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BEFORE THE ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

IN RE DETERMINATION OF) No. 03-007-NAV
THE NAVIGABILITY OF)
THE GILA RIVER) PHELPS DODGE CORPORATION'S
) OPENING MEMORANDUM
) FOLLOWING THE HEARINGS OF
) NOVEMBER 16 & 17, 2005

On November 16 and 17, 2005, the Arizona Navigable Stream Adjudication Commission (the "Commission") conducted public hearings and accepted evidence regarding the navigability of the Gila River as of February 14, 1912, in accordance with A.R.S. § 37-1123. Phelps Dodge Corporation ("Phelps Dodge") requests that the Commission determine the Gila River is not navigable as that term is defined in A.R.S. § 37-1101(5). Neither the law nor the evidence submitted in this case supports a finding of navigability under state or federal law.

I. Navigability for Title Purposes Has Important Ramifications and, thus, a Precise Statutory Definition.

Title to the beds of any navigable watercourses passed to the State of Arizona when it joined the United States on February 14, 1912. See Defenders of Wildlife v. Hull, 199 Ariz. 411, 415-16, 18 P.3d 722, 726-27 (App. 2001); Arizona Center for Law in the Public Interest v. Hassell, 172 Ariz. 356, 360, 837 P.2d 158, 162 (App. 1991). Arizona statutes define a navigable watercourse as one

that was in existence on February 14, 1912, and at that time was used or was susceptible to being used, in its ordinary and natural condition, as a highway for commerce, over which trade and travel were or could have been conducted in the customary modes of trade and travel on water.

A.R.S. § 37-1101(5) (2001). See Defenders, 199 Ariz. at 426, 18 P.3d at 727; see id., 199 Ariz. at 419, 18 P.3d at 730 (citing The Daniel Ball, 77 U.S. (10 Wall.) 557, 563 (1870)). Numerous characteristics of a watercourse are relevant to an inquiry into its navigability. See Defenders, 199 Ariz. at 421-26, 18 P.3d at 732-37. While no single of these characteristic is dispositive, the Commission may consider each as relevant to its ultimate determination of navigability for purposes of the State's title to the riverbed.

The Commission is charged with gathering and considering evidence of these and other relevant characteristics of a river at the time of Arizona's statehood to determine the river's navigability. A.R.S. § 37-1123. Navigability must be established by a preponderance of the evidence. A.R.S. § 37-1128(A). The preponderance of the evidence standard requires that the totality of the evidence makes it more probable than not that the characteristics of a navigable stream existed. See Arizona Navigable Stream Adjudication Commission Report, Findings and Determination Regarding the Navigability of Small and Minor Watercourses in Yuma County, Arizona (Feb. 20, 2003), at 16-17 (quoting Black's Law Dictionary (5th ed. 1979) at 1064). See also Ison v. Western Vegetable Distributors, 48 Ariz. 104, 111-12, 59 P.2d 649, 653 (1936). Mere anecdotal examples are insufficient to carry this evidentiary burden. See Estate of Harber, 102 Ariz. 285, 294 (1967) ("Mere . . . speculation [is] no substitute for evidence.").

II. Evidence Regarding the Gila River Does Not Meet the Statutory Definition of a Navigable River.

With respect to the Gila River, the evidence provided to the Commission before and during its hearing fails to satisfy the statutory test for a navigable river. Compelling documentary evidence submitted to the Commission demonstrating the non-navigability of the

Gila River includes (i) a report titled *Arizona Stream Navigability Study for the Upper Gila River and San Francisco River: Gila River Confluence to the State Boundary*, which was prepared by SFC Engineering Company for the Arizona State Land Department in August 1997 and updated in June 2003 (the “Upper Gila Report”); (ii) 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 in September 1996, and updated in June 2003 (the “Gila Report”); (iii) a report by Dr. Douglas R. Littlefield, Ph.D., 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*, dated November 3, 2005 (the “Littlefield Report”); (iv) 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* (the “August Report”); and (v) a report by Stanley A. Schumm, Ph.D., P.G. titled *Geomorphic Character of the Lower Gila River*, dated June 2004 (the “Schumm Report”).¹ The overwhelming amount of evidence contained in these reports, when analyzed according to the relevant standards of navigability, demonstrates that the Gila River was not navigable as of February 14, 1912.

A river is navigable in law if it is navigable in fact. See Defenders, 199 Ariz. at 419; 18 P.3d at 730 (citing The Daniel Ball, 77 U.S. (10 Wall.) at 563). In order to be navigable in fact, as of February 14, 1912, the Gila River must either have been (i) actually used as a highway for commerce over which trade and travel was conducted, or (ii) susceptible of being used as a highway for commerce over which trade and travel may have been conducted. See A.R.S. § 37-1101(5) (2001); Defenders, 199 Ariz. at 419, 426, 18 P.3d at 730, 737 (citing The Daniel Ball,

¹ The Gila Report is referenced with an “[F]”, the Littlefield Report with an “[L]”, and the August Report with an “[A]” in the evidence summary charts contained in this memorandum. “[M]” refers to John Hammond Moore, *The Faustball Tunnel: German POWS in America and Their Great Escape* (1978).

77 U.S. (10 Wall.) at 563). “The capability of use by the public for purposes of transportation and commerce affords the true criterion of the navigability of [a] river. . . .” United States v. Crow, Pope & Land Enterprises, 340 F. Supp. 25, 32 (N.D. Ga. 1972) (quoting The Montello, 87 U.S. (20 Wall.) 430, 441 (1874)). All evidence must be examined when making a determination of navigability, and no relevant facts should be excluded. Defenders, 199 Ariz. at 425, 18 P.3d at 736. However, the Commission’s final determination must be based on whether the proponents of navigability have met the preponderance of evidence standard set forth in A.R.S. § 37-1128.A.

A. **The Gila River Was Never Actually Used as a Highway for Commerce over which Trade and Travel Was Conducted nor was it Ever Considered Navigable.**

Federal surveys, federal and state conduct concerning the granting of patents, and a plethora of archaeological and historical evidence clearly show that the Gila River was neither actually used as a highway for commerce over which trade and travel was conducted, nor has it ever been considered to be a navigable watercourse.

1. **Federal Surveys**

The Littlefield Report contains persuasive evidence in the form of survey records, which clearly establish that all of the federal surveyors who surveyed the territory through which the bed of the Gila River ran did not consider it navigable prior to February 14, 1912. Because the primary purpose for these surveys was to prepare the region for homesteading by settlers, the United States specifically required the surveyors to identify all streams they considered navigable. See Littlefield Report, at 10, 55. Accordingly, the plats and field notes of these surveyors provide significant insight into the characteristics of the Gila River. See id., at 10.

The 1851 *Instructions to the Surveyor General of Oregon; Being a Manual for Field Operations* specifically instructed surveyors to plant “meander corner posts” whenever they

came upon navigable bodies of water. See Littlefield Report, at 14. Meandering thus allowed surveyors to delineate between navigable bodies of water on which “meander corner posts” were to be established, and non-navigable waterways on which only “witness posts” were to be placed. See id. In 1864, the surveyor manual was modified to require that, even if a stream is not navigable “under the statute,” it should, nevertheless be meandered if it was a “well-defined artery of internal communication” and had a “uniform width.” See id., at 16. In 1890 the United States General Land Office significantly changed the instructions regarding the meandering of water bodies. See id., at 19. These new survey instructions required that both banks of navigable rivers be meandered, as well as non-navigable streams that were at least three chains in width. Four years later, the 1894 Manual was issued. This manual required that “[s]hallow streams, without any well-defined channel or permanent banks *will not be meandered. . . .*” Id., at 20 (emphasis in original). Finally, in 1902, the federal government again revised the survey manual, making clear that the surveyors were not to meander streams less than three chains wide. See id., at 21.

As is apparent from the various survey manuals, the federal government gave surveyors precise instructions regarding the identification of navigable streams. A review of the following summary chart of survey records analyzed in the Littlefield Report (pages 30 – 54) indicates that while many areas through which the bed of the Gila River ran were surveyed and resurveyed at different times of the year and in different years, none of the surveyors made a reference to the placement of meander posts in their survey plats or field notes. The fact that none of these government surveyors portrayed the Gila River as navigable is probative evidence of non-navigability.

Surveyor	Survey Area	Survey Year	Gila River Reference	Survey Notes/Details
Ingalls	T1N, R1W	1868	River encountered in sections 30 – 35	<ul style="list-style-type: none"> ▪ No meander corners set/lines drawn ▪ No indication that a surveyor had undertaken meander surveys ▪ No survey data recorded in the margin of the plat as there would have been had meanders been done
Powers	T1N, R2W	1883	River runs through southeast corner of township at sections 25, 26, 34 & 35	<ul style="list-style-type: none"> ▪ No meander corners set/lines drawn ▪ “shallow water and rapid current” ▪ “deep water and low banks” ▪ No indication that a surveyor had undertaken meander surveys ▪ Box marked “meanders of” contains no meander data ▪ Roads run parallel to stream on both banks
Hesse	T1N, R2W	1907 (resurvey)	[See above]	<ul style="list-style-type: none"> ▪ No meander data/lines drawn ▪ No indication that a surveyor had undertaken meander surveys ▪ Roads parallel the river
Powers	T1S, R2W	1883	Numerous encounters with the river	<ul style="list-style-type: none"> ▪ No meander posts set/lines drawn ▪ Table to insert meander bearings of navigable bodies of water left blank (<i>i.e.</i>, no data filled in) ▪ Road roughly parallels the river on the south side
Foreman	T4S, R4W	1871	River flows through sections 5, 7, 8 & 18	<ul style="list-style-type: none"> ▪ No meander bearings or data recorded ▪ No indication that a surveyor had undertaken meander surveys ▪ Road running parallel to river
Foreman	T5S, R4W	1871	River flows through sections 5, 8, 17, 20, 29 & 32	<ul style="list-style-type: none"> ▪ Set meander markers, but only on left side, not to indicate navigability, but “to accommodate actual settlers” by marking “all the lands of value”

Surveyor	Survey Area	Survey Year	Gila River Reference	Survey Notes/Details
Harris	T8S, R16W	1878	River flows through sections 1 – 5, 7 – 9 & 18	<ul style="list-style-type: none"> ▪ Set no meander posts but instead measured across on line as his directions required for non-navigable bodies of water ▪ No meander survey data ▪ Noted channel changes ▪ Noted road running roughly parallel to the river ▪ No indication that a surveyor had undertaken meander surveys
Harris	T8S, R17W	1878	River flows through sections 11, 13 – 15 & 19 – 22	<ul style="list-style-type: none"> ▪ Set no meander posts/data ▪ No indication that a surveyor had undertaken meander surveys ▪ Presence of two roads roughly paralleling the river
Martineau	T8S, R21W	1890	River flows through sections 1 – 4, 8, 9 & 17 – 19	<ul style="list-style-type: none"> ▪ Set meander corners on both banks not to show navigability but, consistent with the 1890 survey manual, to indicate that portions of the river were greater than three chains wide ▪ Notes presence of two roads paralleling the stream
White	T8S, R22W	1874	River flows through sections 13, 15, 20 – 24, 29 & 30	<ul style="list-style-type: none"> ▪ Consistent with the 1864 survey manual, only one bank of the river was meandered to indicate that it served as a route of internal communication ▪ A road paralleled the river to the south
Foreman	T5S, R5W	1871	River flows through sections 7 – 9 & 13 – 16	<ul style="list-style-type: none"> ▪ River “low on n. side and land subject to overflow” ▪ Meandered only the left bank to indicate portions greater than three chains in width ▪ River is subject to freshets, has a fall of approximately 20 feet per mile, and during times of high water it is almost impossible for boats to cross the river
Foreman	T5S, R6W	1871	River flows through sections 1 & 2	<ul style="list-style-type: none"> ▪ Meandered only the left bank “because the lands north of the Gila in this township are worthless”

Surveyor	Survey Area	Survey Year	Gila River Reference	Survey Notes/Details
Hesse	T5S, R8W	1910	River flows through sections 5 – 7	<ul style="list-style-type: none"> ▪ Most of the river is dry ▪ No meander notes/lines ▪ “The Gila River runs through secs. 5 and 6, a small stream of water which sinks in the sand and rises again all along its course through these secs.”

In Lykes Brothers, Inc. v. United States Army Corps of Engineers, 64 F.3d 630 (11th Cir. 1995), the Eleventh Circuit made clear that the action of surveyors *is* probative evidence of a watercourse’s non-navigability. Id. at 635-36 (holding that given the instructions under which the surveyor operated in 1871, “his meandering of only one bank of [the c]reek is probative of whether [the] creek was navigable in 1871”). See also Harrison v. Fite, 148 F. 781, 784 (8th Cir. 1906) (“The action of the government surveyors in meandering a body of water or in surveying its bed is to be considered as evidence upon the question of its navigability or unnavigability at that time. . .”).

2. Federal Patents and State Land Grants

The Littlefield Report also contains persuasive federal authority clearly establishing that neither the United States government nor Arizona considered the Gila River to be navigable around the time of and after Arizona’s statehood. This conclusion is supported by evidence of grants of land patents by the United States and Arizona. According to the United States Supreme Court, the natural inference to be drawn from the federal government’s grant of lands through which the bed of a river runs is that the river is not navigable. See Brewer Elliott Oil & Gas Co. v. United States, 260 U.S. 77, 86-87 (1922) (stating that such grants are “consistent with [Congress’s] general policy”). Evidence that the United States and Arizona have consistently treated the Gila River as non-navigable must be afforded significant weight when determining the river’s navigability. See United States v. Oregon, 295 U.S. 1, 23 (1935).

Unless a patent contains a reservation or exception, it “passes to the patentee everything in anywise connected with the soil, forming any portion of its bed, or fixed to its surface to the extent that the government has ownership and power of disposal.” 73A C.J.S. Public Lands § 140. See also Energy Transp. Sys., Inc. v. Union Pac. R.R. Co., 435 F. Supp 313, 317 (D. Wyo. 1977), aff’d 606 F.2d 934 (10th Cir. 1979) (explaining that “a patent passes to the patentee all interest the government has, on the date of that patent, to everything embraced within the meaning of the term ‘land’”). Therefore, patents that did not exclude the bed of the Gila River due to possible ownership by the State of Arizona is probative evidence the river was not considered to be navigable by the United States and the State.

The federal government granted in excess of 95 separate patents that either abutted or crossed the Gila River in Arizona. See Littlefield Report, at 88. In addition, the State conveyed over 60 parcels that crossed the bed of the Gila River. The following chart summarizes some of these patents as analyzed in the Littlefield Report (pages 67 – 87):

Patent No.	Year	Patent Location	Gila River Reference	Evidence of Non-navigability
1070902	1934	T1N, R1W, Sec. 34	<ul style="list-style-type: none"> ▪ Gila River is one of “many water courses” “running through” the land. 	<ul style="list-style-type: none"> ▪ Patentee received title to the entire tract.
762971	1918	T1N, R1W, Sec. 34	<ul style="list-style-type: none"> ▪ “Balance of land in the river.” 	<ul style="list-style-type: none"> ▪ No acreage reserved for the State of Arizona’s sovereign rights.
814694	1919	T1N, R2W, Secs. 25 & 26	<ul style="list-style-type: none"> ▪ “[B]alance [of land] river bed.” 	<ul style="list-style-type: none"> ▪ No land reserved for the State’s sovereign rights.
1071855	1931	T1S, R2W, Sec. 8	<ul style="list-style-type: none"> ▪ The majority of the land is situated “in the bed of the Gila River.” ▪ “The river bottom is washed . . . 100 acres out of the 160 could be plowed – would be subject, of course, to the overflow of the river when it got up.” 	<ul style="list-style-type: none"> ▪ Patentee granted title to the entire parcel, without any lands removed for the State.

Patent No.	Year	Patent Location	Gila River Reference	Evidence of Non-navigability
1066811	1933	T4S, R4W, Sec. 20	<ul style="list-style-type: none"> ▪ “The Gila River forms the approximate east boundary of the entry, and practically all the land in this entry[.]” 	<ul style="list-style-type: none"> ▪ No land reserved for the State.
1140493	1952	T4S, R4W	<ul style="list-style-type: none"> ▪ “135 acres [of the 160] lies in the dry Gila River bed[.]” ▪ “[S]mall portion on west edge is cultivable – balance in Gila River channel.” 	<ul style="list-style-type: none"> ▪ No lands were withheld in favor of the State, nor were any in lieu selections made by the State for this acreage.
1034203	1909–1912	T8S, R22W, Secs. 29 & 30	<ul style="list-style-type: none"> ▪ “The land is agricultural bottom land of the Gila [R]iver and is subject to annual overflows by that river[.]” 	<ul style="list-style-type: none"> ▪ Patent was issued for the entire amount of land; none was reserved for the State.
1033448	1886	T1S, R2W, Sec. 4	<ul style="list-style-type: none"> ▪ “Gila River crosses the SE corner of the northwest ¼ of the SE ¼[.]” 	<ul style="list-style-type: none"> ▪ Patentee awarded patent.
1134685	1946	T1S, R3W, Sec. 7	<ul style="list-style-type: none"> ▪ “The land lies in the bottoms adjacent to the Gila River, on the south side of the river.” ▪ “The land is crossed by the Gila River.” ▪ Topography of land is “bank and bed of Gila River[.]” ▪ “The non-tillable portion is part of the present river bed.” 	<ul style="list-style-type: none"> ▪ There is an “old channel portion” of the Gila River on a portion of the acreage. ▪ No acreage was removed from the final patent, and no mention was made of Arizona’s sovereign right to the bed and the banks of the Gila River.
1141999	1953	T1S, R3W	<ul style="list-style-type: none"> ▪ “Gila River [] traverses the southern half of the entry.” ▪ “The Gila River (high water) flows westerly through the southeast corner of the land.” 	<ul style="list-style-type: none"> ▪ Patentee received patent for all 120 acres of the land.
1001597	1920 & 1924	T4S, R4W, Secs. 8 & 9	<ul style="list-style-type: none"> ▪ “Gila River often covers this portion [of the patent property] which is mostly river sand.” ▪ “20 acres of each of two 40 acre tracts in my said claim, are in the Gila River, and not irrigable.” 	<ul style="list-style-type: none"> ▪ “[F]loods in the Gila River have cut away and partly destroyed approximately 40 acres.” ▪ The patent was awarded with no reservations in favor of the State.

Patent No.	Year	Patent Location	Gila River Reference	Evidence of Non-navigability
987760	1925	T8S, R16W, Sec. 8	▪ “The [Gila R]iver passes through the extreme southeast portion of this entry[.]”	▪ “[T]he [Gila River] being dry the greater portion [sic] of the year[.]” ▪ Patent awarded to patentee without reservation of land for the State.
1028040	1924	T8S, R17W, Sec. 14	▪ “Gila River passes along and cuts off about 30 acres on the east end of this entry.”	▪ “[W]hen the highwaters occur, the entire Sec. 14 is subject to inundation.” ▪ Patent was awarded with no land reserved for the State.
1514 (AZ)	1929	T1N, R1W, Sec. 33	▪ Gila River runs through the property.	▪ Land sold without reserving any of the Gila River’s bed to the State.
219 (AZ)	1918	T1N, R1W, Sec. 32	▪ “[L]and in [Gila R]iver bottom [and] Gila River flows over south part of forty.”	▪ State reserved no lands for its sovereign rights and patented the entire acreage.
6566 (AZ)	1978	T1N, R1W, Sec. 31	The Gila River flowed directly through the acreage.	▪ None of the acreage was reserved for the sovereign rights of Arizona.

Despite the fact that the Gila River either bordered or crossed all of the land conveyed in these patents, none of them excluded lands that were within the banks of the Gila River. See Littlefield Report at 88. The fact that the United States and the State did not reserve rights to the Gila River in these patents strongly evidences that the Gila River has never been considered a navigable waterway by either the United States or Arizona.

3. Archaeological and Historical Evidence of Nonuse

The Upper Gila Report contains a compilation of archaeological studies that confirm the Gila River was never actually used as a highway for commerce over which trade and travel was conducted. According to the studies, this area of the river has been inhabited for some 11,000 years. See Upper Gila Report, at 2-23. Archaeological reconstructions extending from the A.D. 740-1370 period to the A.D. 1800-1979 period suggest that the streamflow of the Gila River has

changed little over time. See id. This fact lends support to the conclusion that the Gila River is not, nor has it ever been, a navigable waterway. As the Upper Gila Report confirms, “[a]rchaeological research has not documented any use of the river for commercial trade or travel nor any regular flotation of logs.” See id.

The Upper Gila Report notes that “[t]he Spanish are thought to have named the Gila River the ‘Rio de Los Balsas’ (River of Rafts), either because their army was forced to cross the river in rafts, or because of the Indians’ use of wicker baskets to cross the river.” See id., Exec. Sum., at 3. However, this no more lends itself to a determination of navigability than the use of ferries to cross the river. Any such use of rafts or ferries would show only that the upper Gila was an impediment to trade and travel, and not a highway for commerce. Ferries often serve as the functional equivalent of bridges allowing people to cross at points of a river that are too deep or too wide to be crossed by foot, horse, or automobile. See North Dakota v. United States, 770 F. Supp. 506, 511 (D. N.D. 1991). Moreover, there are numerous accounts in the Gila Report documenting that early settlers in the area of the Gila River were forced to use ferry boats to cross the river due to its dangerous nature. See Gila Report, at IV-7 – 14.

As stated in Crow, “the existence of ferries is no more an example of commercial use than the presence of a bridge or railroad trestle whose primary purpose is to avoid the river rather than to employ it as a means for trade and transportation.” Crow, 340 F. Supp. at 35. The evidence shows that had the Gila River not existed, these people would have had a far easier time getting to their various destination points. See North Dakota 770 F. Supp. at 511 (“Clearly, those persons who used the ferries to cross the river would have had less difficulty making their trips had the river not existed.”). Therefore, the historical use of baskets, rafts, and ferryboats to cross the Gila River demonstrates that the Gila River was an obstruction to commerce in the area, and not a highway for commerce. See Gila Report, at X-1, 2 (explaining that “[t]ravel on the river

was frequently interrupted due to hazards such as sand bars or snags and “[a]t times served as a barrier to transportation. . .”).

The overwhelming majority of evidence shows that the Gila River never was used as a highway for commerce. Historical accounts contained in the Gila Report, Littlefield Report, and August Report all lead to the conclusion that nineteenth century travelers showed no more interest in traveling on the Gila River than did earlier residents of the area. Despite the rugged and harsh terrain of the area, people traveled *along* the river rather than floating it. See Gila Report, at III-24 (explaining that the Gila Trail was used by trappers and the military, and later by the Forty-Niners):

<u>Source & Page</u>	<u>Year</u>	<u>Description</u>
[L] 106	1846	Colonel Phillip St. George Cooke led the Mormon Battalion <i>following</i> the Gila Trail.
[F] IV-2	1849	A party of 33 <i>followed</i> Kearny’s Gila Trail, which they considered the “Devil’s Turnpike.”
[F] IV-2	1849	Approximately 600 men traveled <i>along</i> the Gila Trail en route to California for the Gold Rush.
[F] IV-2	1849	A party of Forty Niners traveled <i>along</i> the Gila Trail to California.
[F] IV-3	1849	A wagon train of Forty-Niners traveled to California <i>along</i> the Gila Trail (departing in April 1849).
[F] IV-3	1849	A wagon train of Forty-Niners traveled to California <i>along</i> the Gila Trail (departing in the late months of 1849).
[L] 105; [A] 31-32	1850s	Historian, author, and educator, Odie B. Faulk, wrote that, unlike in the eastern United States, there are no water routes in the southwest that are capable of being used as highways for commerce. As a result, the “Gila Trail became the route of exploration, conquest, transportation, and communication.”
[F] IV-6	1877	Pioneers traveling west, occasionally encountering and <i>following</i> the Gila River.
[L] 119	1891	The <i>Capitol Magazine</i> reported that prior to the arrival of railroads, freight was transported within Arizona via bull trains.

The evidence shows that since prehistoric occupation “the entire length of the Gila River played a major role in human settlement patterns and occupational success.” Gila Report, at III-20. However, despite this prominent role, there is no historic evidence that the river was used for

trade or transportation. In fact, an analysis of the land uses within the area of the river confirms that “modern settlement patterns along the Gila River have been more a result of the railroad rather than of the river itself. . . .” *Id.*, at VIII-1. The lack of any history of trade and transportation lends support to the conclusion that the Gila River is not, nor has it ever been, a navigable waterway serving as a highway for commerce.

B. The Gila River is not Susceptible of Being Used as a Highway for Commerce over which Trade and Travel May Be Conducted.

As discussed in the immediately preceding section, archaeological and historical evidence demonstrates that the Gila River has never been used for navigation. The logical inference from this lack of actual use, especially in light of the fact that humans have lived and frequently traveled in the vicinity of the river for thousands of years, is that the Gila River was not and is not susceptible to navigation.

1. Flow Characteristics

At the time of Arizona’s statehood, the Gila River was simply too “undependable and unpredictable” to be used as a highway for commerce. August Report, at 1. A review of the historical evidence reveals that residents and visitors of the day did not consider the Gila to be navigable and, in fact, the river was considered by contemporaries to be “literally a joke concerning navigability.” *Id.*, at 30. Any use of the river for boating was “extremely unusual” and done purely for “novelty.” Littlefield Report, at 112. An analysis of historical accounts of early attempts at floating the Gila River indicates that it was neither navigable nor susceptible to navigation when Arizona was admitted into the Union:

<u>Source & Page</u>	<u>Year</u>	<u>Description</u>
[L] 106; [F] IV-2; [A] 32	1846	Colonel Phillip St. George Cooke attempted to boat “with two pontoon wagon beds, and a raft for running gear.” However, “[t]he experiment signally failed, owing to the shallowness of the water on the bars; the river was very low.” Because of these difficulties, most of the cargo had to be jettisoned.

<u>Source & Page</u>	<u>Year</u>	<u>Description</u>
[L] 113; [F] IV-7; [A] 34	1881	“Yuma or Bust” party claimed to successfully negotiate the Gila River from Phoenix to Yuma. However, the editor of the Phoenix Gazette reported that the boat actually reached Gila Bend and “busted.” Apparently, the crew “endured great hardships, being compelled to wade in the water the greater part of the time and push the craft ahead of them.”
[L] 120	1893	The <i>Arizona Magazine</i> reported that the <i>Explorer</i> , a stern wheel iron steamer, was unable to navigate the Gila River on a regular basis.
[F] IV-8	1895	A party tried to float the Gila River in a boat. They reported it was a “tortuous route” and ended up hauling the repaired boat by train, exclaiming that they would not try such a boating trip down the Gila’s “hazardous waters” again.
[F] IV-13	1905	Jack Shibely attempted to travel the Gila River downriver from Phoenix. However, the boat capsized and lost a large portion of its cargo.
[F] IV-13	1905	An attempt was made to cross the Gila River, but the launch failed due to swift current.
[F] IV-13	1905	A new model of boat failed to cross the Gila.

At the time of Arizona’s statehood local newspapers were infamous for their puffery, hoping to attract new settlers to the area and grow the economy. See id., at 111; August Report, at 33. The extent of this salesmanship by newspapers of the day is illustrated in historian Barbara Tellman’s testimony at the November 16 hearing:

[W]e have a lot of descriptions of what was going on with the ferry boats at that time. And there is absolutely no way that we can say what the size of these ferries were because we’ve got the newspaper editor blowing it all out of proportion. He’s talking about the Gila Queen, which then became in great competition with the Gila King and two boats were fighting for the big commercial business in this area. And they got to the point where he was talking about somebody being the admiral of the fleet. And you just can’t take any of this seriously at all. So you take it with a grain of salt, so we really don’t know.

(Tr. at 112.) Despite this apparent proclivity for hype, press reports from the day never mentioned the Gila’s navigability – “something they doubtlessly would have done in order to benefit local residents.” August Report, at 33. See Littlefield Report, at 112. Based on the dearth of such reports and the accounts of failed boating attempts, the logical conclusion is that the Gila River was not navigable as of February 14, 1912.

Although the Gila Report does include a few anecdotal accounts of possible boating on the Gila River, these instances are clearly rare. Furthermore, one of these accounts is an *unsigned* letter, and another discusses an *intent* to travel on the river. See Gila Report, IV-3, 21. Such scattered anecdotal accounts can hardly be considered persuasive evidence of the Gila's navigability at statehood. "The mere fact that a river will occasionally float logs, poles and rafts downstream in times of high water does not make the river navigable." Crow, 340 F. Supp. at 32. As the Supreme Court stated in The Montello, 87 U.S. (20 Wall.) at 442,

[i]t is not, however, . . . 'every small creek in which a fishing skiff or gunning canoe can be made to float at high water which is deemed navigable, but, in order to give it the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture.'

The above-quoted language from Crow and The Montello makes clear that the burden of proof cannot be sustained merely by proffering scant anecdotal evidence – evidence that is not subject to verification and, thus, of questionable reliability – of alleged floating events, the extent and exact locations of which are largely uncertain. Such evidence is simply insignificant compared to the weight of evidence tending to prove non-navigability. In short, a showing of brief periods of dangerously high water occurring in a waterway otherwise unsuitable for any boating use is hardly sufficient to carry the burden of proof required to establish the Gila River's susceptibility to navigation. See United States v. Utah, 283 U.S. 64, 77 (1931) (explaining that of primary concern is whether a particular body of water has long stretches of navigability); Oklahoma v. Texas, 258 U.S. at 591 (finding river, whose use for transportation was "exceptional" and confined to "irregular and short periods of temporary high water," to be non-navigable); North Dakota, 770 F. Supp. at 512 (refusing to find river navigable based on evidence of occasional use during relatively short periods of intermittent high flow).

Furthermore, the great majority of historical accounts evidence that the Gila River's fluctuating flows and major channel changes combined to create an effective impediment to the use of the river as a highway for commerce:

<u>Source & Page</u>	<u>Year</u>	<u>Description</u>
[L] 104-05	1775	Francisco Garces, a Spanish missionary priest, commented as follows regarding the characteristics of the Colorado and Gila Rivers: “[F]or these two rivers Colorado and Gila rise every year to such excess, and run through these flat and friable grounds with such lack of restraint, that they appear to shift their channels, forming wash-outs, and dividing into branches, according as the force of the current bears more or less to this side or that. The result is, that at its greatest flood the Gila itself extends more than a league, and presumably the Colorado much more.”
[L] 107-08	1846	Military observer, William H. Emory, described the shifting channel of the Gila River.
[L] 108	1855	William H. Emory described the Gila River as “not navigable.”
[L] 109	1857	William H. Emory wrote that the Gila River “does not always run in the same bed[.]”
[L] 109; [A] 32-33	1857	Comparing the Gila and Colorado Rivers, Lieutenant Nathaniel Michler concluded the following: “The Gila becomes so low that a sand-bar forms at its mouth during the summer, and at no time does it supply much water. The Colorado on the contrary, is navigable for small steamers. . . . This is a great saving, as the cost of transportation of stores by trains across the desert is enormous.”
[L] 109-10; [A] 33	1859	In commenting on the region's water resources, Lieutenant Sylvester Mowry stated that the territory “embraces within its borders three of the largest rivers on the continent west of the Mississippi, viz. the Rio Grande, the Gila, and the Colorado of the West. The Colorado is the only navigable stream. . . .”
[L] 110	1865	The Arizona Territorial Legislature declared that “the Colorado River is the only navigable water in this Territory[.]”
[A] 29	1879	An early settler, Sue Summers, stated the following regarding her first encounter with the Gila River: “[I]magine my astonishment when . . . my husband, with an amusing smile, announced that the huge valley of sand on which we were resting was the bed of the Gila River.”
[L] 120	1896	The <i>Southwest Illustrated Magazine</i> described the Gila River as follows: “It is what would be called a small stream . . . so far as surface water is concerned, because not only itself but all its tributaries pass through valleys of sand, gravel and boulders of great depth, and therefore have a broad and deep underflow. But because of rare great floods, carrying the loose alluvial soil away, the banks are usually far apart, varying from say twenty to one hundred and sixty rods [.]”

<u>Source & Page</u>	<u>Year</u>	<u>Description</u>
[F] IV-11	1901	Investigating the Gila's underflow, Colonel Walter Graves determined that "during the dry season there is not enough water in the river to dampen the sand at bedrock."
[F] IV-18	1914	The <i>Arizona Blade-Tribune</i> reported that "the Gila River (that is normally dry) is a raging torrent . . . since last Sunday . . . when the river . . . was ten and one-half feet deep at the bridge . . . the river was higher than at any time since the big flood of January 1905 . . . it is estimated that 100,000 acre feet of water . . . every twenty-four hours."
[F] IV-19	1915	The <i>Arizona Blade-Tribune</i> reported that "for the third time this season . . . the bridge across the Gila River went out again. . . ."
[F] IV-19	1915	The <i>Arizona Blade-Tribune</i> reported that "[a] rise in the river Thursday caused a change in the channel . . . cutting out the south bank of the river. . . ."
[M] 196; [A] 31	1944	As described in <i>The Faustball Tunnel</i> , German POWs attempted to escape to Mexico by building a small raft and floating down the Gila River. However, after they put their gear into the raft it bottomed out. One of the POWs exclaimed that "[t]here simply was not enough water in the mighty Gila to float our tiny craft." Throughout the night they tugged the raft but continuously encountered long shallow stretches with water levels too low to float the raft. The POWs finally gave up complaining "that the Gila wasn't much of a river. Of course, everyone who lives in Arizona knows that. We didn't."

The historical accounts summarized in the chart above indicate that the Gila River's flow was either too low for it to be a reliable mode of transportation for even the smallest of watercraft, or, on those rare occasions when high flow rates did occur, the extremely high velocities and dangerous conditions made the river far too wild and dangerous for it to be used as a highway for commerce. Evidence of the Gila River's non-navigable flow characteristics is not, however, restricted to newspaper accounts and personal observations.

After exploring Nevada and Arizona in the late nineteenth century at the request of the United States government, George M. Wheeler submitted a report to Congress, which contained a record of his observations concerning the region's various resources.² See Littlefield Report, at

² Wheeler's records are considered part of the records of predecessor agencies to the U.S.G.S. See Littlefield Report, at 90.

90. Wheeler's pessimism regarding the navigability of the region's watercourses is made clear in the following statement:

'River transportation upon our western coast is, to a great extent, a failure, as beyond the Columbia and Colorado Rivers, that furnish somewhat irregular avenues of connection with the interior, no streams of considerable magnitude exist; river transportation, even in this very American age, loses its great power when pitted against railroads.'

Id., at 91. See August Report, at 18.

Annual reports published by the U.S.G.S. in the 1890s also portrayed the Gila River as an erratic, non-navigable waterway with an unstable character. For example, the *Eleventh Annual Report of the U.S. Geological Survey* stated that the Gila basin consists of

'rivers most difficult and dangerous to examine and control. . . . [T]hese rivers show conditions . . . being [during spring and early summer] at their very lowest stages – even dry – and rising in sudden floods at the beginning of and during the winter. These floods are of the most destructive and violent character; the rate at which the water rises and increases in amount is astonishingly rapid, although the volume is not always great. . . . From this it is recognized that the onset of such a flood is terrific. Coming without warning, it catches logs and bowlders [sic] in the bed, undermines the banks, and, tearing out trees and cutting sand-bars, is loaded with the mass of sand, gravel, and driftwood – most formidable weapons for destruction.'

Littlefield Report, at 91-92. The *Twelfth Annual Report of the U.S. Geological Survey* (1889-90) described the Gila River as a violent and erratic watercourse and explained that during flood events the river "'often sweep[s] out bridges, dams, and canal head works, while at other times they may diminish until the water almost disappears.'" Id., at 92. See August Report, at 19; Gila Report, at IV-42, 43. The report further stated that "'[t]he floods of the Gila are usually short and violent . . . It is sometimes impassable for weeks, and has the appearance in places of a sea of muddy water. The season of low water occurs during the months of June and July, the river bed then being dry in places.'" Littlefield Report, at 92. See August Report, at 19. See also Gila Report, at IV-41 (describing Gila River as a shallow stream with an unstable character (quoting *Tenth Annual Report of the U.S. Geological Survey* (1888-89))); id., at IV-46 (explaining that the

floods are violent and, ““with the exception of the great Colorado River, . . . the streams of the territory are small, and usually intermittent”” (quoting *Sixteenth Annual Report of the U.S. Geological Survey* (1894-95))).

In addition to its annual reports, the U.S.G.S. published a series of Water Supply Papers (“WSPs”) in the late nineteenth and early twentieth centuries that also discussed the unpredictable and undependable nature of the Gila River:

- WSP No. 38: Described the bed of the Gila River as ““sandy and shifting,”” and opined that its bed is ““likely to change daily with any considerable amount of water in the river.”” Gila Report, at IV-9, 10.
- WSP No. 133: Explained that the Gila River has a shifting bed that is ““subject to continual change.”” *Id.*, at IV-12.
- WSP No. 162: “[The Gila River] is usually dry at this place about ten months of the year. . . . [its bed] 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. . . .” Littlefield Report, at 94. See August Report, at 20, 21.
- WSP No. 175: Noted that “[a]t every flood the channel shifts. . . . [The river] contains an enormous amount of mud and sand. At times the waves of sand traveling along the bed of the stream are so large, the current so swift, and the stream so shallow, that the water is broken into a uniform succession of waves 2 feet high and over.” August Report, at 20. See also Gila Report, at IV-12.
- WSP No. 289: Explained that the Gila River is ““torrential,”” ““sometimes impassable for weeks,”” and the ““season of low water occurs in June and July, the river bed then being dry in places.”” Littlefield Report, at 94. ““The bed of the stream is composed of shifting sand and silt.”” Gila Report, at IV-14.

- WSP No. 1049: Provided a summary of Gila River flow records from 1902 to 1938, and indicated that in February 1912, “there was no flow at all.” Littlefield Report, at 95. See August Report, at 21.

Just prior to Arizona’s statehood, the U.S.G.S. asked E.C. Murphy to examine data collected prior to February 14, 1912, and draft a report analyzing the potential for use of the Gila River to generate hydroelectric power. See id., at 96. Commenting on the Gila’s flows, Murphy explained the river is “partly an under ground stream rising and sinking according to local formations. . . . [In many places] the Gila is dry for a few days nearly every year. . . .” Id., at 97. See also August Report, at 23; Gila Report, at VII-4 (explaining that as Gila River enters Phoenix Basin, it begins to lose much of its flow to infiltration). The erratic and violent nature of the Gila River is exemplified in Murphy’s statement that it

‘flows through a broad, flat valley in a broad, sandy, changing channel. It is dry for a month or longer each year at Florence, and below Gila Bend it is dry all the time except during large and long continued floods. . . . when a flood comes it damages or destroys the head works and little if any of the flood water is utilized. . . .’

Littlefield Report, at 97-98. See also August Report, at 23.

The wild and unpredictable nature of the Gila River was similarly observed by the United States Bureau of Reclamation in its *First Annual Report of the Reclamation Service* published in 1903:

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

Littlefield Report, at 99. See also August Report, at 24.

In summary, U.S.G.S. and Reclamation Service records consistently portrayed the Gila River as an extremely unpredictable, erratic, and unreliable stream wholly unsuitable for

navigation. See Littlefield Report, at 103; August Report, at 23. This characterization of the Gila is confirmed by an analysis of its geomorphologic characteristics.

2. Geomorphologic Characteristics

Dr. Schumm thoroughly analyzed the geomorphology of the lower Gila River in the Schumm Report, and concluded that the “[g]eomorphic and hydrologic evidence demonstrates that on February 14, 1912, the lower Gila River was not navigable.” Schumm Report, at 16. According to Dr. Schumm, “[t]he large, long duration floods, especially those of 1905 and 1906 converted the relatively stable lower Gila River into a braided channel that was wide and shallow and unsuitable for navigation.” Id., at 16. Dr. Schumm’s conclusions are confirmed by the following geomorphologic characteristics:

- The Gila River is “a classic example of a dryland river,” and “dryland rivers are inherently more unstable and more prone to changes in channel configuration.” Schumm Report, at 8.
- Primarily as a result of major winter floods, the channel of the Gila River widened to about 2,000 feet and drastically shifted; its meander pattern was completely destroyed. See id., at 10. The floods of 1905 and 1906 “radically transformed the relatively narrow channel to a wide braided channel.” Id. See Gila Report, at VII-4, 5. By 1912, the Gila was up to 2,500 feet wide and its width “was highly variable.” Schumm Report, at 12.
- Because the lower Gila River flood plain is mostly sand and silt, “the bank material can be easily mobilized by floods of significant magnitude and duration. This results in spatially dynamic flow channels that shift after large floods.” Gila Report, at VII-6.

Similarly, the Gila Report confirms that, after 1905, the upper Gila River “consisted of a wide braided channel with several smaller branching channels.” Id., at VII-8.

III. Conclusion

“Navigable” has a precise legal definition. Arizona’s navigability statutes require the Commission to be convinced by a preponderance of the evidence that “trade and travel were or could have been conducted . . . on water.” A.R.S. § 37-1101(5). On or around February 14, 1912, the Gila River lacked sufficient, reliable streamflows to support either trade or travel on water. No probative evidence was presented to the Commission that either trade or travel took place on the waters of the Gila River at the time of Arizona’s statehood. This “manifest unsuitability for navigation,” combined with “lack of substantial evidence” that the Gila was ever used for navigation, leads to the logical conclusion that the river was never used and was never susceptible to being used as a highway for commerce. See Muckleshoot Indian Tribe v. FERC, 993 F.2d 1428, 1433 (9th Cir. 1993) (holding river to be non-navigable because amount and reliability of evidence proffered by proponents of navigability “pale[d] in comparison to the navigability evidence” other courts found to be determinative in comparable cases). Assertions that the Gila River *could have* supported *some* types of boating during *some* years fall far short of proving that the river was navigable for title purposes. The overwhelming weight of evidence offered prior to and during the November 16 and 17 hearings proves that the Gila River fails to meet the statutory definition of “navigability.” Accordingly, Phelps Dodge asks the Commission to find that the Gila River was not navigable as of February 14, 1912.

Statements made in the Gila Report regarding the alleged navigability of the Gila River at its confluence with the Colorado River should be disregarded because that conclusion is purely based on the Gila’s “backwater effects with the Colorado River.”³ Gila Report, at X-2. As discussed at the August 8 and 9, 2005 hearings in Mohave and La Paz Counties, the transition

³ The limit of the ordinary high water mark for the Colorado River is estimated to extend upstream on the Gila River for approximately 2.5 miles. See Stantec Consulting, Inc., *Gila River Backwater Analysis* (February 11, 1999), at 10.

from the backwaters of the Colorado River to the confluence with its tributaries (such as the Gila River) are unrelated to the Commission's work, and, therefore, should have no bearing on the Commission's determination of the navigability of the Gila River as of February 14, 1912. See Gollatte v. Harrell, 731 F. Supp. 453, 457 (S.D. Ala. 1989) (refusing to consider backwater effects of river on adjacent creek when making determination as to creek's navigability).

RESPECTFULLY SUBMITTED this 6th day of February, 2006.

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