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14 **BEFORE THE ARIZONA NAVIGABLE STREAM**  
15 **ADJUDICATION COMMISSION**

16  
17 IN RE: DETERMINATION OF  
18 NAVIGABILITY OF THE GILA  
RIVER

Case No. 03-007-NAV

19 **FREEPORT MINERALS**  
20 **CORPORATION'S RESPONSIVE**  
21 **POST-HEARING MEMORANDUM**  
22 **CONCERNING THE NON-**  
23 **NAVIGABILITY OF THE GILA**  
24 **RIVER**

1 INTRODUCTION

2 Freeport Minerals Corporation (Freeport) respectfully submits its Responsive Post-  
3 Hearing Memorandum Concerning the Non-Navigability of the Gila River. This  
4 memorandum is submitted in response to the memoranda submitted by the Arizona State  
5 Land Department (ASLD), Maricopa County and the Maricopa County Flood Control  
6 District (Maricopa County), and the Arizona Center for Law in the Public Interest (Center).

7 The navigability proponents' position is fundamentally flawed because they do not  
8 address the appropriate standard for navigability. As was the case in the proceedings  
9 concerning the San Pedro and the Santa Cruz, the navigability proponents attempt to rewrite  
10 *The Daniel Ball* test by striking out the "highway for commerce" component of the test. In  
11 its most recent and definitive treatment of the federal test for navigability for title, the  
12 Supreme Court expressly reaffirmed that it is evidence of susceptibility to commercial use  
13 that must be considered in evaluating navigability. *PPL Montana v. Montana*, 132 S.Ct.  
14 1215, 1233 (2012) (holding that "evidence must be confined to that which shows the river  
15 could sustain the kinds of commercial use that, as a realistic matter, might have occurred at  
16 the time of statehood.").

17 The proponents variously downplay or outright ignore *PPL Montana* while arguing  
18 that any stream with enough water to float a modern recreational canoe meets *The Daniel*  
19 *Ball* test. They rest their positions almost exclusively on modern recreational boating  
20 criteria, modern recreational craft made from light and durable materials that were  
21 unavailable in 1912, and instances of modern recreational boating, all while failing to  
22 address the fact that the Gila River was never used as a highway for commerce in its  
23 ordinary and natural condition despite significant needs.

24 These parties' reliance on water depths sufficient to float a modern recreational canoe  
25 is inconsistent with *PPL Montana*, and the evidence and testimony presented by Mr. Burtell  
26 and others demonstrate convincingly that the Gila River was not susceptible to navigation in  
27 its ordinary and natural condition at or before statehood.

1 **I. IN 2009 THE COMMISSION PROPERLY DETERMINED THAT THE GILA**  
2 **WAS NONNAVIGABLE BASED ON EVIDENCE OF THE GILA RIVER'S**  
3 **NATURAL AND ORDINARY CONDITION.**

4 The Commission's 2005 determination that the Lower Salt was nonnavigable was  
5 remanded for purposes of assessing the Lower Salt in its natural condition. *State ex rel.*  
6 *Winkleman v. Arizona Navigable Stream Adjudication Comm'n*, 224 Ariz. 230, 242 (App.  
7 2010). However, with respect to the Gila River, the Commission already applied the  
8 appropriate legal standard in determining that the Gila River was not navigable in its  
9 ordinary and natural condition at statehood. In its Report, Findings and Determination  
10 Regarding the Navigability of the Gila River from the New Mexico Border to the  
11 Confluence with the Colorado River, dated January 27, 2009 ("Report, Findings and  
12 Determination"), the Commission made very clear that it was evaluating the Gila not only in  
13 its ordinary condition, but also in its natural condition:

14 Under the statute, the Commission is charged with looking at the  
15 river in its ordinary and natural condition on the date of  
16 statehood. As of 1912, the waters in the Gila River and its  
17 subsidiaries, especially its major subsidiary, the Salt River, had  
18 been diverted for some time for use in agriculture ....  
19 *Accordingly, it is necessary to look back to a time prior to 1912*  
20 *to get a good idea of how the river flowed....*

21 The Commission did precisely that, and evaluated a vast array of evidence  
22 concerning the Gila in its natural condition prior to a time when agricultural diversions  
23 significantly depleted the river.<sup>2</sup> This evaluation is thoroughly documented in the  
24 Commission's Report, Findings and Determination.

25 The Commission's analysis covered evidence dating back to prehistoric times. The  
26 Commission described in great detail the various indigenous civilizations that inhabited the  
27 Gila River Valley for more than a millennium.<sup>3</sup> As the Commission recognized, these  
28 peoples were heavily reliant upon, and deeply connected to, the river, yet there is no

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<sup>1</sup> Report, Findings and Determination at p. 38. Unless otherwise noted, emphasis is added.

<sup>2</sup> See generally *id.* at pp. 21-59.

<sup>3</sup> See generally *id.* at pp. 23-29.

1 evidence that any of these civilizations ever boated the Gila River for any purpose.<sup>4</sup>

2 The Commission also recounted the early expeditions of Coronado, Kino, Onate,  
3 Escalante, Anza, Font, and others.<sup>5</sup> These missionaries and explorers left us with a rich  
4 history of their travels, exploration, and interactions with indigenous peoples, including  
5 various non-navigational uses of the river, yet none of their writings suggest that the Gila  
6 was ever boated or used for trade or travel of any kind.<sup>6</sup> Instead, travel occurred by horse,  
7 by mule, or on foot.<sup>7</sup>

8 The Commission recounted the military expeditions that followed, including those of  
9 Kearny and Cook.<sup>8</sup> The Commission noted the experience of one of Cook's officers, Lt.  
10 George Stoneman, who "was charged with attempting to bring all of the wagons and  
11 supplies down the Gila from Gila Bend to Yuma."<sup>9</sup> Lt. Stoneman built rafts that "did not  
12 work and were constantly running aground and had to be pushed by the soldiers to keep  
13 them going. Lt. Stoneman was ultimately forced to jettison a portion of the cargo and  
14 proceed on by horseback and mule."<sup>10</sup> The Commission concluded that the evidence from  
15 these military expeditions "demonstrates that the Gila River was not practical for  
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18 <sup>4</sup> See, e.g., *id.* at 57. Mr. Fuller conceded this point during the 2014 hearing, see, e.g.,  
19 6/17/14 Trans. 304:17 – 307:20 (Fuller), yet the ASLD now asserts that "the Gila was  
20 actually historically boated by Native Americans..." ASLD Closing Brief p. 11. The  
21 ASLD relies upon historic references to use of bullboats and the "River of Rafts" to support  
22 this contention, *id.*, which is surprising because during the 2014 hearing, Mr. Fuller had to  
23 concede that there is no evidence that bullboats were ever used on the Gila or that the River  
24 of Rafts was a reference to the Gila. 6/17/14 Trans. 276:3 – 279:3 (Fuller). Moreover, Mr.  
25 Fuller also conceded the "River of Rafts" moniker was a reference to the use of rafts to  
26 cross some river – again, we do not know which one – not to the use of rafts to travel up or  
27 down any river, the Gila or otherwise. *Id.*

28 <sup>5</sup> Report, Findings and Determination at pp. 30-32, 38-39.

<sup>6</sup> *Id.*

<sup>7</sup> *Id.* at p. 54.

<sup>8</sup> *Id.* at p. 33.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

1 navigation,”<sup>11</sup> and noted that the descriptions of the Gila in the first half of the 1800s “vary  
2 little from the accounts of anemic flow with occasional destructive flooding and spring  
3 freshets.”<sup>12</sup>

4 The second half of the 1800s ushered in an era of settlement, mining, surveying, and  
5 military activity.<sup>13</sup> Still, the Gila was largely ignored as a potential highway of commerce.  
6 The Commission noted that “[t]here are reports that some ... Forty-Niners attempted to float  
7 boats or rafts down the Gila to Yuma, but generally they were unsuccessful.”<sup>14</sup> Surveyors  
8 did not use the Gila as a means of transportation, and, indeed, Emory expressly opined that  
9 the Gila River was not navigable.<sup>15</sup> Joining Emory were Lt. Michler and Lt. Mowry,  
10 military observers who also expressly opined that the Gila was not navigable.<sup>16</sup> Throughout  
11 this period, travel typically occurred by horse, by mule, or on foot – not by boat.<sup>17</sup>

12 The Commission also considered the evidence presented concerning the survey  
13 manuals issued by the General Land Office (GLO) and the testimony of Dr. Littlefield,  
14 whom the Commission described as “an acknowledged expert on history of the American  
15 West....”<sup>18</sup> The Commission recognized that the survey manuals instructed “that a  
16 navigable stream was to be meandered on both banks and other notes were to be kept  
17 regarding the stream,” while “[n]onnavigable streams less than three chains in width were to  
18 be meandered on one bank only.”<sup>19</sup> Nine surveyors mapped relevant lands dating back to  
19 1867, and the Commission noted that all nine “found the Gila River to be nonnavigable.”<sup>20</sup>

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21 <sup>11</sup> *Id.*

22 <sup>12</sup> *Id.* at p. 39

23 <sup>13</sup> *Id.* at pp. 33-37, 39.

24 <sup>14</sup> *Id.* at p. 33.

25 <sup>15</sup> *Id.* at pp. 34, 39.

26 <sup>16</sup> *Id.* at pp. 40.

27 <sup>17</sup> *Id.* at p. 54.

28 <sup>18</sup> *Id.* at p. 45.

<sup>19</sup> *Id.* at pp. 45-46.

<sup>20</sup> *Id.* at p. 46.

1           The Commission used the Colorado River as a contrast from the Gila. “While the  
2 Colorado River was from the 1850’s to the early 1900’s a major corridor for water  
3 transportation as far as the Bill Williams River and perhaps even a little further north, there  
4 was no boat or water transportation available into the interior of Arizona.”<sup>21</sup> As the  
5 Commission determined based upon the vast historical evidence, “[a]lthough people have  
6 used the Gila Trail or the Gila Corridor for transportation across southern Arizona, it was  
7 done on land and the river was never a satisfactory highway for commerce or susceptible to  
8 being a highway for commerce.”<sup>22</sup>

9           The Commission considered the sporadic historic attempts to float the Gila, and  
10 found that the “incidents of boating or attempted boating were for recreational purposes and  
11 none of them, except the very earliest, during the Mexican-American War and the passage  
12 of the Forty-Niners had any commercial intent at all.”<sup>23</sup> The Commission also addressed the  
13 evidence of modern recreational boating. The Commission recognized that recreational  
14 boating is a modern phenomenon that proliferated after World War II once modern  
15 materials such as rubber and neoprene became available to the public.<sup>24</sup> The Commission  
16 made these findings relying, in part, on the testimony of Barbara Tellman, a member of J.E.  
17 Fuller’s team that worked on the reports for the ASLD.<sup>25</sup> These modern materials that were  
18 “not available in 1912 make the modern trips possible and enjoyable from a recreational  
19 point of view.”<sup>26</sup> While there are guides who will charge a fee, “[i]ndividuals who have the  
20 equipment can go on these float trips individually without paying a guide and a company to  
21 transport them. These float trips are strictly for recreational purposes to view the scenery  
22 and the wildlife, for the excitement of running rapids, if they are available, and possibly

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24 <sup>21</sup> *Id.* at p. 56.

25 <sup>22</sup> *Id.*

26 <sup>23</sup> *Id.* at p. 58.

27 <sup>24</sup> *Id.* at p. 59.

28 <sup>25</sup> *Id.* at p. 59.

<sup>26</sup> *Id.*

1 some fishing, but not for commercial purposes.”<sup>27</sup>

2 Having considered the voluminous evidence presented in the record, the Commission  
3 examined *The Daniel Ball* and many other import Equal Footing doctrine cases,<sup>28</sup> and  
4 concluded that the Gila River does not meet the federal test for navigability for title:

5 The only evidence submitted regarding boating on the Gila  
6 River is one of recreational use, whether personal or  
7 commercial, in order to view the scenery and wildlife, enjoy the  
8 excitement of white water rapid running and perhaps do some  
9 recreational fishing, in late winter and spring. These facts do not  
10 satisfy the federal test for navigability or susceptibility of  
11 navigability.<sup>29</sup>

12 Lest there be any doubt, the Commission rendered its determination based upon the natural  
13 condition of the river, concluding that the Gila “was not navigable or susceptible of  
14 navigability in 1860 and before, when white settlers began to divert water for  
15 irrigation....”<sup>30</sup>

16 **II. THE NAVIGABILITY PROPONENTS’ EVIDENCE IS INSUFFICIENT TO**  
17 **MEET ITS BURDEN TO PROVE THAT THE COMMISSION SHOULD**  
18 **REACH A DIFFERENT CONCLUSION THAN IT DID IN 2009.**

19 Five years and eight hearing days later, the navigability proponents have failed to  
20 approach meeting their burden to convince the Commission that it should reach a different  
21 conclusion than it did in 2009. Again, the fundamental error intrinsic to the navigability  
22 proponents’ position and arguments is that they apply an incorrect standard. The ASLD  
23 argues, for instance, that “[t]he United States Supreme Court has *liberally construed* what is  
24 sufficient for the highway for commerce component of *The Daniel Ball* test.” ASLD  
25 Closing Brief p. 10. The ALSD parrots this language from the Montana Supreme Court’s  
26 decision in *PPL Montana, LLC v. State*: “[t]he concept of navigability for title purposes is  
27 very *liberally construed* by the United States Supreme Court.” 355 Mont. 402, 438, 229  
28 P.3d 421 (Mont. 2010), 446 *rev’d and remanded*, *PPL Montana*, 132 S. Ct. 1215. The

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25 <sup>27</sup> *Id.*

26 <sup>28</sup> *Id.* at pp. 60-62.

27 <sup>29</sup> *Id.* at p. 62.

28 <sup>30</sup> *Id.* at p. 79.

1 United States Supreme Court took particular notice of this language, 132 S. Ct. at 1226  
2 (“The court reasoned from the background principle that ‘navigability for title purposes is  
3 very liberally construed.’”), and held that the Montana Supreme Court “erred as a matter of  
4 law in its reliance upon the evidence of present-day, primarily recreational use of the  
5 Madison River.” *PPL Montana*, 132 S. Ct. at 1233. The Court ultimately concluded that  
6 the Montana Supreme Court’s decision must be reversed because the court applied an  
7 erroneous legal standard:

8           The Montana Supreme Court’s ruling ... was based upon *an*  
9           *infirm legal understanding of this Court’s rules of navigability*  
10           *for title* under the equal-footing doctrine....

11           The judgment of the Montana Supreme Court is reversed, and  
12           the case is remanded for further proceedings not inconsistent  
13           with this opinion.

14 *PPL Montana*, 132 S. Ct. at 1235.

15           The navigability proponents presented only two witnesses, J.E. Fuller and Donald D.  
16 Farmer, both called by the ASLD. The Center called no witness. Maricopa County also  
17 called no witness, and instead rested on the 2005 testimony of Hjalmar W. Hjalmarson. Just  
18 like their clients, each of these witnesses applies an erroneous standard for navigability.  
19 Accordingly, as described below, the evidence that the navigability proponents presented to  
20 the Commission falls well short of carrying their burden to prove that the Gila River was  
21 navigable in its ordinary and natural condition at statehood.<sup>31</sup>

22           **A. Mr. Fuller’s Recreational Standard For Navigability Is Inconsistent With**  
23           **Binding Precedent Including *The Daniel Ball* And *PPL Montana*.**

24           Mr. Fuller testified in the 2005 hearing concerning the Gila River, presenting the  
25 findings that he and his team memorialized in a series of reports on behalf of the ASLD.<sup>32</sup>

26 <sup>31</sup> While it did not present a witness, the arguments made by the Center in its Closing  
27 Memorandum overlap with arguments made by ASLD and Maricopa County and the  
28 opinions offered by their witnesses. The Center’s arguments are addressed through the  
following discussion of the opinions and arguments offered by Messrs. Fuller, Farmer, and  
Hjalmarson.

<sup>32</sup> These reports include (1) JE Fuller Hydrology & Geomorphology, Inc., Arizona Stream

1 In 2014, Mr. Fuller prepared a PowerPoint presentation that he deemed an update of his Gila  
2 River reports. Mr. Fuller's PowerPoint presentation represented the bulk of the navigability  
3 proponents' case on remand.

4 Mr. Fuller's analysis and opinions suffer from a fundamental and fatal flaw –  
5 application of an erroneous legal standard for navigability that cannot be reconciled with  
6 *PPL Montana* and other binding authority. Mr. Fuller approaches navigability from the  
7 perspective of recreational boating in modern watercraft, not from the perspective of  
8 determining whether a stream is susceptible to use as a highway of commerce.<sup>33</sup>

9 Specifically, Mr. Fuller's view is that “[i]f it's deep enough to float a boat, it's  
10 susceptible to navigation....”<sup>34</sup> The “boat” that Mr. Fuller has in mind is a modern  
11 recreational craft, such as a Kevlar canoe or an inflatable kayak,<sup>35</sup> not the watercraft that  
12 were “in customary use for trade and travel at the time of statehood....” *PPL Montana*, 132  
13 S.Ct. at 1234. Mr. Fuller relied upon his personal recreational experience as well as modern  
14 recreational boating standards known as the Hyra method.<sup>36</sup>

15 Mr. Fuller testified that “I'm using for the purposes of my testimony 6 inches as a  
16 minimum flow.” Mr. Fuller chose that as his cut off because “at less than 6 inches, it  
17 becomes a little less fun to paddle.”<sup>37</sup> Again, Mr. Fuller's framework is recreational  
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19 Arizona Stream Navigability Study for the Upper Gila River: Safford to the State Boundary  
20 and San Francisco River: Gila River Confluence to the State Boundary (revised June 2003),  
21 Exh. 2, (Fuller's 2003 Upper Gila Report); (2) Arizona Stream Navigability Study for the  
22 Gila River: Colorado River Confluence to the Town of Safford (revised June 2003), Exh. 4;  
23 and (3) 1998 Final Report, Criteria for Assessing Characteristics of Navigability for Small  
24 Watercourses in Arizona, Item No. X016, Freeport 8, (“Criteria for Assessing  
25 Characteristics of Navigability Report”) at B-1 p. 1.

26 <sup>33</sup> See, e.g., 6/16/14 Trans. 42:5-17, 61:14-15, 63:2-11 (Fuller).

27 <sup>34</sup> 6/16/14 Trans. 61:14-15 (Fuller).

28 <sup>35</sup> See, e.g., 6/16/14 Trans. 43:13-18 and 245:20 – 246:5 (Fuller).

<sup>36</sup> See, e.g., 6/17/14 Trans. 300:19 – 301:11 and 359:18 – 362:7 (Fuller); Fuller Boating  
PowerPoint (revised June 17, 2014), Item No. X020, at p. 76 (excerpting the Hyra method's  
“Minimum Required Stream Width and Depth for Recreation Craft”).

<sup>37</sup> 6/16/14 Trans. 42:5-17 (Fuller).

1 boating, not use of the river as a highway of commerce.

2 In *PPL Montana*, the United States Supreme Court put to rest any lingering doubt  
3 that *The Daniel Ball* test concerns commercial navigation, not recreational boating.  
4 Navigability must be founded on the kind of trade and travel on water that constitutes “a  
5 **commercial** reality.” *Id.* Accordingly, evidence of modern recreational boating must not be  
6 considered unless “the watercraft are meaningfully similar to those in customary use for  
7 trade and travel at the time of statehood....” *Id.* This requirement is critical because  
8 “[m]odern recreational fishing boats, including inflatable rafts and lightweight canoes or  
9 kayaks, may be able to navigate water much more shallow or with rockier beds than the  
10 boats customarily used for trade and travel at statehood.” *Id.*

11 In its Closing Brief (p. 13), the ASLD argues “that historic canoes and flatboats were  
12 similar to modern canoes and flatboats in their design and depth requirements.” The ASLD  
13 relies upon Mr. Fuller’s effort to correlate modern canoes and kayaks – made from plastics  
14 and other modern materials – with the wooden canoes available at statehood. Mr. Fuller  
15 contended that their draw is the same despite the significant differences in materials:

16 The principles of physics are the same now as before. And the  
17 design and the shape of the boat and the water it displaces is  
responsible for how much water it draws.

18 And the basic shape of a canoe ... hasn’t changed much at all.<sup>38</sup>

19 This contention is erroneous because it focuses on shape at the exclusion of weight.  
20 The weight of a boat’s materials dictates the boat’s draw. As described by Dr. Robert A.  
21 Mussetter, Ph.D., P.E., the laws of physics dictate that if a material is lighter, it will result in  
22 a lower draw:

23 **Archimedes principle basically says that an object that’s put**  
24 **in the water will displace an equivalent weight of water.** So if  
25 you have a light boat, it will displace a fairly small amount of  
water, and therefore, the draft will be fairly small. And if you  
have a heavy boat, it will displace more water. And so the size

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27 <sup>38</sup> 6/16/14 Trans. 43:13 – 44:6 (Fuller); see also ASLD Closing Brief at p. 13 (arguing,  
28 based upon Mr. Fuller’s attempted correlations, “that historic canoes and flatboats were  
similar to modern canoes and flatboats in their design and depth requirements.”).

1 of the boat obviously affects the depth that that boat can float in.  
\* \* \*

2 Q. So a boat that has the same design as a historic boat, but is  
3 made out of lighter weight modern materials, will that have a  
4 smaller or a larger draft than the historic boat?

5 **A. If it's made out of lighter materials, it would have smaller  
6 draft.**<sup>39</sup>

7 Of course, one of the great benefits of modern boating materials is their lighter weight,<sup>40</sup>  
8 which, in accordance with the Archimedes Principle, results in a lower draw.

9 At least as important in the reduction in draw is the significant increase in durability  
10 that modern materials provide. This important distinction between modern recreational craft  
11 and craft available at statehood is largely undisputed among the parties.<sup>41</sup> Mr. Fuller  
12 acknowledged that "durability has improved significantly" with the introduction of modern  
13 materials:

14 So am I saying that boats haven't changed at all in the last 102  
15 years? No, of course not. **The durability has improved  
16 significantly. We now have plastics, Hypalon, other sorts of  
17 modern materials that are more durable.** So basically the  
18 difference is you need a little less skill because **you can bounce  
19 off things you couldn't bounce off before.**<sup>42</sup>

20 The improvement in durability is indeed significant. For instance, the strength of  
21 modern fiberglass is 30,000 pounds per square inch (psi), more than 30 times stronger than  
22 the wood used for building canoes at statehood.<sup>43</sup>

23 The navigability proponents err further by essentially ignoring the craft that were

24 <sup>39</sup> 8/19/14 Trans. 1705:1 – 1706:4 (Mussetter).

25 <sup>40</sup> See, e.g., Criteria for Assessing Characteristics of Navigability Report, Item No. X016,  
26 Freeport 8, at p. 28 ("More recently the development of one-person lightweight kayaks and  
27 'rubber duckies' has made it possible to boat shallow rivers previously thought  
28 unboatable."); 6/18/14 635:16-20 (Farmer).

<sup>41</sup> For instance, the ASLD acknowledges in its Closing Brief (p. 14) that "some historic  
materials were less durable than some modern materials...."

<sup>42</sup> 6/16/14 Trans. 86:17-87:1 (Fuller).

<sup>43</sup> See, e.g., Allen Gookin's Report on the Navigability of the Gila River, Item No. X009,  
Section V p. 14.

1 actually put to commercial use circa 1912 as described by Dr. Lingenfelter. Dr.  
2 Lingenfelter is “very familiar with the types of crafts that were ‘in customary use for trade  
3 and travel at the time of statehood,’” and he confirms that “[t]he craft customarily used for  
4 trade and travel at the time of statehood included large steamboats and gasoline powered  
5 paddle wheelers, as described” in Dr. Lingenfelter’s Affidavit.<sup>44</sup> Modern recreational  
6 canoes and kayaks provide no basis for comparison to the commercial craft used for trade  
7 and travel at statehood.

8 In sum, modern recreational canoes and kayaks require less water to float and are  
9 much more durable, and they are therefore “able to navigate **water much more shallow**”  
10 and “**with rockier beds** than the boats customarily used for trade and travel at statehood.”  
11 *PPL Montana*, 132 S.Ct. at 1234. Modern canoes and kayaks made of Kevlar, Hypalon,  
12 fiberglass, and other modern materials are not equivalent to the boats customarily used for  
13 trade and travel at statehood, and Mr. Fuller’s evidence therefore may not be relied upon to  
14 support a finding of navigability. *Id.* (holding that “present day recreational use of the  
15 river did not bear on navigability,” and that “reliance upon the State’s evidence of present-  
16 day, recreational use, at least without further inquiry, was wrong as a matter of law.”).

17 Not only have the navigability proponents failed to provide suitable evidence  
18 concerning the watercraft that were “in customary use for trade and travel at the time of  
19 statehood,” they have failed to establish that modern recreational boating has any functional  
20 equivalence to utilizing a watercourse as a highway of commerce. *Id.* Recreational boating  
21 is a modern phenomenon that occurred in response to the increased availability of modern  
22 materials.<sup>45</sup> The federal test requires susceptibility to trade and travel as a highway of  
23 commerce, *id.*, not merely the ability to float a very limited class of modern low-draft  
24 durable craft for the purpose of personal enjoyment.

25 Mr. Fuller’s arguments and opinions are irreconcilable with other seminal United  
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27 <sup>44</sup> Affidavit ¶¶ 28-29 (quoting *PPL Montana*, 132 S.Ct. at 1233).

28 <sup>45</sup> See, e.g., Report, Findings and Determination at p. 59.

1 States Supreme Court decisions, including *United States v. Utah*, 283 U.S. 64, 82, 51 S. Ct.  
2 438, 443 (1931). The navigability proponents cannot reconcile their claim that a small  
3 desert stream like the Gila was navigable when the United States Supreme Court determined  
4 that San Juan River was nonnavigable despite having depths between one and three feet “for  
5 219 days” each year, and for the other “146 days a depth of over three feet.”<sup>46</sup> See also  
6 *United States v. Rio Grande Dam & Irrigation Co.*, 174 U.S. 690, 698-99 (1898) and *State*  
7 *of Oklahoma v. State of Texas*, 258 U.S. 574, 591 (1922), respectively determining that the  
8 entire lengths of the Rio Grande in New Mexico and the Red River in Oklahoma are not  
9 navigable under the federal test. The San Juan, Rio Grande, and Red River are much larger  
10 rivers than the Gila,<sup>47</sup> and Mr. Burtell specifically described the extensive use of the San  
11 Juan and Rio Grande for modern recreational boating.<sup>48</sup> Yet these three rivers are also  
12 nonnavigable for purposes of title because the ability to float a modern canoe for  
13 recreational purposes is not the test.

14 **B. Mr. Farmer’s Sub-Six Inch Standard For Navigability Is Also**  
15 **Inconsistent With The Federal Test.**

16 While Mr. Fuller used six inches as his standard for navigability because lower  
17 depths are less fun for him in the context of recreational boating, Mr. Farmer enjoys  
18 recreating in extreme low flows.<sup>49</sup> Mr. Farmer’s favorite stream for extreme low flow  
19 boating is the Verde River where there might only be an inch of depth at the riffles.<sup>50</sup> Mr.

20  
21 <sup>46</sup> 1930 Special Master’s Report, Item No. X016, Freeport 9, (“Special Master’s Report”) at  
22 pp. 167; see also *id.* at 169 (“there is a depth of no more than 2 feet” five months per year  
23 and “at other times there are places where the depth is less than 2 feet...”), and 180 (“The  
24 evidence as to depth makes it clear that boats with a draft of two feet could navigate not  
25 more than half the year...”).

26 <sup>47</sup> Special Master’s Report at pp. 167; see also *id.* at 169; Information Regarding  
27 Navigability of Selected U.S. Watercourses (April 2003), Item No. 28, at Tabs 16 (Red  
28 River) and 17 (Rio Grande).

<sup>48</sup> 6/20/14 Trans. 1153:10 – 1156:5 (Burtell).

<sup>49</sup> 6/18/14 Trans. 589:17-23 and 594:7 – 595:6 (Farmer).

<sup>50</sup> 6/18/14 Trans. 591:11-24 (Farmer).

1 Farmer would “without hesitation” engage in recreational boating in a modern craft, such as  
2 his 16-foot polyethylene Discovery canoe, in streams with depths less than six inches, and  
3 he deems such streams navigable under his standard.<sup>51</sup>

4 Mr. Farmer’s standard for navigability is irreconcilable with the federal test for all of  
5 the same reasons as Mr. Fuller’s standard. It is focused on recreation, not on the use of a  
6 river as a highway for commerce. It relies upon experiences with modern plastic canoes that  
7 are lighter, requiring less depth, and more durable. Mr. Farmer’s evidence cannot support a  
8 finding of navigability under the federal test. *PPL Montana*, 132 S.Ct. at 1234 (holding that  
9 “present day recreational use of the river did not bear on navigability,” and that “reliance  
10 upon the State’s evidence of present-day, recreational use, at least without further inquiry,  
11 was wrong as a matter of law.”).

12 **C. Hjalmarson Relies On An Erroneous Recreational Standard And A**  
13 **Flawed Model.**

14 Maricopa County contends that the Gila River was navigable in its ordinary and  
15 natural condition from its confluence with the Salt to its confluence with the Colorado. *See*  
16 *Closing Brief* p. 1. Maricopa County claims that “[t]he only relevant evidence in the record  
17 of the ‘natural’ and ‘ordinary’ condition of the lower Gila, was presented by Mr. Hjalmar  
18 W. Hjalmarson, P.E.” *Closing Brief* p. 2.<sup>52</sup> Mr. Hjalmarson’s opinions are restricted  
19 exclusively to the portion of the Gila River downstream of the confluence with the Salt.<sup>53</sup>

20 While he did not testify in the 2014 proceedings, the Commission is well-acquainted

21 <sup>51</sup> 6/18/14 Trans. 594:7 – 595:6 (Farmer).

22 <sup>52</sup> This claim is of course false. The Commission entertained a vast amount of evidence  
23 submitted by the parties concerning each segment of the Gila in its ordinary and natural  
24 condition. This includes the evidence described in Section I, above, that supported the  
25 Commission’s 2009 Report, Findings and Determination. This also includes, as another  
26 nonexclusive example, Dr. Richard Lingenfelter’s evaluation of a wide range of historical  
information concerning the nonuse of the Gila River in its ordinary and natural condition, as  
described in Freeport’s Opening Memorandum and below in Section III.B.

27 <sup>53</sup> 11/17/05 Trans. 286:25 – 287:4 (Hjalmarson). Accordingly, neither Maricopa County nor  
28 Mr. Hjalmarson offer any evidence to suggest that the Upper Gila was navigable in its  
ordinary and natural condition.

1 with Mr. Hjalmarson. Mr. Hjalmarson has participated in the proceedings concerning the  
2 San Pedro, the Santa Cruz, the Gila, and the Verde. In each instance, Mr. Hjalmarson  
3 opined that a significant portion of the stream is navigable.

4 While the specific evidence has varied somewhat by stream, Mr. Hjalmarson's  
5 general approach has remained consistent. Mr. Hjalmarson's navigability analyses of the  
6 San Pedro, the Santa Cruz, the Gila, and the Verde all rely heavily on the Hyra recreational  
7 boating standards.<sup>54</sup> Each of his stream analyses also involve the use of a mathematical  
8 model. The model consists of a series of equations that ultimately provide Mr. Hjalmarson  
9 with an estimated maximum depth of a theoretical cross section.<sup>55</sup>

10 Mr. Hjalmarson testified that "you might call it geomorphology hocus pocus or  
11 whatever if you are not familiar with this method...."<sup>56</sup>

12 As has been explained in the other proceedings, there are a number of problems with  
13 Mr. Hjalmarson's approach. First, he relies upon inapplicable recreational standards that  
14 relate to modern recreational craft, while failing to make any showing that these recreational  
15 activities are equivalent to using the stream as a highway of commerce, or that the crafts  
16 themselves are equivalent to the crafts used at statehood to conduct commerce. Specifically,  
17 relying on the Hyra method, Mr. Hjalmarson assumes that a stream is navigable if it has one  
18 foot of depth.<sup>57</sup> Mr. Hjalmarson's standard is irreconcilable with *PPL Montana* for the  
19 same reasons described above with respect to Mr. Fuller's and Mr. Farmer's standards for  
20 navigability.

21 Mr. Hjalmarson's approach makes other problematic assumptions. The model  
22 assumes that the Gila was a single meandering channel, while Mr. Hjalmarson  
23 acknowledges that it was a braided channel in many areas;<sup>58</sup> the model assumes that the

24 <sup>54</sup> 11/17/05 Trans. 252:4-15 (Hjalmarson).

25 <sup>55</sup> 11/17/05 Trans. 241:4 – 245:14 (Hjalmarson).

26 <sup>56</sup> 11/17/05 Trans. 245:12-18 (Hjalmarson).

27 <sup>57</sup> 11/17/05 Trans. 252:4-15 (Hjalmarson).

28 <sup>58</sup> 11/17/05 Trans. 248:14-24 and 266:16 – 267:12 (Hjalmarson). Maricopa County attempts  
to confuse the meaning of the "natural condition" by conflating the period in which the Gila

1 Gila's channel consists of a uniform, smooth parabola, while Mr. Hjalmarson concedes that  
2 the Gila is not a uniform parabola;<sup>59</sup> the model estimates the maximum depth of the channel  
3 rather than the average depth of the cross section;<sup>60</sup> and estimated depth calculations are  
4 based on mean discharge,<sup>61</sup> which skews depths upwards based on flooding events.<sup>62</sup> Mr.  
5 Hjalmarson also made no effort to calibrate his results, feeling that calibration was  
6 unnecessary.<sup>63</sup>

7 Maricopa County asserts that Mr. Hjalmarson's "testimony was not refuted nor  
8 contradicted either at the November 2005 hearings, or at the 2014 hearings," and that the  
9 output from Mr. Hjalmarson's model constitutes "uncontroverted evidence...." Maricopa  
10 County Closing Brief pp. 3 and 10. These assertions are inaccurate. Mr. Hjalmarson's  
11 opinions are contradicted by the testimony of several other witnesses, and the notable  
12 problems with Mr. Hjalmarson's approach were explored during cross examination.<sup>64</sup>  
13 Indeed, several of these problems were specifically addressed in the Commission's Report,  
14 Findings and Determination.

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15 maintained natural flows with periods in which the streambed was in its natural condition.  
16 *See, e.g.,* Maricopa County Closing Brief pp. 15-16. While the Gila River was no longer in  
17 its natural condition at statehood from the perspective of flows, it was in its natural  
18 condition from a geomorphological perspective. The significant braiding that proliferated  
19 much of the Gila in 1912 was a natural condition of the river. *See, e.g.,* 6/20/14 Trans.  
20 1057:2 – 1058:19 (Burtell); 11/16/05 Trans. 94:22 – 95:11 (Huckleberry). Aerial  
21 photographs demonstrate that this natural condition persisted for many years, and that the  
22 river remained divided among multiple flowing channels through the Duncan Valley and, in  
23 particular, the Safford Valley when the photographs were taken in 1935 and 1937. Soil  
24 Conservation Photos Index Map and Aerial Photographs of the Gila River, Item No. X027,  
25 Freeport 12.

26 <sup>59</sup> 11/17/05 Trans. 265:22 – 266:15 (Hjalmarson).

27 <sup>60</sup> 11/17/05 Trans. 245:12-18 (Hjalmarson). In its Closing Brief (p. 10), Maricopa County  
28 incorrectly states that Mr. Hjalmarson calculated average depths. Mr. Hjalmarson's  
29 calculated depths for his conceptual parabolic cross section are maximum depths of the  
30 parabola.

31 <sup>61</sup> Hjalmar Hjalmarson, Confidential Notes, Item No. 025, p. 45.

32 <sup>62</sup> 11/17/05 Trans. 265:16-21 (Hjalmarson).

33 <sup>63</sup> 11/17/05 Trans. 293:5 – 295:24 (Hjalmarson).

34 <sup>64</sup> *See generally* 11/17/05 Trans. 256:21 – 327:19 (Hjalmarson).

1 For instance, the Commission noted that the average flows calculated by Mr.  
2 Hjalmarson "do not have a great deal of meaning as it would be a very rare day to have that  
3 exact amount of water flowing and the extremes show the unpredictability and  
4 undependability of the flow in the river."<sup>65</sup> The Commission determined that Mr.  
5 Hjalmarson's decision that a parabolic channel should be assumed "is a singularly unusual  
6 conclusion in view of the testimony of so many parties as to the braided condition of the  
7 river and the sand islands, sand bars and other obstacles reported by others."<sup>66</sup>

8 The Commission also found it notable that Mr. Hjalmarson indicated in an initial  
9 draft of his report that "[his] limited research on the history of navigability of the Gila  
10 River suggests it was not used on a regular basis for any kind of water transportation of bulk  
11 commodities such as furs or covered wagons or people," and that his explanation at the  
12 hearing was "Yeah, but I'm not a historian."<sup>67</sup>

13 The Commission summarized its impressions of Mr. Hjalmarson's analysis as  
14 follows:

15 [Mr. Hjalmarson] stated that in making his report and preparing  
16 for his testimony, he made certain assumptions as to what he  
17 thought the river should have looked like in 1860 and then  
18 applied various empirical tests to it to see if his assumption was  
19 correct. He also admitted that if the assumptions and the tests  
did not conform to actual conditions as reported by observers on  
the river, there could be a problem with his conclusions. While  
his report was impressive, its credibility was not high.<sup>68</sup>

### 20 **III. THE PROPONENTS' CRITICISMS OF THE OPINIONS OF MR. BURTELL** 21 **AND DR. LINGENFELTER ARE UNAVAILING.**

22 The ASLD and Maricopa County offer a handful of criticisms of the opinions of Mr.  
23 Burtell and Dr. Lingenfelter.<sup>69</sup> None of the criticisms has merit.

24 \_\_\_\_\_  
25 <sup>65</sup> Report, Findings and Determination p. 73.

26 <sup>66</sup> Report, Findings and Determination p. 73.

27 <sup>67</sup> Report, Findings and Determination pp. 74-75.

28 <sup>68</sup> Report, Findings and Determination p. 76 (citation omitted).

<sup>69</sup> The Center does not address Mr. Burtell or Dr. Lingenfelter in its Closing Memorandum.

1           **A. Mr. Burtell's Analysis Demonstrates That The Upper Gila Was Not**  
2           **Navigable In Its Natural And Ordinary Condition.**

3           There are few if any criticisms of Mr. Burtell's stream flow reconstruction or his  
4           assessment of historical accounts of attempted boating of the Upper Gila and other historic  
5           information demonstrating that the Gila was not navigable in its ordinary and natural  
6           condition. In fact, Mr. Fuller incorporated Mr. Burtell's stream reconstruction into his  
7           PowerPoint presentation,<sup>70</sup> the ASLD cites favorably in its Closing Brief to Mr. Burtell's  
8           catalog and assessment of diversions<sup>71</sup> as well as to Mr. Burtell's reconstructed depths,<sup>72</sup> and  
9           Mr. Fuller was unable to provide any documented instance of attempted historical boating of  
10          the Upper Gila in addition to the four attempts documented in Table 15 to Mr. Burtell's  
11          Declaration ("Declaration").<sup>73</sup>

12          The navigability proponents would of course prefer that Mr. Burtell concur with their  
13          recreational boating distortion of *The Daniel Ball* test. Maricopa County asserts that Mr.

14  
15          <sup>70</sup> 6/17/14 Trans. 342:1-343:7 (Fuller).

16          <sup>71</sup> See, e.g., ASLD Closing Brief at pp. 4-5, and 7-8.

17          <sup>72</sup> See, e.g., ASLD Closing Brief at pp. 14, 17, 19, and 21. It is important to note that the  
18          ALSD variously describes Mr. Burtell's reconstructed depths as "mean" depths (e.g. p. 17)  
19          and "median" depths (e.g. p. 21). These descriptions are inconsistent and incomplete. Mr.  
20          Burtell's reconstructed depths reflect the mean depth of the cross section under median flow  
21          conditions. Declaration at Table 10.

22          It is also important to note that the ASLD omits the "less than" symbols ("<") as specified  
23          by Mr. Burtell in his Declaration to denote that the actual depths were less than the  
24          conservative calculations. See, e.g., 6/17/14 Trans. 342:1-343:7 (Fuller). Mr. Burtell was  
25          extremely conservative in his approach to calculating depths. As he explained, his  
26          reconstructed flows and depths "are overestimates or at least are at the highest level of what  
27          could reasonably have occurred based on the data that I looked at." 6/20/14 Trans. 1098:20  
28          - 1099:8 (Burtell).

29          <sup>73</sup> Unsupported insinuations notwithstanding, there is no evidence that the "River of Rafts"  
30          or the Apache bull boats involved the Upper Gila, or any other portion of the Gila, for that  
31          matter. 6/17/14 Trans. 276:4 - 279:3 (Fuller). Nor did James Ohio Pattie or Stanley Sykes  
32          ever boat the Upper Gila. Pattie's memoirs are clear that when his party constructed eight  
33          canoes, they had already reached the Colorado River, and the evidence is clear that the  
34          Sykes trip began in Phoenix, bypassing the Upper Gila completely. See, e.g., 6/20/14 Trans.  
35          1132:23 - 1138:2 (Burtell); 6/17/14 Trans. 335:8 - 338:23 (Fuller).

1 Burtell applies the wrong standard because he discussed the need for three feet of depth for  
2 commercial navigation versus only one foot for recreational boating. Maricopa Closing  
3 Brief p. 20. In the testimony cited by the Maricopa County, Mr. Burtell contrasted the  
4 navigation proponents' heavy reliance upon modern recreational boating standards, on the  
5 one hand, versus United States Supreme Court precedent from the seminal *Utah* decision  
6 concerning the depths required to use a waterway as a highway for commerce. Maricopa  
7 County's protestations to the contrary notwithstanding, *Utah, The Daniel Ball*, and  
8 particularly *PPL Montana* make clear that the test is based upon susceptibility to navigation  
9 for commerce, not some other purpose.<sup>74</sup>

10 The navigability proponents' other criticism is that, unlike Messrs. Fuller and  
11 Farmer, Mr. Burtell does not have experience boating the Gila. *See, e.g.*, ASLD Closing  
12 Brief p. 6; Maricopa County Closing Brief p. 18. Mr. Burtell does, however, have  
13 experience recreational boating in Utah and can confirm the *Utah* Special Master's findings  
14 that the San Juan is a much more significant river than the Gila.<sup>75</sup> Regardless, as discussed  
15 above, the recreational boating that Messrs. Fuller and Farmer have enjoyed on the Gila in  
16 canoes and kayaks made of Kevlar, Hypalon, fiberglass, and other modern materials does  
17 not bear on navigability for title, *PPL Montana*, 132 S.Ct. at 1234. Their avocation for  
18 recreational boating on the Gila and other Arizona streams does, however, shed light on  
19 their motivation for advocating for a liberal standard for navigability.

20 Aside from differing views of the standard for navigability under the federal test, no  
21 party criticizes Mr. Burtell's work in this case. Mr. Burtell analyzed several lines of  
22 evidence in order to assess whether the Upper Gila was navigable in its ordinary and natural  
23

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24 <sup>74</sup> Maricopa County also attempts to create an issue about whether the federal test requires  
25 "trade *and* travel" or just one. Maricopa Closing Brief pp. 19-20. This argument is a straw  
26 man. Mr. Burtell was very clear during cross examination that his opinions of  
27 nonnavigability in no way hinged on the distinction between the conjunctive and the  
28 disjunctive. 6/20/14 Trans. 1241:5-11 (Burtell).

<sup>75</sup> 6/20/14 Trans. 1153:10 – 1156:6 (Burtell); 8/1/13 San Pedro Trans. 261:18 – 266:13  
(Burtell), X016, Freeport 10.

1 condition: geomorphology, historic accounts of stream flow conditions, documented needs  
2 for commercial navigation prior to significant diversions, reconstruction of stream flow to  
3 assess predevelopment stream depth and velocity, and prehistoric, historic, and recent  
4 efforts to boat the Upper Gila. As described in Mr. Burtell's Declaration, his hearing  
5 testimony, and Freeport's Opening Memorandum, the totality of the evidence reviewed and  
6 work performed by Mr. Burtell demonstrates clearly that the Upper Gila was not navigable  
7 in its ordinary and natural condition at statehood. To conclude otherwise would require the  
8 acceptance of the navigability proponents' erroneous view that recreational boating in  
9 modern recreational craft satisfies *The Daniel Ball* test.

10 **B. Dr. Lingenfelter's Extensive Research Concerning Boating In Arizona**  
11 **And Metal Mining Demonstrates That The Gila Was Not Susceptible To**  
12 **Use As A Highway Of Commerce In Its Ordinary And Natural Condition.**

13 Mr. Fuller and his team have recognized that Dr. Lingenfelter's *Steamboats on the*  
14 *Colorado River, 1852-1916* constitutes one of the two seminal works on historic boating in  
15 Arizona.<sup>76</sup> Mr. Fuller and his team repeatedly cited to *Steamboats on the Colorado River,*  
16 *1852-1916* in discussing historic watercraft and historic boating in Arizona.<sup>77</sup> Dr.  
17 Lingenfelter prepared an Affidavit drawing from his extensive research concerning boating  
18 in Arizona and metal mining in the American West. Based on his historical knowledge, Dr.  
19 Lingenfelter renders a number of significant opinions, including the following:

- 20 • "I am very familiar with the types of crafts that were 'in customary use for  
21 trade and travel at the time of statehood.' (PPL Montana at 1233). These did  
22 not include craft that are similar to modern day recreational craft such as  
23 modern lightweight canoes and kayaks." Instead, "[t]he craft customarily  
24 used for trade and travel at the time of statehood included large steamboats  
25 and gasoline powered paddle wheelers, as described above."<sup>78</sup>

26 <sup>76</sup> Criteria for Assessing Characteristics of Navigability Report, Item No. X016, Freeport 8,  
27 at B-1 p. 1. *Steamboats on the Colorado River, 1852-1916* is Item No. X028, Freeport 13.

28 <sup>77</sup> See, e.g., Criteria for Assessing Characteristics of Navigability Report, Item No. X016,  
Freeport 8, at p. 24; at B-1 p. 1; at B-2, p. 1; at B-4 p. 1.

<sup>78</sup> Affidavit of Richard E. Lingenfelter, X008, Freeport 3 ("Affidavit"), at ¶¶ 28-29. This is

- 1 • The mining operations that began in the mid-1800s “could have supported  
2 commercial navigation on the Gila River, had that been possible.”<sup>79</sup>
- 3 • These mining operations were conducted by “entrepreneurs [who] would have  
4 eagerly undertaken navigation of the Gila if it had been at all possible. The  
5 failure of anyone to do so was not for lack demand, but for lack of sufficient  
6 water. The Gila River was simply not susceptible to commercial  
7 navigation.”<sup>80</sup>

8 The ASLD contends that Dr. Lingenfelter’s book reflects that steamboat “travel on  
9 the Gila was regularly conducted....” ASLD Closing Brief at p. 29. The ASLD cites pages  
10 31-33 of Dr. Lingenfelter’s book to support this contention. These pages of *Steamboats on*  
11 *the Colorado River, 1852-1916* describe the mining boom that resulted in the establishment  
12 of Gila City, and they describe precisely one, entirely unsuccessful attempt to use a  
13 steamboat the Gila. Dr. Lingenfelter recounts that the mining boom “prompted formation of  
14 the Gila Mining and Transportation Company which sent a rival steamer to the river on the  
15 schooner *Arno*. *This rivalry ended before it began, however, when the Arno capsized and*  
16 *was lost with all her cargo at the mouth of the Colorado on 17 March 1859.*” It is hard to  
17 believe that even Mr. Fuller would consider this to be an instance of successful boating that  
18 would provide support of any kind to the navigability proponents’ position.

19 The ASLD also contends that “[s]teamboats on the Gila likely ran up as far as where  
20 Dome is today, about 20 miles upstream from Yuma.” Closing Brief at p. 28. The ASLD’s  
21 qualifier reflects the ASLD’s inability to support this contention with evidence of any kind.  
22 As was addressed during the hearing, none of the articles that Mr. Fuller and the ASLD cite

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23 consistent with the Special Master’s findings in the *Utah* case. Special Master’s Report at  
24 117-18. Notably, Mr. Fuller and his team recognized the value of the Special Master’s  
25 Report and the *Utah* decision, stating that “[v]ery useful information about early boating on  
26 the Colorado River and its tributaries is found in various documents relating to the ‘Utah  
27 Riverbed Case’...” Criteria for Assessing Characteristics of Navigability Report, Item No.  
28 X016, Freeport 8, at B-1 p. 1.

<sup>79</sup> Affidavit ¶ 32.

<sup>80</sup> Affidavit ¶ 27.

1 to provide any support for the notion that steamboats ever traveled as far as Dome.<sup>81</sup> The  
2 September 28, 1878 *Arizona Sentinel* article cited to in the ALSLD's Closing Brief is no  
3 different.<sup>82</sup> Contrary to the ALSLD's unsupported assertions, the only evidence before the  
4 Commission demonstrates that the furthest steamboats ever traveled was 5 or 6 miles  
5 upstream of confluence, and only for recreational purposes during periods of high water.<sup>83</sup>  
6 As Dr. Lingenfelter notes in his Affidavit, the Commission already determined in its Report,  
7 Findings and Determination "that at least 2.5 miles of this portion consists of the ordinary  
8 high water mark of the Colorado River."<sup>84</sup>

9 Maricopa County's criticism of Dr. Lingenfelter's opinions is that they "do[] not take  
10 into consideration the condition of the river in its natural and ordinary state...." Maricopa  
11 County Closing Brief at p. 21. This contention is inaccurate. Dr. Lingenfelter considered a  
12 vast range of historical information concerning the Gila in its ordinary and natural condition  
13 prior to significant agricultural depletions. The *Arno* fiasco, cited to by the ALSLD and  
14 described above, is just one example. Even the navigability proponents have conceded that  
15 the Gila remained in its natural condition in 1859.<sup>85</sup> Dr. Lingenfelter describes the incident  
16 as follows in his Affidavit:

17  
18 <sup>81</sup> See, e.g., 6/20/14 Trans. 1080:8 – 1087:6 (Burtell) (describing that none of the articles  
19 cited by Mr. Fuller as references nor any other evidence that has been presented provides  
20 any basis to conclude that any steamboat ever traveled upstream as far as Dome, and that the  
21 assertion is inconsistent with Dr. Lingenfelter's extensive research) (referring to ALSLD  
22 Supplemental Evidence, Item No. X004, at tabs 15, (*Arizona Sentinel* article dated January  
23 25, 1879), 16 (*Arizona Sentinel* article dated June 12, 1901), and 17 (*Tombstone Epitaph*  
24 article dated May 27, 1894)).

25 <sup>82</sup> See Item No. X014-73, at pp. 4-5. These pages are 286 / 386 and 287 / 386 in the PDF  
26 viewer. The *Arizona Sentinel* article contains no reference to steamboats traveling to Dome.

27 <sup>83</sup> See, e.g., Affidavit at ¶¶ 16, 18, and 31.

28 <sup>84</sup> Affidavit at ¶ 16.

<sup>85</sup> See, e.g., ALSLD Closing Brief p. 4; 11/17/05 Trans. 305:25 – 306:4 and 324:13 – 325:15  
(Hjalmarson). While the ALSLD and Mr. Hjalmarson both use 1860 as the approximate date  
in which the Gila remained in its ordinary and natural condition, it is important to note that  
the Upper Gila remained in its ordinary and natural condition into the 1880s. Declaration at  
p. 6, ¶ 29; Declaration at Table 2; 6/20/14 Trans. 1157:23 – 1159:5 (Burtell).

1 Their failure to go farther up the Gila River, however, was not  
2 for lack of demand or imagination. For Arizona's first gold rush  
3 in 1858 to the placers at Gila City just twenty miles up the river  
4 prompted the formation of the Gila Mining and Transportation  
5 Company in San Francisco. Hoping to navigate the Gila, they  
6 sent down mining machinery and a small, disassembled "mail  
7 steamer" from San Francisco on the schooner *Arno*. She arrived  
8 at the mouth of the Colorado in March 1859, but promptly  
9 struck a sand bar, bilged and sank, "a total loss in less than half  
10 an hour." No one else attempted to put a steamer on the Gila,  
11 and the rush petered out.<sup>86</sup>

12 Dr. Lingenfelter's analysis set forth in his Affidavit are replete with historical  
13 evidence from periods in which the Gila remained in its natural condition prior to the  
14 proliferation of agricultural diversions. As additional non-comprehensive examples, Dr.  
15 Lingenfelter also considered the following historic evidence:

- 16 • the 1849 Mormon Batallion's failed attempt to raft the Gila ("[T]hey  
17 repeatedly ran aground and they were finally forced to jettison part of their  
18 cargo. From that attempt alone, Edwin Corle concluded in his classic, *The  
19 Gila: River of the Southwest* (1951, pg. 154), they 'demonstrated that the Gila  
20 River was not practical for navigation.'");<sup>87</sup>
- 21 • Edward Ely Dunbar's commencement of mining at Ajo in 1855, which was  
22 short lived because Dunbar was unable to reduce shipping costs by using the  
23 Gila as a means of commercial transportation. ("So after another couple years,  
24 extracting the last profitable ore, Dunbar finally had to shut down, because he  
25 couldn't cut the cost by shipping it on the Gila.");<sup>88</sup>
- 26 • Samuel "Steamboat" Adams's contemplation in 1864 of attempting to use  
27 steamboats on the Gila. ("[H]e finally dropped the idea after concluding, it

28 <sup>86</sup> Affidavit at ¶ 19. As the *Arno* incident makes clear, sand bars can pose serious  
impediments to use of a river as a highway of commerce. See also *Oklahoma v. Texas*, 258  
U.S. 574, 589 (1922) (determining that the Red River is not navigable and that "[b]oats with  
a sufficient draft to be of any service can ascend and descend only during periods of high  
water" as a result of the low depths of water over sand bars, which in some places range  
"from 6 to 18 inches and elsewhere from 3 to 6 feet.").

<sup>87</sup> Affidavit at ¶ 21.

<sup>88</sup> Affidavit at ¶¶ 24-25.

1 was said, that the only way to do it was in 'steam boats with big broad wheels  
2 something on the order of our present traction engine wheels, and when there  
3 was water they were to act as water wheels and in places where the river sank  
4 they were to carry the boat over dry [land]'!');<sup>89</sup> and

- 5 • the inability of Michigan steamboat captains to put the Gila to commercial use  
6 to reduce shipping costs for their Clifton and Morenci mining operations  
7 opened in 1872 ("These mines were opened in 1872 by the Detroit Copper  
8 Company, owned and managed by some wealthy Michigan steamboat  
9 captains. But even they failed to find any way to successfully navigate the  
10 Gila, instead of paying as much as \$240 a ton hauling crude copper matte by  
11 road to the nearest railhead at Trinidad Colorado, before the Southern Pacific  
12 railroad finally reached eastern Arizona in 1881."').<sup>90</sup>

13 Dr. Lingenfelter's opinions concerning nonnavigability are based upon the  
14 appropriate standard of assessing the susceptibility of Gila in its natural and ordinary  
15 condition for use as a highway of commerce. From the 1820's through 1872, less than a  
16 few hundred acres were being irrigated at any one time along the Upper Gila,<sup>91</sup> and it was  
17 not until the 1880s when diversions were significant enough to have a material impact on  
18 the flows of the Upper Gila.<sup>92</sup> Accordingly, each of these instances evidencing that the Gila  
19 was not susceptible to use as a highway for commerce relate to the Gila in its natural  
20 condition.

21  
22  
23 <sup>89</sup> Affidavit at ¶ 20.

24 <sup>90</sup> Affidavit at ¶ 26. When the railroad was established, it closely followed the Upper Gila  
25 River for nearly 25 miles. Declaration ¶ 52. The fact that the mines did not, at a minimum,  
26 make use of this 25 mile stretch of the river in the years prior to introduction of the railroad  
is another line of convincing evidence that the Upper Gila was not susceptible to use as a  
highway for commerce.

27 <sup>91</sup> Declaration at p. 6, ¶ 29.

28 <sup>92</sup> 6/20/14 Trans. 1157:23 – 1159:5 (Burtell); Declaration at Table 2.

1 **IV. THE PROPONENTS CANNOT CREDIBLY EXPLAIN THE ABSENCE OF**  
2 **COMMERCIAL NAVIGATION DESPITE CLEAR NEEDS DURING**  
3 **PERIODS IN WHICH THE GILA WAS IN ITS NATURAL CONDITION.**

4 Perhaps the clearest demonstration that the Gila was not susceptible to navigation is  
5 that it was never used as a highway for commerce in its ordinary and natural condition  
6 despite strong needs. While the absence of commercial navigation is not dispositive “where  
7 conditions of exploration and settlement explain the infrequency or limited nature of such  
8 use,” *United States v. Utah*, 283 U.S. 64, 82, 51 S. Ct. 438, 443 (1931), there were clear  
9 needs to use the Upper Gila as a highway for commerce – if it had been viable for such  
10 purposes – in the early years of settlement before diversions had any meaningful impact on  
11 the river.

12 These needs to navigate the Gila are described in Sections II.B. and II.C. of  
13 Freeport’s Opening Memorandum, and include Native Americans’ need to use the Gila to  
14 transport goods and people, the need to transport supplies, people, and ore in connection  
15 with several different mining operations, the need to transport supplies and people to  
16 support military operations in the region, and the need to use the Gila to transport mail. The  
17 Gila was not capable of meeting *any* of these needs, and travel and transportation therefore  
18 occurred by wagon, by mule, or on foot until the railroad arrived in the 1880s.

19 The navigability proponents’ closing memoranda fail to credibly explain the absence  
20 of commercial navigation despite these varied and significant needs. The ASLD relies  
21 heavily on Mr. Fuller’s argument that the reason for this “dearth of evidence” is low levels  
22 of activity during the early settlement period. *See, e.g.*, ASLD Closing Brief pp. 11  
23 (referring specifically to the “dearth of evidence” of trappers attempting to navigate the  
24 Gila), 12 (insinuating that little was occurring in the region due to Apache unrest). In  
25 making this argument, the ASLD all but ignores the voluminous evidence demonstrating the  
26 needs of Native Americans, miners, the military, post offices, and others to use the Gila as a  
27 highway of commerce. The ASLD ignores these needs, because the only explanation for  
28 not using the Gila to meet them is that the Gila was not susceptible to use as a highway of  
commerce in its natural and ordinary condition.

1 Maricopa County takes a different approach, arguing that the explanation for the lack  
2 of commercial navigation is “that the river was almost completely diverted in the mid-  
3 1800s....” Maricopa County Closing Brief p. 20. Maricopa County is incorrect in its  
4 history. Meaningful diversions did not even begin until the late 1860s on the Salt and until  
5 the early 1870s along the Upper Gila,<sup>93</sup> and it was not until the 1880s when diversions were  
6 significant enough to have a material impact on the flows of the Upper Gila.<sup>94</sup> As  
7 described in Section III.B., above, there is a vast array of evidence of significant needs for  
8 commercial navigation that arose when the Gila remained in its natural condition prior to  
9 material impacts from agricultural diversions. *See also* Freeport’s Opening Memorandum at  
10 Sections III and IV (reviewing a broader cross-section of the evidence presented to the  
11 Commission). Moreover, even if “the river was almost completely diverted in the mid-  
12 1800s,” which it was not, there is a failure to provide any explanation for the absence of any  
13 record of navigation (1) by the Native Americans that populated the region for over a  
14 millennia or (2) the early explorers and missionaries that explored the region dating back  
15 hundreds of years before the Gila was diverted from its natural condition.

### 16 CONCLUSION

17 Not only have the ASLD, Maricopa County, and the Center failed to satisfy their  
18 burden of proof, but the overwhelming weight of the evidence demonstrates convincingly  
19 that the Gila was neither navigable nor susceptible to navigation in its ordinary and natural  
20 condition at or before statehood.

21 This is particularly true of the Upper Gila, which was ignored as a highway for  
22 commerce in its ordinary and natural condition despite the need for such a highway to  
23 supply military installations and mining operations and to transport mail. There were  
24 significant needs to use the river, and the fact that costly and time consuming overland  
25 travel was used instead confirms the other lines of evidence that demonstrate that the Upper  
26

27 <sup>93</sup> Declaration at p. 6, ¶ 29; ASLD Closing Brief pp. 4-5.

28 <sup>94</sup> 6/20/14 Trans. 1157:23 – 1159:5 (Burtell); Declaration at Table 2.

1 Gila was a shallow stream not susceptible to commercial navigation in its ordinary and  
2 natural condition.

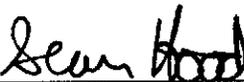
3 Accordingly, Freeport respectfully requests that the Commission render a  
4 determination that the Gila River was neither navigable nor susceptible to navigation in its  
5 natural and ordinary condition at or before statehood. Also submitted on this date are  
6 Proposed Findings of Fact and Conclusions of Law Jointly Submitted by the Salt River  
7 Project, Freeport Minerals Corporation, the Gila River Indian Community, and the San  
8 Carlos Apache Tribe.

9 RESPECTFULLY SUBMITTED this 23rd day of January, 2015.

10 SNELL & WILMER L.L.P.

11 L. William Staudenmaier  
12 Attorneys for Freeport Minerals  
13 Corporation

14 FENNEMORE CRAIG, P.C.

15  
16 By   
17 Sean T. Hood  
18 Attorneys for Freeport Minerals  
19 Corporation

1 MAILING CERTIFICATE

2 ORIGINAL AND SIX COPIES of the foregoing  
3 sent via U.S. mail for filing this 23rd day of January, 2015 to:

4 Arizona Navigable Stream Adjudication Commission  
5 1700 West Washington, Room B-54  
6 Phoenix, AZ 85007

7 COPY sent via e-mail this 23rd day of January, 2015 to each  
8 party on the mailing list (see <http://www.ansac.az.gov/parties.asp>)  
9 for *In re Determination of Navigability of the Gila River*

10 By: Bernadine Zeigler  
11 9896576.1/028851.0233

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