L. William Staudenmaier (#012365)
SNELL & WILMER L.L.P.
One Arizona Center, Suite 1900
400 E. Van Buren Street
Phoenix, AZ 85004-2202
Telephone: (602) 382-6000
Email: wstaudenmaier@swlaw.com

Attorneys for Freeport Minerals Corporation

FENNEMORE CRAIG, P.C.
Sean T. Hood (No. 022789)
2394 East Camelback Road
Suite 600
Phoenix, AZ 85016-3429
Telephone: (602) 916-5000
Email: shood@fclaw.com

Attorneys for Freeport Minerals Corporation

BEFORE THE ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

IN RE: DETERMINATION OF NAVIGABILITY OF THE GILA RIVER	Case No. 03-007-NAV

FREEPORT MINERALS CORPORATION'S OPENING POST-HEARING MEMORANDUM CONCERNING THE NON-NAVIGABILITY OF THE GILA RIVER

INTRODUCTION

Freeport Minerals Corporation (Freeport) respectfully submits its Opening Post-Hearing Memorandum Concerning the Non-Navigability of the Gila River.

As with the proceedings on remand concerning the San Pedro River and the Santa Cruz River, the parties advocating that the Gila River was navigable in its ordinary and natural condition rest their case upon erroneous standards for navigability. Specifically, these parties rely upon modern recreational boating standards to support their arguments that any stream with depths of 1 foot or even 6 inches is navigable for purposes of title. These parties build their cases upon modern recreational boats and modern recreational boating. By choosing to ignore "the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood," as a matter of law these parties fail to meet their burden of proof. *PPL Montana v. Montana*, 132 S.Ct. 1215, 1233 (2012).

The reasons that the proponents of navigability again rely upon inapplicable standards relating to modern recreational craft is that this case involves a shallow desert stream with a meager history of boating of any kind, despite a multitude of needs that could have been served by commercial navigation if the Gila River had actually been navigable. Applying the standard for navigability that is well-established through longstanding United States Supreme Court precedent, the evidence presented to ANSAC requires a determination that the Upper Gila, and, the Gila River more generally, was neither navigable nor susceptible to navigation in its ordinary and natural condition. The proponents of navigability simply have not met the applicable standard.[1]

I. THE APPLICABLE LEGAL STANDARD MANDATES A FINDING THAT THE GILA RIVER IS NOT NAVIGABLE.

The proponents of navigability for the Gila River bear the burden of proof and must demonstrate by a preponderance of the evidence that specific segments of the river were navigable in their ordinary and natural condition. *State of Arizona v. Arizona Navigable*

[1] The navigability proponents include the Arizona State Land Department (ASLD), Maricopa County, and the Arizona Center for Law in the Public Interest (Center).

Stream Adjudication Comm., 224 Ariz. 230, 239, 229 P.3d 242, 251, ¶ 17 (App. 2010).

The test of navigability for title is a federal test based on more than 150 years of case law. *PPL Montana v. Montana*, 132 S.Ct. 1215, 1227 (2012). The most important of these cases were decided by the United States Supreme Court, beginning with *The Daniel Ball*, 77 U.S. 557 (1870). Although *The Daniel Ball* addressed federal power to regulate navigation, its statement of the test of navigability has become the standard test for purposes of navigability for title. *See PPL Montana*, 132 S.Ct. at 1228. In fact, Arizona's statutory definition of a navigable waterway paraphrases *The Daniel Ball* test:

> "Navigable" or "navigable watercourse" means a watercourse 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).

During the long history of Supreme Court consideration of this issue, several important legal principles have become well-established. First, this test is one of "navigability in fact." *PPL Montana*, 132 S.Ct. at 1227. Accordingly, the focus is on "'rivers really navigable.'" *Id.* (quoting *Shively v. Bowlby*, 152 U.S. 1, 31 (1894)). Furthermore, it is "not 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." *United States v. Rio Grande Dam & Irrigation Co.*, 174 U.S. 690, 698-99 (1898) (quoting *The Montello*, 20 Wall. 430, 442). On this basis, the Supreme Court concluded that

> [o]bviously, the Rio Grande within the limits of New Mexico is not a stream over which in its ordinary condition trade and travel can be conducted in the customary modes of trade and travel on water. Its use for any purposes of transportation has been and is exceptional, and only in times of temporary high water.

Id. at 699. The Rio Grande is the largest and longest river in New Mexico, flowing from the northern border with Colorado to the southern border with Texas. Yet, because it is a desert

river with insufficient reliable flows, the Supreme Court held that the entire river in New Mexico is non-navigable.

Similarly, the Supreme Court concluded that the entire length of the Red River in the State of Oklahoma, more than 500 miles in all, was non-navigable due to variable water flows and river bed conditions, such that

> trade and travel neither do nor can move over that part of the river, in its natural and ordinary condition, according to the modes of trade and travel customary on water; in other words, that it is neither used, nor susceptible of being used, in its natural and ordinary condition as a highway for commerce. Its characteristics are such that its use for transportation has been and must be exceptional, and confined to the irregular and short periods of temporary high water. A greater capacity for practical and beneficial use in commerce is essential to establish navigability.

Id. at 591.

Most recently, the Supreme Court has reconfirmed that evidence of navigability "must be confined to that which shows the river could sustain the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood." *PPL Montana*, 132 S.Ct. at 1233. Moreover, "[n]avigability must be assessed as of the time of statehood, and it concerns the river's usefulness for 'trade and travel,' rather than for other purposes." *Id.* For these reasons, "[m]ere use by initial explorers or trappers, who may have dragged their boats in or alongside the river despite its nonnavigability in order to avoid getting lost, or to provide water for their horses and themselves, is not itself enough." *Id.* Finally, the Court stated that a finding of navigability must be founded on the kind of trade and travel on water that constitutes "a ***commercial*** reality." *PPL Montana*, 132 S.Ct. at 1234.[2]

Based on these standards, the Supreme Court rejected a lower court ruling that the Madison River in Montana was navigable because the lower court had relied primarily on evidence of modern-day boating. While the Supreme Court noted that such evidence could be considered, it would only support a finding of navigability if "[a]t a minimum, ... the party seeking to use present-day evidence for title purposes" can show that "(1) the

[2] Unless otherwise noted, emphasis is added.

watercraft are meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the river's post-statehood condition is not materially different from its physical condition at statehood." *Id.* The Court noted that these requirements are critical because "[m]odern recreational fishing boats, including inflatable rafts and lightweight canoes or kayaks, may be able to navigate water much more shallow or with rockier beds than the boats customarily used for trade and travel at statehood." *Id.*

II. MR. BURTELL HAS SIGNIFICANT EXPERTISE EVALUATING THE NATURE AND OCCURRENCE OF SURFACE WATER IN ARIZONA STREAMS.

Freeport retained Rich Burtell, RG, to identify and compile available evidence concerning the Upper Gila River and to evaluate whether it was navigable or susceptible to navigation in its ordinary and natural state. Mr. Burtell prepared a declaration (Declaration)[3] and testified in support of his findings that the Upper Gila was not navigable in its ordinary and natural condition on or before statehood.

Mr. Burtell's *Curriculum Vitae* is Attachment A to his Declaration. Mr. Burtell is a Registered Geologist with a Masters of Science in Hydrology. Mr. Burtell has over twenty-five years of experience as an environmental scientist dealing with a host of water and environmental matters, and his experience and expertise extend to matters involving geology, hydrology, and hydrogeology. Mr. Burtell worked at the Arizona Department of Water Resources (ADWR) for twelve years. For the majority of his tenure Mr. Burtell served as the Manager of the Adjudications Section at ADWR. As Manager of the Adjudications Section, Mr. Burtell was extensively involved in evaluating the nature and occurrence of surface water in Arizona streams, including the Gila River.

[3] *See* Declaration of Rich Burtell on the Non-Navigability of the Upper Gila River at and Prior to Statehood, dated May 2014, Item No. X008, Freeport 2, (Declaration). Attached as Exhibit A is the Index of Exhibits Submitted by Freeport Minerals Corporation as of August 12, 2014, which lists Freeport's thirteen exhibits, Freeport 1 through Freeport 13.

III. THE UPPER GILA RIVER WAS NOT NAVIGABLE IN ITS ORDINARY AND NATURAL CONDITION AT OR BEFORE STATEHOOD.

Mr. Burtell divided the Upper Gila into three segments for purposes of assessing navigability in the context of different stream characteristics:

- Duncan Valley
- Gila Box
- Safford Valley[4]

These three segments are substantially equivalent to the ASLD's segments 1-3.

Mr. Burtell analyzed several lines of available evidence in order to assess whether any of these three segments was navigable in its ordinary and natural condition. These lines of evidence include geomorphology, historic accounts of stream flow conditions, documented needs for commercial navigation prior to significant diversions, reconstruction of stream flow to assess predevelopment stream depth and velocity, and prehistoric, historic, and recent efforts to boat the Upper Gila. All of this evidence leads to the conclusion that the Upper Gila was not susceptible to navigation as a highway of commerce in its ordinary and natural condition at statehood.

A. Historical Accounts Of The River Demonstrate That The Upper Gila Was Non-Navigable.

Mr. Burtell reviewed numerous historical accounts of the Upper Gila when it was in its ordinary and natural condition prior to the introduction of significant diversions by settlers in the area.[5] These historic accounts each pre-date 1880, and they are summarized in Table 1 to Mr. Burtell's Declaration. Collectively, these accounts reveal a stream that was shallow in its natural and ordinary condition, almost always less than two feet. Mr. Burtell identified accounts suggesting that the flow was deeper at times, but these accounts

[4] Declaration ¶ 17.

[5] *See* Declaration ¶ 29. Most of the accounts predated significant diversions. As irrigated acreage increased into the late 1870s, the associated diversions still would not have had significant impacts on stream depth or observers' accounts of the stream.

involved seasonal periods of high flow, *i.e.* during Spring run-off or the monsoon season. Mr. Burtell observed that

> in its totality, I would say that these accounts paint a picture to me of a stream that is nothing like the Colorado River where when those folks tried to cross it, they're building rafts and having Indians help them get across. We've had wagons going down. We've got horses going down. We have settlers coming into the area. And they're typically able to cross the river in a pretty routine fashion.[6]

Mr. Burtell also identified a photograph from 1880 of a covered wagon and trailer crossing the Upper Gila River near Calva. Consistent with the historic accounts, the photograph reveals a shallow stream easily crossed by wagon and horses.[7]

In keeping with Mr. Burtell's approach of evaluating multiple lines of evidence, the most important aspect of these historic accounts and the historic photograph is that they are in harmony with both (1) Mr. Burtell's evaluation of the absence of commercial navigation despite several needs for it and (2) Mr. Burtell's stream flow reconstruction. Each line of evidence depicts a shallow stream that was neither used, nor susceptible to use, as a highway of commerce.[8]

B. The Upper Gila River's Scant History Of Boating Demonstrates That It Was Not Navigable In Its Ordinary And Natural Condition.

1. There Is No Evidence Of Prehistoric Navigation By Native Americans.

"Native tribes from South America all the way up to Alaska all had some kind of boating if they lived anywhere near a river."[9] We know this because there are records, oral traditions, and archaeological findings demonstrating that boating occurred.[10] As one

---

[6] 6/20/14 Trans. 1062:24: – 1067:16 (Burtell).

[7] 6/20/14 Trans. 1066:3 – 1067:16 (Burtell); Declaration ¶¶ 37-39 and Figure 7.

[8] Notably, the stream was even less susceptible to use as a highway of commerce on the date of statehood, given the proliferation of braided channels that occurred in the early 1900s prior to statehood. *See* Section III.F.

[9] 11/16/05 Trans. 103:10-12 (Telman); *see also* 6/17/14 Trans. 303:3 – 304:3 (Fuller).

[10] 6/17/14 Trans. 303:3 – 304:9 (Fuller).

example of such records, the Pima Indians who lived along the Gila River kept "calendar sticks" in which the Pimas recorded important aspects of their culture and society.[11]

The Gila River Valley was occupied continuously for more than a millennium, and the Gila River has a history of over a thousand years of irrigation-based civilization.[12] Yet when asked whether he could identify "[a]ny evidence whatsoever of use of the river for trade or commerce by those indigenous peoples living along the river," Mr. Fuller had to concede during the hearing on remand that he "can't recall any at this time."[13]

The reason that Mr. Fuller could not recall any such evidence is that it does not exist. Indeed, in his 2003 Upper Gila Report, Mr. Fuller stated that "[a]rchaeological research has not documented any use of the [Upper Gila] for commercial trade and travel or any regular floatation of logs."[14] The same is true of the Gila River in its entirety – Mr. Fuller could not identify any evidence of archaeological use of any segment of the Gila River for trade or commerce.[15] For instance, while the Pimas' calendar sticks "went through excruciating detail on all their lifestyle," these records are nevertheless entirely devoid of any mention of boats or use of the river for navigation. This is consistent with Mr. Burtell's research.[16]

Indeed, based upon Mr. Fuller's reports to the Commission, the Commission already determined in 2009 that there is no evidence that Native Americans ever attempted to boat the Gila River: "[t]he reports and studies updated by J.E. Fuller and submitted by the State Land Department contain only 13 historical boating events between 1846 and 1909. *There is no archeological evidence of the Pre-Columbian Indians living along side the river having ever attempted to use or using any kind of watercraft on the river.*"[17]

---

[11] 11/16/05 Trans. 228:22 – 229:11 (Gookin).
[12] 6/17/14 Trans. 304:10-19 (Fuller).
[13] 6/17/14 Trans. 304:17 – 307:20 (Fuller).
[14] JE Fuller Hydrology & Geomorphology, Inc., Arizona Stream Navigability Study for the Upper Gila River: Safford to the State Boundary and San Francisco River: Gila River Confluence to the State Boundary (revised June 2003), Exh. 2, (Fuller's 2003 Upper Gila Report) at 8-2.
[15] 6/17/14 Trans. 304:17 – 307:20 (Fuller).
[16] Declaration ¶ 96 ("No evidence of prehistoric boating by [N]ative Americans was found.").
[17] *See* Report, Findings and Determination Regarding the Navigability of the Gila River

Allen Gookin is a civil engineer, professional hydrologist, and a land surveyor who has testified multiple times on behalf of the Gila River Indian Community throughout the various stages of the proceedings on the Gila River. Mr. Gookin is also a student of the history of the Gila River Indian Community, having worked on matters concerning the Community and the Community's reservation for most of his adult life.[18]

Testifying in 2005, Mr. Gookin elaborated on the significance of the lack of any navigation of the Gila River by the Native Americans that were so closely tied to the river. The Pima, for instance, were known as Akimel Au-Authm or the river people, and they lived along and depended on the Gila River. They had a trading society, and they were involved in active trading with Maricopa Indians who lived in the Arlington-Buckeye area. Mr. Gookin noted, however, that

> they didn't do it on the river. They took their goods and they ran to each other.
>
> Now, I'm a softie, I admit it. But if I had a choice between a boat ride going down river to take the stuff or running in July with a bale of wheat on my back, it would be a real quick pick for me, and they didn't do it.[19]

Mr. Gookin explained that the inability to navigate the Gila was not the result of an inability to fashion a canoe:

> Now, we know that the Pimas were technologically advanced for the time. You saw the picture of how the Sacaton Dam had washed out, the brush dam, and they were rebuilding. They knew how to work wood. They would cut the cottonwoods and they would stick them into the soil. They would take the mesquite trees and they'd cut the branches and they would interweave them to make the brush diversion dams.... They could -- they had wood available to build boats or rafts, they knew how to work with wood, and yet they didn't bother to make boats. To me, that tells me a lot.[20]

Consistent with the other lines of evidence, the reason that the Pimas and Maricopas ran along the river towards each other to trade goods is that the Gila River was not susceptible to navigation in its natural and ordinary condition.

---

from the New Mexico Border to the Confluence with the Colorado River, dated January 27, 2009, at 57.

[18] 11/16/05 Trans. 223:20 – 224:14 (Gookin).

[19] 11/16/05 Trans. 226:18 – 228:2 (Gookin).

[20] 11/16/05 Trans. 226:18 – 228:2 (Gookin).

2. There Are A Mere Four Historic Accounts Of Boating Along The Upper Gila River.

Mr. Burtell compiled information concerning the only four historic accounts of boating the Upper Gila in Table 15 to his Declaration.[21] The 1869 account involved the use of a raft to cross the river, not to navigate up or down the river. The 1886 account involved the use of a dugout canoe that ultimately capsized. Similarly, the 1891 account involved a capsizing event in February floodwaters, and the final account, from 1895, resulted in a capsized flat-bottomed craft downstream of San Carlos. The lack of success met by these few attempts speaks to the reason why there were not more attempts to navigate the Upper Gila River: it was not susceptible to use as a highway of commerce, even using a canoe or a flat-bottomed craft.

This non-susceptibility to navigation is highlighted by another failed attempt to boat the Upper Gila. Several 49ers were traveling along the Upper Gila in July, and a member of the party, David C. Buchanan, was accidentally shot in the leg. According to the account, "[s]everal plans were suggested to carry Buchanan on," and, eventually, "[t]hey *built a raft* for Buchanan, *but it was not practicable. The river was too low and too many rapids.* About dark, a party went up the river to meet the raft. They found the raft three miles up the river. They came in camp at 10:00 at night. They brought Buchanan on the litter, nine miles to where timber could be had. *He was carried by men.*"[22]

If there ever was a need to use the Upper Gila for purposes of transporting a person, it was a time when a man had been shot and needed to get downstream to receive appropriate medical attention. Yet it was not possible to use even a flat-bottomed raft to boat the Gila, and Mr. Buchanan had to be carried out by his party.

---

[21] There was some insinuation during the hearing that perhaps James Ohio Pattie and Stanley Sykes also boated the Upper Gila. Pattie's memoirs are clear that when his party constructed eight canoes, they had already reached the Colorado River. There is no indication in his memoirs that he ever boated in the Upper Gila. Likewise, the record is clear that Sykes began his trip in Phoenix, bypassing the Upper Gila completely. *See, e.g.*, 6/20/14 Trans. 1132:23 – 1138:2 (Burtell); 6/17/14 Trans. 335:8 – 338:23 (Fuller).

[22] 6/20/14 Trans. 1138:21 – 1143:17 (Burtell) (quoting Chapter 9 of Gila Trails, Item No. X016, Freeport 7).

C. The Upper Gila Was Unable To Meet Significant Needs For Commercial Navigation During Early Settlement Of The Watershed.

While the absence of commercial navigation is not dispositive "where conditions of exploration and settlement explain the infrequency or limited nature of such use," *United States v. Utah*, 283 U.S. 64, 82, 51 S. Ct. 438, 443 (1931), there were clear needs to use the Upper Gila as a highway for commerce – if it had been viable for such purposes – in the early years of settlement before diversions had any meaningful impact on the river. As Mr. Burtell describes in his Declaration, the first non-Indian settlers in the Upper Gila River watershed were miners and the military.[23] These settlers were engaged in activities that required the transport of supplies and goods, and, in the unsettled west, they had to make good use of the best available transportation resources. Several Post Offices were also established in the watershed during this same period. Despite these various needs for transportation of goods and people, these early settlers did not use the Upper Gila for such purposes.

Contrary to Mr. Fuller's argument that shipping supplies by wagon was preferable to using a river,[24] overland transportation was much more expensive and time consuming than commercial navigation. For instance, shipping ore by watercraft from Yuma – *all the way to San Francisco* – offset only a small fraction of the $300 in gross profits per ton. In contrast, the exorbitant cost of shipping the ore by wagon between Ajo and Yuma consumed nearly 50% of the value of the ore.[25] The absence of commercial navigation, despite the need for a more economically viable form of transportation, is telling. Indeed, the fact that none of the mines, military installations, or Post Offices availed themselves of the Gila River to transport either goods or people is perhaps the most compelling evidence available to the Commission.

---

[23] Declaration ¶ 40.

[24] 6/17/14 Trans. 313:13-22 (Fuller).

[25] Affidavit of Richard E. Lingenfelter ¶ 24, Item No. X008, Freeport 3; 6/20/14 Trans. 1071:11 – 1072:6 (Burtell) (noting that Mr. Fuller's argument that overland travel was preferable "doesn't seem consistent with my understanding of how the West was settled").

1. Fort Goodwin.

The United States Union Army established Fort Goodwin near the Upper Gila in the Safford Valley in 1864. Fort Thomas was established nearby twelve years later. The military needed a way to get supplies from San Francisco to these installations along the Upper Gila. The need for supplies was significant: Fort Goodwin was integral to the military efforts against Apaches, and it also was responsible for supplying rations to several hundred Indians who were encamped at Fort Goodwin.[26]

Supplies were sent by watercraft from San Francisco to Yuma. However, rather than transporting the supplies using the Gila River, the military transported them overland by wagon. This is not because transportation overland by wagon was preferable to navigating the Gila, it is because the latter was not a viable option. General Mason described the transportation difficulties as follows in 1866:

> The vessel brought [the supplies for Fort Goodwin] to Fort Yuma, and we were compelled to haul them from there to their destination. Much difficulty and delay was experienced on account of the very limited amount of transportation in the Territory... Already we have near nine hundred Indians on the reservation at Fort Goodwin, and they are reported as coming in daily.[27]

Three years later, General Ord described the difficulty and expense associated with transportation by land as follows:

> ...expenditures [by the Department of California] are principally due to the cost of transporting supplies. The expense of supplying rations at Camp Goodwin, one of the posts in Arizona, and of feeding animals there, can be compared with similar expenses in San Francisco, when it is known that a barrel of good flour is bought in San Francisco for the army for from $4 to $5 in gold; and *it has heretofore cost, to take two hundred pounds of freight to Camp Goodwin, in Arizona, about $30 in gold, going by land from Yuma Depot.* A barrel of flour purchased in Arizona costs, delivered at Camp Goodwin, about $25 in gold; so that *it has cost the government purchasing supplies there or thereabout five or six times as much to feed the soldiers there as here...*[28]

There is a complete absence of any evidence that the military used the Gila River to supply its installations along the Upper Gila. If the Gila had been a viable mode of

---

[26] Declaration ¶¶ 41-42.
[27] Declaration ¶ 42.
[28] Declaration ¶ 43.

transportation for supplying these installations, the military would have made well-documented use of the opportunity to save time and money by navigating the Gila.

2. Clifton-Morenci Mining District.

The Clifton-Morenci Mining District was established in the early 1870s. By 1875 a smelter was processing ore in Clifton fueled by charcoal.[29] One of the smelter's owners described in 1877 for The Arizona Citizen the process of transporting charcoal and other supplies to Clifton as follows:

> The fuel used for smelting purposes is charcoal, this we buy from a hundred different persons; men who have a wagon or two bring it to us... A great portion is brought from Pueblo Viejo [present day Solomonville], there the people burn the mesquite growing on their own lands... People on the Gila who have taken up farms clear the land of mesquite roots, make coal and bring it to us... We made roads to Pueblo Viejo, built a bridge across the Gila, and through our own energy in opening up the county the Gila has been settled for fifty miles... It is thus that several hundred people make their living through these works. They bring grain, vegetables, meat and all other necessaries of life and business. The farmers on the Gila and Pueblo Viejo find here a ready market for their produce.[30]

Notably, while there is a description of the construction of a bridge to cross the Upper Gila, there is no mention, or any other evidence, of use of the Gila as a highway of commerce to supply the mine.

Also in 1877, The Arizona Citizen published the following description concerning the two ways to reach Clifton, neither of which involved navigation of the Gila:

> There are two ways to get to Clifton. You can go via Bowie to Silver City (New Mexico) and thence northwest to Clifton, or you can go to Camp Grant and thence via Pueblo Viejo and the Pinal road to its junction with the Silver City road and turn northwest to Clifton. The latter is the route for one to take going from Tucson...we left Silver City...and after crossing the Gila nine times on the route, we left the river and ascended the hills [to Clifton]...[31]

The history of this road built to haul charcoal was described further in a book titled *From Banking to Charcoal*, which was written by Elizabeth Ramenofsky, the granddaughter of Isadore Solomon, who was instrumental to the settlement of Solomonville and the

---

[29] Declaration ¶ 47.
[30] Declaration ¶ 48.
[31] Declaration ¶ 49.

Safford Valley more generally. Mr. Solomon was a renowned entrepreneur, and he recognized and seized upon the opportunities associated with the demand for charcoal at the smelter. As his granddaughter recounts, he was responsible for building the first road between the Safford Valley and the mines in Clifton. This road was used not merely to supply charcoal, but also to transport produce and other supplies to the mines and miners in Clifton.[32]

From Banking to Charcoal provides a detailed history of these early settlements in the Upper Gila River Watershed, and about the transportation of various supplies to the mines in Clifton. Notable by its absence, however, is any mention of navigation of the Gila, for purposes of supplying the mines or otherwise.[33]

Mining operations were also established during this same period in Morenci, which is nearby Clifton. The Detroit Copper Company owned the first mines in Morenci, and the owners of this company were experienced steamboat captains. These entrepreneurs and boatmen would have been as capable as anyone of making viable commercial use of a stream that was susceptible to use as a highway for commerce. Yet there is a complete absence of any record of any use of the Gila River for purposes of facilitating any of the transportation needs associated with these or any other mines.[34]

Mr. Fuller's assertions notwithstanding, the wagon roads to the mines were an unsatisfactory means of transportation for products needed at the mines. The mines yearned for a more economically viable source of transportation and, unable to navigate the Gila River, the demand for more efficient transportation ultimately resulted in the construction of a railroad. When the railroad was established several years later, it closely followed the Upper Gila River for nearly 25 miles. The fact that the mines did not, at a minimum, make use of this 25 mile stretch of the river in the years prior to introduction of the railroad is

---

[32] 6/20/14 Trans. 1074:17 – 1077:5 (Burtell) (discussing *From Banking to Charcoal*, Item No. X024, Freeport 11).

[33] 6/20/14 Trans. 1074:17 – 1077:5 (Burtell) (discussing *From Banking to Charcoal*, Item No. X024, Freeport 11).

[34] 6/20/14 Trans. 1078:15 – 1079:8 (Burtell).

another line of convincing evidence that the Upper Gila was not susceptible to use as a highway for commerce.[35]

In summary, the 1870s were a time before significant agricultural diversions had been established, and yet, despite the existence of burgeoning mining operations operated and supplied by renowned entrepreneurs who would have utilized the cheaper and more expedient transportation of a navigable stream had it been available, the mines used overland travel only. The only plausible explanation, which falls right in line with the other available lines of evidence, is that the Upper Gila was not susceptible for use as a highway for commerce.

3. Post Offices.

Post Offices were also established in this same timeframe of early settlement. For instance, a Post Office was established in Clifton, Arizona in 1875, and Post Offices were also established in Safford and Solomonville. Once again, despite having a need to transport and deliver mail in the area, there is no evidence that the Upper Gila was ever used for that purpose.[36]

The existence of Post Offices in this timeframe is important for the independent reason that it undermines Mr. Fuller's argument that there was an insufficient population to warrant commercial use of the river in this timeframe.[37] Population centers had developed by this time, or there would have been no need to establish these Post Offices.[38]

D. Government Assessments Indicate That The Upper Gila Was Not Navigable.

From 1850 to 1853, John Bartlett of the U.S. Army Corps of Topographic Engineers worked on surveys of the Gila River, which at the time was considered the boundary between the United States and Mexico in accordance with the Treaty of Guadalupe Hidalgo. Describing the non-navigability of the Gila River, Mr. Bartlett noted that "[i]t is doubtful

[35] Declaration ¶ 52.
[36] 6/20/14 Trans. 1072:7 – 1073:7 (Burtell).
[37] 6/17/14 Trans. 309:3 – 310:14 (Fuller).
[38] 6/20/14 Trans. 1072:7 – 1073:7 (Burtell).

whether [the Gila] can ever be navigated, except at its floods, and these are by no means regular. At such times flat-bottomed boats might pass to the mouth of the [Salt River], near the Pima Villages."[39] Mr. Bartlett's observations were made during a very early period prior to any meaningful diversions.

A few years later, in a December 1865 memorial, the legislature of the Arizona Territory sought an appropriation from Congress to improve the navigability of the Colorado River. The legislature provided that

> ***the Colorado River is the only navigable water in this Territory***; that it is navigable, in high stages of water, five hundred miles; that by the expenditure of a small amount of money, it may be rendered navigable much higher up. That portion of the river between Fort Yuma and Fort Mohave has a changeable channel and is obstructed by boulders, snags, and sand bars rendering the navigation difficult and dangerous; that the removal of said obstructions would greatly facilitate the navigation of this part of the river...that if navigation of said river is improved it will accommodate the General Government and greatly increase and hasten the development of vast mineral other resources of this Territory.[40]

While notably omitting the Gila River from its enumeration of the lone navigable river in Arizona, the legislature also expressly recognized that the availability of commercial navigation is a material benefit to mining operations and the development of other resources, again undermining Mr. Fuller's contention that wagon roads were the preferred mode of transportation. It is an implausible contention that the Upper Gila was susceptible to commercial navigation but was nevertheless disregarded in favor of wagon roads.

In the years that followed before irrigation diversions were significant, the General Land Office completed several cadastral surveys along the Upper Gila River, first in the Safford Valley in 1875, and then in the Duncan Valley in 1882. At that time, surveyors were instructed to meander both banks of a stream that they considered to be navigable. The surveyors did not meander both banks of the Gila on any of these surveys in the Upper Gila River Watershed, consistent with the several other lines of evidence that demonstrate

[39] Fuller's 2003 Upper Gila Report at 3-14; Declaration ¶ 54.
[40] Declaration ¶ 55.

that the Upper Gila was not navigable in its ordinary and natural condition.[41]

E. Stream Flow Records Demonstrate that the Upper Gila was Non-Navigable.

Mr. Burtell also reconstructed flows to reflect the Upper Gila's natural condition by adjusting USGS gage data to account for upstream diversions. Mr. Burtell's results are consistent with the historic accounts of stream conditions and the other lines of evidence that reveal a stream that was not susceptible to commercial navigation.

Mr. Burtell made use of gage data from several gages in the Upper Gila River Watershed, taking care to select a time of ordinary precipitation and prior to impacts from groundwater pumping,[42] and he reconstructed flows by accounting for the upstream diversions and adding that water back into the stream.

The results of Mr. Burtell's reconstruction are set forth in Table 10 to his Declaration. In summarizing his results, Mr. Burtell determined

> that undepleted flows along the Upper Gila River typically had a mean depth of less than 2.0 feet and average velocities greater than 1.5 feet per second. Flows were generally deeper and/or velocities were greater during the spring snowmelt and summer monsoon, but even at those times, flow depths at most points typically remained less than 2 feet. Such stream depths would not have supported commercial boat travel in light of prior court decisions (e.g. *United States v. Utah*...) and certain navigability guidelines ....[43]

It is important to recognize that, rather than concocting an aggressive advocate position, Mr. Burtell was *extremely* conservative in his approach to calculating depths. As he explained, his reconstructed flows and depths "are overestimates or at least are at the highest level of what could reasonably have occurred based on the data that I looked at."[44] Accordingly, Mr. Burtell included "less than" symbols ("<") to denote that the actual depths were less than the conservative calculations.

Notably, during the hearing, no expert expressed any criticisms of Mr. Burtell's stream flow reconstruction. Another hydrologist opined during the hearing that Mr.

---

[41] Declaration ¶¶ 56-57.
[42] 6/20/14 Trans. 1107:25 – 1108:12 (Burtell).
[43] Declaration ¶ 81.
[44] 6/20/14 Trans. 1098:20 – 1099:8 (Burtell).

Burtell's approach was indeed conservative,[45] and Mr. Fuller even incorporated Mr. Burtell's depth reconstructions into his PowerPoint presentation to the Commission.[46]

The first layer of Mr. Burtell's conservatism is that he did not account for return flows or spill water. The diversions in the Upper Gila that impacted the gage data were predominantly for agricultural irrigation. The nature of this water use is that a significant portion of these diversions are not consumptively used; instead, a significant quantity of the water returns to the river through return flows or spill water. Estimates range from 30%-40% and higher for the percentage of water diverted for agricultural use that returns to the river. By not accounting for these significant return flows, Mr. Burtell essentially double counted these flows in way that resulted in increased calculated flows and depths. In effect, these return flows were both measured by the downstream gages and also accounted for a second time when Mr. Burtell added the upstream diversions back into the river in his reconstruction.[47]

Second, Mr. Burtell added all of the diversions back into the stream at the gage site without reducing the quantities to account for evapotranspiration that would have occurred as the water travelled through the streambed if it had not been diverted upstream. As Mr. Burtell described it, "I don't give the water that I'm putting back into the river any opportunity to get lost by plants along its way back down to the gage."[48]

Third, Mr. Burtell did not use the "best fit lines" from his hydraulic rating curves included as Attachment E to his Declaration, which would have resulted in lower calculated stream depths. Instead, Mr. Burtell used the upper end of the USGS data to arrive at conservative figures that are greater than the actual depths would have been. In fact, had Mr. Burtell used the best fit line as others have done, his depth figures would have typically

---

[45] *See* 8/19/14 Trans. 1703:24 – 1704:15 and 1742:1-15 (Mussetter).

[46] Notably, Mr. Fuller initially incorporated Mr. Burtell's reconstructed depths in his presentation without including the "less than" indicator that Mr. Burtell included with his depths to denote the fact that they are conservative, maximum values. 6/17/14 Trans. 342:1 – 343:13 (Fuller).

[47] 6/20/14 Trans. 1102:4 – 1103:21 (Burtell).

[48] 6/20/14 Trans. 1104:7-18 (Burtell).

been reduced by about half a foot.[49]

Fourth, by relying on USGS gage data, Mr. Burtell intrinsically overestimates the typical depth for the Upper Gila River because gage locations tend to be deeper than other locations along a stream. USGS gage locations are selected in areas that will facilitate development of stable rating curves, and this means that the USGS seeks out less dynamic locations that tend to be narrower and deeper than other locations along a stream.[50]

Taking his extremely conservative depth figures and applying them to Supreme Court precedent, Mr. Burtell concluded that, consistent with the other lines of evidence, the Upper Gila was not susceptible to navigation as a highway for commerce. In the United States' seminal decision in the *Utah* case, the San Juan River was determined to be *non-navigable* with depths between one and three feet "for 219 days" each year, and for the other "146 days a depth of over three feet."[51] Even in the context of extremely conservative flow reconstructions, the Gila River was a minor stream in its ordinary and natural condition, particularly in comparison to the much larger San Juan that was deemed non-navigable by the United States Supreme Court.

F. At Statehood the Upper Gila River Had a Braided Channel in the Safford Valley and the Duncan Valley.

The foregoing evidence of non-navigability comes primarily from time periods when the Gila River consisted largely of a single meandering channel. At statehood, the Gila River was actually even less susceptible to navigation as a highway for commerce. It is well documented that, at the time of statehood, the Gila River was significantly braided as it passed through the Safford Valley. This was the result of large flooding in the early 1900s that caused the channel to widen and spread-out across the alluvial valley. The evidence also indicates that, although the impacts were likely not as dramatic, this flooding also

[49] 6/20/14 Trans. 1114:4 – 1120:19 (Burtell).

[50] 8/19/14 Trans. 1703:24 – 1704:15 and 1742:1-15 (Mussetter).

[51] 1930 Special Master's Report, Item No. X016, Freeport 9, at pp. 167; *see also id.* at 169 ("there is a depth of no more than 2 feet" five months per year and "at other times there are places where the depth is less than 2 feet..."), and 180 ("The evidence as to depth makes it clear that boats with a draft of two feet could navigate not more than half the year...").

caused widening and braiding in the Duncan Valley. The river likely did not widen and braid to the same extent through Gila Box due to the more confined bedrock setting.[52]

In the context of a shallow desert stream like the Gila, braided channels typically make an already shallow stream even shallower.[53] This concept is easy to visualize. When a shallow stream with modest discharge has its flow split among multiple channels, the result is significantly reduced stream depth. Even modern recreational kayakers have difficulty when a stream is split among multiple channels and the depths are reduced.[54]

Contrary to the arguments presented by Mr. Fuller, the Gila River does not uniformly maintain a single low flow channel when the stream is in a braided condition. Mr. Burtell identified field measurement records from the USGS that demonstrate that the Upper Gila frequently had multiple flowing channels through the Duncan Valley and the Safford Valley. This remained true even decades after the flooding and braiding took place, during a time when the river was in the process of transitioning back to a single meandering channel.[55] This is based, not on hypothesis or supposition, but on actual field observation of multiple flowing channels by the USGS. Aerial photographs from 1935 and 1937 also show that the river remained divided among multiple flowing channels through the Duncan Valley and, in particular, the Safford Valley.[56]

Braiding is a natural condition of the Gila River. Going back hundreds or even thousands of years, the Gila has a long history of alternating between cycles of channel braiding followed by cycles of single channel conditions.[57] When significant portions of the Gila River developed braided channels in the early 1900s, it was not the result of man, but

---

[52] Declaration ¶¶ 18-27.

[53] Proponents of navigability have at times attempted to use large rivers such as the Mississippi River to argue by analogy that braiding is not an impediment to navigation. *See, e.g.*, 6/17/14 Trans. 384:10 – 386:2. This analogy breaks down before it ever gets started because the Gila River's low discharge and shallow depths contrast so greatly from the flows and depths of the Mississippi or other significant rivers.

[54] 6/20/14 Trans. 1053:19 – 1056:20 (Burtell).

[55] 6/20/14 Trans. 1053:19 – 1054:16 (Burtell).

[56] Soil Conservation Photos Index Map and Aerial Photographs of the Gila River, Item No. X027, Freeport 12.

[57] 6/20/14 Trans. 1057:2 – 1058:19 (Burtell).

of significant flooding that is an intrinsic component of the river's natural condition.[58] As Dr. Huckleberry testified on behalf of the ASLD in 2005, "in terms of the overall geometry of the floodplain, and particularly the flood channels, it's the floods that have the greatest impact."[59]

Accordingly, at the time of statehood, the river's natural condition consisted of braiding and multiple flowing channels in many locations. This channel braiding posed a significant obstacle to navigation in the context of the other natural characteristics of the Gila River. The Gila simply has too little discharge and too little depth in its ordinary and natural condition to have been susceptible to use as a highway for commerce, and the braided conditions at statehood only served to render the river less susceptible to navigation.

IV. THE EVIDENCE PRESENTED TO THE COMMISSION DEMONSTRATES THAT NO SEGMENT OF THE GILA RIVER WAS SUSCEPTIBLE TO NAVIGATION IN ITS NATURAL AND ORDINARY CONDITION.

A. Dr. Lingenfelter's Research Demonstrates That The Gila River Was Not Susceptible To Use As A Highway of Commerce In Its Natural And Ordinary Condition.

As Mr. Fuller recognized in one of his reports presented to the Commission, Dr. Richard E. Lingenfelter is responsible for one of the two seminal works on historic boating in Arizona, *Steamboats on the Colorado River, 1852-1916.*[60] Dr. Lingenfelter also recently completed a six-year study of the economic history of metal mining in the American West, which included historical research concerning major copper mines at Ajo and Clifton-Morenci in Arizona.[61]

Drawing upon his depth of experience as a researcher and historian in these areas, Freeport retained Dr. Lingenfelter "to provide an affidavit concerning the history of navigation in Arizona and regarding whether the Gila River was navigable or susceptible to

---

[58] 6/20/14 Trans. 1057:2 – 1058:19 (Burtell).

[59] 11/16/05 Trans. 94:22 – 95:11 (Huckleberry).

[60] 1998 Final Report, Criteria for Assessing Characteristics of Navigability for Small Watercourses in Arizona, Item No. X016, Freeport 8, at B-1 p. 1. *Steamboats on the Colorado River, 1852-1916* is Item No. X028, Freeport 13.

[61] Affidavit ¶ 13.

navigation in its ordinary and natural condition at and prior to statehood."[62] In his Affidavit, Dr. Lingenfelter provides an overview of the rise of the commercial boating industry in the latter half of the 1800s, and its intrinsic connection to the mining operations that were established in this same time period.

Despite this rich history of commercial navigation, Dr. Lingenfelter recounts "that there was no historical record whatever of any commercial navigation on the Gila River, except for occasional excursions on the first few miles up the Gila from its junction with the Colorado."[63] Even these excursions, which were limited to the first five or six miles of the Gila upstream of its confluence with the Colorado,[64] occurred only sporadically during times of high water, and for recreational purposes.[65]

Dr. Lingenfelter opines that, if the Gila River had been susceptible to use for commercial navigation, it would have been navigated. The absence of commercial navigation "was not for lack of demand or imagination."[66] Indeed, when the gold rush reached Arizona, the Gila Mining and Transportation Company in San Francisco transported a small, disassembled steamer to attempt to make use of the Gila River. However, the small steamer "promptly struck a sand bar, bilged and sank, 'a total loss in less than half an hour.'"[67]

Dr. Lingenfelter recounts that this was the first and last attempt to use a steamer on the Gila River.[68] The idea was briefly revisited by Samuel "Steamboat" Adams, but he

---

[62] Affidavit ¶ 2.
[63] Affidavit ¶ 11.
[64] Dr. Lingenfelter notes that the "Commission determined in its 2009 report concerning the Gila River that at least 2.5 miles of this portion consists of the ordinary high water mark of the Colorado River." Affidavit ¶ 16 (citing Report, Findings and Determination Regarding the Navigability of the Gila River from the New Mexico Border to the Confluence with the Colorado River, pp. 80-82).
[65] Affidavit ¶¶ 11, 16, 18, 31. *See, also,* 1998 Final Report, Criteria for Assessing Characteristics of Navigability for Small Watercourses in Arizona, Item No. X016, Freeport 8, at p. 24 (recounting that these excursions were only made "during the high water months of spring and early summer) (citing ***Steamboats on the Colorado River, 1852-1916***).
[66] Affidavit ¶ 19.
[67] Affidavit ¶ 19.
[68] Affidavit ¶ 19.

decided against it "after concluding, it was said, that the only way to do it was in '*steam boats with big broad wheels* something on the order of our present traction engine wheels, and when there was water they were to act as water wheels and in places where the river sank they were *to carry the boat over dry [land]*'!"[69]

The demand for commercial navigation was not limited to the gold rush period. Dr. Lingenfelter's research concerning the mines at Ajo and Clifton-Morenci revealed that "the early operators of these mines were constantly looking for cheaper transportation, either by river or by rail."[70] As referenced above in Section III.C., the cost of overland shipping was eliminating the mines' profit margins. Dr. Lingenfelter's research revealed that the Ajo mine could have cut shipping costs by two-thirds if it could have rafted the ore down the Gila, but unfortunately this was not possible. Eventually, the inability to reduce shipping costs led to closure of the mine.[71]

The inability to make use of the Gila also impeded the operation of the Clifton-Morenci mines:

> These mines were opened in 1872 by the Detroit Copper Company, owned and managed by some wealthy Michigan steamboat captains. But even they failed to find any way to successfully navigate the Gila, instead of paying as much as $240 a ton hauling crude copper matte by road to the nearest railhead at Trinidad Colorado, before the Southern Pacific railroad finally reached eastern Arizona in 1881....
>
> Clearly these mining entrepreneurs would have eagerly undertaken navigation of the Gila if it had been at all possible. The failure of anyone to do so was not for lack [of] demand, but for lack of sufficient water. The Gila River was simply not susceptible to commercial navigation.[72]

Dr. Lingenfelter's work confirms all of the other evidence that demonstrates so strongly that the Gila River was not susceptible to use as a highway for commerce. If it had been susceptible, the entrepreneurial spirit that permeated throughout the region in the second half of the 1800s would have found a way to put the river to commercial use.

---

[69] Affidavit ¶ 20.
[70] Affidavit ¶ 23.
[71] Affidavit ¶ 25.
[72] Affidavit ¶¶ 26, 27.

B. Freeport Incorporates The Discussion Of Additional Evidence Of Non-Navigability.

The proponents of navigability have failed to demonstrate that any segment of the Gila River is navigable. To the contrary, the evidence submitted to the Commission demonstrates that the Gila River was a shallow stream throughout its entire reach and that, despite centuries of inhabitance by Native Americans and strong needs for commercial navigation during early settlement of the Gila River Valley, the Gila River was not used as a highway of commerce. To avoid duplication and to minimize briefing, Freeport incorporates the discussions of additional evidence of the non-navigability of the Gila River included in the opening briefs to be filed concurrently by the Gila River Indian Community, the Salt River Project, and the San Carlos Apache Tribe.

V. THE NAVIGABILITY PROPONENTS' ERR AS A MATTER OF LAW IN THEIR RELIANCE UPON MODERN RECREATIONAL CRAFT AND MODERN RECREATIONAL BOATING.

During the 2014 proceedings on remand, two witnesses were called by proponents of navigability, J.E. Fuller and Donald D. Farmer. Both were called by the ASLD. Hjalmar W. Hjalmarson testified for Maricopa County in 2005, but, while he attended the proceedings on remand, Maricopa County did not call Mr. Hjalmarson to testify in 2014.

Each of these witnesses rendered opinions based upon an erroneous standard. As briefly excerpted below, each evaluated navigability from the perspective of the ability to float a modern recreational craft, rather than on the Gila River's susceptibility to use as a highway for commerce. These witnesses based their opinions on recreational boating standards, known as the Hyra method, which were developed by the U.S. Fish & Wildlife Service in 1978, and/or upon personal recreational experiences with modern recreational craft, such as fiberglass kayaks and polyethylene canoes.

Using his erroneous standard, in 2005 Mr. Hjalmarson contended that any stream with a maximum depth of one foot for most of the year is navigable. J.E. Fuller and the ASLD go even further than Mr. Hjalmarson, taking the position that any stream that is six

inches deep is navigable for purposes of title.[73] Mr. Farmer seems to suggest that the threshold for navigability is even shallower than six inches.

Mr. Fuller

> **I'm using for the purposes of my testimony 6 inches as a minimum flow.** I personally have boated in depths that are less than that. But again, in my mind, 6 inches is a nice minimum one, because our streams generally had depths -- well, the Gila River had depths greater than 6 inches always except during the most extreme drought over the length of the river, and **at less than 6 inches, it becomes a little less fun to paddle**.[74]
>
> * * *
>
> When it comes to susceptibility, it's really all about the depth.[75] **If it's deep enough to float a boat, it's susceptible to navigation**....
>
> * * *
>
> [The Hyra method][76] shows that for a canoe or a kayak, a half foot depth is the minimum recommended. Rafts, drift boats, rowboats -- and I would include flatboats in that category -- is a foot.... And these are a standard that I used in making my determination that the Gila River is a navigable stream.[77]

Mr. Farmer

> Q. And what was the depth?
>
> A. The flow was 50 CFS and **it was running pretty much six inches.**
>
> Q. And which one of your canoes did you take on that trip?
>
> A. I was in the Discovery, the 16-foot [polyethylene canoe].
>
> Q. So based on that experience, do you feel that any stream or creek that has six inches is good enough for you to get up and down in a recreational boat?
>
> A. I would boat -- I would without hesitation boat in **less water than that in a canoe.**
>
> Q. *And you would deem that to be navigable*?

---

[73] During cross-examination, Mr. Fuller acknowledged an inconsistency in the positions taken by his client, the ASLD. While ostensibly advocating for a six inch navigability standard in these proceedings, the ASLD chose to not assert that the San Francisco was navigable in its natural and ordinary condition, despite Mr. Fuller reporting depths of one foot and recommending to the ASLD that the stream should be deemed navigable because it is at times floated by recreational canoeists. 6/17/14 Trans. 282:3 – 285:4 (Fuller).

[74] 6/16/14 Trans. 42:5-17 (Fuller).

[75] 6/16/14 Trans. 61:14-15 (Fuller.

[76] Mr. Fuller referred to Hyra, R., 1978, Methods of assessing instream flows for recreation: Instream Flow Information Paper No. 6, U. S. Fish and Wildlife Service and others (Hyra method). This is the same recreational boating standard that Mr. Hjalmarson relied upon in rendering his opinions concerning the San Pedro, the Santa Cruz, and the Gila.

[77] 6/16/14 Trans. 63:2-11 (Fuller).

A. **Yes.**[78]

Mr. Hjalmarson[79]

> **Was the Gila River navigable**? Okay. I used three independent federal methods. The first is a Bureau of Outdoor Recreation [*i.e.*, the Hyra method]. **There is a very simple method that basically says that if you have a minimum depth of 1 foot** and a minimum depth [sic] of 6 foot, **for recreational craft you can use it.** We have a minimum depth of about a foot and a half during the low base flow and on up well above 1 foot, and the width is generally more than 150 feet. So easily, **easily pass that test. Okay.**[80]

These witnesses each base their opinions of susceptibility to navigation on the ability to float modern recreational craft, as opposed to "the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood." *PPL Montana v. Montana*, 132 S.Ct. 1215, 1233 (2012).

Of course, *The Daniel Ball* test does not turn on whether the river has enough water to float a modern recreational canoe. The navigability proponents' recreational standard for navigability for title runs directly afoul of binding United States Supreme Court precedent, including the recent decision in *PPL Montana* in which the Court unanimously rejected the idea that evidence of modern recreational boating is sufficient to demonstrate navigability. 132 S. Ct. at 1234 (holding that "**present day recreational use of the river did not bear on navigability,**" and that "**reliance upon** the State's **evidence of present-day, recreational use**, at least without further inquiry, **was wrong as a matter of law.**"). The Supreme Court expressly stated that it is evidence of susceptibility to *commercial* use that must be considered in evaluating navigability. *Id.* at 1233 (holding that "**evidence must be confined to that which shows the river could sustain the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood.**"). In sum, the inquiry is whether the Gila River was susceptible in its ordinary and natural condition to use as a highway of commerce, not whether a modern, light-weight recreational craft can be floated on six inches

---

[78] 6/18/14 Trans. 594:7 – 595:6 (Farmer).

[79] Mr. Hjalmarson presented no evidence and offered no opinions concerning the navigability of the Upper Gila River or any other portion of the Gila River upstream of the confluence with the Salt. 11/17/05 Trans. 286:25 – 287:4 (Hjalmarson).

[80] 11/17/05 Trans. 252:4-15 (Hjalmarson).

of water.

The navigability proponents fail in their efforts to relate modern recreational boating and modern recreational watercraft to the kinds of commercial activities and watercraft of 1912. For instance, as excerpted above, Mr. Farmer based his opinion about the minimum depth for navigation on his experience of floating in six inches of water in his Discovery canoe. Mr. Farmer's Discovery canoe is a modern recreational canoe made out of polyethylene, a modern, durable plastic.[81] Mr. Farmer of course acknowledged that he cannot contend that plastic recreational canoes were available when Arizona became a state in 1912.[82] Mr. Farmer also acknowledged that he has no experience using a wooden canoe or a dugout log in his recreational boating, and he has no experience with commercial navigation.[83]

The reality is that the modern recreational craft that Messrs. Fuller and Farmer personally enjoy recreating in at various depths, and which correspond to the Hyra method, bear little resemblance to the craft customarily used for commercial purposes at the time of Arizona's statehood. *PPL Montana*, 132 S.Ct. at 1234. While six inches to one foot of depth may be sufficient to float some modern recreational craft, those depths are insufficient for engaging in meaningful commerce using the watercraft commonly used for commercial purposes at statehood. This is established through the complete absence of any commercial use of the Gila River despite over a millennium of continual occupation by people reliant upon the river.

Modern recreational craft are also significantly more durable than the craft used in 1912. Mr. Gookin provides an example in his report, explaining that the strength of modern fiberglass is 30,000 pounds per square inch (psi), more than 30 times the strength of the cedar used for the canoes in the Sears catalog. This means that, in addition to requiring less water to float, a modern recreational craft can withstand impacts with rocks and boulders

[81] 6/18/14 Trans. 584:1-17 (Farmer).
[82] 6/18/14 Trans. 592:11-22 (Farmer).
[83] 6/18/14 Trans. 617:6-11 (Farmer).

much better than the canoes that were used at the time of statehood.[84]

Not only are these modern craft dissimilar to what was commonly used for trade and travel at statehood, but the modern recreational activity for which they are used is a recent phenomenon. In other words, recreational boating was not among the commercial uses that realistically might have occurred at statehood. *See PPL Montana*, 132 S. Ct. at 1233. As Mr. Fuller explained in his 1998 Final Report, Criteria for Assessing Characteristics of Navigability for Small Watercourses in Arizona, "rivers were not generally used for recreational travel until the development of new materials such as fiberglass and artificial rubber after World War II," and commercial recreational rafting, which did not begin until the 1930s, did not become common until the 1970s.[85] This timeline coincides with the development of the Hyra method in 1978.

Notably, the introduction of the types of modern, durable, low-draw recreational crafts that were not available at statehood was the primary driver behind the development of recreational boating well after statehood:

> The development of durable small boats – plastic, fiberglass and other modern types of canoes and kayaks, inflatable boats for single paddlers and for groups – all contributed to the rising popularity of river running in Arizona especially on rivers not previously considered boatable, or boatable only very rarely because of low water.[86]

The United States Supreme Court addressed this circumstance squarely in *PPL Montana*. In holding that the Montana Supreme Court erred in relying on evidence of modern recreational boating, the United States Supreme Court recognized, as did Mr. Fuller in his 1988 report, that "[m]odern recreational fishing boats, including inflatable rafts and lightweight canoes or kayaks, may be able to navigate water much more shallow or with rockier beds than the boats customarily used for trade and travel at statehood." *PPL Montana*, 132 S. Ct. at 1234.

---

[84] *See, e.g.*, Allen Gookin's Report on the Navigability of the Gila River, Item No. X009, Section V p. 14.

[85] Item No. X016, Freeport 8, pp. 32-33.

[86] 1998 Final Report, Criteria for Assessing Characteristics of Navigability for Small Watercourses in Arizona, Item No. X016, Freeport 8, pp. 32.

In sum, the navigability proponents' have erred as a matter of law by relying on modern recreation craft and modern recreational boating. They have applied an erroneous standard, and they have therefore failed to meet their burden of proof.

CONCLUSION

Not only have the ASLD, Maricopa County, and the Center failed to satisfy their burden of proof, but the overwhelming weight of the evidence clearly demonstrates that the Gila was neither navigable nor susceptible to navigation in its ordinary and natural condition at or before statehood. This is particularly true of the Upper Gila, which was ignored as a highway for commerce in its ordinary and natural condition despite the need for such a highway to supply military installations and mining operations and to transport mail. There were significant needs to use the river, and the fact that costly and time consuming overland travel was used instead confirms the other lines of evidence that demonstrate that the Upper Gila was a shallow stream not susceptible to commercial navigation in its ordinary and natural condition.

RESPECTFULLY SUBMITTED this 14th day of November, 2014.

SNELL & WILMER L.L.P.

L. William Staudenmaier
Attorneys for Freeport Minerals Corporation

FENNEMORE CRAIG, P.C.

By Sean Hood
Sean T. Hood
Attorneys for Freeport Minerals Corporation

MAILING CERTIFICATE

ORIGINAL AND SIX COPIES of the foregoing
sent via U.S. mail for filing this 14th day of November, 2014 to:

Arizona Navigable Stream Adjudication Commission
1700 West Washington, Room B-54
Phoenix, AZ 85007

COPY sent via e-mail this 14th day of November, 2014 to each party on the mailing list (see http://www.ansac.az.gov/parties.asp) for *In re Determination of Navigability of the Gila River*

By: Kathy Powers
9721801.1/028851.0233

EXHIBIT A

Arizona Navigable Stream Adjudication Commission
In re Determination of Navigability of the Gila River
(Case No. 03-007-NAV)

INDEX OF EXHIBITS SUBMITTED BY FREEPORT MINERALS CORPORATION AS OF AUGUST 12, 2014

Freeport 1	*Curriculum Vitae* of Rich Burtell
Freeport 2	Declaration of Rich Burtell on the Non-Navigability of the Upper Gila River at and Prior to Statehood, dated May 16, 2014, with attachments
Freeport 3	Affidavit of Richard E. Lingenfelter
Freeport 4	March and April Gila River Streamflows at USGS Gages Near Clifton and Solomon
Freeport 5	Hinton, The Handbook to Arizona
Freeport 6	Hodge, Arizona as It Is; or the Coming Country
Freeport 7	Excerpt of Chapter Nine, Gila Trail
Freeport 8	Final Report, Criteria for Assessing Characteristics of Navigability for Small Watercourses in Arizona
Freeport 9	1930 Special Master Report
Freeport 10	Transcripts of the hearings from *In re Determination of Navigability of the San Pedro River* held on June 7, 2013, August 1, 2013, and August 2, 2013
Freeport 11	Excerpt of Ramenofsky, From Charcoal to Banking
Freeport 12	Soil Conservation Photos Index Map and Aerial Photographs of the Gila River
Freeport 13	Lingenfelter, Steamboats on the Colorado River