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

11 In re Determination of Navigability of
12 the San Pedro River

No. 03-004-NAV

13 **SALT RIVER PROJECT'S OPENING**
14 **POST-HEARING MEMORANDUM**

15 The Salt River Project Agricultural Improvement and Power District and Salt River
16 Valley Water Users' Association (collectively, "SRP") submit their opening post-hearing
17 memorandum on the navigability of the San Pedro River ("San Pedro") in its ordinary and
18 natural condition as of February 14, 1912. For the reasons set forth herein, SRP requests that
19 the Commission find the San Pedro non-navigable.

20 Concurrently with this opening memorandum, SRP has submitted its Proposed
21 Findings of Fact and Conclusions of Law, which contain extensive citations to evidence in the
22 record before the Commission. Rather than reiterate those citations, this memorandum refers
23 to the appropriate proposed findings of fact ("FF# __") and conclusions of law ("CL# __").

24 **I. EVIDENCE IN THE RECORD**

25 **A. History of the San Pedro**

26 The historical evidence shows that the San Pedro was not actually navigated, nor was it
27 susceptible to navigation, in its ordinary and natural condition. See FF#14.

1 **1. The San Pedro during prehistoric times**

2 The 1997 and 2004 reports submitted by the consultant for the Arizona State Land
3 Department (“SLD”) detail archaeological evidence regarding occupation near the San Pedro
4 in the period before settlement by non-natives. *See* FF#3-4, 15. The record includes
5 documented evidence of inhabitation in the San Pedro River Valley dating back to
6 approximately 9,550 B.C., over 11,000 years ago. *See* FF#16. These early populations
7 settled in the San Pedro River Valley using river water as their lifeline for drinking and for
8 small-scale irrigation. *See* FF#17-18. As the SLD consultant concluded, however: “No
9 evidence of prehistoric boating on the San Pedro River, or of river conditions that would
10 support navigation, was identified during the archaeological investigation and literature
11 search.” *Id.* Despite human presence in the San Pedro River Valley and along the river for
12 thousands of years, no evidence exists that any of those communities ever used or even tried
13 to use the San Pedro as a “highway for commerce.” *See* FF#19.

14 **2. Early exploration, settlement, and conditions before the 1880s**

15 Indians, Spanish explorers and missionaries, and American trappers and travelers
16 entered the San Pedro River Valley and traveled along the river, yet none of them used the
17 San Pedro as a means of transportation or commerce. *See* FF#20. In the 1500s, there were
18 explorers in the area, such as Spanish explorer Fray Marcos de Niza. *See* FF#21. The
19 Sobaipuri Indians, an agricultural tribe, occupied the area until warfare with the Apaches
20 around 1763 forced them to the Santa Cruz River. *See* FF#22. The Sobaipuri had villages
21 along the river with as many as 500 people each. *Id.* Spanish missionaries, such as Father
22 Eusebio Kino, established missions in the area in 1691. *See* FF#23.

23 Trapper James Ohio Pattie made two expeditions along the San Pedro between 1824
24 and 1828, referring to it as “Beaver River” due to the abundance of beavers. *See* FF #24.
25 Some indication exists that members of Pattie’s trapping party might have attempted to use a
26 canoe at one point during one of these trips, but the evidence is not conclusive that this
27 occurred on the San Pedro, as opposed to one of the other rivers on which the party traveled.

1 See FF #25. What evidence exists shows that this event (if it occurred) happened at a time
2 when the rivers in the area were at or near flood stage. *Id.*

3 In 1846, during the Mexican War, military expedition teams led by Stephen Watts
4 Kearny crossed the San Pedro, describing it as “an insignificant stream a few yards wide and
5 only a foot deep.” See FF#26. The record is replete with other descriptions of the San Pedro
6 from the mid-1800s stating that the river was relatively insignificant and shallow:

7 1. Emory (1848) noted that the river was a “few yards wide and one foot deep.”
8 See FF#28.

9 2. Johnson (1846 or 1850) reported that an “active man” could jump across the
10 water in the river. See FF#29.

11 3. Bartlett (1851) reported that “[t]he stream . . . was here about two feet deep and
12 quite rapid.” See FF#31.

13 4. Gray (1854) stated that the river was “a small stream at this stage, about eight
14 feet wide, and shallow, between steep banks of 10 feet high to 25 to 50 feet high.” See
15 FF#32.

16 5. Parke (1854) reported that the river was “about eighteen inches deep and
17 twelve feet wide.” See FF#33. During that same year, he described the river as “about fifteen
18 inches deep and twelve feet wide.” *Id.*

19 6. Parke (1857) reported that, in the river, the “water sinks below the surface and
20 rarely runs above it.” See FF#34.

21 7. Tevis (1857) stated that the river was “one foot deep” and “six feet wide.” See
22 FF#35.

23 8. Engineers surveying a wagon road (1858) commented that the river was “not
24 continuous all the year, but in the months of August and September disappears in several
25 places, rising again, however, clear and limpid.” See FF#36.

26 9. Hutton (1858 or 1859) described the river as having a width of approximately
27 twelve feet and a depth of about a foot. See FF#37.

1 The evidence also shows that, during the mid-1800s, the San Pedro was variable,
2 erratic, and disappeared at times. For instance, Leach (1858) stated: “Exceedingly to the
3 surprise of every member of the expedition who had passed over this route in the months of
4 March and April it was discovered after a march of a few miles that the waters of the San
5 Pedro had entirely disappeared from the channel of the stream. . . . Where the present
6 reporter took quantities of fine trout in March and April 1858 not a drop of water was to be
7 seen.” *Id.* Tevis (1857) reported: “[W]e have went to the river & watterd [sic] & it was
8 running fine & half mile below the bed would be as dry as the road—it sinks & rises again . . .
9 .” *See* FF#39; *see also* FF#41.

10 Mr. Win Hjalmarson testified during the 2013 hearing in favor of navigability on
11 behalf of the Arizona Center for Law in the Public Interest (“ACLPI”) and its clients. In at
12 least one report presented for other purposes in 1988 (many years prior to his testimony
13 before the Commission), Mr. Hjalmarson acknowledged that, in the San Pedro in the 1800s,
14 the flow of water was not continuous and that there were locations at which the water on the
15 surface would disappear and rise again a few miles downstream. *See* FF#40.

16 The evidence also clearly shows that marshy conditions existed on the San Pedro
17 during the mid-1800s. *See* FF#42, 43. Malaria was a problem in settlements along the river.
18 *Id.* In 1879, “the Arizona Daily Star described the San Pedro as the ‘valley of the shadow of
19 death’ because of the serious incidence of malaria there, reflecting the then-pervasive swampy
20 conditions.” *See* FF#43.

21 The San Pedro was an important transportation route through southern Arizona in the
22 1800s, but travel was alongside the river via foot or horseback. *See* FF#45. There is evidence
23 of stage transportation companies operating along the San Pedro in 1880. *See* FF#44. There
24 is no evidence of using the river for commerce, however. *Id.* For example, Mr. Richard
25 Burtell (who testified on behalf of Freeport McMoRan Corporation) examined efforts to
26 supply military posts in the area before and after the Civil War. *Id.* In the sources Mr. Burtell
27

1 reviewed, only the Colorado River was mentioned as having been used to transport supplies
2 to Arizona military posts by boat. *Id.*

3 Studies indicate that, prior to 1890, the river was “an irregularly flowing stream,
4 marshy in places, free-flowing in other places, entrenched or subsurface in still other places.”
5 *See* FF#46. Cienegas and riffles also existed on the San Pedro during the period before 1890,
6 which would have been additional impediments to navigation. *See* FF#47.

7 **3. Down-cutting and entrenchment in the 1880s**

8 Generally beginning about the 1880s, the channel of the San Pedro began to down-cut
9 and entrench, resulting in a narrower, more defined channel than existed immediately prior to
10 that time. *See* FF#49, 50. During the 1880s and 1890s, a series of large floods occurred that
11 affected the geometry of the San Pedro. *See* FF#51. A large earthquake also shook the region
12 in 1887. *See* FF#52. One of the worst droughts on record occurred between 1891 and 1893.
13 *See* FF#53. All of these factors appear to have contributed to the down-cutting and
14 entrenchment on the river.

15 “Many alluvial streams in the region including the San Pedro River experienced
16 extensive entrenchment in the late 19th and early 20th centuries.” *See* FF#54. Almost the
17 entire reach of the Upper San Pedro was entrenched by about 1920. *See* FF#55.

18 **4. Settlement and conditions after the 1880s**

19 After 1890, the San Pedro was a “highly variable stream, both seasonally and along its
20 length.” *See* FF#56. An additional limitation on any potential transportation or commerce on
21 the river was a drought that lasted from 1885 to 1903, accompanied by periodic flash
22 flooding. *See* FF#57. Any potential for navigation would be less during periods following
23 large floods, while the river recovered from the effects of the flood. *Id.*

24 A resurvey of the international border was conducted in 1891. *See* FF#58. During that
25 resurvey, the San Pedro was described in the vicinity of the border as “ordinarily a stream of
26 about 15 feet in width and 6 or 8 inches in depth, fringed with a fine growth of cottonwood
27 and willow.” *Id.* No mention was made of any navigation on the river in those resurvey

1 observations. *Id.* Little or no diversions affecting streamflow existed in the upper portion of
2 the San Pedro watershed near the border at the time of the 1891 resurvey. *Id.*

3 If it was possible, transportation of persons or goods by boat on the San Pedro would
4 have been beneficial to the residents in the late 1800s. *See* FF#59. Mines began operating in
5 the area in the 1870s, and such transportation would have been a means to get needed
6 equipment to the mine and to take products to market. *Id.* Despite this demonstrated need for
7 transportation, “there is no documentation of boating of any kind on the San Pedro River.”
8 *See* FF#60.

9 **5. Beavers on the San Pedro**

10 The evidence shows the presence of numerous beaver dams on the San Pedro, both
11 during the 1800s and in more recent times. *See* FF#61. Before about 1870, beavers were
12 common throughout a large portion of the river. *See* FF#62. James Ohio Pattie trapped
13 beaver along the San Pedro during two trips, between 1824 and 1828. *See* FF#63. After
14 trapping some “200 skins,” he called the San Pedro the “Beaver River.” *Id.* No evidence was
15 submitted to the Commission to prove that Mr. Pattie traveled by boat on water, as opposed to
16 on foot along the river. *Id.*

17 As part of his work in performing the original survey of the international boundary,
18 Emory (1854-55) reported: “Though affording no great quantity of water, this river [the San
19 Pedro] is backed up into a series of large pools by beaver-dams and is full of fishes.” *See*
20 FF#64. Tevis (1857) reported that, downstream from the mouth of Aravaipa Creek, “about
21 Every 5 miles is a beaver dam this is great country for them. . . . [sic]” *See* FF#65.

22 At the 2013 hearing, Mr. Hjalmarson opined that, in the last 123 miles of the San
23 Pedro, “nearly 500” beaver dams were present. *See* FF#66. Mr. Gookin stated that there
24 could have been as many as 1,680 beaver dams on the river. *Id.*

25 The numerous beaver dams on some reaches of the San Pedro would have posed an
26 obstacle to navigation. *See* FF#67. This is emphasized by the efficiency with which beavers
27 are known to multiply and to repair their dams. *Id.* In addition to being a natural physical

1 obstacle to navigation, beaver dams also slow water flow and create deeper pools than would
2 otherwise exist. *See* FF#68. If and when dams are removed, those deeper pools are drained,
3 thereby resulting in lower water depths. *Id.*

4 By about 1900, beavers were extirpated from the Upper San Pedro. *See* FF#69. The
5 Bureau of Land Management reintroduced fifteen beavers to the San Pedro National Riparian
6 Conservation Area (“SPRNCA”) in 1999 and 2000. *Id.* SPRNCA is located on the Upper
7 San Pedro. *Id.* By 2008, the fifteen beavers that had been introduced had expanded to about
8 150, with forty-six beaver dams counted. *Id.*

9 **6. Fishing on the San Pedro**

10 There is documented evidence of fish, such as squawfish, razorback sucker, and
11 flannelmouth sucker, found in the San Pedro. *See* FF#70-72. The historical record is,
12 however, devoid of any evidence that any person ever used a boat to fish on the river. *See*
13 FF#71. For example, evidence of fishing came from journal entries of men on military
14 expeditions with Cooke, the commander of the Mormon Battalion, who traveled by horseback
15 along the San Pedro and wrote of catching fish in the river. *Id.*

16 The SLD consultant stated that “. . . the presence of fish in a river does not necessarily
17 indicate that boatable conditions exist” *See* FF#73. The limited evidence of fishing that
18 exists in the record does not support a finding of navigability. *See* FF#74. Evidence of
19 fishing from the banks of the San Pedro does not make it likely that the river was navigable.
20 *Id.*

21 **7. Boating attempts on the San Pedro**

22 There are no published accounts of boating on the San Pedro prior to statehood. *See*
23 FF#75. There is one unconfirmed anecdotal story of a ferry service on the river. Dora
24 Ohnesorgen and Nedra Sunderland recalled that Ohnesorgen’s grandfather had a ferry
25 operation on the San Pedro near Pomerene. *See* FF#76. This supposed operation was not
26 documented in any newspaper article or any other source, nor was there a timeframe of when
27 this business was thought to have operated or any other evidence confirming this story. *Id.*

1 One account exists of a lake being present in the middle of the San Pedro during the
2 1940s. *See* FF#77. Mr. Burtell reviewed various maps and surveys of the area during that
3 period and found no evidence of such a lake. *Id.* The only reference to a lake in this area was
4 to Cooks Lake, which is about half a mile east of the San Pedro and about two miles below
5 the Aravaipa Creek confluence. *Id.*

6 During interviews with local residents, there was not one account of commercial or
7 recreational boating (other than the unverified ferry story above) on the San Pedro. *See*
8 FF#78; *see also* FF#79, 83. Modern records and stories indicate that there has been
9 infrequent recreational boating on the San Pedro. *See* FF#80. A survey by the Central
10 Arizona Paddlers Club found six reported accounts of boating on the San Pedro between 1973
11 and 1992. *See* FF#81. The majority of the trips occurred during August, when monsoon
12 season brings rain to Southern Arizona. *Id.* The SLD consultant referred to these boating
13 trips as “very opportunistic,” describing that “boaters drive to a launching point on likely rain
14 days, and ‘put in’ the water if rain conditions favor runoff.” *Id.*

15 The Arizona State Parks Department has classified the San Pedro not as a boating
16 stream, but as a hiking or general recreation area. *See* FF#82. A handful of intermittent
17 boating accounts in recent history during the monsoon season does not make it more likely
18 than not that the San Pedro was navigated or susceptible to navigation, in its ordinary and
19 natural condition, on February 14, 1912.¹

20 **B. Climate of the San Pedro River Valley**

21 The climate of the San Pedro River Valley is typical of a desert climate, with violent
22 summer thunderstorms and sporadic rain in the winter, rather than the type of weather that
23 would produce a regularly flowing stream. *See* FF#85. The San Pedro River Valley is semi-
24 arid. *See* FF#86. Precipitation occurs mainly “during the summer when moisture entering
25 Arizona from the south triggers convective thunderstorms.” *Id.* During some years, intense
26

27 ¹ No evidence was presented that anyone ever attempted to float logs on the San Pedro for
commercial purposes. *See* FF#84.

1 rains hit the valley during September and October “that commonly result in heavy rain and
2 flooding.” *Id.*

3 **C. Hydrology of the San Pedro**

4 The hydrologic character of the San Pedro precludes it from being susceptible to
5 navigation. Prior to statehood, the average flow rates at the Charleston station from 1904 to
6 1906 varied from 3 cubic-feet per second (“cfs”) in June to 233 cfs in August. *See* FF#87.
7 This extreme variation in the monthly average flow demonstrates the volatility of the river.
8 *See* FF#88.

9 Mr. Burtell presented data regarding median monthly flows measured at the Charleston
10 gage from 1904 to 1911 and flow measurements taken periodically at a gage near Fairbank in
11 1912. *See* FF#89. In sixteen of the forty months with data, channel depths at Charleston prior
12 to statehood were typically less than one foot. *Id.* Although collected at a relatively late date,
13 these data were representative of the ordinary and natural conditions because the United
14 States Geological Survey (“USGS”) noted in 1911 that diversions above the station were
15 limited to the amount used to irrigate only about fifty acres. *Id.*

16 Based upon estimates from one of four USGS stream gages at Charleston, the average
17 flow rate of February 1912 was 28 cfs. *See* FF#90. The 1912 depths at Charleston
18 correspond to water depths of less than one foot. *Id.* At the time of statehood, the Upper San
19 Pedro at St. David had an estimated median depth of half a foot and median width of ten feet.
20 *See* FF#91. Furthermore, “portions of the San Pedro River were periodically dry or
21 experienced low flows due to irrigation diversions” when Arizona became a state in 1912. *Id.*

22 Following statehood, streamflow data is more reliable and documented, because there
23 are nine gaging stations on the San Pedro. Table 7-5 of the 1997 report by the SLD
24 consultant summarizes monthly and average annual flow rates gathered from stream gage
25 data. *See* FF#92. For all stations documented, there is not one with an average annual flow
26 of greater than 60 cfs. *Id.* These flow rates correspond to water depths of less than one foot.

27

1 *Id.* According to the USGS, little or no diversions occurred above this gage, so these
2 measurements are representative of the ordinary and natural conditions. *Id.*

3 The data demonstrates that higher flow rates (i.e., between 100 and 200 cfs) occur only
4 during the monsoon season of July and August. *See* FF#93. At some points in the year
5 (during April and May), at least one of the gages had absolutely no streamflow. *Id.* The SLD
6 consultant concluded that the water flows are “highly variable, with the major component of
7 flow resulting from direct response to precipitation.” *See* FF#94. Due to the radical changes
8 in streamflow, no one could rely on the San Pedro as a regular source of transportation or
9 commerce.

10 Floods have affected the average of streamflow rates on the San Pedro. *See* FF#95.
11 Large floods began in the 1880s and 1890s. *Id.* The 1890 flood has been referred to as
12 causing the “death of the San Pedro River” because it “removed or drained numerous
13 swampland areas along its course.” *See* FF#96. The 1890 flood occurred due to several
14 monsoon rains in late July and early August and caused extensive entrenchment on some parts
15 of the San Pedro. *Id.* This and other floods prior to statehood largely contributed to the
16 entrenchment of the river. *See* FF#97, 98.

17 **D. Geomorphology of the San Pedro**

18 The geomorphologic evidence indicates that the San Pedro was not susceptible to
19 navigation in its ordinary and natural condition. The upper reach had a partly perennial and
20 partly intermittent flow, and the lower reach had an entrenched, broad, and braided channel
21 with only isolated reaches of perennial flow. *See* FF#99. Both the upper and lower reaches
22 experienced channel entrenchment and widening during exploration and settlement of the San
23 Pedro Valley in last half of the 19th century. *See* FF#100.

24 At the time of statehood, the upper reach was a “braided channel [that] meandered
25 within the confines of the arroyo banks.” *See* FF#101. Modern geomorphologic
26 characteristics demonstrate that the San Pedro is not susceptible to navigation. The upper
27 reach of the river is characterized by a “variably entrenched channel” and “coarse-grained

1 point bars that deflect streamflow.” See FF#102. The channel also is described as “both
2 braided and meandering: the low flow channel is braided with several branching channels, but
3 the high flow channel is sinuous.” *Id.* The lower reach of the San Pedro has a wide,
4 entrenched channel. See FF#103. The geomorphologic descriptions of the river highlight
5 characteristics not susceptible to navigation in its ordinary and natural condition. See
6 FF#104.

7 Mr. Hjalmarson performed a series of calculations to attempt to determine the depth of
8 the San Pedro in its ordinary and natural condition. See FF#105. His calculations were based
9 upon the assumption that any river with a minimum depth of one foot was navigable. *Id.* On
10 cross-examination, however, he conceded that, in addition to a minimum depth, several other
11 physical characteristics can affect navigability, such as braided channels, sandbars, and beaver
12 dams. *Id.*

13 Regarding his analysis, Mr. Hjalmarson stated: “The goal is for an accurate analysis of
14 the San Pedro River’s natural condition that recognizes that fine precision is unlikely.” See
15 FF#106. During his testimony, Mr. Hjalmarson agreed that his work involved, among other
16 things, estimation and extrapolation from other data. *Id.*

17 Mr. Hjalmarson’s analysis and opinions are based upon the assumption that the San
18 Pedro has a smooth, uniform parabolic channel. See FF#107. The other evidence submitted
19 to the Commission showed that this is not a valid assumption for the San Pedro, either in its
20 ordinary and natural condition or otherwise. *Id.*

21 Mr. Hjalmarson’s opinions were limited to a hypothetical cross-section of the San
22 Pedro at a theoretical point in time. See FF#108. His technique did not examine the
23 characteristics of the channel over any length upstream or downstream. *Id.* His analysis did
24 not consider the presence of rapids, riffles, sandbars, or other natural physical impediments.
25 *Id.*²

26
27 ² On cross-examination, Mr. Hjalmarson agreed that the required draft for a boat would depend upon
the size of the occupants. See FF#109.

1 Mr. Burtell presented several criticisms of Mr. Hjalmarson's analysis. See FF#110.
2 Those criticisms included, among other things:

- 3 1. Mr. Hjalmarson's analysis double-counted some of the San Pedro flows;
- 4 2. The method he used assumes a uniform parabolic cross-section, and the
5 historical evidence shows that the channel was neither uniform nor parabolic in its ordinary
6 and natural condition;
- 7 3. His analysis assumes that the deepest part of the channel is exactly in the middle
8 of the river, and that was not uniformly true for the San Pedro in its ordinary and natural
9 condition;
- 10 4. His work was not properly calibrated;
- 11 5. His analysis focused only on depth, and many other factors can affect
12 navigability; and
- 13 6. Because actual historical accounts exist during a period when the San Pedro was
14 in its ordinary and natural condition, his hypothetical model was not even necessary. *Id.*

15 Mr. Gookin also presented several criticisms of Mr. Hjalmarson's analysis, which he
16 referred to as the "channel geometry method." See FF#111. Those criticisms included,
17 among other things:

- 18 1. The method that Mr. Hjalmarson used is useful only with regard to "[a] straight,
19 narrow reach in which flows are approximately uniform," and those characteristics did not
20 exist on the San Pedro in its ordinary and natural condition;
- 21 2. The equations he used should not be applied to braided channels such as the San
22 Pedro;
- 23 3. The method he used assumes a large amount of clay on the river banks, and the
24 San Pedro does not have much clay;
- 25 4. The method he used assumes a uniform parabolic cross-section, and the
26 historical accounts show that the San Pedro channel was neither uniform nor parabolic in its
27 ordinary and natural condition;

1 5. His equations assume that the channel slopes are relatively uniform, and the
2 channel slopes on the San Pedro vary significantly; and

3 6. His analysis ignores the presence of riffles, beaver dams, and cienegas, all of
4 which were present and abundant on the San Pedro in its ordinary and natural condition. *Id.*

5 Mr. Halmarson's conclusions are contrary to the numerous historical observations of
6 the river in its ordinary and natural condition, and (even aside from this contrary evidence) the
7 methodological limitations and assumptions necessary for his techniques show that his
8 analysis does not support his conclusions regarding the estimated depth of the San Pedro for
9 any substantial portion of its course in its ordinary and natural condition. *See* FF#112.

10 **II. LEGAL ARGUMENT**

11 The Commission must review all of the evidence and determine whether the San Pedro
12 was "navigable" in its ordinary and natural condition on February 14, 1912. Although the
13 task of reviewing the evidence is perhaps time-consuming and tedious, making the actual
14 decision should be relatively easy. No evidence supports a finding that the San Pedro is or
15 ever was used or susceptible to being used as a "highway for commerce," in its ordinary and
16 natural condition or otherwise.

17 18 A. Based upon the Record, the Commission Can Determine, as a Matter of 19 Law and Fact, when the San Pedro was in its "Ordinary and Natural 20 Condition."

21 The Arizona Court of Appeals in *State v. ANSAC*, 224 Ariz. 230, 229 P.3d 242 (App.
22 2010), addressed what constitutes the "ordinary and natural condition" of a river for purposes
23 of the Arizona statute and the federal test of navigability. Relying in large part upon the
24 dictionary definition of "natural," the court found that the Lower Salt River must be
25 considered as if it were "untouched by civilization." *Id.* at 241, 229 P.3d at 253. The court
26 stated: "[W]e conclude that ANSAC was required to determine what the River would have
27 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.*

1 In addressing what constituted the “ordinary and natural condition” of the Lower Salt,
2 the Court of Appeals first started with the time “before the Hohokam people arrived many
3 centuries ago and developed canals and other diversions that actively diverted the River.” *Id.*
4 at 242, 229 P.3d at 254. Recognizing that “little if any historical data exists from that period”
5 and that the Lower Salt “largely returned to its natural state” after the Hohokam disappeared,
6 the court found that “the River could be considered to be in its natural condition after many of
7 the Hohokam’s diversions had ceased to affect the River, but before the commencement of
8 modern-era settlement and farming in the Salt River Valley. . . .” *Id.*

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

18 With respect to the San Pedro, the evidence shows that, generally beginning about the
19 1880s, the channel of the river began to down-cut and entrench, resulting in a narrower, more
20 defined channel than existed immediately prior to that time. *See* FF#113. Much evidence
21 was presented in the 2013 hearing regarding the potential causes of this down-cutting and
22 entrenchment, including, among others, climate change; an earthquake in Sonora, Mexico in
23 1887; floods in the 1890s; and cultural effects from grazing and timber harvesting. *See*
24 FF#114; *see also* Section I(A)(3), *supra*.

25 Mr. Hjalmarson stated his opinion that “much of the change [in the San Pedro]
26 probably resulted from human activity going back 300 years or more—even to 1697.” *See*
27 FF#115. On cross-examination, however, he acknowledged that at least a portion of the

1 arroyo cutting and incision that occurred on the San Pedro in the 1880s likely was caused by
2 factors other than human activity. *See* FF#116.

3 Numerous respected scientists (including Stromberg and her co-authors, Huckleberry,
4 and others) have examined the possible causes of the entrenchment of the San Pedro and have
5 found that no single cause can be determined. *See* FF#117, 118. Mr. Huckleberry of the
6 USGS concluded in his 1996 report that the driving force behind the down-cutting and
7 entrenchment on the San Pedro was “probably not anthropogenic” (i.e., not “relating to, or
8 resulting from the influence of human beings on nature”). *See* FF#119. At the 2013 hearing,
9 Mr. Gookin opined that the changes in channel shape on the San Pedro in the late 1800s were
10 “[n]ot a unique nor a human-caused event.” *See* FF#120.

11 Based upon the evidence presented, the Commission can and should determine, as a
12 matter of fact, that the down-cutting and entrenchment of the San Pedro in the 1880s was not
13 caused exclusively or primarily by human activities. *See* FF#121. The down-cutting and
14 entrenchment were, at least in large part, a result of natural occurrences on the river. *Id.*
15 Because of the complexity of the possible causes (as shown by the distinguished scientists
16 who have devoted years to determining the exact cause(s) and been unsuccessful in doing so),
17 it is presently impossible to determine precisely what portion, if any, of that down-cutting and
18 entrenchment was caused by human activities. *Id.* Thus, because it is impossible to
19 determine how much (if any) of the down-cutting and entrenchment can be attributed to
20 human (as opposed to natural causes), the Commission should find that, with respect to
21 channel size and shape, the historical accounts of the San Pedro from both before and after
22 1880 are persuasive evidence of the river’s ordinary and natural condition. *See* FF#122.

23 Diversions are another potential human impact on navigability. *See State v. ANSAC*,
24 224 Ariz. at 241, 229 P.3d at 253. The evidence in the record before the Commission shows
25 that no significant irrigation diversions by settlers existed upstream from St. David. *See*
26 FF#123. Thus, as a matter of law and fact, the San Pedro River remains in its ordinary and
27 natural condition upstream from St. David. *Id.*

1 The first significant irrigation by settlers on the San Pedro began at St. David in the
2 late 1870s. *See* FF#124. Thus, the San Pedro was in its ordinary and natural condition
3 downstream from St. David until the late 1870s. *Id.* For that reach of the river, the historical
4 accounts prior to the late 1870s are more indicative of the ordinary and natural condition than
5 accounts occurring thereafter. *Id.* Although the Commission should review and consider
6 those later accounts, it should give them less weight than the earlier accounts. *See State v.*
7 *ANSAC*, 224 Ariz. at 243, 229 P.3d at 255.

8 Thus, the Commission should find, as a matter of law and fact, that the San Pedro
9 upstream from St. David is, as a practical matter, still in its ordinary and natural condition.
10 *See* FF#113-123; CL#38. The Commission should further find, as matter of law and fact, that
11 the San Pedro downstream from St. David was in its ordinary and natural condition prior to
12 the late 1870s. *See* FF#113-122, 124; CL#38.

13 **B. No Reason Exists to Divide the San Pedro into Segments for Navigability**
14 **Purposes.**

15 The Arizona courts have held the proponents of navigability bear the burden of
16 proving that a river is navigable.³ The United States Supreme Court in *PPL Montana, LLC v.*
17 *Montana*, 132 S. Ct. 1215 (2012), found that proof of navigability must be made on a
18 “segment-by-segment” basis: “To determine title to a riverbed under the equal-footing
19 doctrine, this Court considers the river on a segment-by-segment basis to assess whether the
20 segment of the river, under which the riverbed in dispute lies, is navigable or not.” *Id.* at
21 1229. Thus, the proponents of navigability must demonstrate, by a preponderance of the
22 evidence, that specific segments of a watercourse are navigable.

23 The *PPL Montana* ruling on segmentation is consistent with the process set up in the
24 Arizona statutes and with what this Commission has done in the past. The relevant statute

25 _____
26 ³ *See Arizona Center for Law in the Public Interest v. Hassell*, 172 Ariz. 356, 363 n.10, 837 P.2d 158,
27 165 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.3d 722, 731 (App.), *reconsideration*
denied (2001); *State v. ANSAC*, 244 Ariz. at 238-39, 229 P.3d at 250-51.

1 defines “watercourse” as “the main body or a portion or reach of any lake, river, creek,
2 stream, wash, arroyo, channel or other body of water. . . .” See A.R.S. § 37-1101(11). The
3 Arizona statute authorizes this Commission to address watercourses in segments (or
4 “portions” or “reaches,” as used in the Arizona statute) rather than in their entirety. See
5 A.R.S. § 37-1101(11).

6 As part of the 2013 hearing, the Commission examined whether the San Pedro should
7 be divided into segments for purposes of determining its navigability, under the criteria set
8 forth by the United States Supreme Court in *PPL Montana*, 132 S. Ct. at 1215. See FF#125.
9 Despite the San Pedro being one of the most studied rivers in the Southwest, the proponents
10 of navigability have not shown that any segment of the river is navigable. See Section II(C),
11 (D), *infra*. Thus, the Commission has not received sufficient evidence to divide the river into
12 segments and can address the San Pedro as one entire river.

13 **C. Based upon the Evidence in the Record, No Portion of the San Pedro is**
14 **“Navigable” as Defined in A.R.S. § 37-1101(5).**

15 “A river is navigable in law when it is navigable in fact.” *Muckleshoot Indian Tribe v.*
16 *FERC*, 993 F.2d 1428, 1431 (9th Cir. 1993). “[I]t is not . . . every small creek in which a
17 fishing skiff or gunning canoe can be made to float at high water which is deemed navigable.”
18 *Hassell*, 172 Ariz. at 363, 837 P.2d at 165 (quoting *The Montello*, 87 U.S. (20 Wall.) 430, 22
19 L. Ed. 391 (1874)). “[T]he vital and essential point is whether the natural navigation of the
20 river is such that it affords a channel for useful commerce.” *Id.*

21 “[S]egments that are nonnavigable at the time of statehood are those over which
22 commerce could not then occur.” *PPL Montana*, 132 S. Ct. at 1230. “Navigability must be
23 assessed as of the time of statehood, and it concerns the river’s usefulness for ‘trade and
24 travel,’ rather than other purposes.” *Id.* at 1221. When the Commission reviews the evidence
25 submitted, and considers the totality of the evidence, it must determine that the San Pedro was
26 not used or susceptible to being used as a “highway for commerce” in its ordinary and natural
27 condition.

1 1. **The San Pedro was not actually used as a “highway for commerce.”**

2 There are no indications that the San Pedro was ever used as a “highway for
3 commerce.” Prehistoric research found evidence of human populations in the area for over
4 11,000 years, yet no evidence exists of boating on the San Pedro during the history of
5 inhabitation of the area. *See* Section I(A)(1), *supra*. Likewise, none of the historical research
6 revealed that early explorers, missionaries, trappers, or travelers in the San Pedro Valley ever
7 used the river for boating or for commerce. *See* Section I(A)(2), *supra*. There also was no
8 evidence that logs had been floated down the river. *See* Note 1, *supra*.

9 Although there is limited evidence of fishing on the San Pedro prior to statehood, no
10 evidence in the record supports a finding that boats were used. *See* Section I(A)(7), *supra*.
11 The only evidence in the SLD’s report regarding any boating on the San Pedro at the time of
12 statehood is based upon an unsubstantiated, anecdotal story about a ferry operation near
13 Pomerene. *See* Section I(A)(7), *supra*. Isolated post-statehood accounts of boating via low-
14 draft boats, such as kayaks and rafts, do not indicate that the San Pedro is navigable.
15 Occasional use during exceptional times does not support a finding of navigability. *See*
16 *United States v. Crow, Pope & Land Ents., Inc.*, 340 F. Supp. 25, 32 (N.D. Ga. 1972), *appeal*
17 *dismissed*, 474 F.2d 200 (5th Cir. 1973) (“The waterway must be susceptible for use as a
18 channel of useful commerce and not merely capable of exceptional transportation during
19 periods of high water.”) (citing *Brewer-Elliott Oil & Gas Co. v. United States*, 260 U.S. 77
20 (1922)). Although a river need not be susceptible to navigation at every point of the year,
21 “neither can that susceptibility be so brief that is it not a commercial reality.” *PPL Montana*,
22 132 S. Ct. at 1234. Most of the handful of reports of boating on the San Pedro from the 1970s
23 to 1990s occurred during the month of August, when monsoon season hits and streamflows
24 are typically higher due to the precipitation. *See* Section I(A)(7), *supra*.

25 No evidence exists to show that the San Pedro was ever used as a “highway for
26 commerce,” over which trade and travel were conducted in the customary mode of trade and
27 travel on the water. *See* A.R.S. § 37-1101(5). Thus, any determination of navigability would

1 need to be based upon a finding, by a preponderance of the evidence, that the river was
2 “susceptible” for such use. *See id.*

3
4 **2. The San Pedro was not susceptible to being used as a “highway for
commerce.”**

5 Because insufficient evidence exists to show that the San Pedro was actually used as a
6 “highway for commerce,” the parties contending that the San Pedro was navigable at
7 statehood (only ACLPI, in this instance) will need to show by a preponderance of the
8 evidence that the river was “susceptible” to such use. There is insufficient evidence in the
9 record to satisfy that standard. Evidence from the San Pedro’s long history demonstrates it
10 was not “a corridor or conduit within which the exchange of goods, commodities, or property
11 or the transportation of persons may be conducted.” A.R.S. § 37-1103(3) (definition of
12 “highway for commerce”).

13 Historical descriptions and modern stream data lead to the conclusion that the San
14 Pedro was not susceptible to navigation. During the nineteenth century, when explorers,
15 missionaries, and travelers came to the San Pedro River Valley, the river was described as
16 “insignificant” and “not continuous.” *See* Section I(A)(2), *supra*. There is evidence that the
17 some of these same early explorers in the San Pedro River Valley attempted to boat on rivers
18 other than the San Pedro. *See id.* Thus, the absence of any records of explorers, missionaries,
19 or travelers boating on the San Pedro leads one to believe that it simply was not boatable.

20 ACLPI submitted excerpts from a 1912 Sears & Roebuck catalog showing boats
21 available for purchase. *See* FF#128. That catalog contains three boats, including (a) a flat-
22 bottom fishing boat made of oak and spruce and ranging between thirteen and sixteen feet
23 long and between forty and forty-four inches wide; (b) a fifteen-foot “smooth silk double
24 pointer boat” made of cedar or cypress that was forty-two inches wide; and (c) a square-stern
25 “clinker” row boat, also made of cedar or cypress, ranging in width from forty-two to forty-
26 four inches. *Id.* The evidence submitted does not specify the draft of each boat. *Id.*

1 In order to be deemed suitable for navigation, the draft of a boat would need to be no
2 more than seventy-five percent of the depth of the river. See FF#129. Based upon the
3 entirety of the evidence submitted, the Commission should find, as a matter of fact, that none
4 of the boats listed in the 1912 Sears & Roebuck catalog could have traversed up or down any
5 significant stretch of the San Pedro in its ordinary and natural condition. *Id.*; see also Section
6 I, *supra*.

7 The San Pedro's flow is not continuous or reliable throughout the year. See Section
8 I(A), *supra*. Thus, it was not "susceptible" to navigation. The evidence does not support a
9 finding that the San Pedro was "susceptible" to being used as a "highway for commerce" in
10 its ordinary and natural condition on February 14, 1912.

11 **III. SUMMARY AND REQUESTED ACTION**

12 For the reasons set forth herein, SRP requests that the Commission find that San Pedro
13 was not "navigable" in its ordinary and natural condition when Arizona became a state on
14 February 14, 1912.

15 DATED this 13th day of September, 2013.

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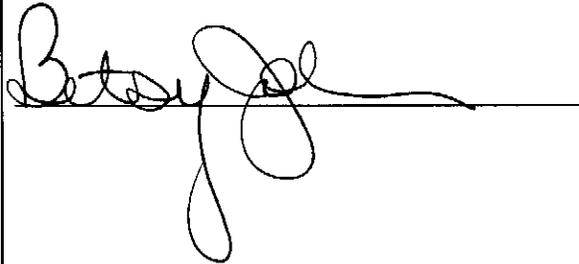
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