John B. Weldon, Jr., 003701 1 Mark A. McGinnis, 013958 Scott M. Deeny, 021049 SALMON, LÉWIS & WELDON, P.L.C. 3 2850 East Camelback Road, Suite 200 Phoenix, Arizona 85016 4 (602) 801-9060 ibw@slwplc.com 5 mam@slwplc.com smd@slwplc.com 6 Attorneys for Salt River Project Agricultural 7 Improvement and Power District and Salt River Valley Water Users' Association 8 9 10 11



BEFORE THE ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

In re Determination of Navigability of the Verde River

No. 04-009-NAV

SALT RIVER PROJECT'S MEMORANDUM REGARDING WHETHER VERDE RIVER WAS NAVIGABLE IN ITS "ORDINARY AND NATURAL CONDITION"

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Pursuant to the Commission's order at its meeting held on June 29, 2012, the Salt River Project Agricultural Improvement and Power District and Salt River Valley Water Users' Association (collectively, "SRP") submit their memorandum regarding whether the Verde River ("Verde") was navigable in its "ordinary and natural condition." *See State v. Arizona Navigable Stream Adjudication Comm'n*, 224 Ariz. 230, 229 P.3d 242 (App. 2010) ("State v. ANSAC"). The Verde was not navigable in its "ordinary and natural condition," or in any other condition.

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I. The Proponents of Navigability Bear the Burden of Proving that the Verde is Navigable.

In prior decisions, the Arizona courts have held the proponents of navigability bear the burden of proving that a river is navigable. See Arizona Ctr. for Law in the Public Interest v.

Hassell, 172 Ariz. 356, 363 n.10, 837 P.2d 158, 165 n.10 (App. 1991); Land Dep't v. O'Toole, 154 Ariz. 43, 46 n.2, 739 P.2d 1360, 1363 n.2 (App. 1987); Defenders of Wildlife v. Hull, 199 Ariz. 411, 420, 18 P.2d 722, 731 (App. 2001). The Arizona statutes further support this allocation of the burden. In order for the Commission to determine that a particular watercourse is "navigable," the proponents of navigability must establish that fact by a "preponderance of the evidence." See A.R.S. § 37-1128(A). If sufficient evidence is not presented to show navigability for a particular watercourse, the Commission must find the watercourse non-navigable. Id.

II. The Court of Appeals' Decision Likely Requires the Commission to Consider the Verde in Its "Ordinary and Natural Condition."

At least for purposes of the present phase of this proceeding, the Arizona Court of Appeals' decision in *State v. ANSAC* likely is controlling law that the Commission must follow. 224 Ariz. at 230, 229 P.3d at 242.¹ Relying in large part upon the dictionary definition of "natural," the court found that the Lower Salt River must be considered as if it were "untouched by civilization." *Id.* at 241, 229 P.3d at 253. The court stated: "[W]e conclude that ANSAC was required to determine what the [Lower Salt] River would have looked like on February 14, 1912, in is ordinary (i.e., usual, absent major flooding or drought) and natural (i.e., without man-made dams, canals, or other diversions) condition." *Id.* Although the court correctly determined that ANSAC (in its September 2005 final report) had taken into consideration the impact of Roosevelt Dam on the character of the Lower Salt, *id.* at 240, 229 P.3d at 253, the court found insufficient evidence in the report to conclude that the Commission also had considered the impact of other man-made dams and diversions. *Id.*

In addressing what constituted the "ordinary and natural condition" of the Lower Salt River, the Court of Appeals first started with the time "before the Hohokam people arrived

¹ The Arizona Supreme Court has not yet addressed the "ordinary and natural" issue. The Court denied discretionary review of the Court of Appeals' decision in *State v. ANSAC*, and the case was remanded to the superior court and then to the Commission for further proceedings. 224 Ariz. at 245, 229 P.3d at 257.

many centuries ago and developed canals and other diversions that actively diverted the River." State v. ANSAC, 224 Ariz. at 242, 229 P.3d at 254. Recognizing that "little if any historical data exists from that period" and that the river "largely returned to its natural state" after the Hohokam disappeared, the court found that "the River could be considered to be in its natural condition after many of the Hohokam's diversions had ceased to affect the River, but before the commencement of modern-era settlement and farming in the Salt River Valley. . . . " Id.

Although the Court of Appeals determined that "evidence from that early period should be considered by ANSAC as the best evidence of the River's natural condition," 224 Ariz. at 242, 229 P.3d at 254, the court also recognized that evidence from later (or earlier) periods could have probative value. *Id.* at 243, 229 P.3d at 255. ANSAC has authority to consider such evidence and to give it the appropriate weight. *Id.* The court rejected arguments by the proponents of navigability that any evidence dated after the commencement of man-made diversions should be thrown out and disregarded. "Even if evidence of the River's condition after man-made diversions is not dispositive, it may nonetheless be informative and relevant." *Id.*

III. Evidence in the Record

This Commission solicited and received voluminous evidence with respect to the navigability of the Verde. The Commission held hearings in two different county seats.² The transcript of the January 2006 Phoenix hearing alone consists of 136 pages.³ This memorandum discusses the historical, hydrologic, geomorphic, and other evidence in the record.

A. History of the Verde

None of the historical evidence introduced in this proceeding supports a finding of navigability. To the contrary, all of the credible evidence weighs in favor of non-navigability.

² The November 16-17, 2005 hearing in Phoenix was continued and concluded on January 18, 2006.

³ "Tr. at [page]" refers to the Reporter's Transcript of the January 2006 hearing.

1. The prehistoric Verde River

The report submitted by the SLD's consultants,⁴ and their hearing testimony, provide evidence regarding the condition of the Verde in the period before settlement by non-natives. Prehistoric evidence in the Verde River Valley reveals that the river provided an accessible route to water, but the river was used primarily for canal irrigation. *See* Fuller, *supra*, at 2-14. Despite the proximity to the river, there was no documented evidence of any prehistoric boating. *Id.* As Mr. Fuller concluded at the January 18 hearing in Phoenix, "[w]e found no evidence in the archaeological record of any use of boats on the Verde River." Tr. at 10 (Fuller).

Additionally, the evidence shows that native inhabitants did not use the river for navigation during recorded history. Although tribes (such as the Northeastern and Southeastern Yavapai, Pima, and Apache) occupied the Verde River Valley, water was used for simple ditch irrigation. *See* Fuller, *supra*, at 3-1. No evidence submitted to the Commission by the SLD's consultants or any other witness or exhibit indicated any use of boats on the river (commercial or otherwise) or any flotation of logs (regular or irregular) by these early inhabitants.

2. Early non-Indian exploration of the area

Under the Court of Appeals' standard, evidence of the time when early explorers ventured into the area is perhaps "the best evidence of the River's natural condition." State v. ANSAC, 224 Ariz. at 242, 229 P.3d at 254. There is no evidence that any explorers in the Verde River Valley ever used the river as a means of transportation or commerce. In the 1500s, Spanish explorers are known to have traveled in central Arizona in search of mines. See Fuller, supra, at 3-8. No evidence was presented to show that these explorers ever used boats on the river.

⁴ Fuller, et al., Arizona Stream Navigability Study for the Verde River, Salt River Confluence to the Sullivan Lake (June 2003) [EI 31] ("Fuller").

Beginning in 1826, American trappers, such as James Ohio Pattie and Ewing Young, trapped in the vicinity. *Id.*; Tr. at 11 (Fuller). Young trapped along the Verde, from its confluence with the Salt River to its headwaters, but there is no evidence in the record that Young's party ever traveled by water on the Verde itself. *See* Fuller, *supra*, at 3-2 (noting that, in 1829, Young's trapping party "traveled along the Verde River"). Later in the nineteenth century, military expeditions conducted surveys of railroad routes in the area. *Id.* at 3-9. However, there is no recorded history of boat travel by these military parties. *Id.*

Following the discovery of gold in Arizona, permanent settlement was established in central Arizona. See Fuller, supra, at 3-9. Early settlers commented on the Verde, revealing its variable nature and indicating that it was impeded by beaver dams and had extensive marshes in the floodplains. Id. at 3-13 to 3-14. One resident recalled that, in February of 1875, the Verde abruptly changed from a calm stream to a dangerous flooding watercourse:

This was the flood time of year. I had seen the Verde suddenly come raging down, tearing away everything before it—great trees and even rocks tossed about like so much straw. On one trip, while crossing a peaceful little stream, a wall of water and debris came out of nowhere and swept away most of our packtrain in the twinkling of an eye, and then in a few minutes subsided to a trickling stream.

Id. at 3-13 (quoting Corbusier 1968:269). Another resident, who moved to the Verde River Valley in 1879, wrote, "[t]he land was like a sponge and when it rained the water was absorbed into the ground immediately, so very little ran into the river channel and the small amount that did run into the river bed, stood in pools which became stagnant and polluted with malaria germs" Id. at 3-13 to -14 (quoting Verde Valley Pioneers Association 1954: 150).

These early residents along the Verde used water from the river for farming, mining, and hydroelectric power. See Fuller, supra, at 3-15 to -17. Farmers in the middle Verde River Valley constructed irrigation ditches. Id. at 3-15. Ranchers and farmers raised products and crops that were transported overland to the military forts. Id. Yet, despite substantial

usage of the waters of the Verde, there is no evidence that the river itself was used for the transportation of any goods or people. This lack of evidence of navigation includes the time before any diversion of water for irrigation and the area above the location of any later irrigation diversions. Early transportation in the Verde River Valley was primarily limited to horseback, mule trains, wagons, and railroad. *Id.* at 3-19.

3. Federal land surveys and patents

Another group of individuals who were present along the Verde at a relatively early date were the federal land surveyors who were responsible for conducting the rectangular survey in the new territory. Dr. Douglas Littlefield testified at the January 2006 hearing regarding surveys on the Verde from its uppermost reaches near Paulden, AZ downstream to the confluence with the Salt River. Each of these surveyors was under specific instructions to distinguish between navigable and non-navigable streams. None of these Government representatives ever indicated that the Verde was navigable. See Littlefield, supra, at 73 ("[W]hile those surveys were done at varying times of the year, in different years, and by at least eight individuals, all of the descriptions and plats from this work consistently portrayed the Verde River as being a non-navigable stream.").

Similarly, the federal and state land patents issued along the river are persuasive evidence of non-navigability. The Federal Government granted over one hundred separate patents that touched or overlay the Verde to private individuals. *Id.* at 110; Tr. at 71 (Littlefield). In not one case did any of those patents (or the supporting patent files) indicate that acreage was being withheld because the river was navigable. *See* Littlefield, *supra*, at 110; Tr. at 71 (Littlefield). Dr. Littlefield, summarizing his conclusions based upon hundreds of hours of historical research from a wide variety of sources (including survey records, land patents, other government documents, and newspapers), stated: "From this wealth of information, covering a huge array of documentary sources only one conclusion can be

⁵ See Littlefield, Assessment of the Verde River's Navigability Prior to and on the Date of Arizona's Statehood, February 14, 1912, at 11-13, 37-45 (July 7, 2005) [EI 32]; Tr. at 68-69 (Littlefield).

reached: The Verde River was not navigable or susceptible of navigation on or before February 14, 1912." Littlefield, *supra*, at 176.

B. Hydrology and geomorphology of the Verde

The other evidence presented to the Commission is similarly insufficient to constitute a "preponderance of the evidence" in favor of navigability, in any condition. The hydrologic information does not support a finding of navigability. The United States Geological Survey ("USGS") has operated six gauges on the Verde, but only two were operational before statehood. Fuller, *supra*, at 7-5. According to the SLD's consultants, the average monthly streamflow rate in February 1912 was 300 cubic feet per second ("cfs") at the McDowell gauge. *Id.* at 7-6 (Table 7-3). 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. *Id.* Although only limited measurements were taken, the SLD's consultants estimate that the average streamflow in February 1912 was approximately 200 cfs. *Id.*

The SLD's consultants stated that flow discharge in February 1912 was below long-term average rates. *Id.* Their report presents long-term average discharge rates for the two pre-statehood gauges. *Id.* The report estimates that the average discharge rate was 781 cfs annually at the McDowell gauge and 470 cfs at the gauge near Camp Verde. *Id.* (Table 7-3). Their estimates of the average discharge rates for February were 2,121 cfs at the McDowell gauge and 1,100 cfs at the gauge near Camp Verde. *Id.*

More streamflow data is available for the gauges established after statehood. Again, the SLD's report primarily relies upon the average annual flow data collected at each of the six USGS gauges. As indicated in the report, "[f]loods with high peaks tend to skew the average." *Id.* at 7-9. Their average annual flow rates for the Verde range from 42 to 781 cfs. *Id.* at Table 7-5. The fifty percent flow rate ranges from 25 to 968 cfs. *Id.* Even at the McDowell gauge, where the average annual flow rate is highest, the SLD's consultants stated that the average depth of the river was less than three feet. *Id.* at 7-20 (Table 7-13). The

hydrologic evidence does not support a finding that the Verde was navigable in its "ordinary and natural condition."

The geomorphic evidence in the record also refutes, rather than supports, a finding of navigability. Geomorphologist Dr. Stanley Schumm presented a written report regarding the geomorphology of the Verde.⁶ In his report, Dr. Schumm stated that substantial portions of the Verde have a braided channel along with bedrock controls and geologic structures. *See* Schumm, *supra*, at 2. Moreover, the width of the channel and river gradient of the Verde is highly variable throughout its course due to bedrock and tributary influences. *Id.* at 2, 14. Dr. Schumm concluded that "the numerous rapids and bedrock impact on the river prevent navigation, but even more important are the very steep gradients ranging from 12 to 25 ft/mile" that would make navigation "impossible." *Id.*

Dr. Schumm's conclusions regarding the variable nature and extremely steep slope of the Verde are consistent with the geomorphic information presented by the SLD's consultants. See Tr. at 18-19, 26-27 (Pearthree) ("I hammered home the point the Verde is a variable floodplain, valley morphology changes a lot up and down the river."); Fuller, supra, at 5-26 (noting that the width of the flood channels varies substantially). Although the SLD's consultants concluded that the Verde can be characterized primarily as having a pool-and-riffle sequence, this indicates that the river carries coarse bedload sediment. Id. at 5-6; Tr. at 20 (Pearthree) ("Typically rapids would be another term for that narrower, steeper, coarse bed load river."). As noted in the SLD's report: "The bed forms of the low-flow channels are characterized by a repeating sequences of pools (deeper water areas) and riffles or rapids (shallow water areas typically dominated by cobbles and small boulders)." Fuller, supra, at 5-6. Rapids, cobbles, and small boulders would serve as natural impediments to any attempts at navigation of the Verde.

Simple logic suggests that a river characterized by repeating patterns of deeper water and shallow rapids is not susceptible to navigation. Although it might be possible to float a

⁶ See Schumm, Geomorphic Character of the Verde River (December 2004) [EI 30] ("Schumm").

boat in the "deeper water areas" (except in times of low flows), it would not be possible to maintain navigation in the "shallow water areas typically dominated by cobbles and small boulders." See id. Therefore, it would be impossible to sustain navigation for any meaningful segment of the river, so as to allow the river to be used as "a corridor or conduit within which the exchange of goods, commodities or property or the transportation of persons may be conducted." See A.R.S. § 37-1101(3); see also generally PPL Montana LLC v. Montana, 132 S. Ct. 1215 (2012).

This "pool-and-riffle" pattern also explains why a few accounts exist of persons using boats to cross the river, even though virtually no accounts exist of persons using boats to travel along the river. Especially in periods of high flows, the "pools" likely would contain sufficient water to allow a boat to cross the river. By the same token, the "riffles" and rapids would, except in periods of extremely high water, make travel along the length of the river impossible.

IV. The Verde Was Not Navigable in Its "Ordinary and Natural Condition."

Upon reviewing the evidence and specifically considering the "ordinary and natural condition" of the Verde, the Commission should again find it non-navigable. "[A] river is navigable in law when it is navigable in fact." *Muckleshoot Indian Tribe v. FERC*, 993 F.2d 1428, 1431 (9th Cir. 1993). Thus, the Commission must consider all of the evidence in the record before it. When the Commission reviews the evidence submitted, and considers the totality of that evidence, it must again determine that the Verde never has been used as a "highway for commerce" and was not, in its "ordinary and natural condition" (or in any other condition), susceptible to being used as a highway for commerce.

A. The Verde has never been used as a "highway for commerce."

A watercourse can meet the test for "navigability" under the Arizona statute and the case law if it satisfies either of two elements: (1) If it was actually used as a "highway for

commerce," or (2) if it, in its "ordinary and natural condition" at the time of statehood, was "susceptible to being used" as a "highway for commerce." See A.R.S. § 37-1101(5).

It is beyond reasonable dispute that the Verde has never been actually used as a "highway for commerce." No evidence exists of any prehistoric boating or flotation of logs on the river. See Section III(A)(1), supra. Likewise, no evidence exists that the early explorers or soldiers in the area near the river, who traveled through the area on several occasions, ever used the river, for "commerce" or otherwise. See Section III(A)(2), (3), supra; see also Lykes Bros., Inc. v. Corps of Eng'rs, 821 F. Supp. 1457, 1459 (M.D. Fla. 1993), aff'd, 64 F.3d 630 (11th Cir. 1995) (court found that had river been navigable, it would seem obvious that military and settlers would have used the river to transport men and supplies rather than carrying them overland).

B. The Verde was not, in its "ordinary and natural condition," susceptible to being used" as a "highway for commerce."

Because the evidence shows that the Verde was never actually used as a "highway for commerce," the only way it can be considered navigable is if it was "susceptible" to such use. No evidence exists in the record to show that the Verde, in its "ordinary and natural condition" or in any other condition, was capable of acting as "a corridor or conduit within which the exchange of goods, commodities or property or the transportation of persons may be conducted." A.R.S § 37-1101(3) (defining "highway for commerce").

Although the Verde existed in relatively close proximity to much of the exploration and settlement in early Arizona, it was never used for any type of trade or transportation.⁸

⁷ "For state title purposes under the equal-footing doctrine, navigability is determined at the time of statehood . . . and based on the 'natural and ordinary condition' of the water." *PPL Montana*, 132 S. Ct. at 1228.

⁸ "Navigability must be assessed as of the time of statehood, and it concerns the river's usefulness for 'trade and travel,' rather than for other purposes." *PPL Montana*, 132 S. Ct. at 1233. "Mere use by initial explorers or trappers who may have dragged their boats in or alongside the river despite its nonnavigability in order to avoid getting lost, or to provide water for their horses or themselves, is not enough." *Id.*

The hydrology and geomorphology of the river shows that it was not susceptible to navigation. See Section III(B), supra.

It might be theoretically possible that, on one or more occasions in particular years, it would have been feasible for a person to boat or float logs down some portion of the river. Occasional use in exceptional times does not, however, support a finding of navigability. "The mere fact that a river will occasionally float logs, poles, and rafts downstream in times of high water does not make the river navigable." *United States v. Crow, Pope & Land Ents., Inc.*, 340 F. Supp. at 32 (citing *United States v. Rio Grande Dam & Irr. Co.*, 174 U.S. 690 (1899)). "The waterway must be susceptible for use as a channel of useful commerce and not merely capable of exceptional transportation during periods of high water." *Id.* (citing *Brewer-Elliott Oil & Gas Co. v. United States*, 260 U.S. 77 (1922)).

V. Summary and Requested Action

The proponents of navigability bear the burden of proof. The evidence in the record does not support a finding that the Verde ever was actually used as a "highway for commerce." The record likewise does not support a finding that the Verde, in its "ordinary and natural condition" was susceptible to being used as a highway for commerce. The Commission should find the Verde "non-navigable."

DATED this 7th day of September, 2012.

SALMON, LEWIS & WELDON, P.L.C.

By VANKL MEGINM

Mark A. McGinnis Scott M. Deeny

2850 East Camelback Road, Suite 200 Phoenix, Arizona 85016

Attorneys for SRP

⁹ See also United States v. Harrell, 926 F.2d 1036, 1040 (11th Cir. 1991) ("susceptibility of use as a highway for commerce should not be confined to 'exceptional conditions or short periods of temporary high water") (quoting United States v. Utah, 283 U.S. 64, 87 (1931)).

1	ORIGINAL AND SIX COPIES of the foregoing
2	hand-delivered for filing this 7th day of September, 2012 to:
3	
4	Arizona Navigable Stream Adjudication Commission 1700 West Washington, Room B-54
5	Phoenix, AZ 85007
6	AND COPY mailed this 7th day of September, 2012 to:
7	Fred E. Breedlove III
8	Squire Sanders & Dempsey LLP
9	1 East Washington Street, Suite 2700 Phoenix, AZ 85004-2556
10	Attorney for the Commission
11	Laurie A. Hachtel
12	Attorney General's Office 1275 West Washington Street
13	Phoenix, AZ 85007-2997
14	Attorneys for State of Arizona
15	Joy E. Herr-Cardillo
16	Timothy M. Hogan Arizona Center for Law in the Public Interest
17	2205 E. Speedway Blvd.
18	Tucson, AZ 85719 Attorneys for Defenders of Wildlife, et al.
19	Sally Worthington
20	John Helm
21	Helm & Kyle, Ltd. 1619 E. Guadalupe #1
22	Tempe, AZ 85283 Attorneys for Maricopa County
23	Anomeys for Maricopa County
24	Sandy Bahr 202 E. McDowell Road, Ste. 277
25	Phoenix, AZ 85004 Sierra Club
26	Dierra Ciao
27	

1	Julie M. Lemmon 1095 W. Rio Salado Parkway, Suite #102
2	Tempe, AZ 85281
3	Attorney for Flood Control District
ļ	of Maricopa County
4	Carla Consoli
5	Lewis and Roca
6	40 N. Central Avenue
	Phoenix, AZ 85004
7	Attorneys for Cemex
8	L. William Staudenmaier
9	Snell & Wilmer LLP
10	One Arizona Center
10	400 E. Van Buren
11	Phoenix, AZ 85004-2202
12	Attorneys for Freeport-McMoRan Corporation
13	Charles Cahoy
1.4	P.O. Box 5002
14	Tempe, AZ 85280 Attorney for City of Tempe
15	Thiorney for early of Tempe
16	William Taebel
. –	P.O. Box 1466
17	Mesa, AZ 85211-1466
18	Attorney for City of Mesa
19	Cynthia Campbell
20	200 W. Washington, Suite 1300 Phoenix, AZ 85003
21	Attorney for City of Phoenix
22	Thomas L. Murphy
23	Gila River Indian Community Law Office Post Office Box 97
24	Sacaton, AZ 85147
25	Attorney for Gila River İndian Community
26	
27	

j	
1	Michael J. Pearce
2	Maguire & Pearce LLC
3	2999 N. 44th Street, Suite 630 Phoenix, AZ 85018-0001
4	Attorneys for Chamber of Commerce and
	Home Builders' Association
5	James T. Braselton
6	Mariscal Weeks McIntyre & Friedlander PA
7	2901 N. Central Avenue, Suite 200 Phoenix, AZ 85012-2705
8	Attorneys for Various Title Companies
9	Steve Wene
10	Moyes Sellers & Associates
11	1850 N. Central Avenue, Suite 1100 Phoenix, AZ 85004-4527
12	Attorneys for Arizona State University
13	1
14	Hanare Ford Dash
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	