 p.m. at the Yavapai County Board of Supervisors Board Room, 1015 Fair Street, Prescott, Arizona 86305. This is the only hearing date scheduled for the Verde River in Yavapai County. It is anticipated that the hearing will not be completed on May 1, 2014, and will be continued on a future date in Phoenix.

Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.

Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.

Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.

George Mehnert, Executive Director.
March 25, 2014
1TC PUB Apr 1, 2014

AFFIDAVIT OF PUBLICATION

THE ARIZONA REPUBLIC

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

Tabitha Weaver, being first duly sworn, upon oath deposes and says: That she is a Sr. legal advertising representative of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic

September 12, 2014

Sworn to before me this
12th day of
September A.D. 2014

BRIAN BILLINGS
Notary Public - State of Arizona
MARICOPA COUNTY
My Commission Expires
July 25, 2018

Notary Public

NOTICE OF PUBLIC HEARING
Hearing Date: October 20, 2014
State of Arizona
Navigable Stream Adjudication Commission
Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).
This is the continuation of a hearing that began May 1, 2014 at the Yavapai County Board of Supervisors Board Room in Prescott, Arizona. The hearing will resume on October 20, 2014 at 9:00 a.m. at the Arizona State Senate Building, Hearing Room 1, 1700 West Washington St., Phoenix, AZ 85007. The hearing is scheduled for five consecutive days at this location, if necessary, ending October 24, 2014. While it is anticipated that each day of the hearing will begin at 9:00 a.m. and end at approximately 5:00 p.m., the Chair reserves the right to alter the schedule as needed.
Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence, including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.
Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.
Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.
George Mehnert, Executive Director
September 4, 2014
Pub: September 12, 2014

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
County of Yavapai) ss.

I, **Teri Bryant,** being first duly sworn on her oath, say:
That she is the Legals Clerk of PRESCOTT NEWSPAPERS, INC., an Arizona corporation, which owns and publishes **THE DAILY COURIER,** a Daily Newspaper published in the City of Prescott, County of Yavapai that the notice attached hereto, namely,

NOTICE OF PUBLIC HEARING
NAVIGABLE STREAM ADJUDICATION COMMISSION
OCTOBER 20, 2014

has, to the personal knowledge of affidavit, been published in the news paper aforesaid, according to law, on 12 day of **SEP, 2014** to **12** day of **SEP, 2014** both inclusive without change, interruption or omission, amounting in all 1 insertions, made on the following dates:
SEP 12, 2014

By: _____
Dated this 12 Day of SEP, 2014

By: _____
Notary Public

My commission expires:

NOTICE OF PUBLIC HEARING
Hearing Date: October 20, 2014
State of Arizona
Navigable Stream Adjudication
Commission

Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).

This is the continuation of a hearing that began May 1, 2014 at the Yavapai County Board of Supervisors Board Room in Prescott, Arizona. The hearing will resume on October 20, 2014 at 9:00 a.m. at the Arizona State Senate Building, Hearing Room 1, 1700 West Washington St., Phoenix, AZ 85007. The hearing is scheduled for five consecutive days at this location, if necessary, ending October 24, 2014. While it is anticipated that each day of the hearing will begin at 9:00 a.m. and end at approximately 5:00 p.m., the Chair reserves the right to alter the schedule as needed.

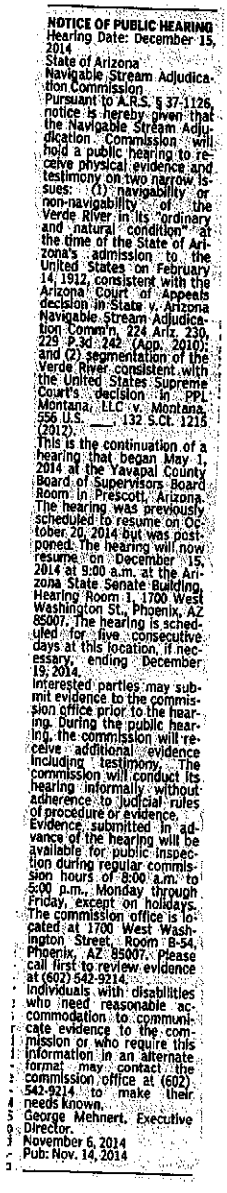
Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.

Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.

Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.

George Mehnert, Executive Director.
September 4, 2014
1TC PUB Sept. 12, 2014

AFFIDAVIT OF PUBLICATION



NOTICE OF PUBLIC HEARING
Hearing Date: December 15, 2014
State of Arizona
Navigable Stream Adjudication Commission
Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).
This is the continuation of a hearing that began May 1, 2014 at the Yavapai County Board of Supervisors Board Room in Prescott, Arizona. The hearing was previously scheduled to resume on October 20, 2014 but was postponed. The hearing will now resume on December 15, 2014 at 9:00 a.m. at the Arizona State Senate Building, Hearing Room 1, 1700 West Washington St., Phoenix, AZ 85007. The hearing is scheduled for five consecutive days at this location, if necessary, ending December 19, 2014.
Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence. Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.
Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.
George Mehnert, Executive Director.
November 6, 2014
Pub: Nov. 14, 2014

THE ARIZONA REPUBLIC

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

Manuel Vargas, being first duly sworn, upon oath deposes and says: That he is a legal advertising representative of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic

November 14, 2014

Sworn to before me this
14TH day of
November A.D. 2014

MELISSA HOEKSTRA
Notary Public - State of Arizona
MARICOPA COUNTY
My Commission Expires
August 1, 2018

Notary Public

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
County of Yavapai) ss.

I, **Teri Bryant,** being first duly sworn on her oath says:
That she is the interim Legals Clerk of PRESCOTT NEWSPAPERS, INC., an Arizona corporation, which owns and publishes **THE DAILY COURIER**, a Daily Newspaper published in the City of Prescott, County of Yavapai that the notice attached hereto, namely,

ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION
NOTICE OF PUBLIC HEARING
DEC 15, 2014

has, to the personal knowledge of affidavit, been published in the news paper aforesaid, according to law, on **14** day of **NOV, 2014** to **14** day of **NOV, 2014** both inclusive without change, interruption or omission, amounting in all 1 insertions, made on the following dates:
NOV 14, 2014

By: _____
Dated this **14** Day of **NOV, 2014**

By: _____
Notary Public

My commission expires:

NOTICE OF PUBLIC HEARING
Hearing Date: December 15, 2014
State of Arizona Navigable Stream
Adjudication Commission

Pursuant to A.R.S. § 37-1126, notice is hereby given that the Navigable Stream Adjudication Commission will hold a public hearing to receive physical evidence and testimony on two narrow issues: (1) navigability or non-navigability of the Verde River in its "ordinary and natural condition" at the time of the State of Arizona's admission to the United States on February 14, 1912, consistent with the Arizona Court of Appeals decision in State v. Arizona Navigable Stream Adjudication Comm'n, 224 Ariz. 230, 229 P.3d 242 (App. 2010); and (2) segmentation of the Verde River consistent with the United States Supreme Court's decision in PPL Montana, LLC v. Montana, 556 U.S. ___, 132 S.Ct. 1215 (2012).

This is the continuation of a hearing that began May 1, 2014 at the Yavapai County Board of Supervisors Board Room in Prescott, Arizona. The hearing was previously scheduled to resume on October 20, 2014 but was postponed. The hearing will now resume on December 15, 2014 at 9:00 a.m. at the Arizona State Senate Building, Hearing Room 1, 1700 West Washington St., Phoenix, AZ 85007. The hearing is scheduled for five consecutive days at this location, if necessary, ending December 19, 2014.

Interested parties may submit evidence to the commission office prior to the hearing. During the public hearing, the commission will receive additional evidence including testimony. The commission will conduct its hearing informally without adherence to judicial rules of procedure or evidence.

Evidence submitted in advance of the hearing will be available for public inspection during regular commission hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except on holidays. The commission office is located at 1700 West Washington Street, Room B-54, Phoenix, AZ 85007. Please call first to review evidence at (602) 542-9214.

Individuals with disabilities who need reasonable accommodation to communicate evidence to the commission or who require this information in an alternate format may contact the commission office at (602) 542-9214 to make their needs known.

George Mehnert, Executive Director.
November 6, 2014
ITC PUB Nov. 14, 2014

Exhibit C

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X001	ASLD	1897 Sears Roebuck & Co. Catalog 1895 Montgomery Ward & Co. Catalog	PDF
X001	ASLD	Ariz. State Parks, Arizona Rivers & Streams Guide (1989) (excerpts)	PDF
X001	ASLD	Photo, Emery and Ellsworth Kolb, Dave Rust in Canoe, NAU Cline Library Kolb Collection, NAU.PH.568-966	PDF
X001	ASLD	Hunter Trader Trapper (excerpts from Dec. 1908-Mar. 1909)	PDF
X001	ASLD	Herman Hoops, *The History of Rubber Boats and How They Saved Rivers* (2009)	PDF
X001	ASLD	Hunter Trader Trapper (July 1912) (excerpts)	PDF
X001	ASLD	Hunter Trader Trapper (Oct. 1912) (excerpts)	PDF
X001	ASLD	Keith C. Wilbur, *Dugout Canoes*, Indian Handcrafts (Jan. 2001)	PDF
X001	ASLD	Gaylord Staveley, *'Than The Man: The Life and Times of Nathaniel Galloway*, *in* Reflections of Grand Canyon Historians (Todd R. Berger ed. 2008)	PDF
X001	ASLD	Grand Canyon Historical Boat Drawings May 2013, including: Edith, Glen, and Stone	PDF
X001	ASLD	King Folding Boat Company (May 16, 2013)	PDF
X001	ASLD	Photo of Builder Plate of Stone Boat and Company Information	PDF
X001	ASLD	Sears, Roebuck & Co. Catalogue No. 124 (1912) (excerpts)	PDF
X001	ASLD	Canvas Canoes, Why Wood and Canvas, www.canvascanoes.co.uk (last visited July 2013)	PDF
X001	ASLD	Ambrose Canoes, About Canoes, www.ambrosecanoes.com/about-canoes/	PDF
X001	ASLD	All Rivers Segment Map	PDF
X001	ASLD	Gail Tabor, *A Verde Unusual Cruise*, Ariz. Republic (June 1989)	PDF
X001	ASLD	*A Long Journey*, Ariz. Sentinel (Apr. 2, 1892)	PDF
X001	ASLD	*Daring Jerome Explorers*, Bisbee Daily Review (May 26, 1905)	PDF
X001	ASLD	W.L. Minckley & Norman T. Alger, *Fish Remains from an Archaeological Site Along the Verde River Yavapai County, Arizona* (1968)	PDF
X001	ASLD	W.L. Minckley, Ph.D., *Fishes and Aquatic Habitats of the Upper San Pedro River System, Arizona and Sonora* (Mar. 1987)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X001	ASLD	Kennebec Canoe Company, Dragonfly Canoe Works, http://dragonflycanoe.com/wood-canoe-identification-guide/kennebec-canoe-company/	PDF
X001	ASLD	*Verde River Runoff*, Canoe Race Brochure (Mar. 29, 2014)	PDF
X001	ASLD	*Float the Verde River with Sedona Adventure Tours* (Mar. 20, 2014)	PDF
X001	ASLD	James W. Byrkit, *A Log of the Verde: The "Taming" of an Arizona River*, J. Ariz. Hist. (Spring 1978), 31-54	PDF
X001	ASLD	R.H. Forbes, *Irrigation & Agricultural Practice in Arizona* (June 30, 1911)	PDF
X001	ASLD	Marc W. McCord, *Sullivan Lake to Perkinsville*, Southwest Paddler (2003)	PDF
X001	ASLD	Ariz. State Parks, *Verde River Paddle Trail Tuzigoot Bridge to Highway 89A Bridge*	PDF
X001	ASLD	*A Boater's Guide to the Verde River Beasley Flat to Sheep Bridge*	PDF
X001	ASLD	*Verde River Paddle Trail Highway 89A to Beasley Flat*, Verde Valley Land Preservation (2012)	PDF
X001	ASLD	USGS, *Human Effects on the Hydrologic System of the Verde Valley, Central Arizona, 1910-2005 and 2005-2110, Using a Regional Groundwater Flow Model* (2013)	PDF
X001	ASLD	*A Portable Folding Boat*, 6 Manufacturer & Builder (July 1874)	PDF
X001	ASLD	Dan Beard, *How to Build a Cheap Boat*, Outing (May 1905)	PDF
X001	ASLD	Photos - Boats in the Grand Canyon Collection	PDF
X001	ASLD	William Draper Brinckle, *Just a Boat*, Country Life in America (July 1909)	PDF
X001	ASLD	F.H. Carpenter, *A Floating Camp at a Dollar a Day*, Country Life in America (June 2010)	PDF
X001	ASLD	Brad Dimock, *The Case for James White's Raft Trip Through Grand Canyon: The Story of White's Story*, *in* Reflections of Grand Canyon Historians (Todd R. Berger ed. 2008)	PDF
X001	ASLD	Brad Dimock, *The James White Debate*, *in* Reflections of Grand Canyon Historians (Todd R. Berger ed. 2008)	PDF
X001	ASLD	Donal Hamilton Haines, *A Back-Yard Wilderness*, Outing (July 1915)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X001	ASLD	A.G. Holmes, *Ducking Boats of Many Waters*, Outing (Oct. 1901)	PDF
X001	ASLD	*How to Construct a Row-Boat*, 7 Manufacturer & Builder (Aug. 1875)	PDF
X001	ASLD	A. William Masters, *Outing With a Portable Equipment*, American Homes & Garden (July 1911)	PDF
X001	ASLD	St. Nicholas, *The Small Water Craft of the American's of Yesterday and Today*, Nature and Science for Young Folks (May 1913)	PDF
X001	ASLD	W.E. Partridge, *Rowboats and Boating*, Country Life in America (June 1910)	PDF
X001	ASLD	Scott Peters, Pouliot Boat Company	PDF
X001	ASLD	Edward L. Pratt, *A Three-Dollar Houseboat Vacation*, Country Life in America (June 1910)	PDF
X001	ASLD	*The Layman Pneumatic Sporting and Outing Boat*, 72 Scientific American (May 1895)	PDF
X001	ASLD	W.P. Stephens, *Sport in All Kinds of Water Craft*, Country Life in America (Aug. 1908)	PDF
X002	SRP	Douglas R. Littlefield, Ph.D., Revised & Updated Report: Assessment of the Navigability of the Verde River Prior To and On the Date of Arizona's Statehood, February 14, 1912 (Apr. 3, 2014)	PDF
X003	Andy Groseta	Letter from George Kovacovich to Wade Noble, Chair, ANSAC (May 1, 2014)	PDF
X004	Andy Groseta	Letter from Andy Groseta, Groseta Ranches LLC, to Wade Noble, Chair, ANSAC re: Verde River Navigability Hearing May 1, 2014 - Prescott (May 1, 2014)	PDF
X005	Andy Groseta	Letter from Andy Grosetta, President, Cottonwood Ditch Association, to Wade Noble, Chair, ANSAC re: Verde River Navigability Hearing May 1, 2014 - Prescott (May 1, 2014)	PDF
X006	Daniel Major	Letter from Daniel K. Major, General Manager, Perkins Ranch, Inc., to Wade Noble, Chair, ANSAC re: Verde River (Apr. 30, 2014)	PDF
X007	J.G. Brady	Collection of Photographs and Documents	PDF
X008	Daniel Major	Letter from Daniel K. Major, President, Yavapai Cattle Growers, to Wade Noble, Chair, ANSAC re: Verde River (Apr. 30, 2014)	PDF
X009	Freeport	Declaration of Rich Burtell on the Non-Navigability of the Verde River At and Prior to Statehood (Sept. 17, 2014)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X010	SRP	Photos Canoeing on the Gila, Lower Salt, Verde, and San Juan Rivers, taken by Jon E. Fuller	PDF
X011	ASLD	Good Paschall Davis, Jr., Man and Wildlife in Arizona: The Pre-Settlement Era, 1823-1864 (1973) (excerpts)	PDF
X011	ASLD	Jim Schreier, *Born a Cavalryman*, J. Ariz. Hist. (Summer 1999), 142-164	PDF
X011	ASLD	David A. Weedman, Ariz. Game & Fish Dept., Salt & Verde River Fisheries Survey Trips & Related River Flows	PDF
X011	ASLD	Oregon Historical Society, *Beaver Trap* (2002)	PDF
X011	ASLD	Photo of Canoe on Verde River	JPG
X011	ASLD	Photo of Canoe on Verde River #2	JPG
X011	ASLD	Photo of Canoes on Verde River	JPG
X011	ASLD	Bertha S. Dodge, The Road West: Saga of the 35th Parallel (1980) (excerpts)	PDF
X011	ASLD	Marshall Trimble, *Ewing Young: The Southwest's Premier Mountain Man*, Ariz. Adventure (1982), 27-37	PDF
X011	ASLD	Alvin Medina & Daniel G. Neary, *Historical and Pictorial Perspective of the Upper Verde River* (2012)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Anglo Penetration*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Colorado River Posts 1852-1909*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Main Stagecoach Lines*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Major Trails*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Military Posts 1865-1920*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Railroads*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Henry P. Walker & Don Bufkin, *Routes of American Explorers & Surveyors*, Historical Atlas of Arizona (2d ed. 1979)	PDF
X011	ASLD	Marshall Trimble, *James Ohio Pattie: Arizona's First Storyteller*, *in* Old Ariz. Adventure (1982), 33-36	PDF
X011	ASLD	Edgar Alexander Mearns, Mammals of the Mexican Boundary of the US (1907) (excerpts)	PDF
X011	ASLD	Mussetter Engineering, Inc., *Inundation and Substrate Stability Study to Support Verde River Vegetation Analysis* (2004)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X011	ASLD	Jonathan E. Fuller, Presentation to ANSAC: Verde River Navigability (Sept. 2014)	PDF
X011	ASLD	Christopher Carrillo *et al.* , *An Overview of Historical Beaver Management in Arizona* (2009)	PDF
X011	ASLD	John McPhee, The Survival of the Bark Canoe (1982) (excerpts)	PDF
X011	ASLD	David Weber, The Taos Trappers: The Fur Trade in the Far Southwest, 1540-1846 (1968) (excerpts)	PDF
X012	Tom Martin	Letter from Tom Martin, Flagstaff resident, to ANSAC re: Verde River Hearing (Oct. 7, 2014)	PDF
X013	Mark Jibilian	Letter from Mark Jibilian to ANSAC (Oct. 8, 2014)	PDF
X014	Andy Weenig	Letter from Andy Weenig to ANSAC re: Verde River Navigable (Oct. 8, 2014)	PDF
X015	ACLPI	Hjalmar W. Hjalmarson, PE, Appendices A through D, Navigability Along the Natural Channel of the Verde River, AZ (Oct. 4, 2014)	PDF
X015	ACLPI	Hjalmar W. Hjalmarson, PE, Appendices E through M, Navigability Along the Natural Channel of the Verde River, AZ (Oct. 4, 2014)	PDF
X015	ACLPI	Hjalmar W. Hjalmarson, PE, Navigability Along the Natural Channel of the Verde River, AZ (Oct. 4, 2014)	PDF
X016	SRP	Robert A. Mussetter, Ph.D., PE, Declaration re: Navigability of the Verde River (Oct. 10, 2014)	PDF
X016a	SRP	Robert A. Mussetter, Ph.D., PE, Amended Page 13 to Declaration re: Navigability of the Verde River (Oct. 10, 2014)	PDF
X017	ASLD	Photos Canoeing on the Gila, Lower Salt, Verde, and San Juan Rivers, taken by Jon E. Fuller	List
X017	ASLD	ASLD All Watercourses Map	PDF
X017	ASLD	ASLD Verde River Segment 0 Map	PDF
X017	ASLD	ASLD Verde River Segment 1 Map	PDF
X017	ASLD	ASLD Verde River Segment 2 Map	PDF
X017	ASLD	ASLD Verde River Segment 3 Map	PDF
X017	ASLD	ASLD Verde River Segment 4 Map	PDF
X017	ASLD	ASLD Verde River Segment 5 Map	PDF
X017	ASLD	Photos of Verde River, taken by David Weedman	List
X017	ASLD	Photos of Verde River, taken by Jim Slingluff	List

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X017	ASLD	C.A. White, *Instructions to the Surveyor General of Oregon; Being a Manual for Field Operations (1851)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	C.A. White, *Instructions to the Surveyors General of Public Lands of the United States, for Those Surveying Districts Established In and Since the Year 1850; Containing, Also, a Manual of Instructions to Regulate the Field Operations of Deputy Surveyors (1855)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	C.A. White, *Instructions to the Surveyors General of the United States, Relating to Their Duties and to the Field Operations of Deputy Surveyors (1856)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	C.A. White, *Instructions of the Commissioner of the General Land Office to the Surveyors General of the United States Relative to the Survey of the Public Lands and Private Land Claims (May 3, 1881)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	C.A. White, *Manual of Surveying Instructions for the Survey of the Public Lands of the United States and Private Land Claims (Jan. 1, 1890)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	C.A. White, *1894 Manual of Surveying Instructions for the Survey of the Public Lands of the United States and Private Land Claims (June 30, 1894)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	C.A. White, *Manual of Surveying Instructions for the Survey of the Public Lands of the United States and Private Land Claims (Jan. 1, 1902)*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management	PDF
X017	ASLD	1912 Arizona Railroad Map	PDF
X017	ASLD	1912 Arizona State Map	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X017	ASLD	*United States v. Utah*, Report of the Special Master (1930)	PDF
X017	ASLD	Arizona Population of Counties by Decennial Census 1900-1990	PDF
X017	ASLD	Robert L. Blomstrom, *Fur Trading: Forerunner of Industry in Arizona* (Dec. 1963)	PDF
X017	ASLD	D.E. Burkham, *Channel Changes of the Gila River in Safford Valley, Arizona 1846-1970* (1972)	PDF
X017	ASLD	Michael Harvey & Robert Mussetter, *Difficulties of Identifying Design Discharges in Steep, Coarse-Grained Channels in the Arid Southwestern U.S.* (2005)	PDF
X017	ASLD	Ralph F. Palmer, Doctor on Horseback (1979) (excerpts)	PDF
X017	ASLD	Robert Glass Cleland, This Reckless Breed of Men (1950) (excerpts)	PDF
X017	ASLD	Martha Summerhayes, Vanished Arizona: Recollections of the Army Life of a New England Woman (1979) (excerpts)	PDF
X017	ASLD	Howard Roberts Lamar, The Far Southwest 1846-1912, A Territorial History (1970) (excerpts)	PDF
X017	ASLD	U.S. Government, *Free Lands and Dry Farming in the Southwest* (1908)	PDF
X017	ASLD	Jonathan E. Fuller Publications List	PDF
X017	ASLD	Jonathan E. Fuller, P.E., R.G., Ph.D. Resume	PDF
X017	ASLD	Philip A. Pearthree, *Geologic and Geomorphic Setting of the Verde River from Sullivan Lake to Horseshoe Reservoir* (Mar. 1993)	PDF
X017	ASLD	*Homesteading in Arizona 1870-1942*, Ariz. State Hist. Preservation Office (Aug. 1990)	PDF
X017	ASLD	Kyle P. House *et al.*, *Hydrologic and Paleo-hydrologic Assessment of the 1993 Floods on the Verde River, Central Arizona* (Dec. 1995)	PDF
X017	ASLD	Jonathan E. Fuller, Boating in Arizona ca. 1912 (2014)	PDF
X017	ASLD	Photo of Mine in Jerome	PNG
X017	ASLD	C.A. White, *Office of the Surveyor General of Arizona 1863-1924*, A History of the Rectangular Survey System, U.S. Department of the Interior, Bureau of Land Management (1926)	PDF
X017	ASLD	Photo of Ore Wagons in Jerome	PNG
X017	ASLD	James A. Simpson, *The Rectangular Survey System*, River & Lake Boundaries: Surveying Water Boundaries - A Manual (2d. ed. 2005)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X017	ASLD	James A. Simpson, *Meanders—What They Do*, River & Lake Boundaries: Surveying Water Boundaries - A Manual (2d. ed. 2005)	PDF
X017	ASLD	James A. Simpson, *Navigability*, River & Lake Boundaries: Surveying Water Boundaries - A Manual (2d. ed. 2005)	PDF
X017	ASLD	Paul Strong, Where Waters Run Beavers (1997)	PDF
X017	ASLD	Barbara Tellman, Highlights of Boating in Arizona to about 1920 (from Verde River hearing, Nov. 16, 2005)	PDF
X017	ASLD	C.A. White, *The Direct System to End of the General Land Office*, A History of the Rectangular Survey System, Bureau of Land Management (1926)	PDF
X017	ASLD	C.A. White, *The General Land Office Within the Department of the Interior*, A History of the Rectangular Survey System, Bureau of Land Management (1926)	PDF
X017	ASLD	B.W. Thomsen & J.J. Porcello, Predevelopment Hydrology of Salt River Indian Reservation (1991)	PDF
X017	ASLD	Utah Population of Counties by Decennial Census 1900-1990	PDF
X017	ASLD	Stephanie Whittlesey, *et al.*, *Vanishing River: Landscapes and Lives of the Lower Verde Valley* (1997)	PDF
X017	ASLD	Verde Independent (Feb. 27, 1980) (excerpt)	PDF
X017	ASLD	Ariz. Gazette (Feb. 14, 1883) (excerpt)	PDF
X017	ASLD	*Major Spaulding's Death*, Phoenix Daily Herald (Dec. 12, 1888)	PDF
X017	ASLD	Robert W. Munson, *Territorial Verde Valley*, 53 Plateau (1981) (excerpts)	PDF
X017	ASLD	*Word Received on Progress of Verde River Navigators*, Verde Copper News (Feb. 6, 1931)	PDF
X017	ASLD	*Voyage Postponed*, Weekly Journal Miner (May 24, 1905)	PDF
X017	ASLD	*Mariners Return*, Weekly Journal Miner (May 28, 1905)	PDF
X017	ASLD	Ariz. Miner (May 8, 1869) (excerpt)	PDF
X017	ASLD	Wm. H. Corbusier, M.D., The Apache-Yumas and Apache-Mojaves (1886) (excerpts)	PDF
X017	ASLD	*History of the Verde*, Yavapai Magazine (Oct. 1918)	PDF
X017	ASLD	*Indians*, Ariz. Miner (Oct. 5, 1872)	PDF
X017	ASLD	Ariz. Miner (Apr. 6, 1864)	PDF
X017	ASLD	*The Governor's Expedition*, Ariz. Miner (Oct. 5, 1872)	PDF
X017	ASLD	Phoenix Herald (Jan. 1, 1885) (excerpt)	PDF
X018	Christopher Wales	Letter from Christopher G. Wales to ANSAC re: Verde River Navigability (Oct. 7, 2014)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X019	Janette Fazio	Letter from Janette Fazio to ANSAC re: Verde River Navigability (Oct. 7, 2014)	PDF
X020	Lee Kohlhase	Letter from Lee Kohlhase to ANSAC (Oct. 10, 2014)	PDF
X021	Steven Kanner	Letter from Steven Kanner, President, Southern Arizona Paddlers Club, to ANSAC re: Verde River Navigability Hearings (Oct. 8, 2014)	PDF
X022	SRP	Bob Mussetter, Ph.D., P.E. Resume	PDF
X023	Freeport	M.C. Hinderlider & G.L. Swendsen, *Part XI-Colorado River Drainage above Yuma*, in Report of Progress of Stream Measurements for the Calendar Year 1905 (1906)	PDF
X023	Freeport	JE Fuller/Hydrology & Geomorphology, Inc., ASLD, ANSAC Study for the San Pedro River: Gila River Confluence to the Mexican Border (rev'd Jan. 2004)	PDF
X023	Freeport	JE Fuller/Hydrology & Geomorphology, Inc., ASLD, ANSAC Study for the Upper Gila River Safford to the State Boundary and San Francisco River Gila River Confluence to the State Boundary (rev'd June 2003)	PDF
X023	Freeport	ASLD, Final Report: Small & Minor Watercourses Analysis for Graham County, Arizona (April 2001)	PDF
X023	Freeport	JE Fuller/Hydrology & Geomorphology, Inc., Final Report: Criteria for Assessing Characteristics of Navigability for Small Watercourses in Arizona (Sept. 1998)	PDF
X023	Freeport	San Pedro River Hearing Tape, Transcript of Hearing held in Bisbee, Arizona on June 7, 2013	PDF
X024	SRP	Douglas R. Littlefield, Ph.D., Assessment of the Verde River's Navigability On or Before the Date of Arizona's Statehood, February 14, 1912 (Oct. 2014)	PDF
X025	Jerry Gless	Letter from Jerry L. Gless to ANSAC re: Verde River Navigability (Oct. 15, 2014)	PDF
X026	Paul Wheeler	Letter from Paul C. Wheeler, PT, DPT, MPT, to ANSAC re: Verde River Navigability (Oct. 16, 2014)	PDF
X027	Nancy Murbach	Letter from Nancy L. Murbach to ANSAC re: Verde River Navigability (Oct. 16, 2014)	PDF
X028	Dan Bramble	Letter from Dan Bramble to ANSAC re: Verde River Navigability (Oct. 19, 2014)	PDF
X029	Philip Dixon	Letter from Philip Dixon to ANSAC re: Verde River Navigability (Oct. 16, 2014)	PDF
X030	Justin Donnell	Letter from Justin & Carrie Ann Donnell to ANSAC re: Verde River Navigability (Oct. 20, 2014)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X031	Allan Watts	Letter from Allan Watts to ANSAC re: Verde River Navigability (Oct. 16, 2014)	PDF
X032	Allison Dixon	Letter from Allison Dixon to ANSAC re: Verde River Navigability (Oct. 20, 2014)	PDF
X033	Steven Miller	Letter from Steven W. Miller to ANSAC re: Verde River Navigability (Oct. 18, 2014)	PDF
X034	Joel Clark	Letter from Dr. Joel L. Clark to ANSAC re: Verde River Navigability (Oct. 29, 2014)	PDF
X035	ASLD	Verde River Google Earth Video	
X035	ASLD	ASLD Verde River Segment 0 Map (to replace X017-75)	PDF
X035	ASLD	ASLD Verde River Segment 1 Map (to replace X017-76)	PDF
X035	ASLD	Arizona Wildlife: The Territorial Years 1863-1912 (David E. Brown ed. 2009) (excerpts)	PDF
X035	ASLD	Goode P. Davis, Man and Wildlife in Arizona: The American Exploration Period 1824-1865 (1982) (excerpts)	PDF
X035	ASLD	Desert Land Act	PDF
X035	ASLD	Marion Gray Donaldson, *The Initial Point: Arizona's First Rectangular Land Survey*, 29 J. Ariz. Hist. (Fall 1988), 245-256	PDF
X035	ASLD	Patrick Hamilton, The Resources of Arizona (1881) (excerpts)	PDF
X035	ASLD	Patrick Hamilton, The Resources of Arizona (3d ed. 1884) (excerpts)	PDF
X035	ASLD	T.A. Hayden, Irrigation on Upper Verde River Watershed from Surface Waters (1940) (excerpts)	PDF
X035	ASLD	P. Kyle House & Philip A. Pearththree, *Surfical Geology of the Northern Verde Valley, Yavapai County, Arizona* (Sept. 1993)	PDF
X035	ASLD	Dan Huntington, Fort McDowell in the Eighties (1957) (excerpts)	PDF
X035	ASLD	William C. McComb *et al.*, *Dam-Site Selection by Beavers in an Eastern Oregon Basin*, 50(3) Great Basin Naturalist (1990), 273-281	PDF
X035	ASLD	National Park Service, Fur Trade Illustration Project	PDF
X035	ASLD	The Personal Narrative of James O. Pattie of Kentucky (Timothy Flint ed. 1831)	PDF
X035	ASLD	Ruth Wingfield, *The History of Camp Verde*, *in* Pioneer Stories of Arizona's Verde Valley (1954)	PDF
X035	ASLD	*Our Southern Neighbors*, Salt Lake Herald (May 3, 1894)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X035	ASLD	Barbara Tellman, *A Brief History of Boating in Arizona* (2005)	PDF
X035	ASLD	War Department, Surgeon General's Office, Circular No. 4, Barracks and Hospitals (1870) (excerpts)	PDF
X035	ASLD	*Editorial Notes*, Ariz. Weekly Journal-Miner (Mar. 11, 1891)	PDF
X035	ASLD	Bob Williams, A Floater's Guide to the Verde River (1996)	PDF
X035	ASLD	Photos of Verde River from Beasley to Childs, by Don Farmer	List
X035	ASLD	Photos of Verde River below Bartlett, by Don Farmer	List
X035	ASLD	Photos of Verde River from Childs to Horseshoe, by Don Farmer	List
X035	ASLD	Photos of Verde River from Verde Ranch to Perkinsville, by Don Farmer	List
X035	ASLD	Partial Transcripts of Gila River Hearing 6-16-14 - 6-18-14	PDF
X035	ASLD	History of Arizona Territory (Wallace W. Elliott ed. 1884) (excerpts)	PDF
X035	ASLD	Jim Slingluff, Verde River Recreation Guide (1990)	PDF
X035	ASLD	Ariz. State Parks, Arizona Rivers & Streams Guide (1989) (excerpts)	PDF
X035	ASLD	*Walked Sixty Miles in His Bare Feet*, Bisbee Daily Review (Aug. 12, 1910)	PDF
X035	ASLD	Walt Anderson, *Beaver Presence Survey of Upper Verde River* (Nov. 1, 2009)	PDF
X035	ASLD	Jonathan E. Fuller, Boating in Arizona ca. 1912 (2014)	PDF
X035	ASLD	Jonathan E. Fuller, Presentation to ANSAC: Verde River Navigability (Sept. 2014)	PDF
X036	ACLPI	Hjalmar W. Hjalmarson, PE, Addendum to Report of October 4, 2014; Win Hjalmarson, PE, Navigability Along the Natural Channel of the Verde River, AZ (Oct. 2014) PowerPoint	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X037	Freeport	*Farming in Yavapai County*, Ariz. Miner (Feb. 1, 1868); *Part II-Irrigation*, Eleventh Annual Report of the United States Geological Survey to the Secretary of the Interior 1889-90 (1891) (excerpts); F.H. Newell, Report on Agriculture by Irrigation in the Western Part of the United States at the Eleventh Census: 1890 (1894) (excerpts); Patrick Hamilton, The Resources of Arizona (1881) (excerpts); William L. Graf, Fluvial Processes In Dryland Rivers (reprint of 1st ed. 1988) (excerpt); William H. Bradshaw, Wyoming Game & Fish Dept, LaBarge Creek Instream Flow Report (Nov. 1990) (excerpts); Ronald Hyra, Methods of Assessing Instream Flows for Recreation (June 1978) (excerpts); Ken D. Bovee & Robert Milhous, *Hydraulic Simulation in Instream Flow Studies: Theory and Techniques* (June 1978) (excerpts); Erich Obermayr, Silver and Borax: The Wadsworth and Columbus Freight Road (2007) (excerpts); Allan J. Wheeler, The History of the Santa Fe Trail and its Founder, William Becknell (May 2013) (excerpt); R. Burtell Charts: *Estimated Natural and Expected Flows in the John Day River, Oregon*, *John Day River Depth vs. Discharge at USGS Gaging Station at Service Creek*, *John Day River Depth vs. Discharge at USGS Gaging Station at McDonald Ferry*, *Historic Verde River Baseflows Measured at the USGS Gage Near Clarkdale*, *Verde River Discharge vs. Stream Depth at USGS Paulden Gage*, *Verde River Discharge vs. Stream Depth at USGS Gage Near Clarkdale* (Dec. 2014); Marc W. McCord, *Rio Grande*, Southwest Paddler: *Canoeing New Mexico*, New Mexico	PDF
X038	SRP	Jim Slingluff, Verde River Recreation Guide (2d ed. 1993) (excerpts)	PDF
X039	SRP	Sedona Adventure Tours, New Guided Trip on the Verde River at Clarkdale, www.sedonaadventuretours.com/verde-river-trip (last visited Dec. 12, 2014)	PDF
X040	SRP	Sedona Adventure Tours, FAQs - frequently asked questions www.sedonaadventuretours.com/info/faqs (last visited Dec. 12, 2014)	PDF
X041	SRP	Sedona Adventure Tours Facebook Page, Aug. 19, 2014 post	PDF
X042	SRP	Rob Chaney, *Canoe-makers losing key material for molding boats*, Missoulian (Jan. 23, 2014)	PDF
X043	SRP	Bob Mussetter, Ph.D., PE, Verde River Navigability: Presentation to ANSAC	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X044	ASLD	Ariz. Weekly Journal-Miner (Mar. 4, 1891) (excerpt); The American Whitewater Association, International Scale of River Difficulty, www.americanwhitewater.org/content/Wiki/safety:start#vi._international_scale_of_river_difficulty; ERO Resources Corp., Technical Report: Lower Verde River Riparian Vegetation (June 2004)	PDF
X045	Freeport	*Part 9-Colorado River Basin* , Compilation of Records of Surface Waters of the United States through September 1950, Geological Survey Water-Supply Paper 1313 (1954)	PDF
X046	Ft. McDowell Yavapai	Selected USGS Documents/Graphs	PDF
X047	ASLD	Win Hjalmarson Drawing 1 (12/18/14)	PDF
X048	ASLD	Win Hjalmarson Drawing 2 (12/19/14)	PDF
X049	Philip Verellen	Letter from Philip Verellen to ANSAC (Dec. 10, 2014)	PDF
X050	Walt Carr	Letter from Walt Carr to ANSAC re: The Verde River Remains Navigable Today! (Dec. 13, 2014)	PDF
X051	Pam & Charles Corrado	Letter from Pam & Charles Corrado to ANSAC re: Verde River (Dec. 11, 2014)	PDF
X052	Andrew Messer	Letter from Andrew Messer to ANSAC re: Verde River Navigability (Dec. 17, 2014)	PDF
X053	ASLD	Paul R. Fish, *Prehistoric Land Use in the Perkinsville Valley* (1974)	PDF
X053	ASLD	Replacement pages to X035-167, Jonathan E. Fuller, Presentation to ANSAC: Verde River Navigability (Sept. 2014)	PDF
X053	ASLD	Photo of Verde River, Segment 0 by Jon Fuller	PDF
X053	ASLD	Photo of Verde River, Segment 1 by Jon Fuller	PDF
X053	ASLD	Photo of Verde River, Segment 2 by Jon Fuller	PDF
X053	ASLD	Photo of Verde River, Segment 3 by Jon Fuller	PDF
X053	ASLD	Photo of Verde River, Segment 4 by Jon Fuller	PDF
X053	ASLD	Photo of Verde River, Segment 5 by Jon Fuller	PDF
X053	ASLD	Video of Clay Bank Rapids by Jon Fuller	WMV
X053	ASLD	Video of Gila River Needles Eye by Jon Fuller	WMV
X053	ASLD	Video of Grumman 180 cfs (11/8/14) by Jon Fuller	WMV
X053	ASLD	Video of Jon Fuller Navigating Beaver Dam by Jon Fuller	WMV
X053	ASLD	Video of Jon Fuller Paddling by Jon Fuller	WMV
X053	ASLD	Video of Kiss-N-Tell 180 cfs (11/8/14) by Jon Fuller	WMV
X053	ASLD	Video of Salt River Black Rock by Jon Fuller	WMV

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X053	ASLD	T.A. Hayden, Irrigation on Upper Verde River Watershed from Surface Waters (1940) (excerpts)	PDF
X054	Freeport	*Verde Prosperous*, Weekly Journal-Miner (Feb. 15, 1911); Tombstone Weekly Epitaph (Feb. 26, 1911) (excerpt); *Construction of Power Line is Resumed*, Weekly Journal-Miner (Mar. 1, 1911); *Slight Change in Local Itinerary*, Ariz. Republican (Mar. 14, 1911); Summary of Verde River Channel Conditions Noted During the February 1911 GLO Survey of T3N, R7E; Summary of Verde River Channel Conditions Noted During the March 1911 GLO Survey of T4N, R7E; USFS, *Synthesis of Upper Verde River Research & Monitoring, 1993-2008* (Dec. 2012); Robert A. Farmer, Field Notes of the Survey of the Subdivision and Meanders of T.3N., R.7E., Salt River Indian Reservation (Feb. 18-Mar. 9, 1911); Robert A. Farmer, Field Notes of the Survey of the Subdivision and Meanders of T.4N., R.7E., Salt River Indian Reservation (Mar. 1-20, 1911); Verde River at USGS Gages (Jan. 2015) PowerPoint; Discharge Measurement Summaries; Transcript of Gila River Hearing, June 18, 2014; Transcript of Gila River Hearing, June 20, 2014; Affidavit of Richard E. Lingenfelter (May 16, 2014); Richard A. Lingenfelter, Steamboats on the Colorado River 1852-1916 (1978) (excerpts)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X055	Yavapai-Apache	Affidavit of Vincent E. Randall (Feb. 11, 2015); Bureau of Reclamation, Biological Opinion Summary: Central Arizona Project Water Assignment-Cottonwood Water Works, Inc., and Camp Verde Water System, Inc. to City of Scottsdale (Mar. 30, 1998); Dean A. Hendrickson & W.L. Minckley, *Cienegas Vanishing Climax Communities of the American Southwest*, 6(3) Desert Plants (1985), 131-174; Marie E. Pearthree, *Channel Change in Southern Arizona-Implications for Floodplain Management* (1941); J. C. Stromberg, *Fremont Cottonwood-Gooding Willow Riparian Forests: A Review of Their Ecology, Threats, and Recovery Potential*, 26(3) J. Ariz-Nev. Academy of Science (1996), 98-110; Barbara Tellman et al., Arizona's Changing Rivers: How People Have Affected the Rivers (Mar. 1997) (excerpts); War Department, A Report on the Hygiene of the United States Army with Descriptions of Military Posts (1875) (excerpts); War Department, A Report on Barracks and Hospitals with Descriptions of Military Posts (1870) (excerpts)	PDF
X056	ASLD	City of Clarkdale, Commercial River Runner Capacities for the Verde River at Clarkdale; Michigan Steel Boat Co. Catalogue (1902); Hiram C. Hodge, Arizona As It Is: Or, the Coming Country (1877) (excerpts); I. Herbert Gordon, The Complete Book of Canoeing (3d ed. 2001) (excerpts); Hiram Martin Chittenden, The American Fur Trade of the Far West, Vol. 1 (1986) (excerpts); Ariz. Republican (Nov. 1, 1918) (excerpt); *Jerome: Arizona At Large*, Los Angeles Times (Jan. 28, 1898); Bo Shelby *et al.*, *Streamflow and Recreation*, USDA Forest Service General Technical Report RM-209 Rev'd (Mar. 1992)	PDF
X057	SRP	ADWR, North Central Arizona Regional Water Study-Phase 1 (May 18, 1999); ADWR, Verde River Watershed Study (2000)	PDF
X058	SRP	William L. Graf, Fluvial Processes In Dryland Rivers (reprint of 1st ed. 1988) (excerpt)	PDF
X059	ACLPI	Hjalmar W. Hjalmarson, PE, Second Addendum to Report of Oct. 4, 2014 (Feb. 5, 2015)	PDF
X060	SRP	Bob Mussetter, Ph.D., PE, Verde River Navigability: Presentation (rev'd Feb. 2015)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X061	SRP	Hjalmar W. Hjalmarson, Depletion Estimates (Feb. 18, 2015)	PDF
X062	ACLPI	Ken D. Bovee & Robert Milhous, *Hydraulic Simulation in Instream Flow Studies: Theory & Techniques* (Aug. 1978) (excerpt)	PDF
X063	ACLPI	Marine Board, Criteria for the Depths of Dredged Navigational Channels (1983)	PDF
X064	ACLPI	Photos of Mo Udall & friends' trip on Verde River	PDF
X065	ASLD	Arizona Township Map	PDF
X066	ASLD	Brad Dimock Video	
X067	Phoenix	Declaration of Jack August, Jr., Ph.D. on the Non-Navigability of the Verde River At and Prior to Arizona Statehood, February 14, 1912	PDF
X068	ASLD	USGS, *Measurements and Computation of Streamflow: Volume 1, Measurement of State of Discharge* (1982) (excerpts); USGS, *Navigability Potential of Washington Rivers and Streams Determined with Hydraulic Geometry and a Geographic Information System* (1999)	PDF
X069	SRP	*Replication Conundrums*, Fretwaterlines (Jan. 3, 2013)	PDF
X070	SRP	Brad Dimock, *A Bit About the Euphrates*, Wooden Boat People (Feb. 25, 2010)	PDF
X071	SRP	*Edith in the Wild*, Fretwaterlines (Apr. 10, 2011)	PDF
X072	SRP	Arizona Highways (July 2004) (excerpts)	PDF
X073	SRP	Brad Dimock, *Rowing Wooden Dories*, Ariz. Raft Adventures (Feb. 19, 2014)	PDF
X074	SRP	First Form Withdrawal, Salt River Project, Arizona (Mar. 2, 1903)	PDF
X075	ACLPI	Hjalmar W. Hjalmarson, Additional GLO Maps for Upper Verde River and Settler Impact on Base Q (Mar. 30, 2015)	PDF
X076	Freeport	Robert A. Farmer, Field Notes of the Survey of the Boundary and Exterior Lines (including the old Camp McDowell Reservation) (Feb. 5, 1910-Feb. 25, 1911) (excerpts)	PDF
X077	Freeport	Map & Other Docs re: Township No. 16 N Range 4 West	PDF
X078	Freeport	Map of Township No. 17 North Range No. 2 West	PDF
X079	Freeport	Richard J. Hinton, The Hand-Book to Arizona: Its Resources, History, Towns, Mines, Ruins and Scenery (1878) (excerpts)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X080	Freeport	Bradley D. Garner & Donald J. Bills, *Spatial & Seasonal Variability of Base Flow in the Verde Valley, Central Arizona, 2007 and 2011* (2012)	PDF
X081	ASLD	Robert A. Farmer, Field Notes of the Survey of the Boundary and Exterior Lines (including the old Camp McDowell Reservation) (Dec. 5, 1910-Feb. 25, 1912) (excerpts)	PDF
X082	SRP	Watershed Monitor, Map of Middle Verde River	PDF
X083	ASLD	Jonathan E. Fuller, Rebuttal Slides	PDF
X084	ASLD	*When Verde Means Gold*, GEOLOBO (Nov. 4, 2012)	PDF
X085	SRP	Photo of Stoneman Road through Cave Creek	PDF
X086	SRP	*Game Commissioner*, Ariz. Republican (Oct. 15, 1898)	PDF
X087	SRP	*Is John McCarty Dead?*, Ariz. Republican (Sept. 18, 1905)	PDF
X088	SRP	Power Site Classification, 34 Fed. Reg. 36	PDF
X089	SRP	64 Fed. Reg. 232 (Dec. 3, 1999)	PDF
X090	SRP	*Dead Alive*, Coconino Sun (Jan. 2, 1904)	PDF
X091	ACLPI	Emails between Win Hjalmarson and Robert Ross dated Jan. 22, 2015 - Feb. 10, 2015	PDF
X092	SRP	Vt. Agency of Nat. Res., Vermont Stream Geomorphic Assessment, Appendix K, Identification of Bankfull Stage (May 2009)	PDF
X093	SRP	Luna B. Leopold et al., Fluvial Processes in Geomorphology (1964) (excerpts)	PDF
X094	SRP	Tiao J. Chang, *Bankfull Geometry Determinations in the Hocking River Basin* (Feb. 6, 2001) (excerpt)	PDF
X095	SRP	Summary, A Video Guide to Field Identification of Bankfull Stage in the Western United States, http://www.stream.fs.fed.us/news/streamnt/apr95/apr95a1.htm	PDF
X096	SRP	U.S. EPA, *Hydrologic Processes: Bankfull Discharge* (Mar. 6, 2012)	PDF
X097	SRP	USGS, *Bankfull Discharge and Channel Characteristics of Streams in New York State*, Scientific Investigations Report 2009-5144	PDF
X098	SRP	Luna B. Leopold & M. Gordon Wolman, *River Channel Patterns: Braided, Meandering & Straight* (1957)	PDF
X099	Freeport	Emails between Rich Burtell and Robert Ross re: Excerpts from February 2015 Hjalmarson Report re: Robert Ross Diversion/Return Flow Data dated Feb. 17, 2015	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X099	Freeport	Verde Adventures, *Now Kayaking In Clarkdale*	PDF
X100	Ft. McDowell Yavapai	Data Gap Analysis	PDF
X100	Ft. McDowell Yavapai	Declarations of Martha Camacho (Oct. 8, 2014), Linda Ebon-Jones (Oct. 8, 2014), Shirly A. Taho (Oct. 6, 2014), Ralph D. Jones (Oct. 8, 2014), Wayne Shenah (Oct. 8, 2014)	PDF
X100	Ft. McDowell Yavapai	Iknowinsurance, *Be Alert! Boating Safety Saves Lives* (July 11, 2012)	PDF
X100	Ft. McDowell Yavapai	American Whitewater Association, Accident Database: Verde River Deaths (last visited Apr. 20, 2015)	PDF
X100	Ft. McDowell Yavapai	Thomas Edwin Farish, History of Arizona, Vol. IV (1916) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Hiram C. Hodge, Arizona As It Is or The Coming Country (1877) (excerpts)	PDF
X100	Ft. McDowell Yavapai	E.J. Farmer, The Resources of the Rocky Mountains (1883) (excerpts)	PDF
X100	Ft. McDowell Yavapai	G.M. Sparkes, *Yavapai, The Land of Opportunity*, Univ. of Ariz. Bulletin (Aug. 10, 1917)	PDF
X100	Ft. McDowell Yavapai	Report of the Governor of Arizona to the Secretary of the Interior 1901 (1901)	PDF
X100	Ft. McDowell Yavapai	Report of the Governor of Arizona to the Secretary of the Interior 1905 (1905)	PDF
X100	Ft. McDowell Yavapai	Arizona: A Review of its Resources (1891) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Scott Fritz, Ph.D., *Yavapai County Merchants: The Center of Arizona's Early Territorial Economy*, 1863-1881, Territorial Times (May 2008), 26-32	PDF
X100	Ft. McDowell Yavapai	James E. Sherman & Edward R. Ronstadt, *Wagon Making in Southern Arizona*, *reprinted from* The Smoke Signal (Spring 1975)	PDF
X100	Ft. McDowell Yavapai	ADOT, Arizona Transportation History Final Report 660 (Dec. 2011)	PDF
X100	Ft. McDowell Yavapai	Frank B. Fryman, Jr. *et al.*, *An Initial Survey of Historic Resources within the Phoenix Metropolitan Area Maricopa County, Arizona* (Feb. 1977) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Bridges: Arizona Historic Bridge Inventory (Jan. 2008) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Modifications to Chapter 4, Agricultural Conservation Program, Third Management Plan, Prescott Active Management Area	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X100	Ft. McDowell Yavapai	Yavapai County Water Advisory Committee, Draft Big Chino Subbasin: Historical & Current Water Uses and Water Use Projections (Feb. 2004) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Yavapai County College of Agriculture & Life Sciences, Yavapai County Vegetable Planting Dates (updated Aug. 1, 2007)	PDF
X100	Ft. McDowell Yavapai	S.C. Dickinson, *What to Do With the Other Eight Hours* , Univ. of Ariz. Bulletin (Nov. 10, 1917)	PDF
X100	Ft. McDowell Yavapai	Jeremy Rowe, *George Rothrock: Arizona Pioneer Photographer* , J. Ariz. Hist. (Winter 2008)	PDF
X100	Ft. McDowell Yavapai	37(3) J. Ariz. Hist. (Fall 1996) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Edward HH. Peplow, Jr., History of Arizona, Volume II (1958) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Photograph of Oak Creek and Verde River, Yavapai County, Arizona c.1890, Sharlot Hall Museum	PDF
X100	Ft. McDowell Yavapai	J.W. Powell, Thirteenth Annual Report of the Bureau of Ethnology (1891-92) (excerpts)	PDF
X100	Ft. McDowell Yavapai	*Arizona Through Time: Southern Arizona Culture History* , Univ. of Ariz. (last visited 4/16/2015)	PDF
X100	Ft. McDowell Yavapai	Photograph of Apache on Horseback; Camp-Verde, Arizona, c.1910; Photograph of Yavapai Indian groups from Verde River, Arizona c.1880; Photograph of Yavapai Indian Chiefs on Horseback, Verde River, Arizona c. 1880; Photograph of Yavapai Indian Scouts with pack saddles at Camp Verde, Arizona c. 1875; Photograph of Yavapai Indian Scouts at Camp Verde, Arizona c.1880; Photograph of Yavapai Indian Scouts Dress Parade at Camp Verde, Arizona, c.1880 (Sharlot Hall Museum)	PDF
X100	Ft. McDowell Yavapai	Mike Harrison & John Williams, Oral History of the Yavapai (2012) (excerpts)	PDF
X100	Ft. McDowell Yavapai	*Arizona Army National Guard: The First One Hundred Years* , 180th Field Artillery Regiment (Feb. 22, 2002)	PDF
X100	Ft. McDowell Yavapai	Annual Report of the Secretary of War, Vol. I (1884) (excerpts)	PDF
X100	Ft. McDowell Yavapai	Annual Report of the Secretary of War, Vol. I (1888) (excerpts)	PDF
X101	Yavapai-Apache	USGS, *Effects of Urban Development on Floods* (2003)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X101	Yavapai-Apache	Thomas E. Dahl & Gregory J. Allord, *History of Wetlands in the Conterminous United States*, USGS Water Supply Paper 2425	PDF
X101	Yavapai-Apache	Highways in the River Environment (1990) (excerpts)	PDF
X101	Yavapai-Apache	*United Verde Copper Co. v. Ralston*, 46 F.2d 1 (9th Cir. 1931)	PDF
X101	Yavapai-Apache	*United Verde v. Kovacovich*, 42 Ariz. 159 (1933)	PDF
X101	Yavapai-Apache	Yvonne Gonzales, *Verde River recovers from flood impacts*, Verde Independent (Mar. 26, 2015)	PDF
X102 Disc1	ASLD	Walt Anderson, *Beaver Presence Survey of Upper Verde River* (Nov. 1, 2009)	PDF
X102 Disc1	ASLD	Photos of Clarkdale Gage 2-16-2015	PDF
X102 Disc1	ASLD	Photos of Camp Verde Gage 3-28-2015	PDF
X102 Disc1	ASLD	Frederick H. Brandenburg, *Climatological Data for January, 1911, District No. 9, Colorado River* (1911)	PDF
X102 Disc1	ASLD	Photograph/colorized postcard of three men in a boat on the Salt River, probably in the Salt River Canyon, in Maricopa County, Arizona c.1910, ASU Library	PDF
X102 Disc1	ASLD	Photograph of a boat rescuing people during a flood of the San Francisco River in Clifton, Arizona in 1884 c.1884, ASU Library	PDF
X102 Disc1	ASLD	Photograph of Francis H. Clark in a boat near the Hassayampa River in Yavapai County, Arizona c.1900, ASU Library	PDF
X102 Disc1	ASLD	Photos of Tangle Creek Gage 3-21-2015	PDF
X102 Disc1	ASLD	Photos of Verde River Race 3-28-2015	PDF
X102 Disc1	ASLD	*Death of J.K. Day*, Ariz. Republican (Jan. 27, 1902)	PDF
X102 Disc1	ASLD	*Game Commissioners*, Ariz. Republican (Oct. 14, 1898)	PDF
X102 Disc1	ASLD	USGS, Velocity Reading at Near Camp Verde Gage 09506000	PDF
X102 Disc1	ASLD	Transcript of Santa Cruz Hearing in Tucson, AZ on Mar. 28, 2014	PDF
X102 Disc1	ASLD	Declaration of Jonathan E. Fuller (Apr. 22, 2015)	PDF
X102 Disc1	ASLD	Kent Klein, *Trapping Techniques of the Mountain Man*, HistoricalTrekking.com (last visited 4/22/15)	PDF
X102 Disc1	ASLD	*Establishes Her Claims*, Williams News (Oct. 3, 1903)	PDF
X102 Disc1	ASLD	Williams News (Oct. 22, 1902) (excerpt)	PDF
X102 Disc1	ASLD	*Insurance Paid*, Coconino Sun (June 20, 1903)	PDF
X102 Disc1	ASLD	*No Trace of John McCarty*, Coconino Sun (July 27, 1901)	PDF

Supplemental Evidence - Verde River

Item Number	Submitted By	Description	Link
X102 Disc1	ASLD	*Lion Hunter Lost*, Florence Tribune (June 22, 1901)	PDF
X102 Disc1	ASLD	Video of Class 3 Grumman 11-8-2014 180 cfs	VIDEO
X102 Disc1	ASLD	Video of MEI Site 1 downstream boating part 1	VIDEO
X102 Disc2	ASLD	Video of MEI Site 1 downstream boating part 2	VIDEO
X102 Disc2	ASLD	Video of Verde Tangle at Gage Cable	VIDEO
X103	ACLPI	Emails between Robert Ross and Win Hjalmarson dated Feb. 10, 2015 - Apr. 2, 2015	PDF

Exhibit D

STATE OF ARIZONA
NAVIGABLE STREAM ADJUDICATION COMMISSION
1700 West Washington, Room B54, Phoenix, Arizona 85007
Phone (602) 542-9214 FAX (602) 542-9220
E-mail: **nav.streams@ansac.az.gov** Web Page: **http://www.ansac.az.gov**

JANICE K. BREWER
Governor

GEORGE MEHNERT
Executive Director

REGULAR SESSION MEETING MINUTES
Prescott, Arizona, May 1, 2014

Commission Members Present
Wade Noble, Jim Henness, Bill Allen, Jim Horton
Commission Members Absent
Staff Present
Fred Breedlove Attorney, George Mehnert Director.

1. **Call To Order**
   The Chair called the meeting to order at approximately 9:00 a.m.
2. **Roll Call**
   See above for members present and absent
3. **Approval of Minutes for April 24, 2014 (discussion and action).**
   The minutes were approved without objection.
4. **Approval of Minutes for April 25, 2014 (discussion and action).**
   The minutes were approved without objection.
5. **Hearing Regarding the Verde River.**
   Several witnesses appeared with some submitting documents: Bob Rothrock, Larry Meads, Steven Cling, Don Doddard, Andy Grosetta, Danny Major, J.G. Brady, Peter Krutnik, Helen Howard, Linda Emmett, Thomas Slayback, Adessa Carr, and Cathy Rowland.
6. **Call for Public Comment**
   Some speakers listed in #5 spoke here instead as witnesses.
7. **Future meeting dates and future agenda items.**
   None established
8. **ADJOURNMENT.**

Adjourned at approximately 10:10 a.m.

Respectfully submitted,

George Mehnert
Director, Navigable Stream Adjudication Commission
May 2, 2014

STATE OF ARIZONA
NAVIGABLE STREAM ADJUDICATION COMMISSION
1700 West Washington, Room B-54, Phoenix, Arizona 85007
Phone (602) 542-9214 FAX (602) 542-9220
E-mail: nav.streams@ansac.az.gov Web Page: http://www.ansac.az.gov

DOUGLAS A. DUCEY
Governor

GEORGE MEHNERT
Executive Director

MINUTES OF PUBLIC MEETING
December 15, 2016
Commission Decision Regarding Navigability of Verde River
PHOENIX, ARIZONA

Commission Members Present

Wade Noble, Bill Allen, Jim Henness, Jim Horton.

Commission Members Absent

None

Staff Present

George Mehnert, Director.

1. **Call To Order**
   The Chair called the meeting to order at approximately 9:00 a.m.
2. **Roll Call**
   See above for members present and absent
3. **Approval of Minutes for October 20-23, 2015 and November 17-20, 2015 (discussion and action).**
   The minutes were approved as submitted without objection.
4. **Discussion and Presentations by parties regarding the navigability of the Verde River**
   Speakers and Presenters were Edwin Slade, Joy Herr-Cardillo, John Helm, Mark McGinnis, Sue Montgomery, Cynthia Campbell, and Sean Hood.
   Members of the Public were also present and the following members made short presentations per agenda item number 5: Jim Voller, Jennifer Martin, Dan Mills, Jimmie Watley, Thomas Slaback, Bob Rothrock, Chris Jensen, Steven Max Castillo, and Anita Gauss.
   Following presentations and questions from the Commissioners regarding the Verde River, the Commission entered into Executive Session at approximately 12:00 p.m. to obtain legal advice concerning the Verde River. Executive Session ended at approximately 12:30 p.m., and the Commission went back on the record at that time.
   Decision regarding the Navigability of the Verde River. A motion was made that all six segments of the Verde River were non-navigable; the segments are numbered 0 thru 5, and the vote occurred regarding each segment.
   Motion by: Jim Horton Second by: Jim Henness
   Motion: That segments zero thru five of the Verde River were non-navigable.
   Vote: Roll Call Vote by Segment:
   Segment 0 - All Aye.
   Segment 1 – All Aye.
   Segment 2 – Commissioners Horton, Henness, and Noble – Aye. Commissioner Allen – Nay.
   Segment 3 – All Aye.
   Segment 4 – All Aye.
   Segment 5 - Commissioners Horton, Henness, and Noble – Aye. Commissioner Allen - Nay.
5. **Call for Public Comment.**
   Speakers who requested to speak did so following the presentations by Parties, see item 4 above.
6. **Future meeting dates and future agenda items.**
   Reminder of future scheduled hearing dates for the Salt River reconvening January 26, 2016.
7. **ADJOURNMNT**
   The business of the Commission having been completed the Chair adjourned the meeting at approximately 3:05 p.m.

Respectfully submitted,

George Mehnert
Director, Navigable Stream Adjudication Commission
December 16, 2015