

Santa Cruz

River

Response

Memorandums

1 John B. Weldon, Jr., 003701
2 Mark A. McGinnis, 013958
3 Scott M. Deeny, 021049
4 **SALMON, LEWIS & WELDON, P.L.C.**
5 2850 East Camelback Road, Suite 200
6 Phoenix, Arizona 85016
7 (602) 801-9060
8 jbw@slwplc.com
9 mam@slwplc.com
10 smd@slwplc.com

11 *Attorneys for Salt River Project Agricultural*
12 *Improvement and Power District and Salt*
13 *River Valley Water Users' Association*

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

16 In re Determination of Navigability of
17 the Santa Cruz River

No. 03-002-NAV

**SALT RIVER PROJECT'S
RESPONSIVE CLOSING BRIEF**

18 The arguments presented by the Defenders of Wildlife, et al. ("DOW") in their Closing
19 Memorandum¹ must be considered in view of the following pertinent facts:

20 1. DOW's only "witness," Mr. Hjalmarson, did not even show up at the hearing or
21 submit to cross-examination. He merely filed written comments.

22 2. The Arizona State Land Department ("ASLD"), the State agency expressly
23 directed by statute to "[a]ct as an advocate for the public trust," has not asserted that the Santa
24 Cruz was navigable. *See* A.R.S. § 37-1102(1). DOW is the only party arguing in favor of
25 navigability for any segment of the Santa Cruz.

26 3. DOW concedes that (a) the upper segment of the Santa Cruz from its
27 headwaters down to the international border and (b) the lower segment from the Picacho/Red
Rock area up to the Gila River confluence were not navigable. *See* DOW Closing, at 1. Even

¹ *See* Defenders of Wildlife, et al., Closing Memorandum regarding the Navigability of the Santa Cruz River (June 13, 2014) ("DOW Closing").

1 DOW argues for navigability only on the middle segment between the international border
2 and Picacho/Red Rock. *Id.* at 1.

3 Based upon the positions taken by the parties, the Commission can summarily find that
4 (1) the upper segment of the Santa Cruz from its headwaters down to the international border
5 and (2) the lower segment from the Picacho/Red Rock area down to the Gila River confluence
6 were not navigable. No party has asserted that either of these two segments is or ever was
7 navigable, and evidence does not exist to support such an assertion. The middle segment of
8 the Santa Cruz (between the international border and Picacho/Red Rock) is the only segment
9 that even DOW contends was navigable. DOW has not carried its burden of proof on this
10 middle segment, however, and the Commission should find the entire Santa Cruz non-
11 navigable.²

12 **I. DOW Ignores Substantial Evidence in the Record Regarding the Santa Cruz in**
13 **Its “Ordinary and Natural” Condition.**

14 For its argument that the Santa Cruz was navigable in its “ordinary and natural”
15 condition, DOW relies primarily upon reconstruction attempts by Mr. Hjalmarson, its witness
16 who submitted some written comments but did not show up at the hearing. *See* DOW
17 Closing, at 9-12. DOW ignores substantial evidence that already was in the record regarding
18 what the river looked like in its “ordinary and natural” condition, as well as Mr. Burtell’s
19 detailed and comprehensive analysis submitted during the 2014 proceedings.

20 Archaeological evidence demonstrates occupation near the Santa Cruz in the period
21 before settlement by non-natives. *See* SFC Engineering Company, *Arizona Stream*
22 *Navigability Study for the Santa Cruz River: Gila River Confluence to the Headwaters* § 2, at
23 10 (November 1996) [part of Evidence Item (“EI”) 6] (“SFC”). The area has been occupied
24 since 9500 B.C., over 11,000 years ago. *Id.* No evidence exists in the record, however, to

25 _____
26 ² The Salt River Project Agricultural Improvement and Power District and Salt River Valley Water
27 Users’ Association have not submitted their own separate findings of facts and conclusions of law in
this matter but instead defer to those proposed findings and conclusions submitted by the San Carlos
Apache Tribe and Freeport Minerals Corporation.

1 show that the Hohokam or O'odham people used boats on the Santa Cruz for transportation or
2 trade. *Id.* Executive Summary, at 11; *see also id.* § 1, at 12. Although the archeological
3 research indicates there was trade along the Santa Cruz, “no evidence was found to suggest
4 that the early inhabitants of the valley used boats on the river.” *Id.* Executive Summary, at 3.

5 Native populations lived along the upper, middle, and lower Santa Cruz. *See* SFC,
6 *supra*, § 2, at 29. “[N]o archaeological evidence of navigation along the Santa Cruz River has
7 been found.” *Id.* at 30. Despite substantial human presence in the Santa Cruz River Valley
8 and along the river for thousands of years, no evidence exists that any of those communities
9 ever used or even tried to use the Santa Cruz as a “highway for commerce.”

10 Dating back to 1701, Spanish missionary Father Eusebio Francisco Kino first built a
11 mission on the Santa Cruz. *See* SFC, *supra*, § 2, at 18. Other missionaries followed and also
12 established missions in the Santa Cruz River Valley. *Id.* § 3, at 23. There is evidence of
13 expeditions along the river by the missionaries, but no suggestion exists that the Santa Cruz
14 itself was ever traveled by boat. *Id.* at 24.

15 During the time of settlement by Spanish missionaries, the Santa Cruz reportedly had
16 perennial reaches from its headwaters to Tubac. *See* SFC, *supra*, at 28. The river then
17 disappeared and reappeared up through Tucson and finally went underground north of Tucson
18 at the county line to its confluence with the Gila River. *Id.* One observer of the Santa Cruz in
19 1804 commented: “Only in the rainy season does it enjoy a steady flow. During the rest of
20 the year it sinks into the sand in many places.”³ Thus, even at this early time period in
21 history, when the Santa Cruz was clearly in its “ordinary and natural condition,” the river was
22 not continuous, nor was it used or susceptible to use as a “highway for commerce.”

23 The disappearance and reappearance of the river described by SFC, the entity
24 commissioned by the ASLD to study the Santa Cruz pursuant to A.R.S. § 37-1124, occurred
25 in the middle segment of the river, the same segment that DOW now contends was navigable.

26
27 ³ Leonard C. Halpenny and Philip C. Halpenny, *Review of the Hydrogeology of the Santa Cruz Basin
in the Vicinity of the Santa Cruz-Pima County Line*, at 3-1 (1997) [EI 7].

1 See SFC, *supra*, at 28; DOW Closing. In its Closing Memorandum, DOW acknowledges this
2 historical and hydrologic fact: “Near the Santa Cruz/Pima County line, the geology changes
3 from a high bedrock situation to a deep alluvial system and the river would usually sink below
4 the surface, going underground just north of Tubac and resuming perennial flow again when it
5 reached the San Xavier Mission.” DOW Closing, at 2. Still, DOW contends that this exact
6 segment was navigable under the “correct legal standard.” *Id.* at 1.

7 You cannot float a boat on sand, and you cannot navigate on water that flows only
8 underground. DOW’s own recognition of the long stretch of the middle segment of the Santa
9 Cruz where the river would “usually sink below the surface” refutes its argument that this
10 middle segment ever was navigable.

11 Throughout the remainder of the factual portion of its brief, DOW tries to overcome
12 the inherent defects in its position by, among other things: (1) contending that the Santa Cruz
13 was altered by human activity, (2) discussing a few instances of modern-day boating during
14 times of high water or on effluent-dominated reaches, and (3) setting forth the analysis
15 submitted by Mr. Hjalmarson. See DOW Closing, at 4-12. Any human-induced alterations to
16 the Santa Cruz are immaterial, however, because (even under “ordinary and natural”
17 conditions) the river went underground for large stretches. See *id.* at 2. For the reasons
18 discussed below, the sparse evidence of modern-day boating is not persuasive on the issue of
19 navigability. See Section II, *infra*. Mr. Burtell, who appeared at the hearing and testified,
20 fully refuted Mr. Hjalmarson’s written comments. See generally Freeport Minerals
21 Corporation’s Opening Post-Hearing Memorandum Concerning the Non-Navigability of the
22 Santa Cruz River, at 9-11, 15-20 (June 13, 2014). “[A] river is navigable in law when it is
23 navigable in fact.” *Muckleshoot Indian Tribe v. FERC*, 993 F.2d 1428, 1431 (9th Cir. 1993).
24 As a factual matter, no segment of the Santa Cruz is or ever was navigable.

25 **II. DOW Misapplies the Law to the Facts on the Santa Cruz.**

26 DOW’s legal analysis places great reliance upon the Arizona Court of Appeals’
27 opinion in *State v. ANSAC*, 224 Ariz. 230, 229 P.3d 242 (App. 2010), but makes little mention

1 of *PPL Montana LLC v. Montana*, 132 S. Ct. 1215 (2012). *PPL Montana* is more than just a
2 “segmentation” case. It is the most recent controlling United States Supreme Court precedent
3 on the federal test for navigability. Furthermore, because the United States Supreme Court
4 issued its *PPL Montana* opinion two years after *State v. ANSAC* was decided, the Arizona
5 Court of Appeals did not have the benefit of that opinion when it decided *State v. ANSAC*.

6 The legal standard for which DOW continues to advocate is the same flawed “liberal”
7 or “fluid” test that the Montana Supreme Court applied in *PPL Montana* to find those rivers
8 navigable. The Montana Supreme Court affirmed the district court’s decision in favor of the
9 State of Montana, upholding the award of more than \$40 million in past damages against PPL
10 Montana for prior use of the streambeds. *See PPL Montana LLC v. State*, 355 Mont. 402, 229
11 P.3d 421, 431-36 (2010), *rev’d*, 132 S. Ct. 1215 (2012). In affirming the Montana district
12 court’s finding of navigability, the Montana Supreme Court, for example, relied heavily upon
13 modern-day recreational boating on the rivers. 229 P.3d at 449-50.

14 In affirming the district court’s decision, the Montana Supreme Court stated:

15 . . . The key inquiry here is whether the District Court’s interpretation and
16 application of the navigability for title test was correct, since this test sets forth
17 the legal standard the State must meet for summary judgment and also indicates
18 the type and quantum of evidence PPL must present in order to raise a genuine
19 issue of material fact. . . . Broadly speaking, the District Court perceived the
20 navigability for title test as somewhat “fluid.” . . . Our independent review of
21 the caselaw in this area establishes unequivocally that the District Court’s
understanding of the navigability for title test was correct. The concept of
navigability for title purposes is very liberally construed by the United States
Supreme Court. . . .

22 229 P.3d at 446. The Montana Supreme Court applied that “very liberal” interpretation of the
23 navigability test, in much the same way that DOW has promoted the test in the present case.

24 *See DOW Closing*, at 12-19.

25 In addition to the applying a “very liberal” version of the test for navigability itself, the
26 Montana Supreme Court adopted a similarly broad definition of “commerce.” 229 P.3d at
27 446. The Montana court stated:

1 Additionally, the term “commerce” in the navigability for title context is
2 very broadly construed. For instance, in [*United States v. Utah*, 283 U.S. 64
3 (1931)], the United States Supreme Court explicitly embraced the notion that
4 emerging and newly-discovered forms of commerce can be retroactively
5 applied to considerations of navigability. . . . Because navigability is based
6 upon a broad definition of commerce combined with an “actual” or “susceptible
7 of use” standard, present-day usage of a river may be probative of its status as a
8 navigable river at the time of statehood. . . .

7 *Id.* at 446-47 (citations omitted).

8 PPL Montana filed a petition for certiorari to the United States Supreme Court, which
9 was granted. *See PPL Montana*, 132 S. Ct. at 1215. In its 2012 opinion, the United States
10 Supreme Court reversed the Montana Supreme Court’s decision and soundly rejected its
11 reasoning. *Id.* at 1222 (“That judgment must be reversed.”).

12 In reaching its decision, the United States Supreme Court took the opportunity to
13 clarify and restate the federal law of navigability from its prior decisions and to rein in the
14 more “liberal,” “fluid,” and expansive constructions of that law proffered by some state courts
15 and lower federal courts in recent years:

16 1. The Court reaffirmed that the navigability for title test is applied as of the date
17 of statehood. *See PPL Montana*, 132 S. Ct. at 1227-28. “Upon statehood, the State gains title
18 within its borders to the beds of watercourses then navigable. . . .” *Id.*

19 2. The Court reiterated that the specific requirements of the test for navigability
20 depend upon the context in which the question is posed and that admiralty and Commerce
21 Clause cases are not particularly persuasive on navigability-for-title issues. 132 S. Ct. at 1228
22 (“the test for navigability is not applied in the same way in these distinct types of cases”).
23 “For state title purposes under the equal-footing doctrine, navigability is determined at the
24 time of statehood . . . and based on the ‘natural and ordinary condition’ of the water.” *Id.*

25 3. The Court reiterated that the basis for a determination of navigability is use or
26 susceptibility for use of the watercourse as highway for commerce. 132 S. Ct. at 1230. “By
27 contrast, segments that are nonnavigable at the time of statehood are those over which

1 commerce could not then occur. Thus, there is no reason that these segments also should be
2 deemed owned by the State under the equal-footing doctrine.” *Id.*

3 4. In rejecting the Montana Supreme Court’s analysis of modern-day recreational
4 boating, the Court confirmed its prior pronouncements that the test relates to use or
5 susceptibility to use for commerce as of the date of statehood. 132 S. Ct. at 1233.
6 “Navigability must be assessed as of the time of statehood, and it concerns the river’s
7 usefulness for ‘trade and travel,’ rather than for other purposes.” *Id.* “Mere use by initial
8 explorers or trappers who may have dragged their boats in or alongside the river despite its
9 nonnavigability in order to avoid getting lost, or to provide water for their horses or
10 themselves, is not enough.” *Id.*

11 5. The Court clarified that post-statehood use of the river can be considered only if
12 that use involves the same river conditions and the same types of boats that existed at
13 statehood. 132 S. Ct. at 1233. “Evidence of present-day use may be considered to the extent
14 that it informs the historical determination whether the segment was susceptible of use for
15 commercial navigation at the time of statehood.” *Id.* The party seeking to prove navigability
16 must show that “the watercraft are meaningfully similar to those in customary use for trade
17 and travel at the time of statehood.” *Id.* “If modern watercraft permit navigability where the
18 historical watercraft would not, . . . then the evidence of present-day use has limited or no
19 bearing on navigability at statehood.” *Id.* at 1233-34.

20 6. The Court reiterated and clarified its prior opinions regarding seasonal use and
21 its ability to prove navigability. 132 S. Ct. at 1234. Focusing on the commercial aspects of
22 the transportation, the Court stated: “While the Montana court was correct that a river need
23 not be susceptible of navigation at every point during the year, neither can that susceptibility
24 be so brief that it is not a commercial reality.” *Id.*

25 Based upon these conclusions, the United States Supreme Court, in a unanimous
26 opinion, reversed the judgment of the Montana Supreme Court. *PPL Montana*, 132 S. Ct. at
27 1235. The primary effect of the United States Supreme Court’s decision is that the Court

1 acted to rein in an overly expansive and liberal application of the federal test of navigability
2 for title that had been applied by various state and lower federal courts in recent years. The
3 extremely broad interpretation of prior law undertaken by the Montana Supreme Court, which
4 the United States Supreme Court expressly rejected, is the same approach advocated by DOW
5 here. DOW's argument for the navigability of a river that would "usually sink below the
6 surface" stretches the federal test of navigability well beyond its breaking point, and well
7 beyond the scope articulated by the United States Supreme Court just two years ago in *PPL*
8 *Montana*.

9 For instance, DOW cites a previous Arizona Court of Appeals decision (issued eleven
10 years before *PPL Montana*) for the proposition that trade and travel on the watercourse need
11 not be commercial. See DOW Closing, at 15-16 (citing and quoting *Defenders of Wildlife v.*
12 *Hull*, 199 Ariz. 411, 18 P.3d 722, 727 (App. 2001)). The quoted passage from the *Hull* case,
13 however, is an example of the "liberal" and "fluid" applications of the federal test by state
14 courts and lower federal courts that the United States Supreme Court rejected in *PPL*
15 *Montana*. The *PPL Montana* Court's clear articulation of the "commercial reality" element of
16 the federal test is directly at odds with the Arizona appellate court's statements in *Hull* upon
17 which DOW relies. "[A]ny ensuing questions of navigability for determining state riverbed
18 title are governed by federal law." *PPL Montana*, 132 S. Ct. at 1227. It is axiomatic that,
19 when a statement of law by an intermediate state appellate court conflicts with a subsequent
20 statement of law by the United States Supreme Court on an issue of federal law, the Supreme
21 Court precedent clearly and always controls.⁴

22 The *PPL Montana* decision also addresses the legal question raised by the long stretch
23 of dry river bed that "usually" occurred in the middle segment of the Santa Cruz in its
24 "ordinary and natural" condition. See DOW Closing, at 2. The Montana Supreme Court had
25

26 ⁴ DOW's reliance upon the Oregon Court of Appeals' discussion in *Northwest Steelheaders Ass'n v.*
27 *Simantel*, 199 Ore. App. 471, 112 P.3d 383 (2005), another instance in which an intermediate state
appellate court applied the federal test in any overly broad manner that conflicts with *PPL Montana*,
is similarly misplaced. See DOW Closing, at 16.

1 discounted any navigability impacts of the portage required around the Great Falls on the
2 Upper Missouri River, relying upon the “short interruptions” language from *United States v.*
3 *Utah*, 283 U.S. 64, 77 (1931), and finding that such “short interruptions” do not preclude a
4 finding of navigability. *See PPL Montana*, 132 S. Ct. at 1231. The United States Supreme
5 Court rejected the Montana Supreme Court’s reasoning with respect to portages:

6 Applying its “short interruptions” approach, the Montana Supreme Court
7 decided that the Great Falls reach was navigable because it could be managed
8 by way of land route portage. . . . Even if portage were to take travelers only
9 one day, its significance is the same; it demonstrates the need to bypass the river
10 segment, all because that part of the river is nonnavigable. Thus, the Montana
11 Supreme Court was wrong to state, with respect to the Great Falls reach and
12 other stretches of the river in question, that portages “are not sufficient to defeat
a finding of navigability.” . . . In most cases, they are, because they require
transportation over land rather than over the water. This is such a case, at least
as to the Great Falls reach.

13 132 S. Ct. at 1231.

14 The “usually” dry stretches of the Santa Cruz are, like the Great Falls, factually and
15 legally sufficient to defeat navigability. If anything, these stretches of the Santa Cruz are
16 greater impediments to navigation than are the Great Falls. At least the Great Falls had water
17 in them, even though the rocks and vertical drop made them not navigable. To bypass the dry
18 stretches of the Santa Cruz would require a portage **within the bed of the river**. Travelers
19 would have needed to walk or ride a horse down the river bed because, in those stretches, no
20 river existed. Under *PPL Montana*, those dry stretches make the middle segment of the Santa
21 Cruz clearly non-navigable, as a matter of law and fact. *See* 132 S. Ct. at 1233.⁵

22 **III. Summary and Requested Action**

23 The United States Supreme Court in *PPL Montana* brought the law regarding
24 navigability for title purposes back to considerations of “navigability in fact” and

25 ⁵ The *PPL Montana* opinion also makes it clear that a “State’s long failure to assert title is some
26 evidence to support the conclusion that the river segments were nonnavigable for purposes of the
27 equal-footing doctrine.” 132 S. Ct. at 1235. With regard to the Santa Cruz, the State of Arizona never
has asserted an equal-footing claim and still has asserted no such claim in this proceeding established
specifically for that purpose. *See* A.R.S. §§ 37-1102, -1123.

1 “commercial reality.” 132 S. Ct. at. 1229-34. Contrary to the “liberal” interpretation
2 applied by some state courts and lower federal courts and promoted by DOW in the present
3 case, the United States Supreme Court reconfirmed that the test of navigability for title is a
4 pragmatic one: Was the river, as of February 14, 1912, used or susceptible to being used, in
5 its ordinary and natural condition, as a highway for commerce, over which trade and travel
6 were or could have been conducted in the customary mode of trade and travel on water? That
7 is the Arizona statutory test in A.R.S. § 37-1101(5), and that is and always has been the
8 federal test of navigability for title purposes.

9 No party has asserted that the upper or lower segments of the Santa Cruz are or ever
10 were navigable. DOW has argued for navigability for the middle segment but has failed to
11 make the required factual and legal showing to support its case. Based upon the evidence in
12 the record and applying the appropriate legal test, the Commission can and should find the
13 entire Santa Cruz non-navigable.

14 DATED this 3rd day of July, 2014.

15 SALMON, LEWIS & WELDON, P.L.C.

16 By 

17 John B. Weldon, Jr.
18 Mark A. McGinnis
19 Scott M. Deeny
20 2850 East Camelback Road, Suite 200
21 Phoenix, Arizona 85016
22 Attorneys for SRP

23 ORIGINAL AND SIX COPIES of the foregoing
24 mailed for filing this 3rd day of July, 2014 to:

25 Arizona Navigable Stream Adjudication Commission
26 1700 West Washington, Room B-54
27 Phoenix, AZ 85007

...

...

1 AND COPY mailed this 3rd day of July, 2014 to:

2 Fred E. Breedlove III
3 Squire Sanders & Dempsey LLP
4 1 East Washington Street, Suite 2700
5 Phoenix, AZ 85004-2556
6 *Attorney for the Commission*

7 L. William Staudenmaier
8 Snell & Wilmer LLP
9 One Arizona Center
400 E. Van Buren
Phoenix, AZ 85004-2202
Attorneys for Freeport Minerals Corporation

10 Sean Hood
11 Fennemore Craig, P.C.
12 2394 E. Camelback, Suite 600
13 Phoenix, AZ 85004-2022
Attorneys for Freeport Minerals Corporation

14 Laurie A. Hachtel
15 Joy Hernbrode
16 Attorney General's Office
17 1275 West Washington Street
Phoenix, AZ 85007-2997
Attorneys for State of Arizona

18 Joy E. Herr-Cardillo
19 Timothy M. Hogan
20 Arizona Center for Law in the Public Interest
21 2205 E. Speedway Blvd.
Tucson, AZ 85719
Attorneys for Defenders of Wildlife, et al.

22 Joe Sparks
23 The Sparks Law Firm
24 7503 First Street
25 Scottsdale, AZ 85285-4201
Attorneys for San Carlos Apache Tribe

26 ...
27

1 Steve Wene
2 Moyes Sellers & Hendricks
3 1850 N. Central Avenue, Suite 1100
4 Phoenix, AZ 85004-4527
5 *Attorneys for Arizona State University*

6 Cynthia Campbell
7 Law Department
8 City of Phoenix
9 200 W. Washington, Suite 1300
10 Phoenix, AZ 85003
11 *Attorneys for City of Phoenix*

12 William H. Anger
13 Engelman Berger, P.C.
14 3636 N. Central Avenue, Suite 700
15 Phoenix, AZ 85012
16 *Attorneys for City of Mesa*

17 Charles L. Cahoy
18 Assistant City Attorney
19 City Attorney's Office
20 City of Tempe
21 21 E. Sixth Street, Ste. 201
22 Tempe, AZ 85280
23 *Attorney for City of Tempe*

24 Michael J. Pearce
25 Maguire & Pearce LLC
26 2999 N. 44th Street, Suite 630
27 Phoenix, AZ 85018-0001
*Attorneys for Chamber of Commerce and
Home Builders' Association*

28 Carla Consoli
29 Lewis and Roca
30 40 N. Central Avenue
31 Phoenix, AZ 85004
32 *Attorneys for Cemex*

33 ...
34 ...

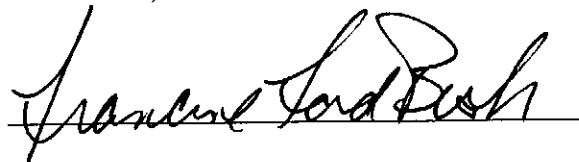
1 James T. Braselton
2 Mariscal Weeks McIntyre & Friedlander PA
3 2901 N. Central Avenue, Suite 200
4 Phoenix, AZ 85012-2705
Attorneys for Various Title Companies

5 Thomas L. Murphy
6 Linus Everling
7 Gila River Indian Community Law Office
8 Post Office Box 97
9 Sacaton, AZ 85147
Attorney for Gila River Indian Community

10 Sandy Bahr
11 202 E. McDowell Road, Ste. 277
12 Phoenix, AZ 85004
Sierra Club

13 David A. Brown
14 Brown & Brown Law Offices
15 128 E. Commercial, P.O. Box 1890
16 St. Johns, AZ 85936

17 Susan B. Montgomery
18 Robyn L. Interpreter
19 Montgomery & Interpreter, P.C.
20 4835 E. Cactus Road, Suite 210
21 Scottsdale, AZ 85254

22
23
24
25
26
27




ARIZONA CENTER FOR LAW
IN THE PUBLIC INTEREST
2205 E. SPEEDWAY BLVD.
TUCSON, ARIZONA 85719
(520) 529-1798
(520) 529-2927 (FAX)

Postmarked
7/3/14 [Signature]

Joy E. Herr-Cardillo (State Bar #09718)

Attorneys for Defenders of Wildlife,
Donald Steuter, Jerry Van Gasse, and Jim
Vaaler

BEFORE THE ARIZONA NAVIGABLE STREAM
ADJUDICATION COMMISSION

In re Determination of Navigability of the Santa Cruz River)))))	Case No. 03-002-NAV Response Memorandum regarding the Navigability of the Santa Cruz River
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Defenders of Wildlife, Donald Steuter, Jerry Van Gasse, and Jim Vaaler (collectively, "Defenders") hereby submit their response memorandum regarding the navigability of the Santa Cruz River.

I. The Daniel Ball Test for Navigability Does Not Require Actual or Commercial Use; Susceptibility is the Proper Test.

In their opening memoranda, navigability opponents all contend that this Commission must find the Santa Cruz nonnavigable because historically the Santa Cruz was not extensively navigated or used for commercial enterprises. After years of litigation, their arguments along these lines are both predictable and familiar. That does not, however, make them any more correct in 2013 than they were in the late 1990s when they posited them to the Court of Appeals in *Defenders v. Hull*,

Appellees assert that "numerous courts, however, have held that a watercourse must be susceptible to *commercial* use in order to be deemed a 'highway for commerce' (i.e., a 'navigable' watercourse)." ... [W]e find Appellees' argument

unconvincing....The federal test has been interpreted to neither require both trade and travel together nor that the travel or trade be commercial.

199 Ariz. 411, 416, 18 P.3d 722, 727 (App. 2002)(citations omitted).

That navigability for title can be found based on susceptibility to navigation even where evidence of actual navigation is lacking was recently reinforced by the Oregon Court of Appeals. *Northwest Steelheaders Ass'n v. Simantel* 199 Ore. App. 471, 112 P.3d 383 (2005). In that case, the Oregon Court of Appeals held particular segments of the John Day River navigable based on the reaches' susceptibility to navigation by Indian canoes. *Id.* at 489. Not surprisingly, the navigability opponents in *Northwest Steelheaders* raised arguments almost identical to the arguments asserted by navigability opponents in this case. In seeking review by the United States Supreme Court (which was denied), the Oregon landowners argued that the Oregon Court of Appeals had erred in finding that susceptibility for travel by canoes with drafts of six to eight inches was sufficient in and of itself to support a finding of navigability, because, among other things:

The evidence established that, while Native Americans lived in both the lower and upper reaches of the John Day River, there is no historical evidence documenting any Native American canoe use on the John Day River. . . . Although European trappers and later anthropologists documented canoe use on other rivers by other Native Americans living in the region, no one ever documented such use by Native Americans on the John Day.Archeological surveys in the area also did not uncover any evidence of Native American canoe use, although they did document the use of Native American foot trails directly along the banks of the River....

* * *

Evidence of early pioneer use of the John Day River was scant. Brigades from the Hudson Bay Company exploring the John Day River did so by horseback and not by boat. . . . In 1858, the United States Army was looking for an expeditious route to move troops and material against the Mormons in Salt Lake City....The Army explored the region by horseback and not by boat. . . . The explorations led to the building of a wagon road in the vicinity as a means to provide a highway for commerce through the John Day River country....

2005 U.S. S. Ct. Briefs LEXIS 2061. Yet, as the Oregon Court of Appeals properly recognized, “[f]irst, with respect to ‘actual use,’ it is not necessary that the historic use made of the river have been either wide-spread or commercially profitable.” 199 Ore. App. at 482. Further, recognizing the historic role that small boats have played in transporting both goods and people, the Oregon court held, “[w]ith respect to the particular mode or means of travel or trade utilized, qualifying travel and trade is not limited to large-scale commercial or multiple passenger vessels of the sort typically engaged in modern commerce...” *Id.* Indeed, as the United States Supreme Court has observed, “[i]t would be a narrow rule to hold that in this country, unless a river was capable of being navigated by steam or sail vessels, it could not be treated as a public highway.” *The Montello*, 87 U.S. (20 Wall) 430, 441 (1874), quoted with approval in *United States v. Utah*, 283 U.S. at 76.

Thus, the fact that the Santa Cruz was not historically navigated, but was rather used for irrigation and consumptive needs, does not preclude a finding of navigability. The test is not whether the river was used as a “highway for commerce” at the time of statehood, but rather, whether, in its ordinary and natural condition, it was susceptible to such use. Here, as discussed at length in Defenders’ Closing Memorandum, the evidence establishes that in its ordinary and natural condition at the time of statehood, a significant segment of the Santa Cruz River had sufficient flow and depth to allow navigation by small watercraft that were customarily used at that time.

II. The Daniel Ball Test Does Not Require Year-Round Navigability.

The fact that the Santa Cruz River, in its ordinary and natural condition, does not have sufficient depth to be navigated every month of the year does not preclude a finding of navigability. In *Defenders*, the Arizona Court of Appeals specifically recognized that a river

may be found navigable even if it is only navigable a few months out of the year. 199 Ariz. at 422, 18 P. 3d at 733, (“periodic navigability is enough, even if the river is not susceptible to navigation at all seasons of the year or all stages of the water”) citing *Economy Light Co. v. United States*, 256 U.S. at 122. See also *State of Oregon v. Riverfront Protective Ass’n*, 672 F.2d 792, 795 (9th Cir. 1982)(holding a river may be deemed navigable despite occasional impediments such as sand or gravel bars, and despite the fact that it is only navigable a few months out of the year).

As Mr. Hjalmarson’s analysis of the Santa Cruz established, an extended reach of the Santa Cruz River, in its ordinary and natural condition, has sufficient flow to be navigated at least 75% to 80% of the time. His analysis demonstrates that in its natural condition, the Santa Cruz River, was largely perennial and from the Mexican border to mile 78, at least 75-80% of the time, it had a depth of at least one foot, with channel widths from 20 to 100 feet. That is more than sufficient to support a finding of navigability.

III. The Criticisms of Mr. Hjalmarson’s Analysis are Without Merit.

The navigability opponents attempt to discredit Mr. Hjalmarson’s analysis by raising various critiques of his work. The Gila River Indian Community even submitted a written critique prepared by their retained expert Mr. Gookin at the close of the evidentiary record. EIN X007. The criticisms, however, misunderstand and misrepresent Mr. Hjalmarson’s work and are without merit.

A. Mr. Hjalmarson’s Analysis of Average Annual Runoff Was Scientifically Sound and Without Error.

In his report, Mr. Gookin asserts, incorrectly, that Mr. Hjalmarson made an arithmetic error in calculating annual runoff. EIN X007 at 3 and Appendix A. In his report, Appendix C,

Item 2, Hjalmarson explains how he calculated the average annual runoff for the Santa Cruz River. On page 6 of Appendix C, he stated “[r]unoff for five reaches in the upper Santa Cruz River watershed that have either perennial or ephemeral flow are shown below . . . Runoff for the Tubac, Continental and Tucson was estimated using data for historic mean annual runoff in USBR (1952) report and ratios of drainage areas for the gage sites.” EIN X005 at 6. To anyone unfamiliar with USBR (1952) (which Mr. Gookin refers to as the “White Paper”), this statement may be unclear and could suggest annual runoff for Tucson, Continental and Tubac was estimated using ratios of drainage areas between Cortaro and Nogales. However, such estimates would be biased by yielding unreasonably great values of runoff for the three sites. The bias results because unit runoff (cfs/sq mi) of Rillito Creek is significantly more than that at Tucson. However, Mr. Hjalmarson did not do that. Instead, he correctly performed the estimation of runoff for Tucson using the data in Table 3 of USBR (1952) where the historic flow at Rillito Creek was adjusted to Virgin flow and subtracted from the Virgin flow at Cortaro. Runoff for Tubac and Continental were then estimated using ratios of drainage areas between Nogales and Tucson. In sum, the values of annual runoff in the Appendix C of Hjalmarson’s Report are correct and there is no arithmetic error.

B. Mr. Hjalmarson’s Calculation of Base Flow Is Correct.

As he did in his analysis of the San Pedro, in analyzing the Santa Cruz River, Mr. Hjalmarson relied upon U. S. Geological Survey Hydrologic Investigations Atlas HA-664, 3 sheets. *Id.* at Appendix C, Item 1 (“Freethy and Anderson”). Mr. Gookin’s contention that Mr. Hjalmarson’s work is wrong is based on his own misunderstanding of Freethy and Anderson’s work. Because the numbers in column 4 are part of the ground-water inflow of the ground-water budget of Freethy and Anderson, a positive number means runoff is lost from the Santa Cruz

River to ground-water recharge. Conversely, a negative number means water is entering the Santa Cruz River from the aquifer and there is a gain of base runoff. The Q90 values on p. 6, Item 3, Appendix C are considered conservative and are correct.

Further, both sets of data used by Mr. Hjalmarson to calculate base flow are from Freethy and Anderson. The data in column 4 of the table on bottom of page 3, Item 1, Appendix C was obtained by Mr. Hjalmarson from USGS. Mr. Gookin's decision to attempt to extrapolate numbers based upon the wedges of the pie chart instead of obtaining the actual data from the USGS as Mr. Hjalmarson did is unnecessarily imprecise and not only makes his analysis inaccurate, but renders his criticism baseless.

C. The Flow Duration Curve Used by Mr. Hjalmarson was based upon the Best Available Data and Was Appropriately Used to Calculate Predevelopment Flow.

Mr. Hjalmarson used a "flow duration curve" (FDC) to calculate predevelopment flow for the Santa Cruz River. The first step in his analysis was to identify a representative curve, which he did based on discharge data for the Nogales gage. The function of the representative curve is to capture the annual *pattern* of flow; for example, the range of flow in the river and the relative duration of high and low flow days. That pattern generally extends throughout the length of a river, even though specific depths will vary. Using the representative FDC, Mr. Hjalmarson was able to estimate the predevelopment flow at the other sites by plotting the FDC on a graph using two data points at each site: **predevelopment base flow** and **average annual runoff**. At each site, the data points were based on data from that site. The FDC was plotted using those data points, which then allowed Mr. Hjalmarson to determine the median annual flow for each site.

The first data point, base flow or base runoff, as Mr. Hjalmarson explained, is that portion of stream flow that comes from under the ground. In the case of the Santa Cruz,

predevelopment base runoff is most likely base flow from the quaternary aquifer or mountain front springs. For the predevelopment base runoff for each of the three sites, Mr. Hjalmarson used the base runoff calculations from Freethey and Anderson.

Mr. Gookin's criticisms regarding the FDCs used by Mr. Hjalmarson reflect what appears to be confusion on his part. It's important to keep in mind that water budgets of Freethey and Anderson are for the basin fill aquifer (s). See Hjalmarson Report, page 3, Item 1, Appendix C. Perennial flow is shown on the Freethey-Anderson map and the 8cfs used by Mr. Hjalmarson is the best available value.

In regard to the shape of the FDC, on p. 15 of his report, Mr. Hjalmarson clearly states that the FDCs are estimated and any straight line segments reflect the estimation process. Also, the sharp break of a few of the curves at Q90 is based on the rapid rate infiltration of streamflow that is shown in Figure 3B on p. 13 of Hjalmarson's Report. So the estimated shape of the curves is based on what Mr. Hjalmarson considers the best available information. Small imperfections (imprecision) in the FDC have an insignificant effect on the analysis and the conclusions reached.

D. Mr. Hjalmarson's Channel Estimates of Channel Size and Shape Are Supported by the River's Geomorphology.

In modeling the predevelopment flow of the Santa Cruz River, Mr. Hjalmarson used the Osterkamp method (Osterkamp (1980)) of defining channel geometry for natural channels. That report states "[t]he purpose of this report, therefore, is to suggest and support several principal generalizations concerning the morphology of natural alluvial stream channels." Osterkamp (1980) at 189p. To Mr. Hjalmarson, natural means what it says—no effect of humans. It's also important to note that Osterkamp (1980) does not limit his method to perennial streams (simply

read his abstract and conclusions) but rather to streams with steady discharge (all of the flow duration curves for the upper Santa Cruz used by Hjalmarson show a steady flow and curves for both perennial and intermittent sites are similar in this regard.). Osterkamp also says the method does not apply to braided channels (a characteristic of ephemeral streams throughout the southwest) and he shows a mathematical example of why not. In other reports, discussed below, Osterkamp sheds insight for his lack of restriction where he discusses perennial and intermittent flow (mostly in the case of not natural streams) and considers a stream perennial if there is flow at least 80% of the time. Thus, Osterkamp's definition of "perennial" is based on the context of streamflow needed to form channel morphology and his definition matches the flow duration curves for the Santa Cruz. Consequently, Hjalmarson simply used a single equation to define channel shape for the entire reach and assumed the river channel was formed in its own sediment. Obviously, Hjalmarson addressed the changing channel size along the river by using different values of mean annual runoff along the river.

Mr. Gookin erroneously uses human-effected stream channels for his argument against Mr. Hjalmarson's work. For example, in his equation on p. 10 of his Report (footnote 43) he inappropriately rearranges an equation then implies his equation is for the Santa Cruz River and compares it against Hjalmarson's equation for natural conditions. The problem is that the Hedman and Osterkamp (1982) report he relies upon is not intended to be used for natural conditions. Nowhere in the Hedman and Osterkamp (1982) report are natural conditions implied and the word natural does not appear in the report. To the contrary, Table 1 of the Hedman and Osterkamp report shows a base flow that was severely depleted, with the Santa Cruz River at Continental and Tucson having no flow 89% and 85 % of the time. Such an oversight by Mr. Gookin demonstrates a fundamental misunderstanding of the methodology.

Finally, Mr. Gookin takes issue with the channel roughness co-efficient used by Mr. Hjalmarson. The value of the Manning roughness coefficient (the n value) assigned to a reach of river channel should represent the composite effects of the factors that tend to retard flow. A good method of determining an overall value is by selecting a base value for a given size of bed material and adjusting for supplemental factors. The literature that uses the base "n" method gives different categories of bed material, base "n" values, numbers and sizes of adjustment factors, and limiting values of roughness. Also, the literature typically gives verified values of roughness for high flows (for example Thomsen and Hjalmarson (1991)) and straight reaches of rather uniform channel material. For low flows along meandering channels, the base roughness tends to be near published upper limiting values and many heterogeneous factors tend to retard flow.

The Manning roughness coefficient (n) for the natural meandering channel of the Santa Cruz River was determined using established procedures of the USGS. The procedure is based on a selected base roughness for a reach of the river channel where incremental increases of roughness associated with vegetation, obstructions, the degree of channel irregularity and the variation of channel cross section are added to the base value. Accounts in the Federal Land surveys and other historic literature of heavy grass and dense trees along the channel with marshy cienegas were considered in determining roughness. The meandering of the channel (sinuosity of 2) also increased the value of the Manning roughness coefficient.


IV. Conclusion.

For all of the foregoing reasons, as well as the reasons set forth in the Closing Memorandum and Proposed Findings of Facts and Conclusions of Law filed by Defenders in this matter, Defenders urge this Commission to find that in its ordinary and natural condition, the

segment of Santa Cruz River that extends from the U.S./Mexico border (river mile 180) to the Picacho-Redrock area (river mile 78) was navigable when Arizona entered the Union on February 14, 1912.

Respectfully submitted this 3rd day of July 2014

ARIZONA CENTER FOR LAW
IN THE PUBLIC INTEREST
2205 E. Speedway Blvd.
Tucson, Arizona 85719



Joy E. Herr-Cardillo
Timothy M. Hogan

ORIGINAL AND SIX COPIES of the foregoing
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Arizona Navigable Stream Adjudication Commission
1700 W. Washington
Room B-54
Phoenix, AZ 85007

COPY of the foregoing mailed this 3rd day of
July 2014, to:

Fred E. Breedlove, III
Squire Patton Boggs (US) LLP
1 E. Washington St., Suite 2700
Phoenix, Arizona 85004

Laurie Hachtel
Joy Hernbrode
Attorney General's Office
1275 West Washington Street
Phoenix, AZ 85007-2297
Attorneys for State of Arizona

John B. Weldon, Jr.
Mark A. McGinnis
Salmon, Lewis & Weldon, Plc
2850 E. Camelback Rd., Ste 200
Phoenix, AZ 85016-4316
Attorneys for the Salt River Project Agricultural Improvement
And Power District and Salt River Valley Water User's Association

Cynthia M. Chandley
L. William Staudenmaier
Snell & Wilmer
400 East Van Buren
Phoenix, AZ 85004-2022
Attorneys for Freeport-McMoRan Copper & Gold, Inc.

Sean Hood
Fennemore Craig, P.C.
2394 E. Camelback, Suite 600
Phoenix, AZ 85016-3429
Attorneys for Freeport-McMoRan Copper & Gold, Inc.

Joe P. Sparks
The Sparks Law Firm
7503 First Street
Scottsdale, AZ 85251-4201
Attorneys for San Carlos Apache Tribe, et al

Steven L. Wene
Moyes Sellers & Sims
1850 N. Central Ave., Ste 1100
Phoenix, AZ 85004

Cynthia S. Campbell
Law Department
City Of Phoenix
200 W. Washington Street, Ste 1300
Phoenix, AZ 85003-1611
Attorneys for City of Phoenix

William H. Anger
Engelman Berger, P.C.
3636 N. Central Avenue, Ste 700
Phoenix, AZ 85012
Attorneys for City of Mesa

Charles L. Cahoy
Assistant City Attorney
City Attorney's Office
CITY OF TEMPE
21E. Sixth St, Ste 201
Tempe, AZ 85280
Attorneys for City of Tempe

Michael J. Pearce
Maguire & Pearce, LLC
2999 N. 44th Street, Ste 630
Phoenix, AZ 85018-0001
Attorneys for Chamber of Commerce
and Home Builders' Association

Carla Consoli
Lewis, Roca, Rothgerber
201 E. Washington St, Ste1200
Phoenix, AZ 85004-2595
Attorneys for Cemex

James T. Braselton
Mariscal, Weeks, McIntyre & Friedlander, P.A
2901 N. Central Ave, Ste 200
Phoenix, AZ 85012-2705
Attorneys for Various Title Companies

Thomas L. Murphy
Linus Everling
Gila River Indian Community Law Office
Post Office Box 97
Sacaton, AZ 85147
Attorney for Gila River Indian Community

Sandy Bahr
202 E. McDowell Rd, Ste 277
Phoenix, AZ 85004
Sierra Club

David A. Brown
Brown & Brown Law Offices
128 E. Commercial PO Box 1890
St Johns, Arizona 85936

Susan B. Montgomery
Robyn L. Interpreter
MONTGOMERY & INTERPRETER, PLC
4835 E. Cactus Rd., Ste. 210
Scottsdale, AZ 85254

A handwritten signature in black ink, appearing to read "J. E. Carter". The signature is written in a cursive style with a large, decorative flourish at the beginning.

*Postmarked
7/3/14
gmm*

1 L. William Staudenmaier (#012365)
2 SNELL & WILMER L.L.P.
3 One Arizona Center, Suite 1900
4 400 E. Van Buren Street
5 Phoenix, AZ 85004-2202
6 Telephone: (602) 382-6000
7 Email: wstaudenmaier@swlaw.com

8 Attorneys for Freeport Minerals
9 Corporation

10 FENNEMORE CRAIG, P.C.
11 Sean T. Hood (No. 022789)
12 2394 East Camelback Road
13 Suite 600
14 Phoenix, AZ 85016-3429
15 Telephone: (602) 916-5000
16 Email: shood@fclaw.com

17 Attorneys for Freeport Minerals
18 Corporation

19 **BEFORE THE ARIZONA NAVIGABLE STREAM**
20 **ADJUDICATION COMMISSION**

21 IN RE: DETERMINATION OF
22 NAVIGABILITY OF THE SANTA
23 CRUZ RIVER

Case No. 03-002-NAV

**FREEPORT MINERALS
CORPORATION'S RESPONSIVE
POST-HEARING MEMORANDUM
CONCERNING THE NON-
NAVIGABILITY OF THE SANTA
CRUZ RIVER**

24
25
26
27
28

INTRODUCTION

Freeport Minerals Corporation (Freeport) responds to the closing memorandum filed by the Arizona Center for Law in the Public Interest (Center). In its closing memorandum, the Center argues that the Commission should find that the Middle Santa Cruz was navigable from the international border to the Picacho Peak area. The Center is the only entity to assert that any portion of the Santa Cruz River was navigable in its ordinary and natural condition,¹ just as it was the only entity to argue that any segment of the San Pedro was navigable. However, the Center entirely ignores the voluminous and conclusive evidence that establishes that in its ordinary and natural condition the Middle Santa Cruz was a shallow, discontinuous stream with repeated gaps in flow and a complete absence of any history of commercial navigation. Indeed, the Center does not even mention Mr. Burtell in its closing memorandum, much less address his analysis and opinions, despite the fact that he was the only witness to testify before the Commission on March 28, 2014.²

The Center also attempts to rewrite *The Daniel Ball* test by striking out the “highway for commerce” component of the test. The Center’s position is irreconcilable with binding United States Supreme Court precedent, including *PPL Montana v. Montana*, 132 S.Ct. 1215, 1233 (2012). The Supreme Court expressly stated in *PPL Montana* that it is evidence of susceptibility to commercial use that must be considered in evaluating navigability. *Id.* (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.”). The Center simply ignores *PPL Montana* while arguing that any stream with

¹ The Center represents Defenders of Wildlife, Donald Steuter, Jerry Van Gasse, and Jim Vaaler (collectively, Center). The Center concedes that neither the Upper Santa Cruz nor the Lower Santa Cruz was navigable in its ordinary and natural condition at or before statehood. *See, e.g.* Center Mem. p. 1 (requesting a finding that the Santa Cruz be deemed navigable from the border to river mile 78).

² Freeport filed its Opening Post-Hearing Memorandum Concerning the Non-Navigability of the Santa Cruz River on June 13, 2014 (Freeport’s Opening Memorandum), which describes in detail the evidence presented to the Commission that demonstrates that the Santa Cruz was non-navigable in its ordinary and natural condition at the time of statehood. In an effort to minimize duplicative briefing, Freeport’s Opening Memorandum is incorporated herein in response to the Center’s closing brief.

1 enough water to float a modern recreational canoe meets *The Daniel Ball* test.

2 The Center's reliance on water depths sufficient to float a modern recreational canoe
3 are inconsistent with *PPL Montana*, and the evidence and testimony presented by Mr. Burtell
4 demonstrate convincingly that the Santa Cruz was not susceptible to navigation in its ordinary
5 and natural condition at or before statehood.

6 **I. THE CENTER DISREGARDS BINDING PRECEDENTS ESTABLISHING**
7 **THAT *THE DANIEL BALL* TEST REQUIRES THAT THE STREAM HAVE**
8 **BEEN SUSCEPTIBLE FOR USE AS A HIGHWAY OF COMMERCE.**

8 The Center submitted a report by Hjalmar W. Hjalmarson. However, Mr.
9 Hjalmarson did not testify during the March 28, 2014 hearing, and the Center made no
10 attempt to apply Mr. Hjalmarson's conclusions outside of the context of modern recreational
11 canoes and modern recreational canoeing standards. Instead, the Center devotes a substantial
12 portion of its closing memorandum to an attempt to convince the Commission that the
13 "highway for commerce" component of *The Daniel Ball* test should be disregarded.³ The
14 Center's attempt to render the "highway for commerce" requirement meaningless or
15 superfluous cannot be reconciled with the vast body of binding precedent on navigability for
16 title in the equal-footing doctrine context,⁴ including *PPL Montana*, 132 S. Ct. at 1234
17 (holding that, because the test is susceptibility to navigation for commercial uses, "the present
18 day recreational use of the river did not bear on navigability for purposes of title under the
19 equal-footing doctrine.")⁵ and *State of Arizona v. Arizona Navigable Stream Adjudication*
20 *Comm.*, 224 Ariz. 230, 241, 229 P.3d 242, 253, ¶¶ 24-25 (App. 2010) ("*State v. ANSAC*")
21 ("[W]e interpret statutory language in a way that gives meaning to each word and clause, and
22 avoids making any part of a statute superfluous, contradictory, void, or insignificant."). The

23
24 ³ See generally Center Mem. pp. 15-18.

25 ⁴ The Center asserts that "in considering the issue of 'commerce,' it is important to
26 distinguish between cases involving navigability under the Commerce Clause and cases
27 involving navigability for title." Center Mem. p. 17. *PPL Montana*, along with a multitude
28 of other equal-footing doctrine cases, establishes beyond any reasonable dispute that the
"highway for commerce" requirement is a component of the navigability for title test.

⁵ See also *PPL Montana* at 1233 (recognizing that stream segments are deemed navigable "if
they '[were] susceptible of being used,' as *highways of commerce* at the time of statehood.")
(quoting *United States v. Utah*). Unless otherwise noted, emphasis is added.

1 Commission must give meaning to the phrase “highway for commerce,” and the Center’s
2 effort to cast this language aside must be rejected.

3 The Center presented no evidence to the Commission that “trade and travel could have
4 been conducted ‘in the customary modes of trade and travel on water’” at or before statehood
5 “‘in [the Santa Cruz’s] natural and ordinary condition.’” *PPL Montana*, 132 S. Ct. at 1233
6 (quoting *United States v. Utah*, 283 U.S. 64, 76, 51 S. Ct. 438, 441 (1931)). Evidence of
7 modern recreational uses may only be considered “to the extent it informs the historical
8 determination whether the river segment was susceptible of use for *commercial navigation* at
9 the time of statehood.” *Id.* This is because “[m]odern recreational fishing boats, including
10 inflatable rafts and lightweight canoes or kayaks, may be able to navigate waters much more
11 shallow or with rockier beds than the boats customarily used for trade and travel at
12 statehood.” *Id.* at 1234. “At a minimum, therefore, the party seeking to use present-day
13 evidence for title purposes must show” that “the watercraft are meaningfully similar to those
14 in customary use for trade and travel at the time of statehood.” *Id.* at 1233.

15 The Center has failed to make this showing that the Supreme Court requires before
16 evidence of recreational boating may be considered. Mr. Hjalmarson relied upon recreational
17 boating standards specifying the minimum depths required for modern recreational canoes,
18 and he made no effort to correlate these standards with depths required for “the boats
19 customarily used for trade and travel at statehood.” *PPL Montana*, 132 S. Ct. at 1234. This
20 is a two-fold evidentiary failure. First, the Center made no showing that recreational boating
21 standards have any applicability in the context of “commercial navigation at the time of
22 statehood.” *Id.* at 1233. Commercial uses require a deeper draft than recreational uses.⁶ Mr.
23 Hjalmarson conceded that a watercraft’s draft increases in connection with commercial
24 navigation involving equipment, goods, or passengers of various sizes, yet he did not
25

26 ⁶ See, e.g., Special Master’s Report, Item No. X008, Freeport 21, at 180 (“[T]he physical
27 characteristics of [the San Juan] ... make it impossible that boats could be navigated
28 practically or safely for commercial purposes. The evidence as to depth makes it clear that
boats with a draft of two feet could navigate not more than half the year...”); see also San
Pedro Transcript, X008, Freeport 22, at June 7 Trans. 50:6-25 and Aug. 1 Trans. 65:1 – 67:9.

1 undertake any evaluation concerning the degree to which these commercial activities would
2 require increased depths relative to the recreational standard that he relied upon.⁷

3 Second, the Center also failed to demonstrate that modern recreational watercraft
4 corresponding to the recreational boating standards used by Mr. Hjalmarson are equivalent to
5 the boats customarily used for trade and travel at statehood. Absent the required
6 demonstration that modern recreational watercraft are “meaningfully similar” to “the boats
7 customarily used for trade and travel at statehood,” as a matter of law it is impermissible to
8 rely upon the type of evidence presented by the Center and Mr. Hjalmarson. *PPL Montana*,
9 132 S. Ct. at 1233-34 (holding that “reliance upon the State’s evidence of present-day,
10 recreational use” was wrong as a matter of law where “[t]he court did not find the watercraft
11 similar to those used at the time of statehood, and the State’s evidence of present-day use for
12 recreational fishing did not indicate what types of boats are now used.”). Accordingly, the
13 Center has failed to meet its burden of proof, and the Santa Cruz must be deemed non-
14 navigable.

15 Moreover, the evidence affirmatively establishes that modern recreational canoes vary
16 greatly from boats customarily used for trade and travel at statehood.⁸ While a foot of depth
17 may be sufficient to float some modern recreational craft – which Mr. Hjalmarson testified
18 require *a mere 2-4 inches of draw*⁹ – that depth is woefully inadequate for boats that were
19 customarily used for trade and travel in that era. As described by the Special Master in
20 discussing the Green, Colorado, and San Juan Rivers, boats that were customarily used for
21 trade and travel at that time¹⁰ required significantly more draw:

22 row-boats ... drawing 6-12 inches; row-boats ... drawing 14-18 inches; steel
23 rowboats ... drawing 7-19 inches; motor boats ... drawing 10 inches to 2½

24 ⁷ See San Pedro Transcript, X008, Freeport 22, at June 7 Trans. 50:6-25. The San Pedro
25 transcripts are referenced herein because Mr. Hjalmarson used the same general methodology
26 for both the San Pedro and the Santa Cruz, see Trans. 1 of 4 pp. 2-4, and because he did not
27 provide testimony during the hearing on the Santa Cruz.

28 ⁸ See, e.g., San Pedro Transcript, X008, Freeport 22, at Aug. 2 Trans. 177:1 – 178:2; Special
Master’s Report at 117-118.

⁹ San Pedro Transcript, X008, Freeport 22, at June 7 Trans. 47:21 – 48:7.

¹⁰ Utah and Arizona were both admitted in the same period. Utah was admitted as the forty-
fifth state in 1896, and Arizona was admitted as the forty-eighth state in 1912.

1 feet; row-boats ... drawing 15-18 inches; scows ... drawing 8 inches; and the
2 large barge of the Moab Garage Company ... drawing up to 20 inches when
3 loaded.... Such commercial navigation would seem to be conducted
4 according to the "customary modes of trade and travel on water."¹¹

5 These boats customarily used for trade and travel during the era in which Utah and Arizona
6 were admitted as states require significantly greater draw than Mr. Hjalmarson's modern
7 recreational canoes. They therefore could not have been navigated on the Santa Cruz in its
8 ordinary and natural condition even if Mr. Hjalmarson's depth calculations were correct.
9 Indeed, while the Special Master determined that these crafts could be navigated on the Green
10 River and the Colorado River, they could not be navigated on the San Juan, despite the river
11 having depths between one and three feet "for 219 days" each year, and for the other "146
12 days a depth of over three feet."¹²

12 **II. THE CENTER FAILS TO ADDRESS THE ABSENCE OF COMMERCIAL**
13 **NAVIGATION DESPITE CLEAR NEEDS DURING PERIODS IN WHICH**
14 **THE MIDDLE SANTA CRUZ WAS IN ITS NATURAL CONDITION.**

15 The Center fails to provide an explanation to the Commission why, despite thousands
16 of years of occupation of the Santa Cruz River valley, there is no history of commercial
17 navigation on the Santa Cruz.¹³ While the absence of commercial navigation is not
18 dispositive "where conditions of exploration and settlement explain the infrequency or
19 limited nature of such use," *United States v. Utah*, 283 U.S. 64, 82, 51 S. Ct. 438, 443 (1931),
20 the Center does not argue an absence of need. That is because arguing an absence of need
21 would be futile.

22 As Mr. Burtell addressed in detail in his Declaration and during the hearing, the
23 existence of mining operations and military bases, including the Tucson Presidio, Fort
24 Buchanan, and a base in the Tubac area, all had strong needs for commercial navigation for

25 ¹¹ Special Master's Report at 117-18.

26 ¹² Special Master's Report at 167.

27 ¹³ See, e.g., Trans. 1 of 4 pp. 17-18; Fuller Report p. 12 ("the Santa Cruz was "a very
28 *important transportation corridor* for travelers going from the eastern United States to the
west, or from Mexico to the Gila River," yet "[t]here is *no evidence of commercial trade on
the river.*").

1 transport of supplies and personnel.¹⁴ However, none of these operations obtained supplies
2 using the Santa Cruz. Instead, they were all forced to obtain supplies by wagon train from
3 Guaymus or Yuma.¹⁵

4 Shipping overland via wagon train was not a preference, it was a necessity. In his
5 Declaration, Mr. Burtell outlined the significant costs associated with this method of shipping
6 and the region's yearning for a more efficient mode, making it very clear that if the Santa
7 Cruz had been a viable highway for commerce it would have been navigated.¹⁶

8 The Center chooses to ignore this issue for good reason. The clear reason why the
9 Santa Cruz was never used for commercial navigation in its ordinary and natural condition is
10 that it was a small, shallow stream consisting of several gaps in flow, and therefore the Santa
11 Cruz was not susceptible to being used as a highway for commerce.¹⁷

12 **III. THE CENTER IGNORES THE SIGNIFICANT FLAWS IN MR.**
13 **HJALMARSON'S METHODOLOGY.**

14 The Center relies heavily upon Mr. Hjalmarson's analysis and opinions. Despite this
15 reliance, however, the Center ignores the numerous flaws that have been identified
16 concerning in Mr. Hjalmarson's model and analysis. These flaws are discussed in detail in
17 Freeport's Opening Memorandum on pages 15-20, and they were addressed at length by Mr.
18 Burtell during the hearing. In brief summary: Mr. Hjalmarson applied the wrong navigability
19 standard (just as the Center has done); his width equation yields understated widths for the
20 Santa Cruz (just as it did for the San Pedro) that ultimately result in erroneously inflated
21 depths; his depth equation erroneously assumes a smooth parabolic channel¹⁸; and Mr.

22 ¹⁴ Trans. 2 of 4 pp. 10-11; *see also* Navigability of the Santa Cruz River by T.A.J. Gookin,
23 P.E., R.L.S., P.H., S.W.R.S., Item No. X007, (Gookin Report) Ch. III pp. 1-2.

24 ¹⁵ Trans. 2 of 4 pp. 10-11.

25 ¹⁶ Declaration ¶¶ 44-45.

26 ¹⁷ *See, e.g.*, Declaration ¶ 29 and Table 2; Transcription of audio tape 2 of 4, Item No. X008,
27 ("Trans. 2 of 4") pp. 1-2; Arizona Stream Navigability Study for the Santa Cruz River, J.E.
28 Fuller, dated January 12, 2004, Exhibit 19, (Fuller Report) p. 12 ("The river was much too
shallow most of the time for small boats, even in the perennial stretches").

¹⁸ As described on page 18 of Freeport's Opening Memorandum, Mr. Hjalmarson's use of
maximum cross-section depths associated with his fictitious parabola, rather than average
cross-section depths, is a misapplication of his own boating standard. The Hyra method
works in tandem with a computer program, the IFG Model, which is used for calculating

1 Hjalmarson's model does not calibrate, *i.e.*, its theoretical results do not match real world
2 empirical data.

3 Perhaps most troubling, Mr. Hjalmarson created his flow duration curve based on data
4 from the Nogales gage, where flow is more regular, and then superimposed his flow duration
5 curve over the numerous ephemeral stretches of the Middle Santa Cruz. This was clear error.
6 For instance, this approach led Mr. Hjalmarson to the erroneous conclusion that the extended
7 ephemeral reach from just north of Tubac to the San Xavier area contained flowing water
8 90% of the time.¹⁹ The Center's own filings demonstrate that this conclusion is erroneous:

9 Near the Santa Cruz/Pima County line, the geology changes from a high
10 bedrock situation to a deep alluvial system and *the river would usually sink*
11 *below the surface, going underground just north of Tubac and resuming*
12 *perennial surface flow again when it reached the San Xavier Mission.*²⁰

12 Quite simply, the results of Mr. Hjalmarson's model are unreliable.

13 The Center was aware of these issues when it filed its closing memorandum – Mr.
14 Burtell addressed these significant flaws in detail during the hearing. The Center's decision
15 to ignore these critical issues reflects the weakness of the Center's position.

16 **IV. THE CENTER FOCUSES ON IRRELEVANT PERIODS OF DIVERSION**
17 **RATHER THAN ADDRESSING MR. BURTELL'S ANALYSIS OF THE**
18 **MIDDLE SANTA CRUZ IN ITS ORDINARY AND NATURAL CONDITION.**

18 The Center devotes several pages to a discussion of diversions and other human
19 impacts to the Middle Santa Cruz prior to and around the time of statehood.²¹ The Center's
20 discussion is entirely irrelevant with respect to Mr. Burtell's analysis and opinions that derive
21 from (1) historic accounts during times when the stream was in its ordinary and natural
22 condition and (2) stream flow records that were adjusted to account for upstream diversions.²²
23 Mr. Burtell relied upon historic accounts of the Middle Santa Cruz made by missionaries,

24 _____
25 depths. The IFG Model does not output maximum cross-section depths, but instead outputs
26 average stream depths. Trans. 2 of 4 pp. 7-8.

26 ¹⁹ Trans. 2 of 4 pp. 18-19; *see also* Gookin Report Ch. IV pp. 7-9.

27 ²⁰ Center's Memorandum regarding the Navigability of the Santa Cruz River, filed on
28 September 7, 2012, pp. 12-13.

27 ²¹ *See generally* Center Mem. pp. 4-9.

28 ²² *See, e.g.*, Declaration ¶¶ 26-40 and Tables 2-5.

1 military personnel, surveyors, and 49ers at times when the stream remained in its ordinary
2 and natural condition.²³ As described in Freeport's Opening Memorandum, Mr. Burtell "was
3 very particular" about identifying accounts made during the autumn harvest or during the
4 winter, "when there was little or no irrigation going on."²⁴ Mr. Burtell also relied upon
5 accounts made from 1849 through the late 1850s and during the Civil War, because these
6 were periods of significant Apache unrest during which travelers noted that the region was
7 essentially abandoned.²⁵

8 Likewise, Mr. Burtell relied upon stream flow records that he adjusted to account for
9 upstream diversions. The USGS had already determined the number of acres being irrigated
10 upstream of the Nogales gage during these periods and had measured the other diversions that
11 were made through an irrigation canal.²⁶ Mr. Burtell determined that these upstream
12 diversions reduced the stream flow at the gage by only about five CFS, and he was therefore
13 able to account for the diversions to ensure that his analysis applied to the Middle reach in its
14 ordinary and natural condition.²⁷

15 By focusing its attention on diversions that are irrelevant to the accounts and stream
16 flow records that Mr. Burtell relied upon, the Center chooses to contend with a straw man
17 rather than address Mr. Burtell's analysis or attempt to reconcile these accounts and stream
18 flow records with Mr. Hjalmarson's inconsistent findings.

19 **V. THE CENTER ERRS IN RELYING ON MAN-MADE LAKES AND**
20 **EFFLUENT.**

21 The Center again relies on boating in man-made lakes, Silver Lake and Warner Lake,
22 and modern recreational boating in effluent dominated reaches downstream of wastewater
23 treatment plants or during storm events.²⁸ As discussed in Freeport's Opening Memorandum,

24 ²³ Trans. 1 of 4 pp. 17-18; Declaration ¶¶ 26-31 and Table 2.

25 ²⁴ Trans. 1 of 4 p. 18.

26 ²⁵ Trans. 1 of 4 pp. 18-19; Declaration ¶¶ 26-31 and Table 2.

27 ²⁶ Declaration ¶ 35; Trans. 2 of 4 pp. 3-4, 9.

28 ²⁷ Trans. 2 of 4 pp. 3-4, 9.

²⁸ Center Mem. pp. 5, 8-9; *see also* Declaration ¶¶ 46-52 (referring to the Center's September 2012 Memorandum).

1 these excursions were recreational nature and have no bearing on “the kinds of commercial
2 use that, as a realistic matter, might have occurred at the time of statehood.”²⁹ Moreover,
3 neither man-made lakes nor the introduction of effluent to the streambed represent the Santa
4 Cruz in its natural condition, and storm events do not represent the Santa Cruz in its ordinary
5 condition. *See, e.g., State v. ANSAC*, 241, 229 P.3d at 254, ¶ 28 (construing “ordinary” to
6 mean “usual, absent major flooding or drought” and “natural” to mean “without man-made
7 dams, canals, or other diversions.”).

8 **VI. THE ARMY CORPS’ TRADITIONAL NAVIGABLE WATERS**
9 **DETERMINATION DOES NOT SUPPORT A FINDING OF NAVIGABILITY**
10 **UNDER *THE DANIEL BALL* TEST.**

11 The Center asserts that it is “significant” that the Army Corp of Engineers’
12 determined that portions of the Santa Cruz River constitute traditional navigable waters for
13 purposes of administering the Clean Water Act (TNW Determination).³⁰ As described in
14 Freeport’s Opening Memorandum, the Corps’ TNW Determination was a result-oriented
15 agency decision aimed at maintaining or extending its jurisdiction in the aftermath of a
16 United States Supreme Court decision that reigned in the Corps’ expansive view of the reach
17 of its own jurisdiction.³¹ Moreover, Colonel Magness, the author of the TNW Determination,
18 openly acknowledges that his TNW Determination rested largely upon the introduction of
19 effluent to the streambed.³² This unnatural condition cannot form the basis for a
20 determination that a river was navigable in its ordinary and natural condition at statehood
21 under *The Daniel Ball* test. *See, e.g., State v. ANSAC*, 241, 229 P.3d at 254, ¶ 28.

22 ²⁹ *PPL Montana*, 132 S. Ct. at 1233; *see also id.* at 1243; *see* Freeport’s Opening
23 Memorandum p. 13.

24 ³⁰ Center Mem. p. 19; *see also* Declaration ¶¶ 46-52 (referring to the Center’s September
25 2012 Memorandum).

26 ³¹ Freeport’s Opening Memorandum pp. 13-15 (citing Colonel Magness’s concern that,
27 absent a TNW Determination for the Santa Cruz, it is likely that “we would lose most of our
28 jurisdiction in the state”).

29 ³² E-mail from Thomas Magness to Steven Stockton dated June 30, 2008, Item No. X008,
30 Freeport 8 (E-mail from Thomas Magness) (“*The flow in these reaches is sufficient year-*
31 *round to support our navigability decision. While it is mostly, but not exclusively, effluent*
32 *from a wastewater treatment plant, we believe that case law does allow for this source in*
33 *decisions of navigability.*”).

1 CONCLUSION

2 The historic accounts and empirical stream flow data are all in agreement that the
3 Santa Cruz was, in its ordinary and natural condition, a small, shallow stream with repeated
4 gaps in flow. This is confirmed by thousands of years of historical occupation along the river
5 without any history of commercial navigation. The Center has not only failed to satisfy its
6 burden of proof, but the overwhelming weight of the evidence clearly demonstrates that the
7 Santa Cruz was neither navigable nor susceptible to navigation in its ordinary and natural
8 condition at or before statehood.

9 RESPECTFULLY SUBMITTED this 3rd day of July, 2014.

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 Sean Hood
17 Sean T. Hood
18 Attorneys for Freeport Minerals
19 Corporation
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1 MAILING CERTIFICATE

2 ORIGINAL AND SIX COPIES of the foregoing
3 Sent via U.S. mail for filing this 3rd day of July, 2014 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 3rd day of July, 2014 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 Santa Cruz River*

10 By: Kathy Power
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