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BEFORE THE ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

In re: Determination of Navigability of the Gila River in Maricopa County	**No. 03-007-NAV** **Maricopa County and the Flood Control District of Maricopa County's Memorandum to the Arizona Navigable Stream Adjudication Commission (ANSAC) Regarding the effect of *PPL Montana v. Montana***

The Arizona Navigable Stream Adjudication Commission ("ANSAC" or "Commission") asked interested parties to submit memoranda describing what they believe is the effect on the Commission's work of the U.S. Supreme Court's recent opinion in *PPL Montana, LLC v. Montana*, No. 10-218 (U.S. Feb. 22, 2012) ("*PPL Montana*" or "the Opinion"). This Memorandum is submitted in response to that request on behalf of Maricopa County and the Flood Control District of Maricopa County ("County and FCD") by undersigned counsel. The County and FCD also contemporaneously submitted a memorandum to ANSAC on this is-

sue with respect to the Salt River. To avoid unnecessary repetition, that Memorandum is hereby incorporated into this document.

Based on the evidence presented and in light of the Opinion, it is the County and FCD's position that the segment of the Gila River from its confluence with the Salt River to its mouth on the Colorado River was navigable or susceptible to navigation in its "natural and ordinary" condition on February 14, 1912.

I. Gila River from confluence with Salt River to mouth is a navigable segment.

In *PPL Montana*, the Supreme Court held that a determination of navigability of an entire river within a state must consider the various segments of the river and determine whether each segment is navigable or not. *PPL Montana*, slip op. at 14–15. The Supreme Court stated that segments must be discrete and substantial, and evaluated based upon their administrability and value. *Id.*, at 18. The segments must have exact beginnings and endings. *Id.*, at 15. When determining segmentation, the *PPL Montana* Court stated that physical conditions (*e.g.*, terrain, flow rates, topography, and geography) provide a practical means of identifying starting and ending points for segments. *Id.*, at 16. The Court reiterated, however, that *The Daniel Ball* test (*i.e.*, whether navigation had occurred or the segment was susceptible of navigation in its natural and ordinary condition, if navigation had not occurred), still applied to determinations of navigability for title. *Id.* at 13. The Court further stated that evidence of recreational (*i.e.*, non-commercial) boating should be considered as bearing on navigability for title purposes if it "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 21. Susceptibility to navigation at the time of statehood is the applicable test, not whether actual use for commercial purposes occurred. *Id.*

In the Arizona State Land Department report, entitled *Gila River Navigability Study Draft Final Report* dated October 1994 (revised September 1996), the Gila River is split into three large segments as follows: the upper Gila, which includes two reaches running from the state line through the Safford Valley to east of Florence; the middle Gila from east of Florence to the confluence with the Salt River, and; the lower Gila, running from the confluence with

the Salt to the Colorado River. [*ASLD Gila River Navigability Study* revised 9/1996, VII-1] These segments, while partly arbitrary, are also based upon hydrologic and physiographic boundaries.[1] [*Id.*]

The lower Gila is located in the Basin and Range province and its flow is supplemented by the Salt River, which, before Anglo settlement, supplied a greater volume of water than the upper and middle Gila watersheds. [*Id.*, at VII-5-6] The lower Gila was perennial from the Salt to the Colorado River. [*Id.*] Early Spanish explorers described natives living along the lower Gila as fisherman and the river as lined with Cottonwoods through the late 1800s. [*Id.*] There are multiple historical records of successful navigation down the lower Gila during the 1800s before upstream diversions entirely depleted the river by the 1920s. [*Id.*] The lower Gila River is a clearly definable, discrete, administrable segment, which, as described in more detail below, has ample evidence of navigability for title purposes.

II. The proof of navigability presented to the Commission for the lower Gila segment from the confluence with the Salt to the mouth, in its natural and ordinary condition, meets the statutory standard and the requirements of the Opinion.

Consistent with the Arizona Supreme Court's opinion in *State ex rel. Winkleman v. Ariz. Navigable Stream Adjudication Comm'n*, 224 Ariz. 230, 229 P.3d 242 (App. 2010), in *PPL Montana*, the U.S. Supreme Court reiterated the requirement that for title determination purposes, the river segment at issue must be evaluated in its natural and ordinary condition. The County and FCD addressed this requirement at length in its January 27, 2012 memo to the Commission regarding the effect of *State ex rel. Winkleman* and so will not repeat that discussion here except to note that in accordance with the Opinion, in any future reports, the Commission should give very little weight to post-diversion, post-development evidence, in contrast with its January 2009 report. Only evidence that relates to the river's susceptibility to navigation in its natural and ordinary condition is relevant to the Commission's determination. The only evidence that was presented that related to the river's susceptibility to navigation in its

[1] While the Commission acknowledged these sections in its written report finding the entire Gila non-navigable, it did not evaluate the susceptibility of each segment separately. That failure to evaluate the separate segments was error.

natural and ordinary condition was Mr. Hjalmar W. Hjalmarson's report and testimony evaluating the pre-development, pre-diversion physical conditions of the lower Gila River segment from its confluence with the Salt River to its mouth on the Colorado.

Mr. Hjalmarson used the hydraulic geometry method to overcome the effects of settler-induced changes to the natural flow and channel morphology. While there are no pre-diversion U.S.G.S. flow records,[2] there are several channel width measurements in GLO survey records and hydrologic studies, including tree-ring analyses that can be used to estimate pre-diversion streamflow. Unlike all other experts providing evidence to the Commission, Mr. Hjalmarson analyzed the river in its natural and ordinary condition. [ANSAC Hearing Transcript ("TR") 11/17/2005 256:21–25][3] He testified that based on his analysis of the hydraulics, hydrology and geomorphology, the river was navigable. His testimony and report was not refuted.

Mr. Hjalmarson's study estimated the amount and temporal distribution of the natural and ordinary flow in the Gila River from the confluence with the Salt to the Colorado. [TR 11/17/2005 236:14–18] Using U.S.G.S. data, he calculated the pre-development mean flow rate (2,330 cfs), median flow rate[4] (1,750 cfs), and base flow rate[5] (290 cfs) of the river at the confluence with the Salt River. [Evidence Log ("EL") #23-Hjalmar W. Hjalmarson, *Navigability Along the Natural Channel of the Gila River* 12–14 (October 25, 2002)] At the river mouth on the Colorado near Yuma, the mean and median remained the same, but the base flow rate declined to 170 cfs due to evapotranspiration along the reach. [*Id.*, at 13, 15] The base flow did not vary significantly year to year due to the large amount of stored groundwater supplying the base flow. [*Id.*] Based on his analysis, Mr. Hjalmarson concluded that the pre-

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[2] U.S.G.S. data only goes back to 1888. By 1890, there were already thirty-six recorded diversions from the Gila. [*ASLD Gila River Navigability Study* revised 9/1996, at IV-52–IV-54]

[3] References to the hearing transcripts are cited by 'page number:line number(s).'

[4] Median is defined as "a value in an ordered set of values below and above which there is an equal number of values or which is the arithmetic mean of the two middle values if there is no one middle number." Webster's Ninth New Collegiate Dictionary 737 (1987).

[5] Base flow is controlled by the geology of the watershed. [EL #23-Hjalmarson report, at 12] Base flow in the reach was the composite of ground water drainage from many parts of the watershed, which drained into the river under natural conditions. [*Id.*] This is the low end of the flow-duration curve. [*Id.*]

development river was a perennial stream, with an average width of 300', an average depth of 4.3' in the upper portion of the segment and 5.3' in the lower portion of the segment, and average velocity of 2.5 feet/second. [EL #23, at 20] Mr. Hjalmarson collected 122 channel width measurements from the historical Government Land Office ("GLO") survey notes and calculated an average width from those notes after adjusting for unknown angles of incidence. [*Id.* at 245:19–248:8; EL #23, at 10] Mr. Hjalmarson's calculated width agreed with the GLO measurements from the surveys. [*Id.* at 248:9–13]

Mr. Hjalmarson testified that based on the natural conditions (*e.g.*, slope, channel bed material, etc.) the Gila River would return to a single meandering channel after braiding had occurred as the result of an extraordinary flow (flood). [*Id.* at 279:12–17] Mr. Hjalmarson's conclusion that the natural and ordinary condition of the Gila was a single, meandering channel was supported by Dr. Gary Huckleberry. [TR 11/16/05 57:2–58:7] Drs. Schumm and Huckleberry acknowledged that the Gila River became a wide-braided river as a result of large floods, [TR 11/16/2005 59:13–21; EL #6-Stanley A. Schumm, *Geomorphic Character of the Lower Gila River* 8–9 (2004) ("Schumm Report")], but Dr. Schumm testified that a braided river could revert to a single meandering channel over time if the natural conditions prevailed. [TR 11/17/2005 13:9–14, 34:13–16] The primary reason that the Gila River channel was braided at the time of statehood was because recent floods caused the braiding and the natural flow had been diverted for irrigation, which interrupted the natural and ordinary process of re-establishing a single meandering channel. [TR 11/17/2005 254:22–255:7]

After calculating the physical measurements of the pre-development Gila River, Mr. Hjalmarson then used three federal tests for navigability to determine whether the pre-development physical conditions on the lower Gila were susceptible to navigation. [*Id.* at 252:8–254:15] The three tests included the following: the Bureau of Outdoor Recreation Method; the Fish and Wildlife Method; and a U.S. Geological Survey engineering method developed by Langbein in 1962 to determine commercial viability.

The Bureau of Outdoor Recreation method is used for small watercraft, such as those in use in Arizona at statehood (*e.g.*, canoes, kayaks, drift boats, and rafts (see sec. III below)). Mr. Hjalmarson determined that the lower Gila segment would have been rated as Class I, or

easy, using this method. [EL #23, at 25] Most of the time, the flow of the river was at or near optimum conditions for recreational boating according to this method. [*Id.*]

The U.S. Fish and Wildlife Service method is another method of assessing streamflow suitability for navigation. [*Id.*, at 26] This method uses cross-sections to determine the minimum streamflow for a particular watercraft activity. [*Id.*] Using data for the types of boats present in Arizona at statehood (*e.g.*, canoes, drift boats, and row boats), the lower Gila River met the minimum requirements for navigation nearly all the time. [*Id.*] The smallest acceptable depth for small watercraft (one foot) is less than the hypothetical worst-case scenario (multiple channels) for the Gila River. [*Id.*; EL #23, at 23]

The U.S. Geological Survey method is based upon the specific forces required to propel a vessel upstream. [*Id.*] This determination is affected by such natural characteristics as discharge, gradient, depth, and velocity. [*Id.*] This method evaluates natural conditions to assess two-way navigability of a watercourse by commercial shallow-draft watercraft. [*Id.*] Using this method, the lower segment of the Gila River is navigable for commercial use both downstream and upstream. [*Id.*, at 29]

Using these three models, Mr. Hjalmarson calculated that under normal and natural conditions, the lower Gila segment would have been navigable. [*Id.* at 27–29] In addition to its scientific veracity, Mr. Hjalmarson's technical analysis of the ordinary and natural conditions agrees with historical accounts of pre-development navigation on the river discussed below.

III. Evidence of boats in use in Arizona at statehood support finding the lower Gila susceptible to navigation.

In *PPL Montana*, the Supreme Court stated, "[e]vidence of recreational use, depending on its nature, may bear upon susceptibility of commercial use at the time of statehood. *PPL Montana*, at 22 (quoting *United States v. Appalachian Elec. Power Co.*, 311 U. S., 377, 416 (1940). The *PPL Montana* court also recognized that "'extensive and continued [historical] use for commercial purposes' may be the 'most persuasive' form of evidence, but the 'crucial question' is the potential for such use at the time of statehood, rather than 'the mere manner or extent of actual use.'" *Id.* (quoting *Utah*, 283 U.S. at 83–83).

Before 1913, there were several types of boats in use in Arizona on the Gila River, all of which were susceptible to commercial use. The list of boats includes basket boats (3'-5' long), wooden rafts (5'-25' long), canoes (8'-25' long), rowboats (6'-22' long), canvas boats (5'-12' long), scows (8'-32' long), flat boats (8'-30' long), ferry boats (6'-35' long), and at least one steam boat (25' and up). [EL #16-Papers submitted by Barbara Tellman, 31; EL #12-Douglas R. Littlefield, *Assessment of the Navigability of the Gila River Between the Mouth of the Salt River and the Confluence with the Colorado River Prior to and on the Date of Arizona's Statehood February 14, 1912* ("*Littlefield Report*"), at 120 (Nov. 3, 2005)]

Although much of the water that could have supported boating had been diverted between 1850 and 1912, there is ample evidence that navigation on the river actually took place during that period. As highlighted by Dr. Donald C. Jackson and listed in the Arizona State Land Department Gila River Study revised in 2003 by J.E. Fuller Hydrology & Geomorphology, Inc. entitled *The Arizona Stream Navigability Study for the Gila River: Colorado River Confluence to the Town of Safford* ("*ASLD Navigability Study*"), many people navigated the river while major diversions were taking place. The fact that water-borne travel was happening despite the ever-growing diversions reinforces the conclusion that the lower Gila River was, and remains, susceptible to navigation in its natural and ordinary condition on February 14, 1912.

In the *ASLD Navigability Study*, the authors list many accounts of the river that support the conclusion that the Lower Gila River segment was susceptible to navigation before the water was significantly diverted. The first such account describes a Spanish exploration party passing through the Gila River basin in November 1697. [EL #2-*ASLD Navigability Study* IV-1] In that account, Juan Bautista de Escalante was forced to swim across the river in order to investigate ruins on the other side. [*Id.*] A later account by James Ohio Pattie states that while trapping along the lower Gila during December 1827, his party constructed a canoe so that they could trap both sides of the river which he stated was too deep to be forded on horseback. [*See* Goode P. Davis, Jr., *Man and Wildlife in Arizona: The American Exploration Period 1824-1865* 21 (Neil B. Carmony & David E. Brown eds., 2d ed. 1986)] Another account by John S. Griffin, an army surgeon who traveled with the Kearny (Emory) expedition in 1846, described the Gila below the Salt as about 80 yards wide, three feet deep, and rapid. [*Id.* at 29

(*quoting* J.S. Griffin, *A Doctor Comes to California* 35 (California Historic Soc., San Francisco 1943)] Another member of the expedition, Henry Smith Turner, noted that the river was from 100 to 150 yards wide, with an average depth of four feet–"quite deep enough to float a steamboat." [*Id.* (*quoting* H.S. Turner, *The Original Journals of H.S. Turner* (D.L. Clarke, ed. Univ. of Oklahoma Press 1966)]

In addition to these anecdotes, the *ASLD Navigability Study* lists several accounts of successful boating trips down the Gila including the Edward Howard party in 1849, the "Yuma or Bust" trip in 1881, and the J.W. Evans trip in 1895. [*ASLD Navigability Study* at IV-2, IV-7, IV-8, 9] The *ASLD Navigability Study* also lists an 1850 account of successfully using small boats on the river to float belongings downstream thereby lightening the loads for wagon teams and a report from an 1853–54 army expedition that reports the river could probably be used to deliver logs from the Mogoyon [sic.] Mountains. [*ASLD Navigability Study* at IV-3] Dr. Littlefield, an opponent of navigability, acknowledged that historical records established that the steamboat, Explorer, had been used on the lower Gila for seven years before it was destroyed in a flood on the Colorado. [EL #12–*Littlefield Report*, at 120]

The evidence presented in the *ASLD Navigability Study* and by Dr. D.C. Jackson at the hearing demonstrates that even under unnatural, diverted conditions the river contained enough water to float boats, including a steamboat. Had the water remained in the river and not been unnaturally diverted, it would have remained so. It bears noting, that the Treaty of Guadalupe Hidalgo in 1848 recognized the potential navigability of the Gila. Evidence of later boating meets the evidentiary burden to support finding the river was at least susceptible to navigation at statehood if the diversions for irrigation had not existed.

Finally, Jon Fuller testified at the hearing that based on his research and experience and considering the federal navigability standard, he thought that the Lower Gila segment was navigable at least from the confluence of the Salt to the Painted Rocks area at the time of statehood. [TR 11/16/2005 120:24-121:22]

The following table summarizes evidence found in the record of actual navigation and ferries on the river.

Year(s)	Party	Location	Citation
1824–27	James Ohio Pattie	Entire River	ASLD study IV-1
1846–47	Mormon Battalion-Captain Phillip George Cooke and Mormon Battalion floated supplies via a raft	Lower Gila-Gila Bend to Yuma	ASLD study IV-2
1849	Edward Howard party	Lower Gila-Gila Bend to Yuma	ASLD study IV-2
1850	Unknown 49'er letter from "Camp Salvation"	Lower Gila	ASLD study IV-3; Transcript ("TR") 11/16/2005 39:9-15; TR 11/17/2005 209:20-210:5
1857–64	Lieu., J.C. Ives, Steamboat, "Explorer"	Lower Gila-mouth to Dome	Littlefield Report 118–19; TR 11/16/2005 63:20–22
1867–92	Henry Morgan operated ferry	Maricopa Wells	ASLD study IV-5
1881	Cotton and Bingham	Lower Gila-Salt River to Yuma	ASLD study IV-7; TR 11/16/2005 39:23-40:1; TR 11/17/2005 210:18-211:3
1881	William "Buckey" O'Neill, "Yuma or Bust" party	Lower Gila-Phoenix to Yuma	ASLD study IV-7; TR 11/16/2005 39:16-22, 172:23-173:2; TR 11/17/2005 211:4-19
1884	A.J. McDonald built large ferry boat for Gila and Salt River Ferry Company to be used on Salt River below town. It will be of the same dimensions as the one sent to the Gila, viz: 16 by 18 feet.	Lower Salt/Gila	ASLD study IV-7
1891	R.M. Straus of Aztec, senior partner of Straus, Dallman & Co. has new ferry at work on the Gila River. It is large enough to carry a load 6-horse team in safety.	Lower Gila	ASLD study IV-8
1895	Evans and Amos	Upper/Middle Gila-San Francisco to Yuma (one portage from Sacaton to Phoenix)	ASLD study IV-8: TR 11/16/2005 40:1-5, TR 11/17/2005 212:2-215:9
1905	Jack Shibely	Lower Gila-Phoenix to Gila Bend	ASLD study IV-13; TR 11/16/2005 40:13-14, 116:7-20, 215:12-18.
1905	Jack Henness of Florence operates suspended cable-and-cage to transport cargo and people across river. Report looking down on Gila Queen (ferry boat) as he passes over.	Middle Gila	ASLD study IV-12
1905	Two new boats enter the thriving ferry business, the Mayflower and the Rey del Gila	Not clear	ASLD study IV-13

Year(s)	Party	Location	Citation
1905	Gila King ferry enters the ferry business. The boat is 20 feet long, 6 feet wide and capable of carrying a 3000 pound load.	Unknown	ASLD study IV-13
1909	Stanley Sykes	Entire River-New Mexico to Yuma	TR 11/16/2005 40:15-16, 106:1-16,
1959	Three unknown men entered river near Duncan with intention of traveling to Yuma. Later account reported in Yuma Courier	Entire River	ASLD study IV-21
1995-present	Jon Colby-Cimarron Adventure & River Company	Upper Gila	TR 11/17/2005 331:15-332:12
Unknown	Dave Weedman, Fish & Game Biologist	Upper Gila	TR 11/16/2005 211:8-13

Notwithstanding the ample evidence of actual navigation on the Gila, focusing on historic anecdotes fails to recognize the paramount importance of the susceptibility analysis because of the significant diversions before statehood. Not one of the presenters at the hearings refuted or even intelligently challenged Mr. Hjalmarson's study proving that the Gila River, at least from the confluence of the Salt to the Colorado, was susceptible to navigation at statehood. Because the preponderance of the evidence weighs in favor of finding the lower Gila River navigable, ANSAC should therefore issue its determination finding that segment navigable. A.R.S. § 37-1128(A).

IV. Evidence presented by opponents to navigability does not relate to the "natural and ordinary" condition of the river and therefore has very little weight.

A. Dr. Stanley Schumm's report does not support a finding of non-navigability and in fact contains facts which support a finding of navigability.

The Commission should give Dr. Schumm's opinion of non-navigability no weight because it is based solely on the conditions of the river in an un-natural, post diversions condition. [TR 11/17/2005 28:15-28:20, 31:8-11, 50:23-51:4] Dr. Schumm describes the Gila channel as relatively unstable that can shift during floods and that "human activities have significantly altered the Gila River at many locations..." [EL #6-Schumm Report 3] His conclusion of non-navigability is not based upon the river in its "natural and ordinary" condition. Rather, his conclusion of non-navigability is premised on the channel being in a highly disturbed,

depleted condition on February 14, 1912, after three major, extraordinary floods had occurred in the previous two decades.

The evidence cited in Dr. Schumm's report of the river pre-flood and pre-diversion contradicts his opinion of non-navigability. Dr. Schumm notes an account detailed in Ross's 1923 report by John Montgomery, a rancher, who described the river in the summer of 1889 as a "well-defined channel with hard sloping banks lined with cottonwoods and bushes." Mr. Montgomery is also reported as saying that "[t]he water was clear, 5 or 6 feet deep and contained many fish." Fish do not survive and thrive in a river that has no water.

Dr. Schumm also quotes a U.S. Geological Survey Bulletin entitled *Guidebook of the Western United States*, written by N.H. Darton in 1933 describing the Gila similarly to Mr. Montgomery. Darton is quoted as saying,

> The Gila River channel has changed materially in a century or less. When it was originally discovered, there was a well-defined channel with hard banks sustaining cottonwoods and other trees and plants. **The current was swift and deep in places, so that the stream could be navigated by flat boats of moderate size, and it contained sufficient fish to be relied upon as food for many Indians**... Now (1933) the Gila River is depositing sediment in its lower part and its braided course follows many narrow sand-clogged channels.

[*Id.*, at 8. (emphasis added)] This evidence of the river pre-statehood lends support to finding navigability and should be given more weight than later descriptions that occurred after the river flow was diverted.

It is undisputed that the river has changed markedly since irrigation diversion began in earnest in the late 1800s. Dr. Schumm did not analyze whether the river would have been navigable in its natural and ordinary condition (*i.e.*, absent diversions and large extraordinary floods). Therefore, Dr. Schumm's conclusion that the river is not navigable at the time of statehood should be given no weight. Moreover, his report states that the river was likely navigable before diversions. [*Id.* at 8] ANSAC must carefully evaluate the evidence in the record to determine what weight to assign to each piece in the context of the *PPL Montana* ruling that the river is to be evaluated segment-by-segment, and the holding in *State ex rel. Winkleman* that evidence of the river in its "natural and ordinary" condition must be given more weight than later evidence.

B. Government Land Office surveys support finding the Gila navigable, or alternatively are ambiguous.

Careful study of the GLO surveyors' notes reveals that they meandered both banks of the Gila in places. [*See* EL #14, *Land Surveys* T4SR4W, Book 1161, pages 43, 47, and 60; *Land Surveys* T5S R4W Book 1165 p. 60; TR 11/16/05 130:20–132:5; *Land Surveys* T5S R5W Book 1164 pgs. 39, 56, 58] While it is unclear why they did this, it is clear that the survey instructions are inconclusive. We cannot tell from the surveyors' notes exactly which set of instructions they followed when surveying the lands abutting the river. Nonetheless, the U.S. Supreme Court held that the surveyors' actions regarding meandering have little significance because surveyors were known to meander both navigable and non-navigable streams and because they were not "clothed with power to settle questions of navigability." *Oklahoma v. Texas*, 258 U.S. 574, 585 (1922).[6]

C. All of the evidence cited by opponents of navigability relates to the condition of the river after significant diversions of water from the river or its tributaries had already begun.

Dr. Littlefield's report should be given no evidentiary weight because it addresses the river as of 1912, by which time the river was not in its "natural" or "ordinary" condition and had not been for many years. [EL #19-Littlefield Deposition 5/25/2001 47:1–25; 131:25–131:7] Dr. Littlefield admitted that the contemporaneous observer reports that he relied upon for his report were of the river in an unnatural and disturbed condition. [*Id.* at 47:20–25, 132:7] Furthermore, Dr. Littlefield acknowledged that all of the GLO surveys, which his report relies upon, were performed after significant diversions had already taken place. [*Id.* at 134:7] Dr. Littlefield further admitted that diversions affected the river at the time of statehood and that virtually all of the water was diverted by 1902. [*Id.* at 67:9, 146:23] Because Dr. Littlefield was merely repeating the stories told by contemporaneous observers, he did not try to reconstruct the natural river. [*Id.* at 44:1–3, 80:20–81:1] What's more, his credentials do not qualify him to

[6] This same rule applies to actions of Congress awarding permits for bridges across a river, or awarding land patents. The test for navigability determines title, not whatever Congress, or surveyors, or land patent officers, thought about the watercourse. *See* 258 U.S. at 585–86.

do such a reconstruction. He is neither a hydrologist, nor an engineer trained to do such work.

The conclusion that contemporaneous reports by observers should be given less weight regarding a finding of non-navigability is supported by the fact that first annual report of the Reclamation Service issued in 1903 recognized that irrigation in the Gila Basin had already developed to a point where there was insufficient water for the fields. [EL #12-*Littlefield Report*, at 99] Clearly, that is not the "natural and ordinary" condition of the river.

D. Evidence of boating on the river is sufficient to find at least the lower Gila susceptible to navigation.

Dr. Littlefield admitted that he has no idea how much water is necessary to make the river navigable. [EL #19-Littlefield deposition at 150:22, 167:25-168:7] Although he acknowledged historical records that the steamboat, Explorer, was used on the lower Gila for seven years before it was destroyed in a flood on the Colorado, [*Littlefield Report* at 120], he has no explanation for why he disregarded that long-term use when he rendered his opinion that the lower Gila was not navigable. [Littlefield Deposition 61:24-63:7] Dr. Littlefield considered boating on the lower Gila a "novelty," [*Id.* at 158:18]; however, the evidence presented in the *ASLD Navigability Study* and by Dr. D.C. Jackson at the hearing shows that that river was at least susceptible to navigation at statehood if the diversions had been removed. Surely, seven years of navigation by a steamboat is outside the novelty category.

E. Dr. August's report fails to demonstrate that the Gila was not navigable.

Just as Dr. Littlefield's report is flawed by reliance on post-diversion observations, Dr. Jack August's report is similarly flawed. Any historical information that relates to non-navigability is attributable to the fact that the contemporaneous observers were viewing the river in a depleted condition. It is not surprising that contemporaneous viewers thought the river was not navigable; however, this ignores the rule from *The Daniel Ball*, and reiterated in *State ex rel. Winkleman* and *PPL Montana*, that navigability is measured by the "natural and ordinary" condition, not a diverted/unnaturally depleted condition. In his report and in his testimony at the hearing, Dr. August references and affirms Dr. Littlefield's report with re-

spect to the GLO surveys. [EL #17–*Expert Witness Report: The Lower Gila River: A Non-Navigable Stream on February 14, 1912* 10–16; TR 11/16/2005 162:7–19; 198:19–199:6] As addressed above, reliance on the post-diversion GLO surveys as evidence of non-navigability is questionable at best.

V. Conclusion

There is ample evidence in the record to support finding the lower Gila River navigable from the confluence with the Salt to the mouth on the Colorado. Therefore, in accordance with the holding in *PPL Montana*, ANSAC must reevaluate the Gila River on a segment-by-segment basis to evaluate that evidence and determine whether any segment of the river was navigable, or susceptible to navigation, in its "natural and ordinary" condition. Mr. Hjalmarson's testimony and report evaluating the physical conditions of the natural and ordinary river of the lower Gila, along with historical evidence of actual navigation on the river, supports a finding that the river was navigable in its "natural and ordinary" condition, at least from the confluence with the Salt to the Colorado.

Respectfully Submitted this 23rd day of March 2012.

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ORIGINAL AND 6 COPIES of the
foregoing **HAND-DELIVERED** this
23rd day of March 2012, to:

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