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BEFORE THE ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

In re Determination of Navigability of the Gila River

No. 03-007-NAV (Gila)

THE SAN CARLOS APACHE TRIBE'S MEMORANDUM REGARDING THE NAVIGABILITY OF THE GILA RIVER AT THE TIME OF STATEHOOD

Introduction:

The San Carlos Apache Tribe ("Apache Tribe" or "Tribe") submits this Memorandum pursuant to the Commission's June 29, 2012, request for memoranda addressing the question of whether any of the pending watercourses were navigable on February 14, 1912, in accordance with the Court of Appeals' decision in *Arizona v. Arizona Navigable Stream Adjudication Commission*, 224 Ariz. 230, 229 P.3d 242 (2010).

Discussion:

There is strong evidence in the record for the Arizona Navigable Steam Adjudication Commission (the "Commission") to affirm its final determination that the Gila River, in its ordinary and natural condition, was not navigable on February 14, 1912. See ANSAC Report, Findings, and Determination Regarding the Navigability of the Gila River from the New

Mexico Border to the Confluence of the Colorado River (January 27, 2009) (the "ANSAC 2009 Report"), Exhibit E, Entries 1-28.

The Commission solicited and received ample evidence proving that the Gila River was not navigable or susceptible to navigation up to and including the date of statehood, February 14, 1912. The ANSAC 2009 Report summarized the majority of this evidence, and referenced those documents and testimony that the Commission found most compelling.

Those who claim the Gila River was navigable upon Statehood, have the burden of proof A.R.S.§ 37-1128A. They have failed to do so. The record is devoid of such evidence. To the Contrary, the Apache Tribe urges the Commission to review the report by Dr. Douglas R. Littlefield, titled 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") (ANSAC 2009 Report at, Exhibit Item "EI" 12); a report by Jack L. August, Jr., Ph.D., titled Expert Witness Report, the Lower Gila River: a Non-Navigable Stream on February 14, 1912 ("August") (EI 17); a report titled Arizona Stream Navigability Study for the Gila River: Colorado River Confluence to the Town of Safford, which was prepared by JE Fuller/Hydrology & Geomorphology, Inc. for the Arizona State Land Department in October 1994, revised September 1996, and updated in June 2003 (the "Gila Study") (EI 2); and a report by Stanley A. Schumm, Ph.D., P.G. titled Geomorphic Character of the Lower Gila River, dated June 2004 (the "Schumm") (EI 6).

A. The Gila River Was Not Susceptible to Navigability on February 14, 1912, nor Was It Ever Considered Navigable.

¹ These documents, and other evidence in the record are referred to in Part VII of the ANSAC 2009 Report at 21-22, "Evidence Received and Considered by the Commission."

Federal surveys, investigational studies, findings and determinations, and an abundance of historical and archaeological evidence, was provided to the Commission, and further confirmed by experts who testified before the Commission on October 14, 2003; October 15, 2003; March 9, 2004; November 15, 2004; January 24, 2005; and November 16 and 17, 2005. (T.R. at [date:page] refers to the Reporter's Transcripts). The overwhelming majority of this evidence led the Commission to conclude that the Upper Gila River was not susceptible to navigation on the date of Arizona's statehood, and has never been considered a navigable watercourse due to its historically erratic and unpredictable character. ANSAC 2009 Report, at 87-88.

1. Federal Reports and Findings Regarding the Flow Characteristics of the Gila River up to and on February 14, 1912, Demonstrate that the Gila River Was Never Navigable.

Federal records from the U.S. Geographical Survey and the Reclamation Service beginning in the early 1870's, and continuing through February 14, 1912, reported a wealth of information concerning the characteristics of the Gila River. See Littlefield, at 89). Littlefield examined thousands of pages of documents produced by different agencies, using different methods, and having different interests, "all of which substantiated that the Gila River was never viewed as a reliable means of navigation prior to or at the time of Arizona Statehood in February of 1912." Littlefield, at 89. See August, at 16-17.

The U.S. Geological Survey *Annual Reports* published at and around 1912, frequently included descriptions and observations of the Gila River. Over the course of several decades, well documented and historically consistent characterizations of the Gila River were

solidified, and the Gila River became known as violent, unpredictable and unsusceptible to navigation. Published reports from the Department of Interior illustrate this consistency, Part II of the Eleventh Annual Report of the U.S. Geological Survey allocated an entire section for discussion of the Gila Basin, describing the rivers found within the basin as:

most difficult and dangerous to examine and control . . . In place of recurring annual floods of spring and early summer . . . these rivers show almost the reverse, being at that season at their very lowest stages - even dry - and rising in sudden floods at the beginning of and during the winter. These floods are of the most destructive and violent character, the rate at which the water rises and increases in amount is astonishingly rapid, although the volume is not great From this it will be recognized that the onset of such a flood is terrific. Coming without warning, it catches up logs, boulders [sic] in the bed, undermines the banks, and, tearing out trees and cutting sand-bars, is loaded with this mass of sand, gravel, and driftwood - most formidable weapons of destruction.²

The Twelfth Annual Report of the U.S. Geological Survey (1889-90) addressed the Gila River's dramatic changes in flow and massive torrents: "the floods of the Gila are usually short and violent . . . [T]hey often sweep out bridges, dams, and canal head works. . . . It is sometimes impassable for weeks and has the appearance in places as a sea of muddy water." The Sixteenth Annual Report of the U.S. Geological Survey (1894-95) confirmed the previous reports characterization of the Gila River, noting that large water flow usually occurs "following the sudden storms or 'cloud-bursts' in the mountains . . . but these floods occur at

²Eleventh Annual Report of the United States Geological Survey to the Secretary of the Interior, 1889-90, Part II-Irrigation (Washington D.C.: U.S. Government Printing Office, 1891), p. 58 (quoted in ANSAC 2009 Report, at 48-49; Accord Littlefield, at 92).

³ Twelfth Annual Report of the United States Geological Survey to the Secretary of the Interior, 1890-91, Part II-Irrigation (Washington, D.C.: U.S. Government Printing Office, 1891), p. 292 (quoted in Littlefield, at 92, e.g. August, at 19; Gila Study, at IV-44).

such irregular intervals With the exception of the Colorado River . . . the streams of the territory are small, and usually intermittent."

The U.S. Geological Survey also published a series of research treatises known as Water Supply Papers ("WSP"). These studies chronicled the Gila River during the early 1900's, and reported characteristics of the Gila River that mirror the *Annual Report*. There is further evidence that the Gila River was a consistently unreliable and unpredictable River, having never been susceptible to navigation, a River whose habit remained unchanged on February 14, 1912. *See* August, at 19 ("These studies further affirm the erratic, undependable, and unpredictable nature of the Gila River.").

WSP 289, describes the Gila River in 1910 as "torrential," and that while it was "[s]ometimes impassable for weeks," within months the riverbed would be completely "dry in some places. .." Surface Water Supply of the United States - Colorado River Basin, U.S. Geological Study Survey WSP No. 289 (Washington D.C.: U.S. Government Printing Office, 1912), at 200 (As quoted in Littlefield, at 92, See also Gila Report, at IV-14 ("The bed of the stream is composed of shifting sand and silt..."), See generally August, at 21.

During the years just prior to 1912, there was massive flooding in Arizona, although this affected the Gila River, the result was a stream where navigation would have been impossible. See August, at 20. WSP 162 detailed the affects of the five floods that occurred on the Gila in 1905. See August, at 20. Published in 1906, WSP 162 stated:

⁴ Sixteenth Annual Report of the United States Geological Survey to the Secretary of the Interior, 1894-9, Part II-Irrigation (Washington D.C.: U.S. Government Printing Office), p.505), quoted in Gila Study, at IV-45.

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The total run-off for the five months is 2,957,400 acre-feet. To appreciate the magnitude of the run-off... it is necessary to remember that this stream is usually dry in this place about ten months of the year.... [The streambed] not only scours out during a flood and fills in after it, but [the channel] changes from one side of the bottom to the other.... This continual change of the river bed has made it exceedingly difficult to secure reliable estimates of the rate of flow, and some of the estimates may be largely an error.

Destructive Floods in the United States in 1905, with Discussion of Flood Discharge and Frequency Index to Flood Literature, U.S. Geological Survey WSP 162 (Washington D.C. Government Printing Office, 1906), at 200. quoted in Littlefield, at 94, August at, 21-22, See, ANSAC 2009 Report, at 51-52.

WSP 1049, provided compelling evidence of the Gila River's nonnavigability on February of 1912 reporting that "there was no flow at all." Summary of Records of Surface Waters at Stations on Tributaries in Lower Colorado River Basin, 1880-1938, U.S. Geological Survey WAP 1049 (Washington D.C.: U.S. Government Printing Office, 1947) at, 230-237, See Littlefield, at 95, See, e.g., August, at 21. Further, WSP 1049 provided an overall summary of the surface water records spanning 50 years, including the Gila River, stating that the Gila River had no flow and remained without flow until May 1912. See August, at 21. accord Littlefield, at 95-96.

Unpublished records were also available and relied upon by the Commission, and referenced in ANSAC 2009 Report. See ANSAC 2009 Report, at 49-51 (reasoning that the purpose of George M. Wheeler's unpublished draft Progress Report Upon Geographical and geological Explorations and Surveys West of the 100th Meridian in 1872, was to assess the topography of Arizona and how such conditions would affect future settlement in the west. Had there been the potential for navigability, Wheeler would have noted it in his report).

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p. 3, quoted in Littlefield, at 97. The Murphy Report described the flow of the Gila River:

In all these valleys there is no surface flow at certain places during the low water period of dry years. Though the surface flow may be at one place there may be several second feet at some distance below due to seepage from irrigated lands, or a reduction in cross section of the underground water channel.

The notes and unpublished progress reports prepared for the Geological Survey by

E.C. Murphy, further demonstrate the nonnavigabilty of the Gila River in February of 1912.

See August, at 21, See ANSAC 2009 Report, at 49-50. The Report, Water Power Utilization

in Arizona (April 15, 1915) ("Murphy") was the result of an investigation into hydroelectric

power sites in Arizona. See Littlefield, at 96-97. See ANSAC 2009 Report, at 50-51. The

Arizona to take steps to join the Union. See Littlefield, at 96. Murphy reported that the Gila

River "a very small run-off at the mouth except during very wet periods." Murphy, at Part II,

Murphy study was necessary to comply with the 1910 Enabling Act, which would allow

Murphy, at Part II, p. 3, quoted in August, at 23, Littlefield, at 97, See Generally ANSAC 2009 Report, at 51.

Murphy reported that the Gila River had an overall lack of water supply, regardless of reports of date-specific measurements of high flow. It noted that while the unpredictable violent floods increased the water flow, the floods made the Gila River nonnavigable. It described the River during high flow as:

a broad, sandy, changing channel dry for a month or longer each year at Florence, and below the Gila Bend it is dry all the time except during large and long continued floodsAs previously stated there may be several years in succession if very small run-off. During these years only ground water is available for some of this land.... when a flood comes it damages or destroys the head works and little if any of the flood water is utilized.

Murphy, at Part II, pp. 9-10, quoted in Littlefield, at 97-98, accord August, at 93.

The Bureau of Reclamation in its First Annual Report of the Reclamation Service, published in 1903, also reported on the Gila River. It also characterizing the river as erratic and unpredictable. This report is more evidence of the Gila River was not susceptable to navigation in its ordinary and natural state, which remained unchanged in February of 1912:

The sources from which water may be obtained for reclamation of arid lands of Arizona are, taken as a whole, the most erratic or irregular in the entire country. There are comparatively few rivers which flow throughout the year. Most tributaries of the Gila River, beginning in the mountains as perennial streams, lose their waters in the broad open valleys.

First Annual Report of Reclamation Service from June 17 to December 1, 1902 (Washington D.C.: U.S. Government Printing Office, 1903), at 75, quoted in August, at 24.

The U.S. Reclamation Service continued to catalogue both published and unpublished records which painted a vivid picture of the Gila River as unpredictable and unsuitable for commercial navigation. See generally ANSAC 2009 Report, at 52. While many of the unpublished documents dealt with proposed dam construction along the Gila River, none of them indicated that the river was a commercially navigable, or reported that there ever had been any reference to historical navigation; a finding that would have had major implications for both the State and Federal Government. See Littlefield, at 99-100 (arguing that the reports indicated a historical reference to the Gila River, and had the river ever been susceptible to navigation, it certainly would have been included in the reports).

A plethora of other evidence in the record, listed in the ANSAC 2009 Report, including a multitude of reports, observations, investigations, personal and public accounts, and the references to thousands of pieces of published and unpublished information, make it clear that on February 14, 1912, the Gila River was in the same condition as it had been

reported consistently for decades. (See ANSAC 2009 Report, at 21-25 ("Evidence Received and Considered by the Commission), See Id., at Exhibit E (Evidence Log), See generally Id., at 38-54 ("Section D. Conditions Around Statehood: Observations and Opinions of Pioneers Who Lived and Traveled in the [near the Gila River] Area"), See generally August, at 34-36 (described the "daunting size and scope" of "irrefutable" evidence all of which supported the conclusion "that the Gila was not navigable" during, on or after statehood, and noted there is "no indication the federal or state administers found the Gila Navigable.")

Evidence in the record shows an overwhelming agreement amoung experts and laymen alike, that Gila River was an undependable and unpredictable watercourse, that over time flooded intermittently and infrequently during the decades leading up to and including February 14, 1912, which made the Gila River wholly unsusceptible to navigation.

B. The Geomorphology, Geology and Hydrology of the Gila River in its Ordinary and Natural State was Not Susceptible to Navigation on February 14, 1912.

Evidence in the record shows that the geology, geomorphology and hydrology of the Gila River in its natural and ordinary state, was never susceptible to navigation and remained nonnavigation, on the day of statehood, February 14, 1912. *See generally* ANSAC 2009 Report, at 62-80 (Part VII, Section G (Geology, Geomorphology and Hydrology of the Gila River).

Most notably, for the purposes of proving the Gila River was not navigable on the day of Arizona statehood, the Commission should look to: a report titled the *Preliminary and Final Report and study prepared by the Arizona State Land Department, Geological Survey and SWCA Environmental Consultants updated and revised through June of 2003*, by J.E.

Fuller/Hydrology and Geomorphology, Inc. on the navigability of the Gila River from the town of Safford ("Gila II Study")(EI 4); A presentation on behalf of the Gila River Indian Reservation by Alan Gookin (EI 5); The Schumm Report (EI 6); The Littlefield Report (E12); as well as other studies, presentations and testimony cited in the ANSAC 2009 Report on pp.21-22 and Exhibit E EI's 1-28. Also included in the record are the transcripts from experts testifying before the Commission on October 14, 2003; October 15, 2003; March 9, 2004; November 15, 2004; January 24, 2005; and November 16 and 17, 2005. ([Witness T.R.] at [year:page] refers to the Reporter's Transcripts).

Major flooding in the 1890's and early 20th century continued to re-define the boundaries of the Upper Gila River, evidence in record shows that on February 14, 1912, the Gila River "was pretty much a wide, braided flood channel." Huckleberry, at T.R. Nov 2005:55. After 5 major floods in 1905, the Upper Gila, became "a wide braided channel with several branching channels. Channel boundaries mapped during this period include the entire scoured channel formed after the large floods of 1905, 1914-1915 and 1916." Gila II Study, at VII-8.

The Gila River floods caused "a great deal of channel and bank cutting and transformed the Gila River into a wide, braided channel with very little depth when it did flow. Different observers at different times of year, under different stream flow conditions,

⁵ The Commission relied heavily on the testimony of Dr. Gary Huckleberry, of the Arizona Geological Study, a witness for the Arizona State Land Department, when determining the Gila Rivers navigability on the date of statehood. His testimony to the Commission is found multiple times throughout the ANSAC 2009 Report

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would describe the river in a totally different manner." ANSAC 2009 Report, at 68. See generally Gila II Study, at VII 8-9.

Evidence in the record shows that on the date of statehood, February 14, 1912, the Gila River was unpredictable and unreliable, with drastically different channel configurations on each reach of the river, none of which being susceptible to navigation:

"the Gila River is a classic example of a dryland river that seldom seeks an equilibrium form. [Graf, 1988; Knight, 1984; Stevens and others, 1975]. Unlike Rivers in humid regions that have more stable channels adjusted for more continuous stream flow with less variance in discharge, the dryland rivers are inherently more unstable and more prone to changes in channel configuration. In such unstable fluvial systems, channel configuration depends much on the history of previous flood events. Periods of high flood frequency are likely to correlate with periods of increased channel instability [T]he premise of this study is that the Gila River responds to secular climate variability by radical changes in channel configuration and that periods of increased large flood frequency correlate with unstable, braided channel conditions.

Gila II Study, at VII 8-P quoted in ANSAC 2009 Study, at 69

Evidence in the record shows that on the date of statehood, February 14, 1912, each reach of the Gila River was dynamic, dramatically changing to accommodate for the extreme fluctuations of water flow due to the flooding of the 1890's and early 20th century.

Huckleberry, at T.R. Nov 2005: 56. Evidence in the record shows that the Gila River on February 14, 1912 was not susceptible to navigation due to the constant shifting of the river in wet or dry times:

So the pattern that we have on the Gila is an increase in large flood frequency and magnitude [which] tends to favor wide, braided conditions; whereas periods of few floods a, relatively dry conditions, we tend to see a condition where [the river] tends to be a narrow, single, low-flow channel. The volume of discharge associated with floods on the Gila could never be anticipated, and "floods change the morphology of the channel, that's a dynamic

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channel and - - because flood frequency will change through time in relationship to climate - - climate variability."

Huckleberry, at T.R. Nov 2005: 56.

Evidence in the record made clear by Dr. Huckleberry and Dr. Schumm that "the natural major floods of the 1890's and early 1900's changed the riverbed completely so that by 1912, it was a braided stream with sand islands and sandbars and other obstructions and that it alternated between no flow at all, in part through infiltrations, and large floods... it was not susceptible to navigation in 1860 or before...but even if it had been the great floods of the 1890's and really 1900's so changed the character of the river that it was clearly not navigable or susceptible of navigability on the day of statehood... it was not ever navigable in fact...It is a typical dry land or desert river. "See Generally ANSAC 2009 Report at 67-69 (referencing Gila II Study to argue that there is no "so-called" ordinary an). See Id., at 77-78 (quoting testimony of John Fuller, who testified that there were small portions of the Gila River that may have been navigable, but ANSAC determined that the "preponderance of the evidence" in the record showed the Gila River was never used for Navigation. TR, Nov 16, 2005, pp. 120-122). See Id., at 70 (in giving weight to Dr, Stanley Schumm, " (E-6). See ANSAC 2009 Report, at 70-72 (construing the Schumm, at 12-16 and 19-20). See Id., at 71-72 (quoting Schumm, at 10, 12, and 16).

Evidence in the record, includes Exhibit B the "Evidence log" of the ANSAC 2009

Report, with special consideration given to specific studies, presentation and testimony referenced to throughout the ANSAC 2009 Report. The evidence in the record proves that the

1	geology, geomorphology and hydrology of the Gila River made it not navigable or susceptible
2	to navigation on February 14, 1912.
3 4	In support of this memorandum, the Tribe incorporates by reference, The San Carlos
5	Apache Memorandum Regarding the Record as to Segmentation and its Notice that It joins in
6	Salt River Projects Memorandum Regarding the Effect of the Supreme Court's Opinion in
7	PPL Montana v. Montana. Dated June 8, 2012.
8	Conclusion
9	The ANSAC 2009 Report referred to evidence already in the record when it made the
11	ultimate determination that the Gila River was not navigable before after or on the date of
12	statehood, February 14, 1912.
13 14	Respectfully submitted this thay of the 2012.
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