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BEFORE THE
ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

IN THE MATTER OF THE NAVIGABILITY OF THE UPPER SALT RIVER FROM THE CONFLUENCE OF THE WHITE AND BLACK RIVERS TO GRANITE REEF DAM, GILA AND MARICOPA COUNTIES, ARIZONA.	No. 04-008-NAV **ARIZONA STATE LAND DEPARTMENT'S NAVIGABILITY MEMORANDUM**

I. Introduction.

The Arizona State Land Department ("ASLD" or the "State") files this memorandum in response to the Arizona Navigable Stream Adjudication Commission's ("ANSAC" or "Commission") question whether any of the six pending rivers (the Lower Salt River, Upper Salt River, Gila River, Verde River, San Pedro River, and Santa Cruz River) were navigable in their natural and ordinary condition at statehood, as directed by the Court of Appeals in *State ex rel. Winkleman v. Ariz. Navigable Stream Adjudication Comm'n,* 224 Ariz. 230, 229 P.3d 242 (App. 2010). This Commission must, as a matter of law, perform two separate and distinct tasks, it must: (1) analyze each river system on a segment-by-segment basis pursuant to the dictates of *PPL Montana, LLC v. Montana*, 565 U.S. ___, 132 S.Ct. 1216 (2012), something that was not originally required of the parties or the Commission in this matter; and (2) assess the navigability of each segment in the River's its ordinary and natural condition prior to the massive diversion of waters for irrigation that began in the mid-to-late nineteenth century, prior to Arizona's statehood. The State previously submitted a Memorandum to ANSAC on January 27, 2012, that recommended how ANSAC should comply with the *Winkleman* decision. *See* Attachment A.[1]

[1] The State incorporates by reference its previously filed memoranda with ANSAC: State Land Department's Opening Post-Hearing Memorandum filed Dec. 20, 2005, and State Land Department's Response to Opening Post-Hearing Memorandum filed Jan. 10, 2006.

On June 8, 2012, the State submitted a Memorandum on the United States Supreme Court's decision in *PPL Montana,* 132 S.Ct. 1215 (2012). *See* Attachment B. In its *PPL Montana* Memorandum, the State recommended segments for the six pending rivers currently at issue before ANSAC. The Upper Salt River was divided previously into three, main stream reaches. *Arizona State Land Department Rep., Arizona Stream Navigability Study for the Salt River: Granite Reef Dam to the Confluence of the White and Black Rivers*, Draft Final Report, 4-1, 5-1 (rev. June 2003) ("ASLD Upper Salt Report") (Evidence Item No. 027) ("E.I. 27"). This division is not consistent with the ordinary and natural physical characteristics of this river system, and accordingly the State has recommended that the River now be divided into five segments based on the River's physical characteristics. *See* Attachment C, comparison of reaches with recommended segmentation for the Upper Salt River. This Memorandum, therefore, addresses the Upper Salt River from the White and Black Rivers confluence to the Verde River confluence.

As the Winkleman Court instructed, ANSAC must determine "what the River would have looked like on February 14, 1912, in its ordinary (i.e., usual, absent major flooding or drought) and natural (i.e., without man-made dams, canals, or other diversions) condition." *State ex rel. Winkleman v. Ariz. Navigable Stream Adjudication Comm'n*, 224 Ariz. at 241, 229 P.3d at 253; *see PPL Montana, LLC v. Montana,* 132 S.Ct. at 1228 (title navigability determined at statehood based on the "natural and ordinary condition"). The *Winkleman* Court found that the Lower Salt River was "in its natural condition after many of the Hohokam's diversions had ceased to affect the River, but before the commencement of modern-era settlement and farming in the Salt River Valley ...." *Winkleman,* 224 Ariz. at 242, 229 P.3d at 254. In applying the *Winkleman* Court's instruction to the Upper Salt River, the River's natural condition is before the construction of four dams and reservoirs: Roosevelt Dam, Horse Mesa Dam, Mormon Flat Dam, and Stewart Mountain Dam. *See* E.I. 27, ASLD Upper Salt Report, 5-15. As result of these man-made obstructions, nearly all the flow of the Upper Salt River except for the segments above Roosevelt Dam was impounded, flowing only in response to flood discharges and flow releases to supply downstream irrigation diversions. E.I. 27, ASLD Upper Salt Report, 8-2.[2] The Upper Salt's ordinary condition necessarily excludes floods and other extraordinary high water events, but includes the average or normal reach of high water each year.

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[2] The Upper Salt River's hydrology at statehood was not significantly different from the preceding ten to twenty years, except for the effect from Roosevelt Dam. E.I. 27, ASLD Upper Salt Report, 5-12.

The *Daniel* Ball test requires that ANSAC determine the ordinary and natural characteristics of the Upper Salt River, and whether, at statehood, the River was used or was susceptible to being used as a highway for commerce. *Winkleman,* 224 Ariz. at 239, 229 P.3d at 251; *see Utah v. United States,* 403 U.S. 9, 12 (1971); *United States v. Utah,* 283 U.S. 64, 77-81 (1931); *United States v. Holt State Bank,* 270 U.S. 49, 52-53, 56-57 (1926); *The Daniel Ball,* 77 U.S. (10 Wall.) 557, 563 (1870). The River was navigable within the meaning of the federal test because its ordinary and natural physical characteristics could have supported navigation, and because it was actually historically boated and continues to be boated today.

II. The Ordinary and Natural Physical Characteristics of the Upper Salt River Were Sufficient to Support Navigation and Commerce.

The Upper Salt River in its ordinary and natural condition was capable of being used for transportation or commerce. *See United States v. Utah*, 283 U.S. at 82 ("question of . . . susceptibility in the ordinary condition of the rivers, rather than of the mere manner or extent of actual use, is the crucial question. . . . The extent of existing commerce is not the test."); *PPL Montana,* 132 S.Ct. at 1233. Moreover, in applying the *Daniel Ball* test for the Upper Salt River, ANSAC must consider the unique circumstances surrounding Arizona's development. If limited or infrequent use of a watercourse can be explained by settlement of the region, or the use of trails or roads in connection with the location of the watercourse, the watercourse still may be proven to be susceptible to use as a highway for commerce. *United States v. Utah,* 283 U.S. at 81-82 (nonuse not indicative of non-navigability based on many factors including non-settlement of the region). Based on its bedrock geology which somewhat limited access to the River, the area surrounding the River was not largely populated at statehood. E.I. 27, ASLD Upper Salt Report, 4-15; *see United States v. Appalachian Elec. Power Co.*, 311 U.S. 377, 409-410 (1940) (navigability not affected by nonuse over extended period, changed conditions, or other forms of transportation); *see also* E.I. 27, ASLD Upper Salt Report, 3-24 (due to the Upper Salt's remoteness, rugged terrain, and Apache threat, explorer and traveler descriptions are not as common as for other Arizona rivers), 4-10 (few towns and no significant cities were located on the Upper Salt. Transportation routes, including ferries, roads, and railroads, almost completely avoided the River).

A. The Upper Salt River's Ordinary and Natural Physical Characteristics – Its Hydrology, Hydraulics, and River Conditions – Demonstrate that the River Was Susceptible to Use as a Highway for Commerce.

1. Upper Salt River Segments.

In its ordinary and natural condition, the Upper Salt River from the confluence of the White and Black Rivers to the Verde River confluence consists of several river segments defined by their navigability characteristics, hydrology, geology, and geography. Over its length, the Upper Salt River flows generally lies within a bedrock canyon interrupted by a number of "flats," which consist of less confined, broader valleys. E.I. 27, ASLD Upper Salt Report, 4-11 – 4-13. On the basis of these navigability characteristics, the Upper Salt River should have been segmented as indicated in Table 1.

Table 1. River Segments within the Upper Salt River

	Segment Boundaries	Comments
Upper Salt River	1 – White/Black River Confluence to Apache Falls	Boating not allowed by Apaches
	2 – Apache Falls to Sleeper Rapid	Popular commercial & recreational boating
	3 – Sleeper Rapid to Roosevelt Dam	Popular recreational boating
	4 – Roosevelt Dam to Stewart Mountain Dam	Now inundated by reservoirs
	5 – Stewart Mountain Dam to Verde River Confluence	Popular recreational boating
Lower Salt River	6 – Verde River Confluence to Gila River Confluence	Described in separate report.

See Attachment B; E.I. 8, U.S. Forest Service dated Feb. 2, 1998, 4-9.

a. Segment 1: White/Black River Confluence to Apache Falls.

This segment extends from the upstream limit of the Salt River at the confluence of the White and Black Rivers to Apaches Falls, a Class IV rapid located immediately upstream of the U.S. 60 Bridge in the Salt River Canyon. The River, in Segment 1, flows within a deep, narrow, bedrock canyon with few access points. E.I. 27, ASLD Upper Salt Report, 4-9 – 4-13, 5-3. The River is located entirely within the Fort Apache and San Carlos Indian Reservations. E.I. 27, ASLD Upper Salt Report, 5-3. The Indian Tribes do not allow boating on the Salt River by non-tribal members, although surveys of boating clubs in Arizona indicate that it has been boated without permission by a number of kayakers. Transcript of ANSAC Hearing on Oct. 20, 2005, ("Tr."), 71-72 (Fuller). Segment 1 is perennial, with reliable flow throughout the year. E.I. 27, ASLD Upper Salt Report, 4-5. The median annual flow rate ranges from about 208 cubic feet per second ("cfs") at the upstream end to 265 cfs at the downstream end. *See* E.I. 27, ASLD Upper Salt Report, 5-20. Segment 1 has a pool and riffle pattern, with numerous Class II-III rapids. E.I. 27, ASLD Upper Salt Report, 5-6; E.I. 8, U.S. Forest Service. Carrizo Creek is the only significant tributary in Segment 1. E.I. 27, ASLD Upper Salt Report, 5-3. Segment 1 is

distinguished from Segment 2 based on its slightly lower flow rate, more strictly regulated river access, and sparser record of historical and modern boating. E.I. 27, ASLD Upper Salt Report, 4-9 – 4-13; E.I. 8, U.S. Forest Service; Tr., 18, 71, 72 (Fuller).

b. Segment 2: Apache Falls to Sleeper Rapid.

Segment 2 extends from just upstream of the U.S. 60 Bridge in the Salt River Canyon to Sleeper Rapid, the last of the Class III-IV rapids in Salt River Canyon. Segment 2 is one of the most frequently boated river segments in Arizona, and several seasonal, commercial boating operations are located there. E.I. 27, ASLD Upper Salt Report, 6-6. Hundreds of people boat this reach of the Salt River Canyon during spring runoff, which occurs between February and May each year. *See* E.I. 27, ASLD Upper Salt Report, 6-6; Tr., 19 (Fuller); Tr., 51-52 (Gilpin). The River is located in a deep bedrock canyon, which includes many named and unnamed Class II to IV rapids, as well as numerous small riffles and rapids, although most of the River's length is composed of pools. E.I. 27, ASLD Upper Salt Report, 4-8 – 4-9; E.I. 8, U.S. Forest Service. Segment 2 also includes several large "flats," the largest of which is Gleason Flat. E.I. 27, ASLD Upper Salt Report, 4-8; Tr., 79-80 (Fuller). These flats occur where the canyon widens, there are few rapids, easier access, and historical ranching or farming communities. See E.I. 27, ASLD Upper Salt Report, 3-16 – 3-20, 4-8. Significant tributaries in Segment 2 include Cibeque and Canyon Creeks. E.I. 27, ASLD Upper Salt Report, 5-3. Segment 2 is located within portions of the Tonto National Forest, Salt River Canyon Wilderness, and the Fort Apache and San Carlos Indian Communities. *See* E.I. 27, ASLD Upper Salt Report, 5-3. The U.S. Forest Service operates a permit system for the Upper Salt River Canyon in order to limit the number of boating parties that traverse the River. Tr., 71-72, 80-81 (Fuller). Segment 2 is distinguished from Segment 3 by its greater frequency of modern boating, and by somewhat larger rapids. E.I. 27, ASLD Upper Salt Report, 4-9 – 4-13; E.I. 8, Forest Service; Tr., 71 (Fuller).

c. Segment 3: Sleeper Rapid to Roosevelt Reservoir.

Segment 3 extends from Sleeper Rapid to the upstream limit of Roosevelt Reservoir just downstream of the State Route 288 Bridge. In Segment 3, the River is geologically, geomorphically, and hydrologically similar to Segments 1 and 2, but the rapids are smaller (Class I-II) and less frequent, and the pools are longer. *See* E.I. 27, ASLD Upper Salt Report, 4-9, 4-13, 5-28. Segment 3 is located primarily within the Salt River Canyon Wilderness. E.I. 27, ASLD Upper Salt Report, 5-3. The U.S. Forest Service operates a permit system for the Salt River Canyon Wilderness in order to limit the number of boating parties that traverse the River

during spring runoff. Tr., 71-72, 80-81 (Fuller). No permits are required to boat the River the remainder of the year. Significant tributaries to Segment 3 include Pinal and Cherry Creeks. E.I. 27, ASLD Upper Salt Report, 5-3. Segment 3 is distinguished from Segment 4 by the impacts of dam construction and reservoir impoundments on the existing River in Segment 4 that affects the ability to observe the River in its ordinary and natural condition. *See* E.I. 27, ASLD Upper Salt Report, 4-9, 5-29.

d. Segment 4: Roosevelt Reservoir to Stewart Mountain Dam.

Segment 4 consists of Upper Salt River reaches that are now inundated by the nearly continuous reservoirs formed by the four major water supply dams. E.I. 27, ASLD Upper Salt Report, 4-11, 5-3; Tr., 21 (Fuller). In its ordinary and natural condition, Segment 4 consisted of bedrock canyon similar in character to Segment 3. E.I. 27, ASLD Upper Salt Report, 4-8 – 4-11. Despite a very limited population, and early, historical damming of the River, there are historical records of boating the Salt River from Roosevelt to Phoenix. E.I. 27, ASLD Upper Salt Report, 3-35 – 3-37; Tr., 13 (Gilpin); Tr., 21-22, 147 (Fuller). Significant tributaries in Segment 4 include Tonto Creek. E.I. 27, ASLD Upper Salt Report, 4-9, 5-3. Segment 4 is distinguished from Segment 5 by the influence of reservoir impoundments, the ability to observe the River in its natural condition, and the end of the bedrock canyon reaches of the Upper Salt River.

e. Segment 5: Stewart Mountain Dam to Verde River Confluence.

Segment 5 extends from Stewart Mountain Dam to the confluence with the Verde River. The River in Segment 5 is geomorphically similar to the Lower Salt River (Segment 6 that is addressed in a separate Navigability Memorandum), with no significant rapids, perennial flow, and easy access. Segment 5 is routinely boated by canoes, kayaks, rafts, and small motorized flat boats. *See* E.I. 27, ASLD Upper Salt Report, 6-6; Tr., 21 (Fuller). It is a frequently used recreational boating reach in Arizona, and is located within the Tonto National Forest and the Fort McDowell Indian Reservation. E.I. 27, ASLD Upper Salt Report, 5-3. The segment is used by several commercial boating companies that provide guided raft trips, kayak rentals, and shuttle services. *See* E.I. 27, ASLD Upper Salt Report, 6-6, 8-2; Tr., 21-23 (Fuller). A number of the historical boating accounts described for the Lower Salt River occurred within Segment 5.

Natural barriers such as rapids and sandbars may make navigation more difficult, but do not preclude a finding of navigability. *United States v. Utah,* 283 U.S. at 86-87; *Econ. Light & Power Co.*, 256 U.S. 113, 122 (1921) (stating that navigability is not destroyed because a watercourse is interrupted by occasional natural obstructions or portages). Further, natural

obstructions do not necessarily require portaging. Tr., 68-69 (Fuller) (portaging on Upper Salt depends on skill of the boater). Each type of obstruction (e.g., sandbar, waterfall, or rapid) as well as the type of boat, its intended use, and the skill of the boater must be examined to determine if portaging is in fact required. *See United States v. Appalachian Elec. Power Co.*, 311 U.S. 377, 404 (1940) (stating that there is no "formula which fits every type of stream under all circumstances and at all times" and "[o]ur past decisions have taken due account of the changes and complexities in the circumstances of a river"). The Upper Salt's physical characteristics differ markedly from those found on the Missouri River; the Upper Salt has no seventeen-miles-long "Great Falls" with five waterfalls and continuous rapids in between. *See PPL Montana.* 132 S.Ct at 1231. Therefore, the River has no segment that ANSAC could find non-navigable merely due to its physical characteristics.

2. Hydrology.

Flow data for the Upper Salt River were derived primarily from the records and publications of the United States Geological Survey (USGS). E.I. 27, ASLD Upper Salt Report, 5-38 – 5-40; Tr., 151 (Fuller). The ASLD was the only party to compile and submit flow data, which included USGS records. USGS stream flow records are routinely relied on for stream flow and water adjudication studies throughout the United States, and are universally recognized as reliable and objective. E.I. 27, ASLD Upper Salt Report, 5-5. ASLD also submitted flow data based on: (1) direct measurement (E.I. 27, ASLD Upper Salt Report, 5-5, 5-8, 5-9); (2) direct observations by explorers, early residents (E.I. 27, ASLD Upper Salt Report, 5-10, 5-11); and (3) stream flow reconstructions based on tree-ring data. E.I. 27, ASLD Upper Salt Report, 5-11. All flow data indicate a consistent picture of perennial and reliable stream runoff in the Upper Salt River.

USGS scientists and hydrologists reconstructed average flow conditions in the Salt River study reach using stream gauge records from stations located upstream of the Salt-Verde confluence. Table 2, Flow Duration Estimates at Long-term USGS Gages. Graybill (1989) determined a long-term average annual flow rate of 796 cfs for the Upper Salt River based on tree-ring records. E.I. 27, ASLD Upper Salt Report, 5-11. In no case was the natural minimum monthly or annual flow rate zero, regardless of the severity of any drought condition. E.I. 27, ASLD Upper Salt Report, 5-10, 5-11. All of the historical floods were rare occurrences with short durations. Tr., 152 (Fuller). Regardless, floods and droughts do not represent the ordinary and natural conditions of the River. The flow data, as summarized in Table 2, represent the best

available estimates of typical, expected flow rates in the Upper Salt River in its ordinary and natural condition. These data, in conjunction with the data shown in Figures 2 to 4 indicate that the River was navigable more than 95% of the time.

Table 2
Flow Duration Estimates at Long-Term USGS gages (cfs)[3]

Gage	Segment	90%	50%	10%
Black River near Fort Apache[2]	1	1,180	113	39
White River near Fort Apache[2]	1	539	95	34
Salt River near Chysotile[2]	1, 2,3	1,550	265	129
Salt River near Roosevelt[2]	4,5	2,040	343	157

Notes:
1. Source: (Garrett & Gellenbeck, 1991).
2. Flow duration reported is percent of time given flow rate was equaled or exceeded.
3. Irrigation diversion upstream of gage station diverts low flows.
4. All gages listed are located upstream of major reservoirs.

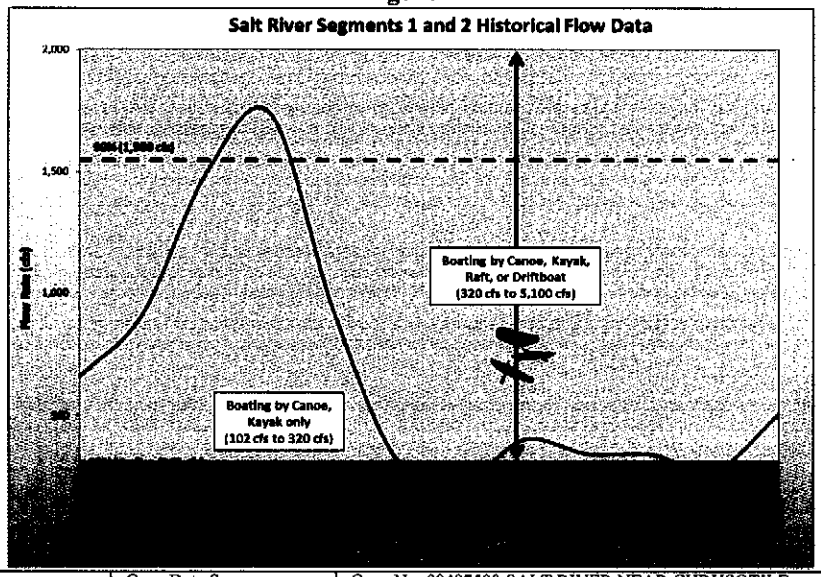
E.I. 27, ASLD Upper Salt Report, 5-20, Table 16.

The key aspects of the ordinary and natural flow data in the existing record for the Upper Salt River include the following indisputable facts: (1) as with all natural rivers, there is seasonal fluctuation in the River's natural flow; (2) the River's ordinary and natural seasonal fluctuation occurs within an expected and predictable range; (3) the River experiences periodic floods and droughts: (a) floods on the River are rare and of short duration; flood conditions occur well less than 1% of the time, and do not constitute the ordinary and natural condition; and (b) the River never completely dried up, even in the most extreme drought; (4) boatable flow rates occurred more than 95% of the time; and (5) there was no predictable period when non-boatable flood conditions occurred. E.I. 27, ASLD Upper Salt Report, 5-7, 5-8, Table 2, Table 3, 5-9 – 5-12, 5-17, 5-18 – 5-20, 5-22, 5-24 – 5-27, 5-38, 5-40, 6-1, 6-2; Tr., 152 (Fuller) (floods and seasonal flow).

Figures 1, 2, and 3 summarize the River's ordinary and natural flow data (non-drought, non-flood), and show the ordinary, seasonal fluctuation by month, as well as 10%, 50% (median), and 90% flow rates. Figures 1-3 also show the ranges of flow applicable to different types of boating. These data indicate that the Upper Salt River was ordinarily susceptible to boating throughout the year.

[3] In this table, the 90% flow rate indicates that 90% of the time the flow is less than the cfs number in the table, the 50% flow rate indicates that 50% of the time the flow is above the cfs number in the table, and the 10% flow rate indicates that 90 % of the time the flow is greater than the cfs number in the table.

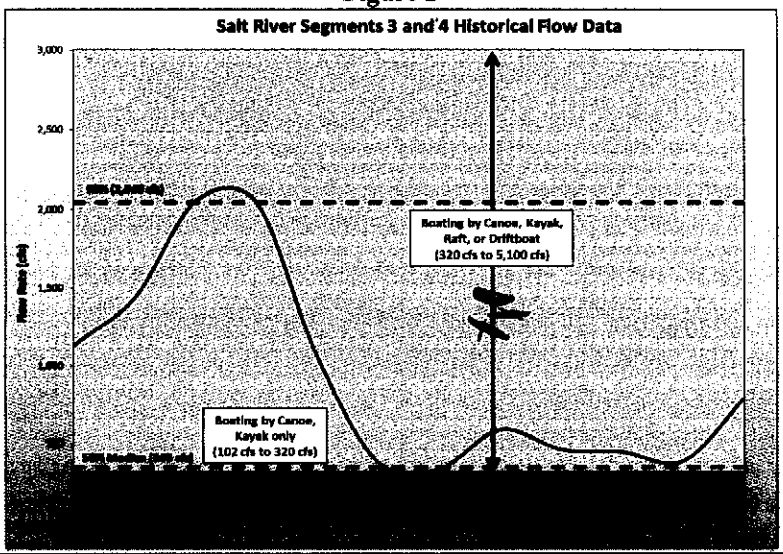
Figure 1



Key to Symbols & Data		Gage Data Source:	Gage No. 09497500 SALT RIVER NEAR CHRYSOTILE
	No boating possible		
	Boating by canoes, kayaks	Source: Min. canoes (E.I. 27, ASLD Upper Salt Report, Section 5 supplemental information: rating curve for 0.5 foot depth.)	
	Boating by all types (canoes, kayaks, rafts, drift boats)	Source: Max canoes (E.I. 21, Douglas Rhodes; Letter dated June 15, 2004); Min Rafts (E.I. 24, Coby Muckelory; Letter dated July 20, 2004))	
	Boating by rafts, drift boats	Source: Max rafts = 8,000 cfs (E.I. 21, Douglas Rhodes; Letter dated June 15, 2004. Exceeds range shown on chart)	
	90% Flow	Per stream gage records, 90% of time flow is less than this discharge (1,610 cfs).	
	50% Flow	Median flow rate per stream gage, 50% of time flow is above this discharge (266 cfs).	
	10% Flow	Per stream gage records, 90% of time flow is greater than this discharge (130 cfs).	
	Average monthly discharge as recorded at long-term USGS stream gaging stations.		
Notes:			

E.I. 27, ASLD Upper Salt Report, 5-5, 5-18 – 5-19, 5-20, Table 16, 5-28, 5-31, 5-33, 6-1, 6-2; E.I. 21, E.I. 24.

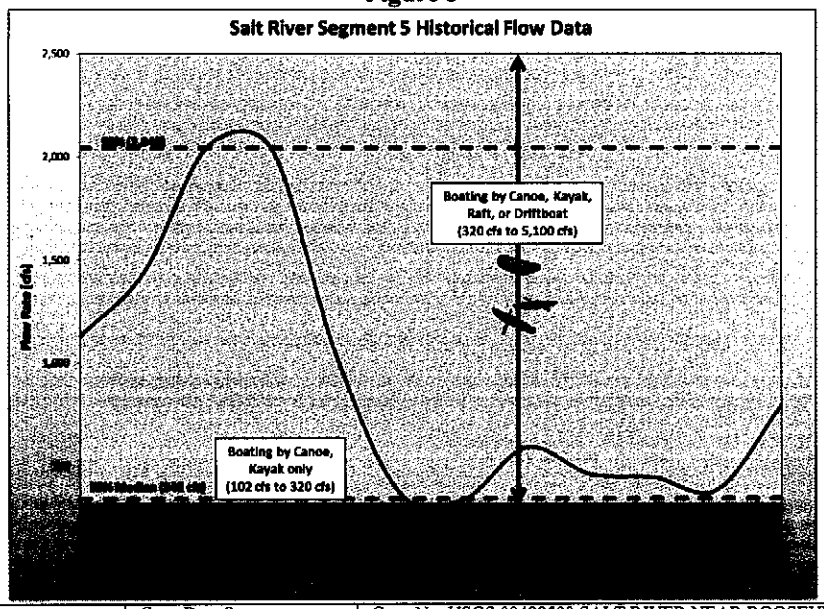
Figure 2



Key to Symbols & Data		Gage Data Source:	Gage No. 09498500 SALT RIVER NEAR ROOSEVELT
	No boating possible		
	Boating by canoes, kayaks	Source: Min. canoes (E.I. 27, ASLD Upper Salt Report, Section 5 supplemental information: rating curve for 0.5 foot depth.)	
	Boating by all types (canoes, kayaks, rafts, drift boats)	Source: Max canoes (E.I. 21, Douglas Rhodes; Letter dated June 15, 2004); Min Rafts (E.I. 24, Coby Muckelory; Letter dated July 20, 2004))	
	Boating only by rafts, drift boats	Source: Max rafts = 8,000 cfs (E.I. 21, Douglas Rhodes; Letter dated June 15, 2004. Exceeds range shown on chart)	
	90% Flow	Per stream gage records, 90% of time flow is less than this discharge (2,120 cfs).	
	50% Flow	Median flow rate per stream gage, 50% of time flow is above this discharge (341 cfs).	
	10% Flow	Per stream gage records, 90% of time flow is greater than this discharge (159 cfs).	
	Average monthly discharge as recorded at long-term USGS stream gaging stations.		
Notes:			

E.I. 27, ASLD Upper Salt Report, 5-5, 5-18 – 5-19, 5-20, Table 16, 5-28, 5-31, 5-33, 6-1, 6-2; E.I. 21, E.I. 24.

Figure 3



Key to Symbols & Data		Gage Data Source:	Gage No. USGS 09498500 SALT RIVER NEAR ROOSEVELT, AZ
	No boating possible		
	Boating by canoes, kayaks	Source: Min. canoes (E.I. 27, ASLD Upper Salt Report, Section 5 supplemental information: rating curve for 0.5 foot depth.)	
	Boating by all types (canoes, kayaks, rafts, drift boats)	Source: Max canoes (E.I. 21, Douglas Rhodes; Letter dated June 15, 2004); Min Rafts (E.I. 24, Coby Muckelory; Letter dated July 20, 2004))	
	Boating by rafts, drift boats	Source: Max rafts = 8,000 cfs (E.I. 21, Douglas Rhodes; Letter dated June 15, 2004. Exceeds range shown on chart)	
	90% Flow	Per stream gage records, 90% of time flow is less than this discharge (2,040 cfs).	
	50% Flow	Median flow rate per stream gage, 50% of time flow is above this discharge (343 cfs).	
	10% Flow	Per stream gage records, 90% of time flow is greater than this discharge (157 cfs).	
	Average monthly discharge as recorded at long-term USGS stream gaging stations.		
Notes:			

E.I. 27, ASLD Upper Salt Report, 5-5, 5-18 – 5-19, 5-20, Table 16, 5-28, 5-31, 5-33, 6-1, 6-2; E.I. 21, E.I. 24.

3. Hydraulics.

Rating curves show discharge to stream width, velocity, and depth. E.I. 27, ASLD Upper Salt Report, 5-27 – 5-34. Figures 4 and 5 show geometry of cross sections used to construct flow rating curves. Maximum main channel depths generally range between one and five feet. E.I. 27, ASLD Upper Salt Report, 5-29, 5-31. The average flow velocities are generally less than three feet per second. E.I. 27, ASLD Upper Salt Report, 5-31. Minimum channel top widths are between 100 and 400 feet. E.I. 27, ASLD Upper Salt Report, 5-31. These values are further corroborated with depths and widths reported by early explorers, and cited by contemporary investigators. E.I. 27, ASLD Upper Salt Report, 3-24 – 3-27, 5-4, 5-11. Early explorers describe a perennial stream averaging up to 200 feet wide and two to three feet deep, with abundant beaver and fish populations, and dense riparian vegetation along the stream banks. E.I. 27, ASLD Upper Salt Report, 3-26, 3-36.[4] The flow data, as summarized in Table 3, represent the

[4] An abundance of fish, some as long as five feet and weighing forty pounds, were reported in the River around statehood. E.I. 27, ASLD Upper Salt Report, 6-5, Tr., 138-139, 141-142 (Weedman) (wide range of native species of fish in the River, Colorado Pikeminnow could range from 50 – 60 pounds and 3 – 4 feet long).

best available estimates of typical, expected flow conditions in the Upper Salt in its ordinary and natural condition.

Table 3. Upper Salt River Flow Characteristics				
Recurrence Interval	**Discharge (cfs)**	**Average Depth (ft)**	**Velocity (ft/sec)**	**Topwidth (ft)**
Salt River Canyon - Shear Canyon Section				
Mean Annual Flow	896	1.4	2.4	266
Salt River Canyon- Canyon Section With Gravel/Boulder Bar				
Mean Annual Flow	896	3.6	4.5	55
Reach 3: Salt River Near Verde River Confluence - Alluvial Channel Section				
Mean Annual Flow	1,455	2.9	3.0	1,455

E.I. 27, ALSD Upper Salt Report, 5-31, Table 22.

Table 3 documents the River's pre-statehood, average hydraulic characteristics. Comparing the hydraulic characteristics in Table 3 with those for federal boating criteria in Table 4, and with the probable stream characteristics for canoes at statehood in Table 5 leads to one conclusion: the Upper Salt in its ordinary and natural condition normally exceeded the minimum conditions for boating and, therefore, was susceptible to navigation.

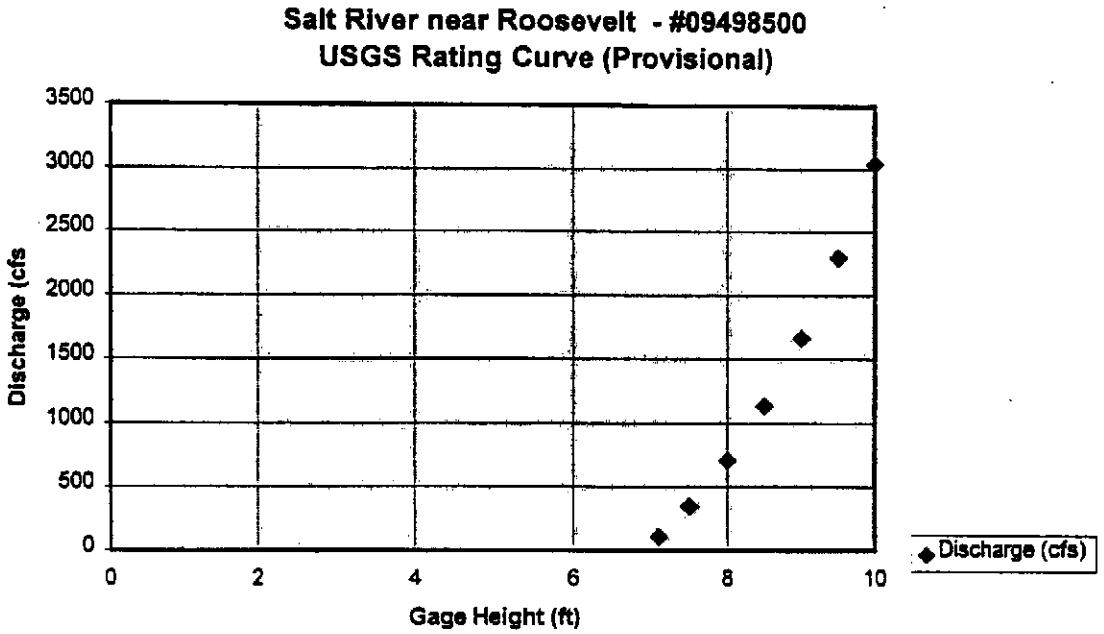
Table 4 Minimum and Maximum Conditions for Recreational Water Boating						
Type of Boat	**Minimum Condition**			**Maximum Condition**		
	Width	**Depth**		**Width**	**Depth**	**Velocity**
Canoe, Kayak	25 ft.	3-6 in.		-	-	15 fps
Raft, Drift Boat	50 ft.	1 ft.		-	-	15 fps
Low Power Boating	25 ft.	1 ft.		-	-	10 fps
Source: Cortell and Associates, 1977						

E.I. 27, ASLD Upper Salt Report, 6-2, Table 2.

Table 5 Flow Requirements for Pre-1940 Canoeing	
Boat Type	**Depth**
Flat Bottomed (Wood or Canvas)	4 in.
Round Bottomed (Wood or Canvas)	6 in.
Source: Slingluff, J., 1987.	

E.I. 27, ASLD Upper Salt Report, 6-4, Table 3.

Figure 4



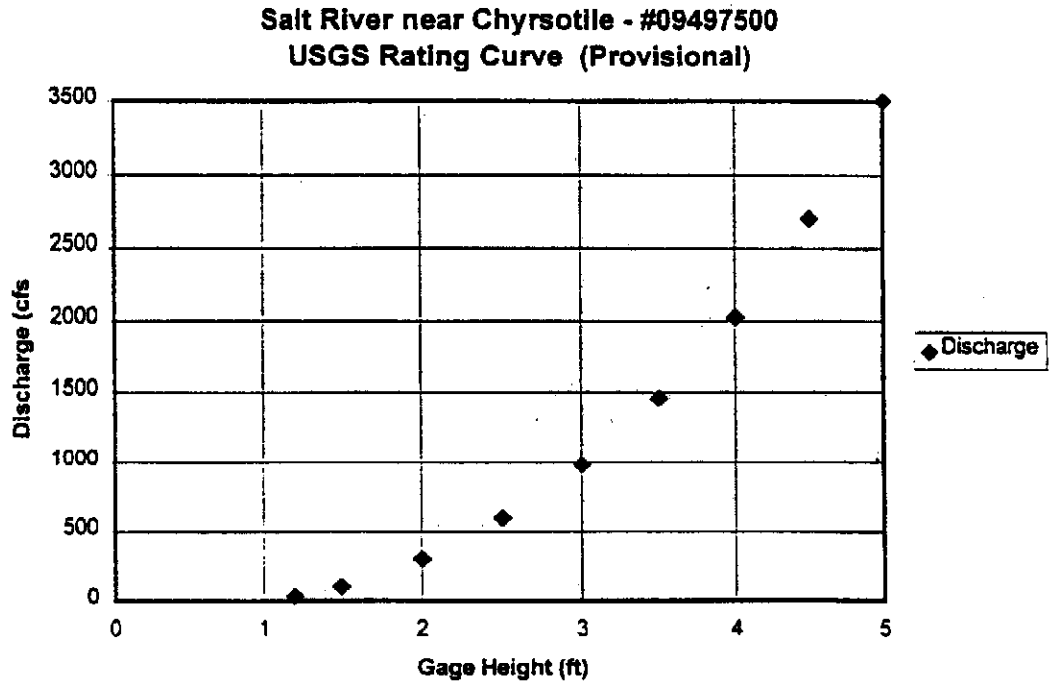


Figure 4. Rating curves for the Upper Salt River. E.I. 27, ASLD Upper Salt Report, 5-30.

Figure 5

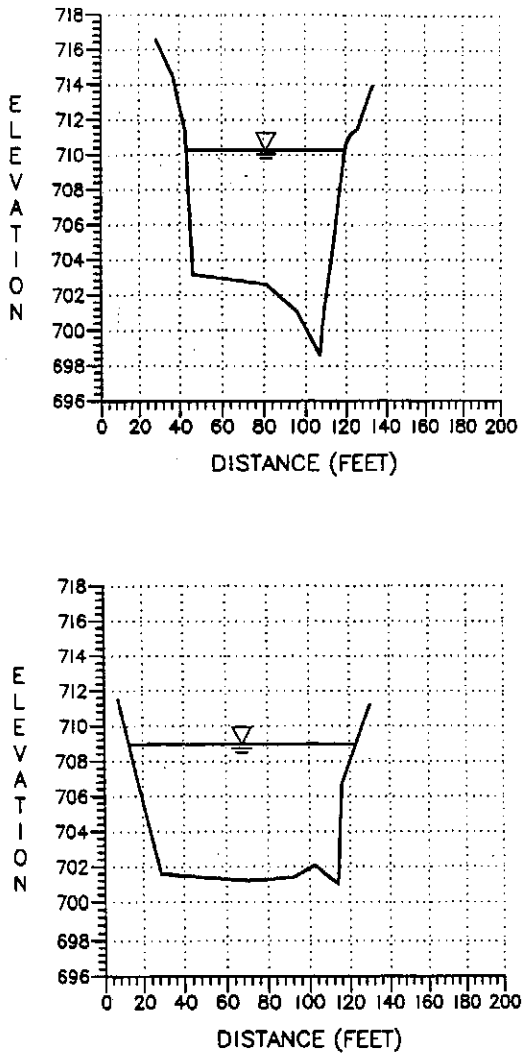


Figure 5. Cross Sections using to construct rating curves. E.I. 27, ASLD Upper Salt Report, 5-29.

4. River Conditions.

In its ordinary and natural condition, the Upper Salt River had a consistent geometry that is characterized as a pool and riffle stream pattern. E.I. 27, ASLD Upper Salt Report, 4-11, 5-6; Tr., 148-149 (Fuller). A pool and riffle stream consists of a single, main channel with long, flat slow moving pools interspersed between short, steeper riffles (or rapids). E.I. 27, ASLD Upper Salt Report, 4-11, 5-6. This channel pattern applies to the entire length of the Upper Salt, but the spacing and size of the riffles varies somewhat between the various river segments. E.I. 27, ASLD Upper Salt Report, 4-9, 4-11 – 4-13. The slope of the River averaged about 0.2 to 0.4 percent (11-22 ft/mile). E.I. 27, ASLD Upper Salt Report, 4-11 – 4-13, 5-6. The bed of the main channel was composed of sand, gravel and cobbles. E.I. 27, ASLD Upper Salt Report, 4-11 – 4-

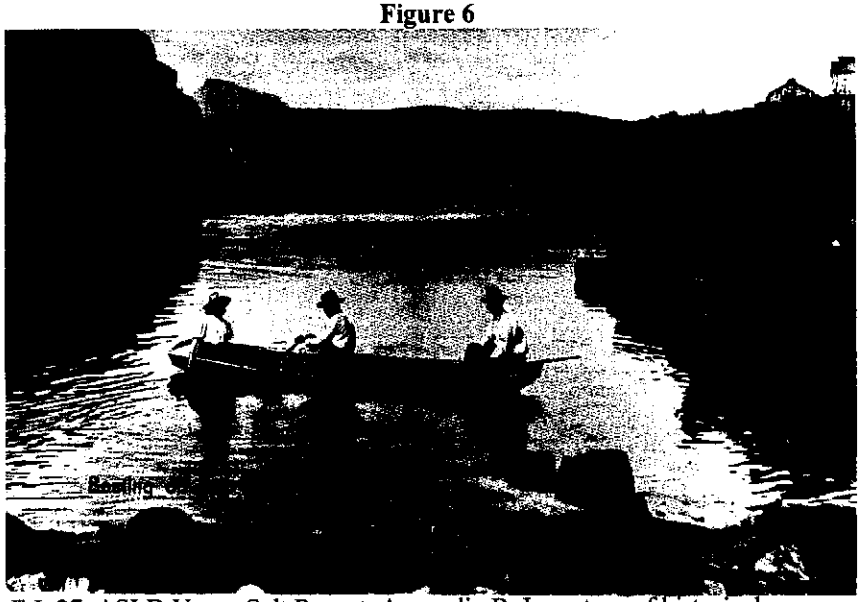
13. The main channel's banks were lined by trees and other riparian vegetation, much as it is today. E.I. 27, ASLD Upper Salt Report, 4-5.

Because the Upper Salt River is located in bedrock canyons, it is not subject to significant lateral erosion during floods. E.I. 27, ASLD Upper Salt Report, 4-9, 4-12, 4-15. The character of some rapids may change slightly over time, but overall there has been little change in river conditions during the historical and modern periods, except in Segment 4, where reservoirs have inundated the canyons. E.I. 27, ASLD Upper Salt Report, 4-10, 4-15; Tr., 53 (Gilpin).

B. The Upper Salt River's Ordinary and Natural Physical Characteristics Met Historical Boating Requirements.

The type of boats typically used at statehood were flat-bottomed boats, skiffs, canvas and wooden canoes, and other small craft. E.I. 27, ASLD Upper Salt Report, 3-40, 6-1, 6-4. Historic photographs depict these type of boats, and further show that boating was not uncommon. *See* Figure 6, photograph of boating on the Upper Salt River; E.I. 27, ASLD Upper Salt Report, B-1, B-11, 3-37. The boats at statehood required a depth of four inches for a flat bottomed (wood or canvas) boat, and a depth of six inches for a round bottomed (wood or canvas) boat. E.I. 27, ASLD Upper Salt Report, 6-4, Table 3, Table 5. The Upper Salt River's ordinary and natural condition easily met these boating requirements. *See PPL Montana*, 132 S.Ct. at 1233 ("[e]vidence of recreational use, depending on its nature, may bear upon susceptibility of commercial use at the time of statehood."); *Holt State Bank*, 270 U.S. at 57 ("[e]arly visitors and settlers in that vicinity used the river and lake as a route of travel, employing the small boats of the period for the purpose.").

Figure 6



E.I. 27, ASLD Upper Salt Report, Appendix B, Inventory of historical photographs of the Upper Salt River, B-1, B-11.

Navigability does not depend on a particular mode of commerce, the type of boat that is used or that could be used, or on actual use. *United States v. Utah,* 283 U.S. at 76; *see* Appalachian, 311 U.S. at 416 ("personal or private use by boats demonstrates the availability of the stream for the simpler types of commercial navigation."); *Holt State Bank,* 270 U.S. at 56 ("navigability does not depend on the particular mode in which such use is or may be had – whether by steamboats, sailing vessels or flatboats."); *The Montello,* 87 U.S. (20 Wall.) 430, 441-442 (1874) ("[T]he true test of the navigability of a stream does not depend on the mode by which commerce is, or may be conducted . . . . [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 Upper Salt in its ordinary and natural condition exceeded the required stream characteristics for historical, low draft boating, thus clearly demonstrating that the River was susceptible to navigation at statehood.

III. The Upper Salt River's Ordinary and Natural Physical Characteristics Were Not Only Sufficient to Support Historic Navigation, The River Was Actually Navigated.

A. Historic Boating Evidence.

Historic use of the Upper Salt River proves that the River was used for trade and travel. *See Winkleman,* 224 Ariz. at 255, 229 P.3d at 243 ("[e]ven if evidence of the River's condition after man-made diversions is not dispositive, it may nonetheless be informative and relevant"). At least eight documented accounts of commercial and recreational boating occurred between 1873 to 1910. E.I. 27, ASLD Upper Salt Report, 3-34 – 3-40; *cf,* Tr., 11 (Fuller) (fifteen accounts). Low-draft flatboats, skiffs, rowboats, canoes, and rafts were historically used on the River. E.I. 27, ASLD Upper Salt Report, 6-1; Tr., 12 (Gilpin). Historical boating indicates that boating occurred throughout the year during the period prior to statehood. E.I. 27, ASLD Upper Salt Report, 3-40 (River flowed year-round, although it fluctuated seasonally). In 1883, four men successfully boated from Livingston (a farming and ranching community a few miles upstream of the Tonto Creek confluence) to Tempe. E.I. 27, ASLD Upper Salt Report, 3-34. In June 1885, typically a month of seasonal low flows, a group of men successfully boated in an 18' x 5' boat from four miles above the Tonto Creek confluence to Phoenix. E.I. 27, ASLD Upper Salt Report, 3-35.

Periodic navigability is enough to establish navigability for title purposes even if a river is not susceptible to navigation at all seasons of the year or at all stages of the water. *See Utah v. United States,* 403 U.S. at 11 (nine boats sporadically used by ranchers to haul their livestock

across the Great Salt Lake demonstrated that the Lake was used as a highway for commerce); *United States v. Utah,* 283 U.S. at 87 (finding that portions of the Green, Colorado, and San Juan Rivers were navigable because they were useable as highways for commerce during at least nine months of the year); *Holt State Bank,* 270 U.S. at 57 (finding Mud Lake navigable despite occasional "seasons of great drought" during which navigation was difficult); *Alaska v. Ahtna, Inc.* 891 F.2d 1401, 1402 (9th Cir. 1989) (Gulkana River navigable even though frozen six months of the year); *Oregon v. Riverfront Prot. Ass'n,* 672 F.2d 792, 795 (9th Cir. 1982) (McKenzie River found navigable based on seasonal log drives for seventeen years that occurred primarily during three months of each year); *cf PPL Montana,* 132 S.Ct. at 1234 (susceptibility cannot be so brief that it is not a commercial reality); *see also* A.R.S. § 37-1101(3) ("highway for commerce" is a corridor within which goods, commodities, or property or transportation of persons occur). If owners occasionally transporting their livestock across a lake is sufficient to show a watercourse was used as a highway for commerce, then low-draft boats that transported passengers is clearly sufficient to show that the Upper Salt River was used as a highway for commerce. *See Utah v. United States,* 403 U.S. at 11-12; *see* Tr., 11 (Fuller) (boating accounts successful in transporting people from point A to point B). Historic boating incidents demonstrate not only that the Upper Salt River is susceptible to navigability, but also that the River was actually navigated.

B. Modern Boating Evidence and Requirements.

Modern boating occurs today over the entire Upper Salt from the confluence of the White and Black Rivers to Granite Reef Dam. E.I. 27, ASLD Upper Salt Report, 6-1- 6-7, Tr., 21 (Fuller). It includes the use of canoes, rafts, and kayaks. E.I. 27, ASLD Upper Salt Report, 6-1. According to *PPL Montana,* in order for present-day use to have a bearing on navigability at statehood, (1) the watercraft must be meaningfully similar to those in customary use for trade and travel at statehood; and (2) the River's post-statehood condition may not be materially different from its physical condition at statehood. 132 S.Ct. at 1233. The criteria for canoes at statehood is not substantially different from the criteria for canoes available today. E.I. 27, ASLD Upper Salt Report, 6-4; *compare* 6-4, Table 3 (Flow Requirements for Pre-1940 Canoeing), *with* 6-2, Table 2 (Minimum and Maximum Conditions for Recreational Water Boating), and 6-2, Table 1 (Minimum Required Stream Width and Depth for Recreation Craft); Tr., 147 (Fuller); Tr., 52 (Gilpin). Although boat-making technology has improved since statehood making boats more durable, the depth of water required (draft) for canoeing and

rafting has not substantially changed. E.I. 27, ASLD Upper Salt Report, 6-5; Tr., 52 (Gilpin). Further, flow rates have generally declined since statehood. E.I. 27, ASLD Upper Salt Report, 6-5. Thus, modern use of the Upper Salt by canoes demonstrates the River's susceptibility to use by canoes at statehood. E.I. 27, ASLD Upper Salt Report, 6-5. With respect to a watercourse's post-statehood condition, the *PPL Montana* Court was concerned that post-statehood improvements in navigability not be used to prove navigability for title purposes. *See PPL Montana*, 132 S.Ct. at 1233-34. No such concern is necessary here.

Currently, the entire Upper Salt River is regularly boated, primarily during winter and spring flow. E.I. 27, ASLD Upper Salt Report, 6-6; *see PPL Montana*, 132 S.Ct. at 1233 ("[P]ost statehood evidence, depending on its nature, may show susceptibility of use at the time of statehood."). Modern boating using canoes, rafts, and kayaks on segments 1-3 occurs throughout the entire year, although most commercial boating is done during late winter and spring during seasonal, high flow. E.I. 27, ASLD Upper Salt Report, 6-6, Table 4; Tr., 19, 21, 65-66 (Fuller) (commercial rafting trips typically operate at desired flow rates between 800 cfs and 4,000 – 6,000 cfs, but are able to float at rates between 700 cfs and up to 10,000 cfs). Several commercial recreational rafting trip outfitters currently hold U.S. Forest Service leases for commercial operations on the River. E.I. 27, Upper Salt Report, 6-6. In addition, for almost thirty years, Game and Fish biologists have regularly boated down the River to conduct fish surveys using various types of watercraft from kayaks, inflatable rafts, to open canoes at various times of the year at variable flow rates. Tr., 135-142 (Weedman). Further, recreational rafting of the Salt River Canyon above the Tonto Basin has occurred since the 1950s. E.I. 27, ASLD Upper Salt Report, 3-39. Early rafters used Army or Air Force surplus rafts, running the River at water levels as low as 400 cfs and as high as 3,000 cfs. E.I. 27, ASLD Upper Salt Report, 3-39. Personal or private use of boats may demonstrate the availability of the river for the simpler types of commercial navigation. *Appalachian*, 311 U.S. at 416; *see Puget Sound Power & Light Co. v. F.E.R.C.*, 644 F.2d 785, 788 (9th Cir. 1981) (finding that use by light craft, primarily Indian canoes, plus shingle bolt transportation sufficient to sustain a navigability finding); *Alaska v. Ahtna, Inc.*, 891 F.2d at 1405 (court found evidence of present day recreational boating conclusive of navigability).

IV. Conclusion.

The Upper Salt River evidence demonstrates that the River's ordinary and natural physical characteristics clearly supported navigation and commerce: there was reliable,

permanent stream flow at all times, and the River was susceptible to navigation more than 95% of the time. Moreover, actual, historical boating occurred throughout the year. Lastly, numerous commercial boating outfitters currently use the River during spring runoff. The State urges ANSAC to find the Upper Salt River navigable.

DATED: September 7, 2012.

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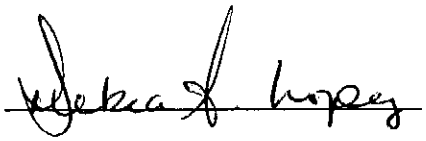

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Conformed
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BEFORE THE
ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

IN THE MATTER OF THE NAVIGABILITY OF THE UPPER SALT RIVER FROM THE CONFLUENCE OF THE WHITE AND BLACK RIVERS TO GRANITE REEF DAM, GILA AND MARICOPA COUNTIES, ARIZONA.	No. 04-008-NAV **ARIZONA STATE LAND DEPARTMENT'S MEMORANDUM**

On April 27, 2010, the Court of Appeals found that the Arizona Navigable Stream Adjudication Commission ("ANSAC" or the "Commission") misapplied the pertinent test for determining navigability of the Lower Salt River. The Court vacated the superior court's decision, and remanded the matter back to ANSAC for further proceedings. *State ex rel. Winkleman v. Arizona Navigable Stream Adjudication Com'n*, 224 Ariz. 230, 229 P.3d 242 (App. 2010) ("*Winkleman*"). On October 24, 2011, the superior court remanded the Upper Salt River matter to ANSAC for all further proceedings consistent with the *Winkleman* decision. At ANSAC's December 14, 2011, meeting, the Commission requested that interested parties submit memoranda with their recommendations on how ANSAC should comply with the *Winkleman*

decision. The Arizona State Land Department (the "ASLD" or the "State") submits the following Memorandum in response to ANSAC's request.[1]

The Commission's navigability determination is governed by the federal test of navigability, known as the "*Daniel Ball*" test that provides as follows:

> [t]hose rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

The Daniel Ball, 77 U.S. (10 Wall.) 557, 563 (1870); *see Defenders of Wildlife v. Hull*, 199 Ariz. 411, 420, 18 P.3d 722, 731 (App. 2001) (*Daniel Ball* test correctly paraphrased in A.R.S. § 37-1101(5)). The *Daniel Ball* test requires ANSAC to determine the characteristics of the Upper Salt River in its ordinary and natural condition and whether, at statehood, the River was used or would have been susceptible to use as a highway-for-commerce in that condition. *Winkleman*, 224 Ariz. at 239, 229 P.3d at 251.

In the *Winkleman* decision, the Court of Appeals found that ANSAC failed to evaluate the Lower Salt River's ordinary and natural condition in light of the numerous dams, canals, and other diversions other than Roosevelt Dam. *Winkleman*, 224 Ariz. at 240, 229 P.3d at 252. The Court of Appeals directed ANSAC to determine "what the River would have looked like on February 14, 1912, in its ordinary (i.e., usual, absent major flooding or drought) and natural (i.e., without man-made dams, canals, or other diversions) condition." *Winkleman*, 224 Ariz. at 241, 229 P.3d at 253. The Court found that the Lower Salt River was "in its natural condition after many of the Hohokam's diversions had ceased to affect the River, but before the commencement

[1] The State requests that the Commission delay any action on contested rivers until the U.S. Supreme Court issues its decision in *PPL Montana, LLC v. Montana*, 355 Mont. 402, 229 P.3d 421 (2010), *cert. granted in part & denied in part*, 79 U.S.L.W. 3102* (U.S. June 20, 2011) (No. 10-218). The *PPL* decision could potentially affect application of the federal test in the contested rivers before ANSAC.

of modern-era settlement and farming in the Salt River Valley, when some of the Hohokam's diversions were returned to use and other man-made diversions and obstructions began to affect the River." *Winkleman,* 224 Ariz. at 242, 229 P.3d at 254. In applying the *Winkleman* Court's instruction to the Upper Salt River, the River's natural condition is before the construction of four dams and reservoirs: Roosevelt Dam, Horse Mesa Dam, Mormon Flat Dam, and Stewart Mountain Dam.[2] The Upper Salt River's ordinary condition necessarily excludes floods and other extraordinary high water events, but includes the average or normal reach of high water each year.

Overall, the Upper Salt's hydrology at statehood was not significantly different from the preceding ten to twenty years, except for the effect from Roosevelt Dam. ASLD Upper Salt River Report, 5-12. Although ANSAC is not limited to considering evidence of the Upper Salt River's natural condition solely from that time period, "that early period should be considered by ANSAC as the best evidence of the River's natural condition." *See Winkleman,* 224 Ariz. at 242, 229 P.3d at 254.

Thus, to determine whether the Upper Salt River could have been used as a highway-for-commerce, ANSAC must assess the River's pre-statehood ordinary and natural condition, disregarding all man-made obstructions and diversions.

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[2] Between 1900 and 1945, seven major dams were built on the main streams of the Salt River system. Arizona State Land Department Rep., *Arizona Stream Navigability Study for the Salt River: Granite Reef Dam to the Confluence of the White and Black Rivers*, Draft Final Report, ("ASLD Upper Salt River Report"), (rev. June 2003 by JE Fuller/Hydrology & Geomorphology, Inc.), Evidence Item ("E.I.") 27, 5-15. These dams have the capacity to store over two million acre feet of water. *Id.* In addition, an uncounted number of stock ponds, mining ponds, and other impoundments have been built within the watershed. *Id.* As a result of these man-made obstructions, nearly all the flow of the Upper Salt River except for the reach above Roosevelt Dam had been impounded, flowing only due to flood discharges and flow releases to supply downstream irrigation diversions. ASLD Upper Salt River Report, 8-2.

More than sufficient historical evidence exists in the well-developed record describing the River's ordinary and natural condition in this time frame. Prior to statehood, the River had reliable streamflow, healthy beaver populations, a variety of large fish species, and dense riparian vegetation. ASLD Upper Salt River Report, 2. Not one of the early explorers described a dry riverbed in the Upper Salt at any time of year. ASLD Upper Salt River Report, 5-11. In 1826, James Ohio Pattie described the River at its confluence with the Verde as "afford[ing] as much water at this point as the [Gila] . . . We found it to abound with beavers. It is a most beautiful stream, bounded on each side with high and rich bottoms." ASLD Upper Salt River Report, 3-24. In 1877, Hiram Hodge reported that "at low water [the Salt River] is a clear, beautiful stream, having an average width of two hundred feet for a distance of one hundred miles above its junction with the Gila, and a depth of two feet or more." ASLD Upper Salt River Report, 3-26. Pioneer archaeologist Adolph Bandelier, who visited the Tonto Basin from May 23 to June 1, 1883, described the Salt River as "a broad, blue, rushing stream, wider than the Gila, with clear and very alkaline waters," and called it "the finest large river in the Southwest." ASLD Upper Salt River Report, 3-26. When the Commission assesses the historical evidence, it must factor in its determination that explorer and travelers' descriptions of the Upper Salt River in the late nineteenth and early twentieth centuries were not as common as descriptions for other Arizona rivers because of the remoteness of the location, the rugged terrain, and Apache threat. ASLD Upper Salt River Report, 3-24, 3-40, 4-10.

Probative evidence exists of the River's ordinary and natural physical characteristics that did and could support navigation. The Upper Salt is a perennial stream in its ordinary and natural condition. ASLD Upper Salt River Report, 5-12, 5-35, 8-2. Before statehood, the River had an average annual discharge ranging from about 1,400 cubic feet per second ("cfs") to 1,800

cfs.[3] ASLD Upper Salt River Report, 5-12. In addition, early records and reconstructed flow rates for the pre-statehood period indicate that flow rates exceeded 1,200 cfs more than one half of the time. ASLD Upper Salt River Report, 5-12. At these flow rates, the average depth of the River would be about three feet, velocity around four feet per second, and the width about 100 feet. ASLD Upper Salt River Report, 5-20, 5-35. These conditions exceed the minimum required for boating. ASLD Upper Salt River Report, 6-2, 6-6.

Moreover, floods are not the ordinary condition of the River. Floods do occur on the Upper Salt, but less than one percent of the time. *Compare* ASLD Upper Salt River Report, 5-17, Table 12 (flow duration), 5-20, Table 16 (flow duration) *with* 5-25, Table 18 (floods); Transcript of the ANSAC hearing Oct. 20, 2005, (hereinafter "Tr. __") Fuller, 152. Thus, more than ninety-nine percent of the time (that is, in its "ordinary condition"), the River is not in flood. Fuller, Tr. 10/20/05, 152. In addition to being rare, floods are of short duration. Fuller, Tr. 10/20/05, 152. Seasonal high flow, which is an ordinary and expected part of the River's natural hydrology, is not equivalent to flooding, but rather is simply normal spring runoff. ASLD Upper Salt River Report, 5-6. The ordinary, predictable, seasonal variation in flow discussed in detail in the ASLD Upper Salt Report includes the average, median, maximum, and minimum flow rates that depict the normal, expected range of flows at any given time of year. *See* ASLD Upper Salt River Report, 5-18, Table 14, 5-19, Table 15, 5-20, Table 17; Fuller, Tr. 10/20/05, 152. The existing data clearly shows that regardless of whether average, maximum, median, or minimum flow rates are used, the Upper Salt is boatable at all times of the year.

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[3] Other estimates of the River's average annual flow show a range from 1,045 cfs (Smith and Stockton, from tree-ring records), 1,689 cfs (Thomsen and Porcello, from modern gage records), to 2,844 cfs (John Wesley Powell in 1893, from short-term records). ASLD Upper Salt River Report, 4-6.

Most of the Upper Salt River is located within deep bedrock canyons. ASLD Upper Salt River Report, 4-9, 4-15. Bedrock along the channel margins in these canyons precludes significant movement of the river channel or other channel changes. ASLD Upper Salt River Report, 4-9, 4-15. The perennial Upper Salt also has a pool and riffle channel pattern. ASLD Upper Salt River Report, 4-11; Fuller, Tr. 10/20/05, 148-149, Schumm, Tr. 10/20/05, 95; *see* ASLD Upper Salt River Report, 4-9 (pool and riffle stream consists of long, flat pools separated by short, slightly steeper riffles [rapids]). Downstream of the Verde River confluence, the Upper Salt has a slightly sinuous compound channel pattern that is confined by high, stable terraces. ASLD Upper Salt River Report, 4-9 – 4-10, 4-12. The geomorphic condition and characteristics of the Upper Salt have varied little since statehood, except where the River was been dammed to create water supply reservoirs. ASLD Upper Salt River Report, 4-10, 4-15; Dennis Gilpin, Archeologist, SWCA Environmental Consultants ("Gilpin"), Tr. 10/20/05, 53. Thus, the River's ordinary and natural flow conditions and its natural geomorphology—that is before large-scale irrigation diversions affected the River's waters—establish that the River was susceptible for use as a highway-for-commerce.

The Court of Appeals declined to consider whether ANSAC misconstrued the "highway-for-commerce" component of the *Daniel Ball* test. *See Winkleman*, 224 Ariz. at 242 n.16, 229 P.3d at 254 n.16. There is substantial evidence that when the River was in its ordinary and natural condition, it was actually used as a highway-for-commerce, or was at least capable of use as a highway-for-commerce within the meaning of the *Daniel Ball* test.[4] The ASLD Upper Salt River Report documents fourteen accounts of boating on the River in the years prior to

[4] The Arizona State Legislature has broadly defined the highway-for-commerce requirement as "a corridor or conduit within which the exchange of goods, commodities or property or transportation of persons may be conducted." A.R.S. § 37-1101(3).

statehood, the majority of which describe successful trips where the participants reached their destination. ASLD Upper Salt River Report, 3-34 – 3-40, Appendix B. Successful boating trips occurred throughout the year, and covered the River from just above Roosevelt Dam to Granite Reef Dam. ASLD Upper Salt River Report, 3-34 – 3-40; Fuller, Tr. 10/20/05, 26, 144-145. For instance, in June 1885, typically a month of seasonal low flows, a group of men successfully boated in an 18' x 5' boat from four miles above the Tonto Creek confluence to Phoenix. ASLD Upper Salt River Report, 3-35. In addition, modern boating has occurred and continues today over the entire Upper Salt River, from the confluence of the White and Black Rivers to Granite Reef Dam. ASLD Upper Salt River Report, 6-1 – 6-7; Fuller, Tr. 10/20/05, 21. Modern boating on the River also includes a significant component of commercial boating. Fuller, Tr. 10/20/05, 63-81. Evidence of modern, recreational boating may demonstrate that a river was susceptible to use as a highway-for-commerce.[5] *See Alaska v. Ahtna, Inc.*, 891 F.2d 1401, 1405 (9th Cir. 1989) (finding that present recreational guided fishing and sightseeing trips are "commercial activity" under the *Daniel Ball* test and can prove a river's susceptibility for commercial use at the time of statehood); *Adirondack League Club, Inc. v. Sierra Club,* 706 N.E.2d 1192, 1194 (1998) (holding that evidence of a river's capacity for recreative use is in line with the traditional test of navigability). The Commission should reconsider its prior findings that the Upper Salt River was neither actually navigable nor susceptible to navigation to ensure that its new findings comply with the applicable legal standard.

[5] *See Northwest Steelheaders Ass'n, Inc. v. Simantel*, 112 P.3d 383, 391-393 (Or. Ct. App. 2005) (post-statehood use, by comparable vessels, probative because post-statehood conditions were *less* favorable to navigation than conditions at statehood), *review denied*, 122 P.3d 65 (Or. 2005), *cert. denied*, 547 U.S. 1003 (2006); *Winkleman*, 224 Ariz. at 244, 229 P.3d at 243 ("Even if evidence of the River's condition after man-made diversions is not dispositive, it may nonetheless be informative and relevant.")

The Court directed ANSAC to properly apply the ordinary and natural component of the *Daniel Ball* test. Equally important is the Court's insistence that ANSAC "may not begin its determination with any presumption *against* navigability." *Winkleman*, 224 Ariz. at 239, 229 P.3d at 251 (emphasis in original). In reaching its determination, "ANSAC's approach and analysis must be wholly impartial and objective, while utilizing the proper legal test." *Winkleman*, 224 Ariz. at 239, 229 P.3d at 251.

Substantial evidence exists clearly demonstrating that the Upper Salt River in its ordinary and natural condition before the construction of four dams and reservoirs was used or was capable of being used as a highway-for-commerce. The Commission should consider impoundments and diversions of the River's flow as merely one special factor in the Upper Salt River Valley's development rather than as a condition that precludes a navigability finding. Moreover, ANSAC must consider the unique circumstances of the Upper Salt in its overall objective review of the evidence under the *Daniel Ball* test in reaching its navigability determination. For example, the River's bedrock geology limited access, and the area surrounding the River was not largely populated at statehood. Another factor is the emphasis on the use of the River for water storage and irrigation, not for transportation and commerce. *See* ASLD Upper Salt River Report, 4-15; *United States v. Utah*, 283 U.S. 64, 81-83 (1931) (nonuse not indicative of nonnavigability based on many factors including nonsettlement of the region).

Indisputable proof of susceptibility of the Upper Salt River includes: (1) historical accounts establish that people boated the River during every part of the year; (2) modern boating using at variety of boats; (3) geomorphic data that demonstrate a permanent, significant river with a single, well-defined channel; and (4) scientific flow records demonstrate permanent, adequate water supply. The ASLD informs the Commission that due to uncertain resources, the

ASLD may be restricted in responding, participating or producing additional evidence in the adjudication proceedings.

DATED: January 27, 2012.

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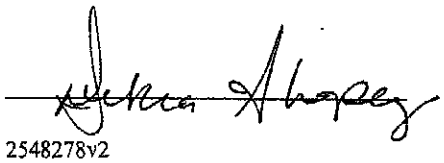

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Conformed Copy. Received 6/8/12 1:30 P.M.

BEFORE THE
ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

IN RE DETERMINATION OF NAVIGABILITY OF THE LOWER SALT RIVER; UPPER SALT RIVER; GILA RIVER; VERDE RIVER; SAN PEDRO RIVER; AND SANTA CRUZ RIVER	No. 03-005-NAV (Lower Salt) No. 04-008-NAV (Upper Salt) No. 03-007-NAV (Gila) No. 04-009-NAV (Verde) No. 03-004-NAV (San Pedro) No. 03-002-NAV (Santa Cruz) **ARIZONA STATE LAND DEPARTMENT'S MEMORANDUM REGARDING EFFECT OF UNITED STATES SUPREME COURT'S PPL MONTANA DECISION AND SEGMENTATION OF REMANDED CASES**

The Arizona State Land Department ("ASLD" or the "Department") submits the following memorandum in response to the Arizona Navigable Stream Adjudication Commission's ("ANSAC" or "Commission") request for memoranda addressing how the United States Supreme Court's decision in *PPL Montana, LLC v. Montana*, 565 U.S. ___ , 132 S.Ct. 1215 (2012) ("*PPL Montana*") impacts ANSAC's proceedings and determinations. This Memorandum identifies the main issues addressed in *PPL Montana*, and the applicability of that

decision to the Commission's proceedings and determinations. Further, the ASLD addresses ANSAC's request for an analysis of the segmentation issue presented in *PPL Montana*.

On February 22, 2012, the U.S. Supreme Court issued a decision in *PPL Montana*, reversing the Montana Supreme Court's ruling that required PPL Montana to pay rent for the use of Montana's riverbeds covered by its hydroelectric dams. The Court's decision addressed discrete segments of otherwise navigable rivers in Montana. The Court ultimately found that the reach of the Missouri River on which the Great Falls and five privately owned hydroelectric dams are located was not navigable for title purposes at Montana's statehood. *PPL Montana*, 132 S.Ct. at 1232. However, the Court did not decide the navigability of the remainder of the Missouri River, or the Madison and Clark Fork Rivers, but left that determination to the Montana Supreme Court. 132 S.Ct. at 1233.

I. NAVIGABILITY MUST BE DETERMINED SEGMENT-BY-SEGMENT

The main holding of the U.S. Supreme Court's *PPL Montana* decision is that a river's navigability must be determined on a segment-by-segment basis.[1] *PPL Montana,* 132 S.Ct. at 1229. The *PPL Montana* Court noted that "practical considerations" supported segmentation of watercourses, and that "[p]hysical conditions that affect navigability often vary significantly over the length of a river." *PPL Montana,* 132 S.Ct. at 1230. The Court noted that "[t]his is particularly true with longer rivers" – like the ones found in Arizona – that traverse through different terrain and climates. *Id.* Changes in a river's physical conditions assist in determining start and end points for segmentation. *Id.* The Court also noted that topographical and geographical features also may assist in identifying appropriate start and end points for

[1] ANSAC's statutes allow ANSAC to examine watercourses in reaches or portions. A.R.S. § 37-1101(11) (definition of "watercourse" is the "main body or a portion or reach" of a river). However, ANSAC's determinations thus far have addressed the rivers as a whole with the exception of the Salt River that was divided into upper and lower reaches.

segmentation. *Id.* The segments at issue in *PPL Montana* were both discrete, as defined by physical features, and substantial. *Id.* at 1231. The Court focused on the Great Falls reach which is not only 17 miles long, but contains distinct drops that include five waterfalls and continuous rapids. *Id.*

The *PPL Montana* Court further acknowledged that there could be a "de minimis exception" to the segmentation approach. *Id.* at 1230. The Court stated that some nonnavigable segments may be "so minimal that they merit treatment as part of a longer, navigable reach for purposes of title under the equal footing doctrine . . . ." *Id.* at 1230. The Court identified considerations related to ownership and title of property "such as inadministrability of parcels of exceedingly small size, or worthlessness of the parcels due to overdivision" as de minimis exceptions. *Id.* at 1231.

There are a number of differences between the rivers in *PPL Montana* and the rivers currently under consideration by ANSAC. For example, the Montana and Arizona rivers have differences in seasonality, e.g., the Montana rivers may freeze in the winter while the Arizona rivers do not. More importantly, there are no waterfalls on any of the Arizona rivers that are of the size found along the Great Falls reach of the Missouri River. Finally, the Supreme Court noted that PPL Montana's expert claimed that man-made dams had made the Montana rivers more navigable compared to their ordinary and natural condition, because the dams tend to reduce flood peaks and moderate seasonal low flows. *PPL Montana*, 132 S.Ct. at 1234. In Arizona, the presence of dams has made the rivers less navigable because the dams tend to remove all or most of the natural river flow.

The Department's reports previously provided to ANSAC for each of these rivers included discussions that divided the rivers into separate reaches. These reach divisions were based on a variety of physiographic, hydrologic, geologic, and geographic factors. Each report

was divided into reaches with similar characteristics. The reach designations in the previous ALSD reports were defined based on criteria related to, but somewhat different from, the issues raised in the Montana case. The *PPL Montana* Court's decision outlined several specific navigability criteria that may not have been directly addressed in the previous ASLD reports.

Based on the *PPL Montana* Court's decision and the existing record, ANSAC should consider the following factors in determining segmentation: whether the river is located in a canyon or runs through flats or wide river valleys; the river's flow rate (including tributary inflow and watershed size); the classification of rapids by degree of difficulty; whether the river is a gaining or losing stream; and the river's slope or steepness. Based on those factors, ASLD recommends that ANSAC consider the following river segments.

Table 1. Recommended Stream Segmentation

River	Segment Boundaries (Approximate)	Segment Description
Gila	1 – New Mexico to Gila Box	Extends from New Mexico border through a broad alluvial valley with irrigated farm land. Includes the Town of Duncan and the communities of Sheldon, Apache Grove, York and Guthrie.
	2 – Gila Box	Deep canyon reach that includes the BLM National Conservation Area and is a popular recreational boating route. Significant tributaries (San Francisco, Eagle, Bonita) add flow.
	3 – Gila Box to San Carlos Reservoir	River flows through broad alluvial valley with irrigated farm land. Includes the Towns of Safford, Thatcher, Pima and Fort Thomas, and portions of the San Carlos Indian Reservation. Includes San Carlos Lake.
	4 – San Carlos Canyon	Narrow bedrock canyon located downstream of Coolidge Dam in the Needles Eye Wilderness on the San Carlos Indian Reservation. Extends downstream to near SR77.
	5 – San Carlos Canyon to Ashurst-Hayden Dam	River flows in shallow, moderately wide bedrock canyon past the communities of Winkelman, Hayden, Kearny, and Kelvin, and through the Tortilla Mountains. Significant tributary is the San Pedro River. Segment is used for seasonal recreational boating.

Table 1. Recommended Stream Segmentation		
River	**Segment Boundaries (Approximate)**	**Segment Description**
	6 – Ashurst-Hayden Dam to Salt River Confluence	Extends from the Ashurst-Hayden Dam through the extensively irrigated alluvial valley that includes the Cities of Florence and Coolidge, as well as the Gila River Indian Community. Significant tributary includes the Santa Cruz River (dry).
	7 – Salt River Confluence to Dome	River flows through the western portion of the Salt River Valley and the Phoenix metropolitan area, and is similar in character to the lower Salt River (Segment 5). Some modern recreational boating between Salt River confluence and Gillespie Dam. Significant tributary includes the Hassayampa River. Historical accounts of boating.
	8 – Dome to Colorado	River passes through broad gap in Gila Mountains into Colorado River Valley. Some early records of historical boating upstream to Dome from Colorado River.
Salt	1 – White/Black River Confluence to Apache Falls	Narrow, deep bedrock canyon with remote access, and located within the Fort Apache Indian Reservation. Modern boating is not permitted by the tribe upstream of Apache Falls, but would likely include numerous rapids. Significant tributaries include Carrizo Creek.
	2 – Apache Falls to Sleeper Rapid - Gleason Flat	Segment includes the one of the most frequently boated river segments in Arizona, and is home to several seasonal commercial boating operations. River is located in deep bedrock canyon and includes many named and unnamed rapids. Gleason is largest of "flats" reaches with wide canyon, few rapids and easier access. Significant tributaries include Cibecue and Canyon Creeks. Located within the Tonto National Forest, Salt River Canyon Wilderness, and the Fort Apache and San Carlos Indian Communities.
	3 – Sleeper Rapid to Roosevelt Dam - Roosevelt Flat	River continues in deep bedrock canyon, but with fewer and smaller rapids. Located primarily within the Salt River Canyon Wilderness. Includes the large flats area now inundated by Roosevelt Lake. Significant tributaries include Pinal and Cherry Creeks.
	4 – Roosevelt Dam to Stewart Mountain Dam	River in deep bedrock canyon now inundated by backwater from SRP dams. Modern recreational boating on man-made lakes. Records of historical boating pre-date reservoirs.

Table 1. Recommended Stream Segmentation		
River	**Segment Boundaries (Approximate)**	**Segment Description**
	5 – Stewart Mountain Dam to Verde River Confluence	River in moderately deep and wide canyon with few small rapids. Includes the most well used recreational boating reach in Arizona. Located within the Tonto National Forest. Records of historical boating.
	6 – Verde River Confluence to Gila River Confluence	River flows through wide alluvial valley with no natural rapids or obstructions. Includes many of the communities in metropolitan Phoenix, as well as portions of the Salt River Pima Maricopa, Fort McDowell, and Gila River Indian Communities. Records of historical boating and modern boating upstream of Granite Reef Dam and on effluent dominated reaches west of downtown Phoenix.
Verde	1 – Headwaters to Sycamore Creek	Extends from Paulden Dam through steep, rugged canyons with limited but reliable flow. Few instances of modern boating.
	2 – Sycamore Creek to Beasley Flat	River flows through shallow canyons and wide alluvial valleys through Verde Valley including communities of Perkinsville, Clarkdale, Cottonwood and Camp Verde. Major tributaries include Oak, Beaver, and West Clear Creeks. Records of historical boating. Extensive modern recreational boating, including annual canoe and kayak race. Some minor rapids.
	3 – Beasley Flat to Verde Hot Springs	River enters deep, narrow bedrock canyon with Wild and Scenic designation. Known as the whitewater reach of the Verde River and is popular modern recreational boating reach, with limited commercial boating. Records of historical boating.
	4 – Verde Hot Springs to Horseshoe Reservoir	River located within several US National Forests and two Wilderness areas. Major tributaries include Fossil Creek and East Verde River. River flows through shallow canyons and narrow alluvial valleys with small rapids. Popular, but very remote, modern recreational boating reach. Records of historical boating.
	5 – Horseshoe Reservoir to Salt River Confluence	River flows through broader alluvial valleys with some short canyon reaches and few small rapids. Major tributary is Sycamore Creek. Modern recreational boating and historical boating records.

Table 1. Recommended Stream Segmentation		
River	**Segment Boundaries (Approximate)**	**Segment Description**
San Pedro	1 – Mexican Border to Gila River Confluence	River flows in alluvial valley. Flows intermittent or interrupted perennial with very low flow rates. No historical boating record. Modern recreational boating only during floods.
Santa Cruz	1 – Headwaters to Mexican Border	The river is a relatively small stream flowing in broad alluvial valleys, and flows into Mexico. Very low flow rates. No record of historical or modern boating.
	2 – Mexican Border to Marana	Normally dry river in broad alluvial river. Some possibility that some segments had very shallow perennial or intermittent flow. No record of historical or modern boating, except during floods or on effluent discharges from wastewater treatment plants.
	3 – Marana to Gila River Confluence	Historically dry river in broad alluvial valley with no historical or modern boating record.

ASLD recommends that ANSAC reopen the record to allow interested parties to submit evidence on the appropriate segmentation of the Salt, Verde, Gila, San Pedro and Santa Cruz Rivers.

A. Sufficiently Obstructed River Segments That Require Travelers To Portage May Be Nonnavigable

The need to portage may defeat navigability for purposes of establishing state title to a particular segment because it requires transportation over land, not water. *PPL Montana,* 132 S.Ct. at 1231. Portages generally demonstrate "the need to bypass the river segment." *Id.* The Great Falls reach in *PPL Montana* was an undisputed interruption to navigability in that it required overland portage, and the falls had never been navigated. *Id.* at 1232. In *PPL Montana,* Lewis and Clark transported supplies and small canoes approximately 18 miles over land for 11 days or more. *Id.* at 1231. Although there are no portages of similar scale recorded on Arizona rivers, ANSAC must evaluate whether there are stretches of the remanded rivers that consistently

required portages, and whether those portages were so minimal that they did not interrupt an otherwise navigable segment of that river.

II. POST-STATEHOOD NAVIGATION EVIDENCE CAN DEMONSTRATE SUSCEPTIBILITY

The U.S. Supreme Court stated that evidence of present-day, primarily recreational boating must be "confined to that which shows the river could sustain the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood." *PPL Montana,* 132 S.Ct. at 1233. Navigability at statehood concerns "the river's usefulness for 'trade and travel,' not for other purposes." *Id.* Evidence of present-day, primarily recreational use can be valid evidence of susceptibility for navigation at statehood. *Id.* The Court acknowledged that "'[E]xtensive and continued [historical] use for commercial purposes' may be the 'most persuasive' form of evidence, but the 'crucial question' is the potential for such use at the time of statehood, rather than 'the mere manner or extent of actual use.'" *Id.* at 1234 quoting *United States v. Utah,* 283 U.S. 64, 82-83 (1931). To demonstrate susceptibility to navigation, a party seeking to use present-day boating evidence must show whether the watercraft are "meaningfully similar" to those customarily used for trade and travel at statehood; and that the post-statehood condition of the river is not materially different from its physical condition at statehood. *Id.* Thus, in order for evidence of present day use to be meaningful, a river's physical condition could not have changed in ways that "substantially improve its navigability." *Id.* at 1233-34. Dams and diversions on Arizona's rivers made the rivers less susceptible to navigation, not more. Therefore, evidence of modern recreational boating on Arizona rivers may be more relevant to determining susceptibility to navigation than for the Montana rivers.

Based on the *PPL Montana* Court's instruction, ASLD recommends that ANSAC reopen the record to allow interested parties to present evidence regarding the types of watercraft

customarily used at statehood and the types of watercraft in use today for recreational boating. ANSAC then must specifically determine the types of watercraft in use at statehood and how those watercraft vary from the watercraft in use today, if at all.

III. STATE TITLE TO RIVERBEDS MUST BE DETERMINED AT STATEHOOD IN THE RIVER'S ORDINARY AND NATURAL CONDITION

The *PPL Montana* Court confirmed that title navigability must be determined at statehood in a watercourse's "natural and ordinary condition." *PPL Montana,* 132 S.Ct. at 1228. The Court pointed out that the "inquiry depends only on navigation and not on interstate travel." *Id.* at 1229, 1233 (for susceptibility analysis, not only trade and travel must be determined, but also the watercourse's natural and ordinary condition). In *State ex rel. Winkleman v. Arizona Navigable Stream Adjudication Com'n,* 224 Ariz. 230, 240, 229 P.3d 242, 252 (App. 2010) (*"Winkleman"),* the court held that ANSAC failed to evaluate the Lower Salt River's ordinary and natural condition in light of the numerous dams, canals, and other diversions other than Roosevelt Dam. The Court of Appeals directed ANSAC to determine "what the River would have looked like on February 14, 1912 in its ordinary (i.e., usual, absent major flooding or drought) and natural (i.e., without man-made dams, canals, or other diversions) condition." *Winkleman,* 224 Ariz. at 241, 229 P.3d at 253. The *Winkleman* decision is still valid and controlling on ANSAC's determinations and proceedings. Thus, ANSAC must evaluate Arizona's rivers at statehood as if there had been no dams and diversions, and without flood or drought conditions.

The U.S. Supreme Court's note that Montana's long failure to assert title navigability is some evidence supporting the conclusion that the river segments were nonnavigable is not only dicta, but also not persuasive to these proceedings. *PPL Montana,* 132 S.Ct. at 1235. Arizona Courts have long recognized Arizona's valid right and valuable claim to the streambeds beneath

its navigable rivers. *Winkleman*, 224 Ariz. at 234, ¶ 2, 229 P.3d 246, ¶ 2 ("In 1985, the State claimed title to the beds of all Arizona watercourses that were navigable when Arizona became a state.").

In conclusion, the United States Supreme Court's *PPL Montana* decision is relevant to the proceedings now before the Commission. ANSAC should examine each watercourse to determine how the watercourse should be segmented, and then whether each of the identified segments is navigable. As stated by the Court, "[a]n analysis of segmentation must be sensibly applied." *PPL Montana*, 132 S.Ct. at 1231. Finally and most importantly, the navigability of each river must be determined based on its own facts. *See United States v. Appalachian Elec. Power Co.*, 311 U.S. 377, 404, 61 S.Ct. 291, 297 (1940) (there is no "formula which fits every type of stream under all circumstances and at all times."). Based on the *PPL Montana* decision, the Department recommends that ANSAC reopen the record for parties to provide evidence and testimony for segmentation purposes and for present-day recreational use for susceptibility purposes.

DATED: June 8, 2012.

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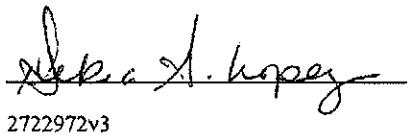

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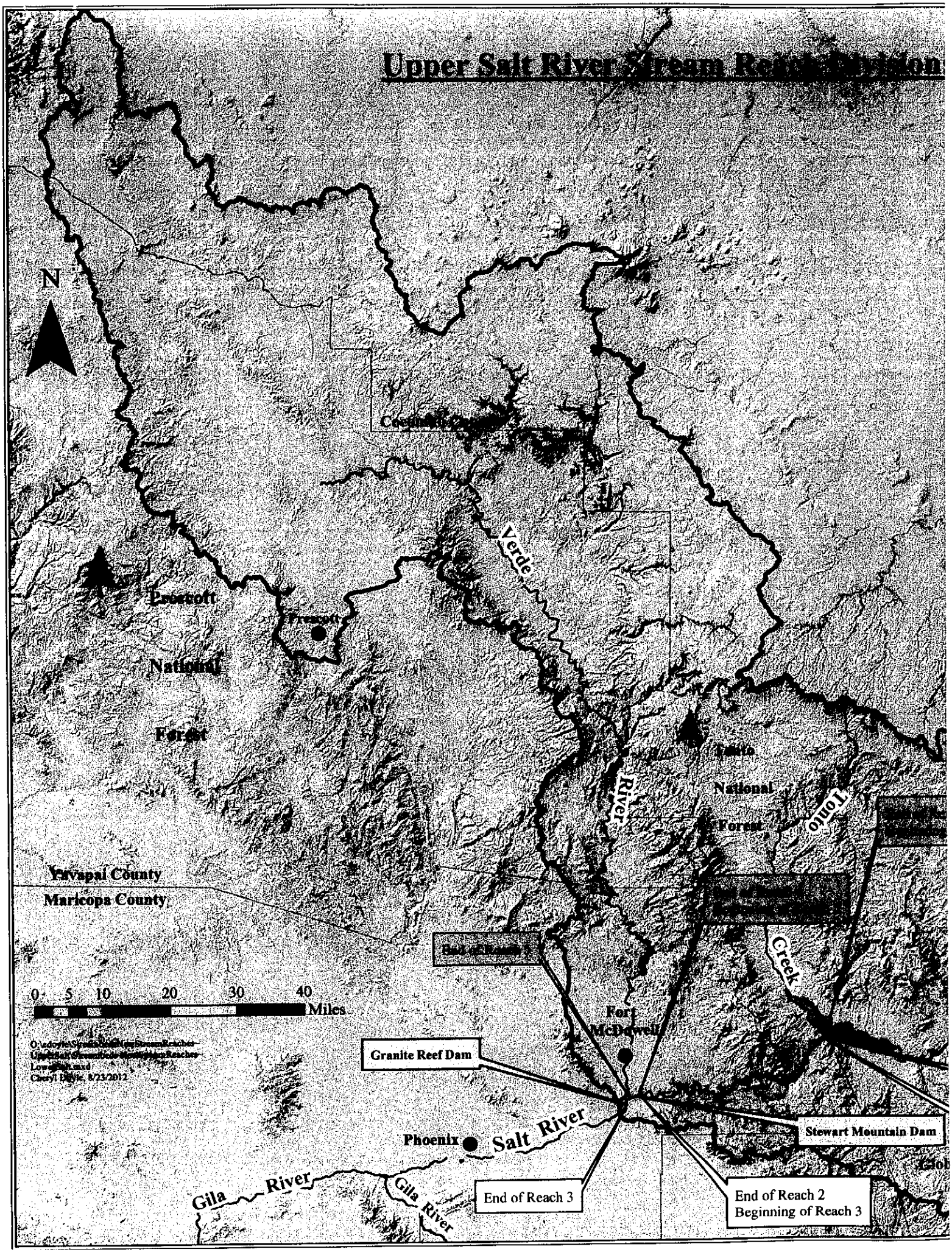
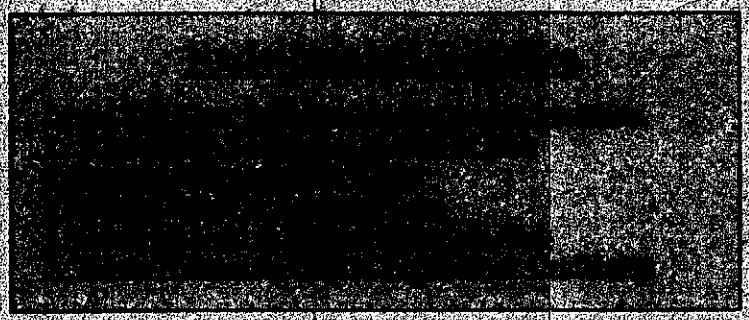

Upper Salt River Stream Reach
N
Prescott
National
Forest
Yavapai County
Maricopa County
Verde
River
Tonto
Creek
0 5 10 20 30 40
Miles
Granite Reef Dam
Fort McDowell
Phoenix
Salt River
Gila River
Gila River
Stewart Mountain Dam
End of Reach 3
End of Reach 2
Beginning of Reach 3
Cheryl Blythe, 8/23/2012

Data Sources:
Cities - ASLD; ALRIS
County Lines - ASLD; ALRIS
Dams & Weirs - ASLD; ALRIS
Streams - All Levels - ASLD; ALRIS
Lakes and Reservoirs - ASLD; ALRIS
Hillshades - 10 Meter Resolution

Previous Reaches

Lower Salt River Stream Reach Divisions in Previous ASLD Navigability Reports

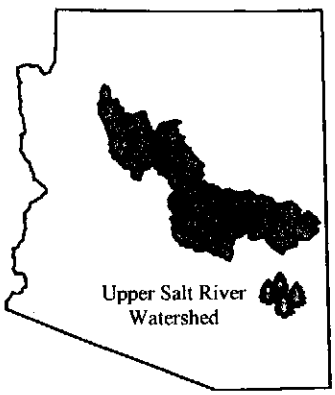
1 - Upper: White/Black River Confluence to Roosevelt Dam
2 - Middle - Roosevelt Dam to Stewart Mountain Dam
3 - Lower: Stewart Mountain Dam to Granite Reef Dam



Navajo County
Apache County
Gila County
White River
White River
Black River
Roosevelt Dam
End of Reach 1
Beginning of Reach 2
Beginning of Reach 1

Legend

- Watershed Boundary
- Cities
- Counties
- Tonto Creek
- Black River
- White River
- Salt River
- Gila River
- Verde River
- Granite Reef Dam
- Stewart Mt. Dam
- Roosevelt Dam



ARIZONA STATE LAND DEPARTMENT 1915

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