

IN THE
Supreme Court of the United States

STATE OF MISSISSIPPI,
Plaintiff,
v.

STATE OF TENNESSEE, CITY OF MEMPHIS, TENNESSEE,
AND MEMPHIS LIGHT, GAS & WATER DIVISION,
Defendants.

On Exceptions to Report of the Special Master

**REPLY OF DEFENDANT STATE OF TENNESSEE TO
EXCEPTIONS OF PLAINTIFF STATE OF MISSISSIPPI
TO REPORT OF THE SPECIAL MASTER**

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QUESTIONS PRESENTED

The State of Tennessee supports the Special Master's recommendation that Mississippi's Complaint be dismissed. As explained in Defendants' Exception in Part, the Court should dismiss Mississippi's Complaint with prejudice. The State of Mississippi's Exceptions to the Report of the Special Master present the following questions:

1. Whether the Special Master correctly concluded that Mississippi's Complaint should be dismissed because any claim to the interstate Middle Claiborne Aquifer is governed by the equitable-apportionment doctrine, which bars Mississippi's tort-based claims and request for damages.

2. Whether, alternatively, the Court should dismiss Mississippi's Complaint as barred by issue preclusion because Mississippi's claims depend on it having an enforceable right to the Aquifer outside the purview of an equitable apportionment or interstate compact, an issue Mississippi litigated and lost in *Hood ex rel. Mississippi v. City of Memphis*, 533 F. Supp. 2d 646 (N.D. Miss. 2008), *aff'd*, 570 F.3d 625 (5th Cir. 2009), *cert. denied*, 559 U.S. 904 (2010).

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18A Charles A. Wright, Arthur R. Miller & Edward H. Cooper, *Federal Practice and Procedure* (3d ed. 2017 & 2019 Supp.)..... 36

GLOSSARY

2014 Compl.	Compl., <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. June 6, 2014)
2016 Op.	Memorandum of Decision on Motions To Dismiss and Motion To Exclude, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Aug. 12, 2016) (Special Master's Dkt. #55)
2018 Op.	Memorandum of Decision on Defendants' Motion for Summary Judgment, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Nov. 29, 2018) (Special Master's Dkt. #93)
App.	Appendix bound together with Brief in Support of Exception in Part of Defendants State of Tennessee, City of Memphis, and Memphis Light, Gas & Water Division to Report of the Special Master, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Feb. 22, 2021)
Aquifer	Middle Claiborne Aquifer
Defs. Exception Br.	Brief in Support of Exception in Part of Defendants State of Tennessee, City of Memphis, and Memphis Light, Gas & Water Division to Report of the Special Master, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Feb. 22, 2021)

DFOF	Defendants' Proposed Findings of Fact, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Sept. 19, 2019) (Special Master's Dkt. #115) (reproduced at App. 65a-140a)
Ex. D-___	Exhibit filed by Defendants in the evidentiary hearing before the Special Master in May 2019
<i>Hood</i> 2005 Compl.	Compl., <i>Hood ex rel. Mississippi v. City of Memphis, et al.</i> , No. 2:05CV32-GHD, Dkt. #2 (N.D. Miss. Feb. 1, 2005) (reproduced at App. 1a-29a)
Hr'g Tr.	Transcript of Evidentiary Hearing Before Special Master, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (May 20-24, 2019) (Special Master's Dkts. #105-#109)
Joint Exhibit	Exhibit filed jointly by the parties in the evidentiary hearing before the Special Master in May 2019
Miss. Cert. Pet.	Petition for Writ of Certiorari, <i>Mississippi v. City of Memphis, et al.</i> , No. 09-289 (U.S. Sept. 2, 2009)
Miss. Exceptions Br.	Brief in Support of Exceptions to Report of the Special Master by Plaintiff State of Mississippi, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Feb. 22, 2021)
Mississippi Embayment	Mississippi Embayment Regional Aquifer System

Pl.'s Opp. to MJOP	State of Mississippi's Response in Opposition to Defendants' Motions for Judgment on the Pleadings, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Apr. 6, 2016) (Special Master's Dkt. #42)
Pl.'s Resp. to SJ	Plaintiff's Response to Defendants' Motion for Summary Judgment, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. July 6, 2018) (Special Master's Dkt. #71)
Rep. or Report	Report of the Special Master, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Nov. 5, 2020) (Special Master's Dkts. #135 & #136)
Special Master	Honorable Eugene E. Siler, Jr.
Stip. Fact	Plaintiff's and Defendants' Joint Statement of Stipulated and Contested Facts, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Feb. 27, 2018) (Special Master's Dkt. #64)
Tenn. Reply App.	Appendix bound together with this brief
USGS	U.S. Geological Survey

INTRODUCTION

Mississippi seeks at least \$615 million in damages for state tort-law claims involving groundwater in the shared Middle Claiborne Aquifer. The Special Master agreed with Tennessee that, if the Middle Claiborne Aquifer is an interstate water resource, this Court's equitable-apportionment doctrine – not Mississippi's tort theories – governs this action. Under this Court's precedents, an equitable-apportionment action would not yield monetary damages; instead, it would lead to the Court determining each State's fair share of the resource. And Mississippi could obtain such an apportionment only after showing that Tennessee's use of the resource caused Mississippi substantial injury. But Mississippi wants damages, not an equitable allocation, and it has suffered no injury at all. For those reasons, it disavows equitable apportionment and instead claims that Mississippi state tort law governs the Middle Claiborne Aquifer.

After a five-day evidentiary hearing following years of discovery, the Special Master agreed with Tennessee that the Middle Claiborne Aquifer is an interstate resource. He further held that the equitable-apportionment doctrine preempts state-law claims based on a State's use of such a resource. He thus recommended that the Court dismiss Mississippi's Complaint because Mississippi had disclaimed the only remedy available to it – an equitable apportionment.

This Court should adopt the Special Master's sound recommendation. Mississippi largely concedes that the Aquifer is interstate and instead argues that the equitable-apportionment doctrine should not apply to *this* interstate resource. But this Court's

precedents establish that equitable apportionment applies broadly to all different kinds of resources, whenever actions taken entirely within one State negatively affect a resource in another State. That is the case here: Mississippi alleges that Memphis's pumping, which occurs entirely in Tennessee through pumps that never cross state lines, affects water conditions in Mississippi through the laws of hydrology. Mississippi is incorrect that state tort law (rather than equitable apportionment) governs interstate groundwater.

Alternatively, this Court should dismiss Mississippi's claims on issue-preclusion grounds because Mississippi seeks to relitigate the same issue it lost in *Hood*: whether it has an enforceable right to the Aquifer outside the purview of an equitable-apportionment action.

The Court should overrule Mississippi's Exceptions to the Report of the Special Master, sustain Defendants' Exception in Part, and dismiss Mississippi's Complaint with prejudice.

STATEMENT

A. The Middle Claiborne Aquifer¹

The Middle Claiborne Aquifer is a large hydrogeological unit located beneath portions of eight different States: Tennessee, Mississippi, Arkansas, Louisiana, Alabama, Kentucky, Missouri, and the southernmost tip of Illinois. DFOF ¶¶ 64, 97 (App. 88a, 94a); Rep. 17; Defs. Exception Br. 3 (excerpting

¹ Defendants provided the Court with much of the pertinent background about the Middle Claiborne Aquifer in their Exception in Part to the Special Master's Report. Defs. Exception Br. 2-9. Here, Tennessee focuses on the facts most relevant to the Special Master's conclusion that equitable apportionment forecloses Mississippi's claims.

Joint Exhibit 71). It is one aquifer within the Mississippi Embayment Regional Aquifer System (“Mississippi Embayment”), which underlies the Mississippi River Valley and contains multiple laterally extensive aquifers separated by intervening confining units.² DFOF ¶¶ 64, 97 (App. 88a, 94a); Rep. 17. Like many large aquifers, the Middle Claiborne’s hydrological properties – for example, its composition, hydraulic conductivity, and water levels – vary somewhat throughout its reach. DFOF ¶¶ 22, 64, 68-69 (App. 75a, 88a-89a). The Middle Claiborne Aquifer is also known by a variety of different names in different areas, including the Sparta Sand in Mississippi and the Memphis Sand in Tennessee. *Id.* ¶¶ 193-194 (App. 115a). But naming conventions aside, the Aquifer remains a single hydrogeological unit – in which there are no barriers to the lateral flow of water – throughout its eight-state footprint. Rep. 15-17, 20. The U.S. Geological Survey refers to the Aquifer as the Middle Claiborne. Rep. 15; DFOF ¶ 59 (App. 84a).

Humans access groundwater by installing wells and pumping from those wells. Pumping lowers the potentiometric level³ in the area surrounding a well,

² An aquifer contains sufficient saturated, permeable materials to yield usable quantities of water to wells and springs. DFOF ¶¶ 9-10 (App. 72a). A confining unit consists of less permeable materials and can separate aquifers. *Id.* ¶ 11 (App. 72a). Confining units restrict but do not eliminate the vertical flow of water between aquifers. *Id.* ¶¶ 11, 52 (App. 72a-73a, 82a).

³ The potentiometric level in an aquifer is the elevation to which water rises inside a tightly cased – or sealed – and properly screened well. DFOF ¶ 26 (App. 76a). The potentiometric level reflects the elevation of the well screen and the pressure in the aquifer at the well screen. *Id.* In a confined

and hydrogeologists call this area of lowered potentiometric level a “cone of depression.” See Rep. 13; DFOF ¶ 39 (App. 78a). Because all groundwater is constantly moving from areas of higher potentiometric level to areas of lower potentiometric level, a cone of depression causes water to flow from surrounding areas towards the well. DFOF ¶¶ 34, 39 (App. 77a-78a); Rep. 13. It is impossible to remove water from an aquifer for human use without creating a cone of depression. DFOF ¶¶ 41, 220 (App. 78a, 122a).

Pumping began in the Memphis area of the Middle Claiborne Aquifer in 1886. Memphis,⁴ which is the largest urban area overlying the Middle Claiborne, relies on the Aquifer’s groundwater as its primary public water source and has developed several well fields throughout Shelby County, Tennessee – the county that includes Memphis. *Id.* ¶¶ 257-259 (App. 128a-129a). Mississippi also pumps water from the Aquifer in DeSoto County, Mississippi – just on the other side of the state border. *Id.* ¶ 231 (App. 123a-124a). In recent years, Mississippi has significantly increased its pumping in DeSoto County. *Id.* All of the wells on both sides of the state border are

aquifer, such as the Middle Claiborne Aquifer in the Memphis area, the potentiometric level is above the bottom of the overlying confining layer. *Id.* ¶ 23 (App. 75a). The diagrams at pdf pages 11 and 35 of Joint Exhibit 40 depict the potentiometric levels and cones of depression in confined and unconfined aquifers. The diagrams are reproduced in the Appendix to this brief (at 40a). Joint Exhibit 40, which was submitted in its entirety to the Special Master, is available at <https://pubs.usgs.gov/wsp/2220/report.pdf>.

⁴ For simplicity, Tennessee refers to the City of Memphis and the Memphis Light, Gas & Water Division collectively as “Memphis.”

drilled straight down into the Middle Claiborne, and none crosses any state boundary. *Id.* ¶¶ 117-118 (App. 98a). Other States, including Arkansas and Louisiana, also pump water from the Middle Claiborne Aquifer and other aquifers in the Mississippi Embayment. *Id.* ¶ 257 (App. 128a-129a).

Political borders do not affect cones of depression; a cone of depression will propagate outward from the well for a given distance unless it meets a physical or hydrogeological barrier. *Id.* ¶¶ 69-70, 72-73, 76, 114 (App. 89a-90a, 98a). Because there are no such barriers within the Middle Claiborne Aquifer, cones of depression can and often do extend across state borders. *Id.* ¶¶ 73, 126-130 (App. 89a, 100a-101a). This case centers on the regional cone of depression in the Memphis area of the Aquifer, which extends beneath Tennessee, Mississippi, and Arkansas. *Id.* ¶ 122 (App. 99a). That cone of depression is caused by pumping in all three States in the area. *Id.* ¶¶ 119-120 (App. 98a). As of 2007, there were many other cones of depression in the Aquifer that crossed state borders. At least three of these cones of depression involve larger areas and greater water-level declines than the cone of depression centered on Memphis: a cone of depression near Jackson, Mississippi, extending into Louisiana; a cone of depression near Stuttgart, Arkansas, extending into Mississippi; and a series of overlapping cones of depression in Union County, Arkansas, and nearby Louisiana, each extending across the Arkansas-Louisiana border. *Id.* ¶¶ 126, 128-130, 254-257 (App. 100a-101a, 128a-129a); Defs. Exception Br. 8 (reproducing Figure 14 from Joint Exhibit 19 at pdf p. 34.)

Although pumping within the Middle Claiborne Aquifer has altered the natural (or pre-development)

flow of water, groundwater was constantly moving within the Aquifer before any pumping. DFOF ¶ 19 (App. 74a). Under natural conditions, water in the Memphis area generally entered the Middle Claiborne in its eastern outcrop region – an area where the Middle Claiborne has no overlying confining layer and comes to the earth’s surface (or close to the surface). *Id.* ¶ 25 (App. 75a). Water then migrated laterally through the Aquifer, before traveling upward through the overlying confining units and discharging⁵ into the alluvial aquifer⁶ near the Mississippi River. *Id.* ¶ 53 (App. 82a). During this migration, groundwater in the Aquifer slowly flowed across state lines. *Id.* ¶¶ 135-136 (App. 102a).

Although there are a variety of maps attempting to recreate the historical pre-development flow, it is undisputed that water flowed across state borders, including from Mississippi into Tennessee, during pre-development conditions. *Id.* The most accurate map was from a 2015 peer-reviewed article, Ex. D-174,⁷ *see* Tenn. Reply App. 28a, which was based in part on USGS data from 1886 to 1906 and on manual site surveys of pre-development well sites. *See id.* at 24a-26a; DFOF ¶ 160 (App. 108a). The

⁵ “Discharge” is water leaving an Aquifer, whether naturally or through pumping. “Recharge” refers to water entering an aquifer, whether in an outcrop area or as a result of seepage through a confining layer. Stip. Facts 21, 28.

⁶ The alluvial aquifer is the shallow, unconfined aquifer located above the Middle Claiborne Aquifer at or near the land’s surface. It is separated from the Middle Claiborne by a confining layer, and it is directly connected to the Mississippi River. DFOF ¶ 181 (App. 113a).

⁷ The article, which was submitted in its entirety as Defendants Exhibit 174, is reproduced in the Appendix to this brief.

resulting map showed that, under pre-development conditions, water in the Memphis area predominantly flowed in a southeast-to-northwest direction, from Mississippi into Tennessee. DFOF ¶¶ 142, 151 (App. 103a-104a, 106a). In fact, that map showed that more water was flowing from Mississippi into Tennessee under pre-development conditions than in 2007. *Id.* ¶ 154 (App. 106a-107a).

B. Procedural History

1. This litigation began more than 15 years ago when Mississippi filed a complaint in district court alleging common-law tort claims against Memphis. Mississippi claimed that Memphis was “taking massive quantities of Mississippi’s portion of the groundwater” in the Middle Claiborne and sought “several hundreds of millions of dollars” in monetary damages. *Hood* 2005 Compl. ¶¶ 12, 17 (App. 5a-7a).

After extensive discovery, the district court dismissed Mississippi’s claims. The court held that the federal doctrine of equitable apportionment governed Mississippi’s claims because Mississippi sought ownership of an interstate resource when “it has not yet been determined which portion of the aquifer’s water is the property of which State.” *Hood ex rel. Mississippi v. City of Memphis*, 533 F. Supp. 2d 646, 648 (N.D. Miss. 2008). The court further held that Tennessee (which Mississippi had not sued) was a necessary participant in any equitable apportionment. The court thus dismissed the case without prejudice under Federal Rule of Civil Procedure 19, concluding that Tennessee was a necessary and indispensable party and that the case fell within this Court’s “original and exclusive jurisdiction.” *Id.*

On appeal, Mississippi argued that the equitable apportionment doctrine did not govern the dispute

because Mississippi “owns the groundwater” from the Aquifer “as a self-evident attribute of statehood, and thus there is no interstate water to be equitably apportioned.” *Hood ex rel. Mississippi v. City of Memphis*, 570 F.3d 625, 629 (5th Cir. 2009). The Fifth Circuit rejected Mississippi’s argument and affirmed that “[t]he Aquifer is an interstate water source” subject to “equitable allocation.” *Id.* at 630, 631. In 2010, this Court denied certiorari in *Hood*. See *Mississippi v. City of Memphis*, 559 U.S. 904 (2010). It also denied without prejudice Mississippi’s contemporaneous motion for leave to file a bill of complaint against Tennessee and Memphis. See *Mississippi v. City of Memphis*, 559 U.S. 901 (2010).

2. Four years later, Mississippi sought leave to file a bill of complaint against Tennessee and Memphis. See 2014 Compl. In 2015, the Court granted leave, *Mississippi v. Tennessee*, 135 S. Ct. 2916 (2015), and referred the case to the Special Master, *Mississippi v. Tennessee*, 136 S. Ct. 499 (2015).

Tennessee then moved to dismiss Mississippi’s Complaint. The Special Master concluded that equitable apportionment applies to groundwater, just as it “has been applied to a variety of interstate water disputes.” 2016 Op. 20. The Special Master reasoned that “equitable apportionment applies when ‘the action of one State reaches through the agency of natural laws into the territory of another State’” and that groundwater pumping, like surface water pumping, can affect “water in another state through the operation of natural laws.” *Id.* (quoting *Idaho ex rel. Evans v. Oregon*, 462 U.S. 1017, 1024-25 & n.8 (1983)). Recognizing that the equitable-apportionment doctrine would require dismissal of Mississippi’s Complaint if the Aquifer were an

interstate resource, the Special Master ordered “an evidentiary hearing on the limited – and potentially dispositive – issue of whether the Aquifer is, indeed, an interstate resource.” *Id.* at 1.

Following nearly two years of discovery, Defendants sought summary judgment. The Special Master reaffirmed his earlier conclusion that “equitable apportionment is appropriate if this case involves an interstate resource.” 2018 Op. 10. He rejected Mississippi’s argument that it possesses inherent property rights to a portion of the Aquifer, explaining that, “when a resource is interstate in nature, equitable apportionment supplies the proper method for determining rights.” *Id.* at 21. And, although the Special Master recognized that the evidence showing the interstate nature of the Aquifer was “strong,” he reaffirmed the need for an evidentiary hearing on whether “the Aquifer and water are interstate” in order to create a “robust record.” *Id.* at 27.

In May 2019, the Special Master conducted a five-day evidentiary hearing. Evidence at the hearing conclusively showed the Aquifer is an interstate resource. Five expert witnesses testified, and the parties submitted thousands of pages of documentary evidence. Following the hearing, the parties filed post-trial briefs and proposed findings of fact and conclusions of law, and the Special Master later heard closing arguments. Based on this record, the Special Master concluded that the Middle Claiborne Aquifer is an interstate resource and that the equitable-apportionment doctrine bars Mississippi’s claims. *See* Rep. 2. He therefore recommended that Mississippi’s Complaint be dismissed. *Id.*

SUMMARY OF ARGUMENT

I.A. The Special Master correctly concluded that the equitable-apportionment doctrine governs any claim Mississippi can assert for rights to contested water in the interstate Middle Claiborne Aquifer. This Court previously has applied equitable apportionment to a variety of interstate resources including rivers, groundwater connected to interstate surface water, and even migratory fish. The doctrine can be invoked when actions taken entirely within one State adversely affect another State's ability to use the same resource.

B. Mississippi does not meaningfully dispute the Special Master's presumptively correct factual determination that the Aquifer is interstate in nature for four different reasons. *First*, Mississippi's claims concern a single aquifer underlying eight States. *Second*, the effects of pumping cross state borders. *Third*, groundwater flowed across state borders, including from Mississippi into Tennessee, under pre-development conditions. *Fourth*, the Middle Claiborne is hydrologically connected with interstate surface waters. Because the Aquifer is an interstate resource under all four explanations adopted by the Special Master, any claims that one State is depriving another State of its ability to use the resource would fall squarely within this Court's equitable-apportionment doctrine.

C. Should the requisites of the equitable-apportionment doctrine be satisfied, applying that doctrine to the Middle Claiborne would promote the goal of allocating shared resources in a just and equitable manner. Equitable apportionment recognizes that Mississippi and Tennessee each have sovereignty within their own borders. The doctrine

also accounts for both States' uses of the water and gives due weight to the importance of established uses, such as Memphis's longstanding public water system.

D. The equitable-apportionment doctrine preempts Mississippi's tort-based claims to the Middle Claiborne because the doctrine provides the exclusive litigation remedy for a State injured by another State's use of an interstate water resource. And equitable apportionment does not permit Mississippi to recover damages. Because Mississippi has disclaimed equitable apportionment – and could not state an equitable-apportionment claim in any event – Mississippi's Complaint should be dismissed with prejudice.

II.A. Mississippi's arguments against the equitable-apportionment doctrine fail. Mississippi's contention that the doctrine does not extend to groundwater relies on legally insignificant distinctions between groundwater and surface water. It further ignores the practical difficulties of applying a different doctrinal framework to groundwater. Mississippi's property-rights theory would be difficult to administer, and it would destabilize water policy throughout the country. Applying that theory to the Aquifer also would allow Mississippi to avoid scrutiny into its own, significant pumping.

B. Mississippi cannot avoid the equitable-apportionment doctrine by artificially restricting its claims to a portion of the Aquifer. The evidence at trial demonstrated that *all* of the water in the Aquifer would have flowed out of Mississippi under pre-development conditions at some point, and much of it would have flowed into Tennessee. Such cross-border flow is the hallmark of an interstate

resource. The Special Master also correctly rejected Mississippi's attempt to claim only the water within a subsection of the Aquifer – named the “Sparta Sand” on the Mississippi side – recognizing the scientific consensus that the Aquifer is a single hydrogeological unit. All of the groundwater within it forms part of the same interstate resource subject to the equitable-apportionment doctrine.

C. Mississippi's claim of sovereign authority over any portion of the Aquifer misconstrues this Court's precedents. This Court has recognized that each State has full jurisdiction over the lands within its borders. By contrast, a State cannot claim an ownership interest in a shared, interstate resource that overlies – or underlies – its lands, unless and until such interest is established by an equitable-apportionment decree or interstate compact. This Court's decision in *Tarrant Regional Water District v. Herrmann*, 569 U.S. 614 (2013), prevents one State from physically entering another State's territory. It does not apply here, where Memphis's pumps are located entirely within Tennessee.

D. The equal-footing and public-trust doctrines also do not apply to disputes over interstate resources. Similarly, Mississippi cannot rely on either State's statutory law, which merely codifies the public-trust doctrine. In fact, Mississippi's statute recognizes that interstate groundwater, like surface water, is subject to equitable apportionment.

III. In the alternative, the Court should dismiss Mississippi's claims as barred by issue preclusion. Mississippi's claims depend on it having an enforceable right to the Aquifer outside the purview of an equitable apportionment or interstate compact. Mississippi had a full and fair opportunity to litigate

that issue in *Hood*, and the Fifth Circuit squarely rejected that position. Having failed to prevail in that case, Mississippi cannot collaterally attack that final judgment here. This Court’s exclusive jurisdiction in this interstate dispute does not change the analysis; an earlier forum’s inability to hear a later suit does not deprive its judgment of issue-preclusive force. Applying issue preclusion to this action not only promotes issue preclusion’s core purposes, but also comports with the principles that underpin this Court’s original jurisdiction.

ARGUMENT

I. THE SPECIAL MASTER CORRECTLY CONCLUDED THAT THE EQUITABLE-APPORTIONMENT DOCTRINE BARS MISSISSIPPI’S CLAIMS

A. The Equitable-Appportionment Doctrine Governs All Interstate Natural Resources, Including Groundwater

The Special Master correctly concluded (at 26-32) that the equitable-apportionment doctrine governs Mississippi’s claims. “Where, as here, the Court is asked to resolve an interstate water dispute raising questions beyond the interpretation of specific language of an interstate compact, the doctrine of equitable apportionment governs [the Court’s] inquiry.” *Florida v. Georgia*, 138 S. Ct. 2502, 2513 (2018); see also *Virginia v. Maryland*, 540 U.S. 56, 74 n.9 (2003) (“[f]ederal common law governs interstate bodies of water, ensuring that the water is equitably apportioned between the States”). In those circumstances, a State acquires an ownership share of an interstate resource not by mere virtue of sovereignty, but by seeking a “just and equitable allocation” from this Court. *Colorado v. New Mexico*, 459 U.S. 176, 183

(1982). The equitable-apportionment doctrine recognizes the fundamental principle that “a State may not preserve solely for its own inhabitants natural resources located within its borders.” *Idaho ex rel. Evans v. Oregon*, 462 U.S. 1017, 1025 (1983).

This Court has applied the doctrine broadly to a wide array of interstate resources, including rivers, *see, e.g., Nebraska v. Wyoming*, 325 U.S. 589, 617-19 (1945); river basins, *see, e.g., Florida*, 138 S. Ct. at 2512; groundwater connected to interstate surface water, *see, e.g., Nebraska v. Wyoming*, 515 U.S. 1, 14 (1995); *Washington v. Oregon*, 297 U.S. 517, 522-23 (1936); and even migratory fish, *see Idaho ex rel. Evans*, 462 U.S. at 1024-25. What matters is not whether the water is groundwater or surface water – or even whether the resource is fish rather than water. The doctrine applies whenever, as a “simple consequence of geography,” *Kansas v. Nebraska*, 135 S. Ct. 1042, 1052 (2015), one State’s use of a shared interstate resource causes injury to another State “through the agency of natural laws,” *Kansas v. Colorado*, 206 U.S. 46, 97 (1907). This case fits that description. Mississippi alleges that Memphis’s groundwater pumping in one State affects water conditions in the Aquifer beneath another State through the laws of hydrology. *See infra* pp. 15-16.

As the Special Master correctly concluded (at 26-32), Mississippi’s dispute over the Aquifer’s interstate groundwater would fall within the scope of the equitable-apportionment doctrine if Mississippi could establish the prerequisites for such a claim. Because Mississippi has not entered into an interstate compact and has explicitly disclaimed equitable apportionment of the Aquifer, its claims must be dismissed.

B. The Special Master Correctly Found That The Aquifer Is An Interstate Resource

The Special Master persuasively documented (at 11-26) that the Middle Claiborne Aquifer is an interstate resource. Mississippi agrees with the Special Master's factual findings supporting that conclusion, but it claims that the Special Master committed "legal error" by applying the equitable-apportionment doctrine to *this* interstate water resource. Miss. Exceptions Br. 26. The Special Master's factual findings – which are entitled to "a tacit presumption of correctness," *Colorado v. New Mexico*, 467 U.S. 310, 317 (1984) – bring the Aquifer within the equitable-apportionment doctrine's purview.

First, the Special Master correctly determined that the Aquifer is an interstate resource because it "is a continuous, interconnected hydrogeological unit beneath several states." Rep. 25. The Aquifer extends beneath portions of Tennessee, Mississippi, Arkansas, Louisiana, Alabama, Kentucky, Missouri, and Illinois. DFOF ¶¶ 64, 97 (App. 88a, 94a); Rep. 17. And it is a single hydrogeological unit because its hydrogeological properties – for example, its composition, hydraulic conductivity, and water levels – are continuous beneath those eight States. DFOF ¶¶ 65-73 (App. 88a-89a); Rep. 20. As Mississippi concedes (at 8), groundwater in the Aquifer is not "stationary." Water is able to flow freely throughout the Aquifer, which confirms that the Aquifer is a single multi-state hydrogeological unit. DFOF ¶¶ 76-77 (App. 90a).

Second, the Special Master properly found that effects of pumping in the Aquifer "cross[] the Mississippi-Tennessee border." Rep. 21. Groundwater in the Aquifer flows continuously across politi-

cal boundaries, and all experts agreed that there is no barrier at the Mississippi-Tennessee border. DFOF ¶¶ 75-77 (App. 90a). Consequently, pumping from the Aquifer in one State can and does affect water levels in the Aquifer in neighboring States. *Id.* ¶¶ 74, 112-125 (App. 89a-90a, 97a-101a). Mississippi does not dispute that these cross-border effects occur. In fact, its claims depend on those effects. *See, e.g.*, Miss. Exceptions Br. 11 (arguing that Memphis’s “pumping is pulling groundwater from Mississippi into Shelby County”). The cross-border effects of which Mississippi complains provide a textbook example of one State “reach[ing], through the agency of natural laws, into the territory of another state.” *Kansas*, 206 U.S. at 97.

Third, the Special Master correctly found (at 24) – and Mississippi agrees (at 8) – that groundwater flowed between Mississippi and Tennessee “[u]nder natural conditions.” Indeed, every study of pre-development conditions in the Aquifer found groundwater flowed naturally across state lines. DFOF ¶¶ 135-150 (App. 102a-106a). Moreover, Mississippi’s expert admitted that the area from which groundwater in the Aquifer flowed from Mississippi into Tennessee during pre-development times is larger than Mississippi initially alleged. *Id.* ¶ 141 (App. 103a). And Tennessee’s unrebutted expert testimony established that the single most reliable study, Ex. D-174, found very substantial pre-development flow from Mississippi into Tennessee. DFOF ¶ 154 (App. 106a-107a). According to that study, in fact, the Mississippi-to-Tennessee interstate

flow was *greater* under pre-development conditions than it was in 2007. *Id.*⁸

Fourth, the Aquifer is an interstate resource because it is hydrologically interconnected “to interstate surface waters.” Rep. 25. In the outcrop areas, the Aquifer is connected directly to the Wolf River (which flows from Mississippi into Tennessee). DFOF ¶¶ 177-180 (App. 112a-113a). And it is connected indirectly, through the alluvial aquifer, to the Mississippi River. *Id.* ¶¶ 181-185 (App. 113a). Mississippi does not dispute that factual finding either. This Court repeatedly has applied the equitable-apportionment doctrine to such surface-connected groundwater. *See, e.g., Nebraska v. Wyoming*, 534 U.S. 40, 42 (2001) (Appendix); *Nebraska v. Wyoming*, 515 U.S. at 11; *Texas v. New Mexico*, 462 U.S. 554, 557 n.2, 567-69 (1983); *Washington v. Oregon*, 297 U.S. 517 (1936); *Kansas v. Colorado*, 206 U.S. at 114-15. As the Special Master thus explained (at 25), the Aquifer’s connections to interstate surface water support a finding that it is interstate in nature.⁹

⁸ For this lawsuit, that fact confirms the error of Mississippi’s core theory. In fact, *Mississippi’s* pumping after development has *slowed* the natural flow of groundwater from Mississippi into Tennessee. *See infra* pp. 27-28. Tennessee’s pumping, therefore, cannot be depriving Mississippi of any water as a matter of fact. This fact negates Mississippi’s property-rights claims, which are predicated on Memphis supposedly “taking” groundwater from Mississippi. 2014 Compl. ¶¶ 22, 23.

⁹ Mississippi’s suggestion (at 29-30) that equitable apportionment does not control this dispute because Mississippi is not “independently” challenging the use of the Aquifer’s interconnected surface waters lacks merit. The Special Master correctly concluded (at 25), and Mississippi does not dispute, that the Middle Claiborne is hydrologically connected to interstate surface waters. Mississippi cannot avoid equitable apportion-

C. The Special Master's Recommendation Serves Equitable Apportionment's Core Principles

The equitable-apportionment doctrine is well-suited to allocate rights to the groundwater in the eight-state Middle Claiborne Aquifer, if any State should establish that another State is causing substantial injury. The Special Master's recommendation promotes equitable apportionment's fundamental principles. The primary goal of an equitable apportionment is to allocate an interstate source among coequal sovereigns in a "just and equitable" manner. *South Carolina v. North Carolina*, 558 U.S. 256, 271 (2010). To achieve that goal, this Court has long employed a "flexible" balancing approach that considers "all relevant factors," including "climatic conditions," "established uses," and "the harms and benefits to competing States." *Colorado*, 459 U.S. at 183, 186. And, in light of the competing sovereign interests, this Court requires a State requesting an equitable apportionment to demonstrate a "real or substantial injury," *id.* at 187 n.13, that represents a "threatened invasion of rights' that is 'of serious magnitude,'" *Florida*, 138 S. Ct. at 2514 (quoting *Washington*, 297 U.S. at 522). Applying that flexible doctrine to the Aquifer promotes the principles of justice, equity, and stability underpinning the doctrine.

First, the equitable-apportionment doctrine safeguards Tennessee's territorial sovereignty. It is undisputed that Memphis never physically entered Mississippi to capture water; the wells in Tennessee are all drilled straight down, and any cross-border effects are merely the natural consequence of devel-

ment by merely limiting its challenge to a portion of the interconnected waters. *See also infra* pp. 26-29.

oping the Aquifer. DFOF ¶¶ 117-118 (App. 98a). Mississippi’s claims thus seek to regulate activities that take place exclusively within Tennessee. Such cross-border regulation – which Mississippi demands as a matter of sovereignty – flouts the precept that “neither state can enforce its own policy upon the other.” *Kansas*, 206 U.S. at 95. Indeed, the equitable-apportionment doctrine’s “‘guiding principle’ . . . is that both States have ‘an equal right to make a reasonable use’ of” a shared interstate resource. *Florida v. Georgia*, 141 S. Ct. 1175, 1180 (2021) (quoting *Florida*, 138 S. Ct. at 2513). Mississippi cannot square its claims with that core principle.

Second, an equitable apportionment would give due consideration to both States’ competing uses of the Aquifer. “At the root of the [equitable-apportionment] doctrine is the same principle that animates many of the Court’s Commerce Clause cases: a State may not preserve solely for its own inhabitants natural resources located within its borders.” *Idaho ex rel. Evans*, 462 U.S. at 1025. The doctrine therefore “require[s] the reasonably efficient use of water” and “impose[s] on States an affirmative duty to take reasonable steps to conserve and augment the water supply of an interstate [resource].” *Colorado*, 459 U.S. at 185. Given the interstate character of groundwater management, “the relative rights of contending States” must be adjudicated within a framework that serves the broader national interest, rather than the parochial “considerations . . . applied in such States for the solution of similar questions of private right.” *Connecticut v. Massachusetts*, 282 U.S. 660, 670 (1931). Applying the equitable-apportionment doctrine would promote these principles and foster water conservation. *See*

Sporhase v. Nebraska ex rel. Douglas, 458 U.S. 941, 952-53 (1982) (because “water, unlike other natural resources, is essential for human survival[,] . . . there is a significant federal interest in conservation as well as in fair allocation”).

Third, the equitable-apportionment doctrine would give due consideration to the “compelling” equities underpinning Memphis’s established water system. *Colorado*, 459 U.S. at 187. The doctrine recognizes that “[t]he harm that may result from disrupting established uses is typically certain and immediate, whereas the potential benefits from a proposed diversion may be speculative and remote.” *Colorado*, 467 U.S. at 316. To balance these competing interests and promote “the stability of property rights,” the doctrine requires only “conservation measures that are ‘financially and physically feasible’ and ‘within practicable limits.’” *Id.* at 316, 319 (quoting *Wyoming v. Colorado*, 259 U.S. 419, 484 (1922)).

Memphis has pumped water from the Aquifer since 1886, and the Aquifer is the City’s primary public water source. DFOF ¶ 259 (App. 129a); see Miss. Exceptions Br. 9-10 (noting Memphis’s water system consists “of more than 160 wells in 10 well fields”). Repositioning Memphis’s wells to eliminate the cone of depression extending into Mississippi – if that were even possible – would impose “enormous” expense. DFOF ¶ 252 (App. 127a-128a).

Conversely, Mississippi has not demonstrated any injury. Memphis’s pumping has not prevented Mississippi from increasing its own pumping to obtain the water it wants. *Id.* ¶¶ 231, 243 (App. 123a-124a, 126a). The Aquifer has remained fully saturated at all times, *id.* ¶¶ 243, 267 (App. 126a, 130a), and Mississippi’s own expert testified that the volume of

water beneath DeSoto County, Mississippi, has changed very little since pumping began, *id.* ¶ 241 (App. 125a). In fact, water levels in the Middle Claiborne have stabilized in the area around Memphis in recent years, demonstrating that the amount of water discharging from the Aquifer – naturally and through pumping – is approximately equal to the amount of water naturally recharging into the Aquifer. *Id.* ¶¶ 229-230, 256 (App. 123a, 128a).

The Special Master did not reach Mississippi’s claims of injury from having to drill wells to greater depths. *See* Rep. 5 (citing 2014 Compl. ¶ 54(b)). But any incremental inconvenience to Mississippi from additional electricity or construction costs as a result of lowered potentiometric levels, DFOF ¶¶ 244-245 (App. 126a), cannot justify upsetting Defendants’ decades-long practices. If an equitable-apportionment decree were ever necessary for this Aquifer, it would properly balance all of these “harms and benefits” to the States in light of the existing uses. *Colorado*, 459 U.S. at 186.

The equitable-apportionment doctrine is the proper lens through which the Court should evaluate any claim Mississippi can assert against Tennessee. In light of the doctrine’s core purposes of equity, justice, and stability, the Court should adopt the Special Master’s recommendation and overrule Mississippi’s exceptions.

D. The Equitable-Appportionment Doctrine Precludes Mississippi’s Claims

The equitable-apportionment doctrine preempts Mississippi’s tort-law claims centered on its alleged sovereign ownership of the moving groundwater in the interstate Aquifer. Equitable apportionment – not Mississippi’s tort-law concepts – “is the doctrine

of federal common law” that supplies the exclusive remedy for Mississippi’s claims. *Colorado*, 459 U.S. at 183; see *American Elec. Power Co. v. Connecticut*, 564 U.S. 410, 421 (2011) (“When we deal with air and water in their ambient or interstate aspects, there is a federal common law.”) (quoting *Illinois v. City of Milwaukee*, 406 U.S. 91, 103 (1972)). And, as the Special Master correctly concluded (at 31), federal common law preempts Mississippi’s state-law claims, which are all premised on its flawed assertion of an ownership interest in an unapportioned interstate resource. See 2014 Compl. ¶ 56.

If Mississippi has any remedy at all, it is to seek an equitable apportionment in this Court. But this Court’s equitable-apportionment doctrine bars Mississippi from seeking at least “\$615 million” in damages for the alleged “wrongful taking” of groundwater. *Id.* ¶¶ 55, 57. An equitable-apportionment decree is “directed at ameliorating present harm and preventing future injuries to the complaining State, not at compensating that State for prior injury.” *Idaho ex rel. Evans*, 462 U.S. at 1028. This Court thus has permitted recovery of damages only after the Court has entered an equitable-apportionment decree or the States have agreed to a compact. See, e.g., *Texas v. New Mexico*, 482 U.S. 124, 128 (1987) (permitting damages for violation of compact). Because Mississippi has disclaimed an equitable apportionment – and does not qualify for one in any event – the Complaint should be dismissed with prejudice. See 2014 Compl. ¶ 38; Defs. Exception Br. 15-27.

II. MISSISSIPPI'S ARGUMENTS AGAINST APPLYING EQUITABLE APPORTIONMENT ARE UNPERSUASIVE

A. The Equitable-Appportionment Doctrine Applies To Groundwater

Mississippi's argument (at 26-31) that groundwater is exempt from the equitable-apportionment doctrine lacks merit. Mississippi identifies no compelling reason to treat the Aquifer differently from the variety of interstate resources to which this Court has applied the doctrine. *See supra* p. 14. It points (at 6-8) to groundwater's existence in "pore spaces" and "slow" flow speed, but those features are not "legally meaningful." Rep. 27-28. "The Aquifer flows, if slowly, under several states, and it is indistinguishable from a lake bordered by multiple states or from a river bordering several states depending upon it for water." *Hood*, 570 F.3d at 630. Flow speed aside, the Aquifer's groundwater possesses the key characteristic of an interstate resource: actions in one State can and do affect the resource in a different State through "the agency of natural laws." Rep. 28 (quoting *Idaho ex rel. Evans*, 462 U.S. at 1024 n.8); *see supra* p. 14. This Court never has established a different doctrinal framework for evaluating the use of interstate groundwater. Inventing a new regime for the Aquifer here would have adverse consequences that conflict with this Court's water-rights precedents.

First, applying a new rule to the Aquifer would be difficult to administer because of the hydrological connections between groundwater and surface water. Groundwater in *all* aquifers is constantly moving between the aquifers and surface waters through natural recharge and discharge. DFOF ¶¶ 19, 34, 264

(App. 74a, 77a, 129a-130a). And the Special Master properly concluded that the Middle Claiborne in particular was hydrologically connected to surface water. Rep. 25. This Court's equitable-apportionment precedents already recognize such inextricable connections. In *Washington v. Oregon*, for example, the Court applied the equitable-apportionment doctrine when addressing a claim – similar to Mississippi's – that Oregon farmers should be enjoined from pumping “subsurface water” because of the effect on water in Washington. 297 U.S. at 523-26. Similarly, in *Kansas v. Colorado*, the Court declined to treat “subsurface water” as “separate” from a “surface stream” for purposes of equitable apportionment. 206 U.S. at 114-15. And, in *Nebraska v. Wyoming*, the Court applied the equitable-apportionment doctrine when addressing Nebraska's claim that “groundwater pumping in Wyoming” depleted “surface water flows.” 515 U.S. at 14.

Second, applying Mississippi's property-rights theory to groundwater also would be impracticable because it is impossible to determine when particular groundwater molecules have crossed or will cross a State's border. Mississippi asks (at 18-20, 34-35) the Court to determine ownership of each molecule of water in the Aquifer by determining whether it “resided in Mississippi.” But hydrologists work on the macroscopic level to draw conclusions about the average speed or direction of water movement within an aquifer; they cannot follow individual molecules of water in isolation. DFOF ¶¶ 269-271 (App. 130a-131a). Further, the expert testimony demonstrated that groundwater flow patterns are constantly changing – such as when new pumps create cones of depression – further complicating efforts to determine

which water molecules cross political boundaries. *Id.* ¶¶ 31, 39 (App. 76a-78a). The threat of hundreds of millions of dollars in retrospective damages based on the results of such uncertain analysis would thwart the principle of stability at the heart of federal common law in this area. *See Colorado*, 459 U.S. at 183, 186.

Third, Mississippi's sovereignty-based framework would destabilize state water policy across the United States and frustrate the public interest. For decades, States have formulated water policy with the knowledge that the federal equitable-apportionment doctrine protects "existing economies" and looks unfavorably on legal claims that threaten to "disrupt[] established uses." *Id.* at 187. Mississippi's theory seeks to cast that regime aside in favor of a rule allowing States to use their own tort laws to upend the longstanding policies of neighboring States. Were the Court to accept Mississippi's proposed paradigm shift, States throughout the Nation would be affected. Many States extract water from interstate aquifers. DFOF ¶¶ 110-111 (App. 96a-97a). Under Mississippi's theory, those States could be forced to defend themselves against lawsuits threatening ruinous liability and disruption of existing water uses. *See* 2014 Compl. ¶ 55 (seeking at least \$615 million in damages). And, because cones of depression are an inevitable effect of pumping, adopting Mississippi's theory functionally would preclude States from developing the resource in close proximity to the state border. Given the paramount importance of doctrinal "stability" in the area of water rights, *Colorado*, 467 U.S. at 316, the damage caused by such upheaval could be substantial.

Fourth, applying a new rule to the Aquifer would allow Mississippi to avoid scrutiny into its own pumping. In recent years, Mississippi's groundwater withdrawals in DeSoto County have increased to approximately 20 million gallons per day, and the volume of groundwater in the Aquifer flowing from Mississippi into Tennessee has decreased. DFOF ¶ 231 (App. 124a). Mississippi's pumping near Jackson has caused one of the largest cones of depression in the Aquifer. *Id.* ¶¶ 255-257 (App. 128a-129a). The Court should not incentivize States to seek a financial windfall while avoiding cooperation with other States and bypassing the balancing of interests that an equitable apportionment would require.

For those reasons, the Special Master correctly declined to craft a new legal regime for groundwater and recommended that the Court instead apply the equitable-apportionment doctrine to this interstate water dispute. Rep. 26-32. The Court should adopt that sound recommendation.

B. Mississippi Cannot Limit Its Claims To Only A Particular Subset Of Water Within The Middle Claiborne

The Special Master also correctly rejected Mississippi's attempt (at 31) to evade equitable apportionment by artificially limiting its claims to a subset of the Aquifer's groundwater. Rep. 29-30; 2016 Op. 29, 32. Mississippi's evolving position on this issue has not become more persuasive over time.

Mississippi initially claimed to own the groundwater in the Aquifer that "does not cross into Tennessee under natural predevelopment conditions." 2014 Compl. ¶ 46; *see also* Pl.'s Opp. to MJOP 18; Pl.'s Resp. to SJ 14. Mississippi now changes course and claims (at 21, 31) to own "all groundwater" in

the Middle Claiborne located “within its borders,” regardless of how it would have flowed under pre-development conditions and how short its “residence” time in Mississippi might be. But Mississippi does not “own” any of the groundwater and cannot avoid an equitable apportionment “by limiting its claims to a specific portion of the water.” 2018 Op. 13, 23.

Mississippi has shifted its focus for good reason – there is no “intrastate” water that would have remained underneath Mississippi under pre-development conditions. Mississippi concedes (at 8) that water in the Aquifer is constantly moving and would not have remained in Mississippi indefinitely even absent pumping. All groundwater in the Aquifer beneath Mississippi eventually would have left the State under natural conditions, as even Mississippi’s expert conceded on cross-examination. DFOF ¶ 174 (App. 111a) (citing Hr’g Tr. 307:5-10 (Spruill) (May 21, 2019)). In fact, the single most reliable study of pre-development flow showed *more water* flowing from Mississippi into Tennessee under pre-development conditions than in 2007.¹⁰ *Id.* ¶ 154 (App. 106a-107a). This is likely due in part to increased pumping in Mississippi “right along the border . . . intercepting that flow that would have naturally gone into Tennessee.” Hr’g Tr. 853:16-854:6 (Waldron) (May 23, 2019). For that reason,

¹⁰ The study compared the pre-development water flow within the Middle Claiborne Aquifer to the flow in 2007 because the 2007 study – published by the U.S. Department of the Interior in 2008 and submitted to the Special Master as Joint Exhibit 71 – used the most recent data available about the Middle Claiborne and mapped water levels in the Aquifer in both the confined and the unconfined areas and across state borders. DFOF ¶ 153 (App. 106a). Joint Exhibit 71 can be found at <https://pubs.usgs.gov/sim/3014/pdf/sim3014.pdf>.

Mississippi's Complaint has it backwards. Mississippi's pumping is depriving Tennessee of water that, under natural conditions, would have flowed from Mississippi into Tennessee.

Mississippi's claim (at 35) that the Aquifer's groundwater is "intrastate" because it "existed" beneath Mississippi is equally unfounded. Mississippi's theory would mean that groundwater beneath its territory belongs to Mississippi until it passes beneath a political boundary and becomes another State's water. But a molecule that supposedly belongs to one State and then, the next moment, to a different State is the epitome of an interstate resource. Indeed, under Mississippi's theory, there would be no interstate rivers because surface water typically exists within one State before flowing into another State.

Mississippi's suggestion (*e.g.*, at 7) that water in the Sparta Sand is in a separate aquifer is also factually incorrect and legally irrelevant. The Middle Claiborne Aquifer and its various subsections go by a variety of names. The name Sparta Sand typically refers to a section of the Aquifer beginning just south of the border between Mississippi and Tennessee. DFOF ¶ 194 (App. 115a). As the Special Master correctly recognized, the Sparta Sand is not a separate aquifer: the "scientific consensus holds that the Middle Claiborne Aquifer is a single hydrogeological unit." Rep. 20.

Even if the units were separate, distinct water bodies may form a single interstate water resource. One of this Court's recent equitable-apportionment cases, *Florida v. Georgia*, 138 S. Ct. 2502 (2018), involved a single interstate water resource that consisted of three rivers with different names,

forming a “Y” shape where two of the rivers flowed into the third. *Id.* at 2508. Despite the presence of three arguably distinct rivers and a lake, the Court recognized the existence of one resource – “an interstate *river basin* known as the Apalachicola-Chattahoochee-Flint River Basin.” *Id.* (emphasis added). Because the rivers were hydrologically connected, it made no difference that the Flint River flows exclusively in Georgia, while the Apalachicola River exists solely in Florida, *see id.* at 2528 (Appendix); *see also Florida*, 141 S. Ct. at 1178 (“This case concerns the Apalachicola-Chattahoochee-Flint River Basin, an area spanning more than 20,000 square miles in Georgia, Florida, and Alabama. The Basin contains three rivers.”).

Similarly, in *Kansas v. Colorado*, the Court considered an interstate river where the water periodically ran dry between the States. *See* 206 U.S. at 115. The lack of permanent flow across the state boundary did not transform part of the river into an “intrastate” resource exempt from equitable apportionment. Instead, the Court considered the river as a whole. Here, too, hydrological realities – not Mississippi’s inapposite naming conventions – determine the interstate nature of the Aquifer.

C. This Court’s Precedents Foreclose Mississippi’s Competing Theory Of Territorial Sovereignty

Mississippi’s claim of sovereign authority over parts of the Aquifer misapprehends the Court’s precedents. This Court has recognized that each State “has full jurisdiction over the lands within its borders, including the *beds* of streams and other waters.” *Kansas*, 206 U.S. at 93 (emphasis added). But a State cannot claim an ownership interest in

an interstate natural resource within its lands, unless and until such interest is established under an equitable-apportionment decree or interstate compact. In other words, each State has territorial sovereignty over the land that contains the interstate waters, not – as Mississippi maintains (at 27) – over the waters themselves. The States’ ownership of the submerged lands creates the accompanying power to control public uses of water within that State. See Rep. 29 (citing *Kansas*, 206 U.S. at 93). But this Court’s equitable-apportionment cases have “consistently denied” the proposition that a State may exercise exclusive “ownership or control” over all “waters flowing within [its] boundaries.” *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 102 (1938). In fact, the Court explicitly rejected “the legal fiction of state ownership” of “ground water” in *Sporhase v. Nebraska ex rel. Douglas*, 458 U.S. at 951, which Mississippi does not address.

In arguing for sovereign control over groundwater, Mississippi relies heavily on *Tarrant Regional Water District v. Herrmann*, 569 U.S. 614 (2013), but that decision involved one State physically *entering another State’s territory* to access a water resource. Specifically, a Texas water utility sought to obtain extra water under an interstate compact by entering Oklahoma and “divert[ing]” a “tributary of the Red River located in Oklahoma.” *Id.* at 625. This Court concluded that the Texas utility did not have “the right to cross state lines and divert water from Oklahoma” because the relevant compact did not grant Texas a “cross-border” right. *Id.* at 626, 632. In that context, the Court observed that States are presumed not to cede their prerogative “to control water within their own boundaries.” *Id.* at 632. Unlike the Texas

utility, Memphis here never has sought to cross into Mississippi's territory to access its water. As the Special Master correctly observed, *Tarrant* is therefore inapplicable because it "only protects a state against physical intrusion." Rep. 29-30.

Mississippi's claim (at 41) that Memphis is nevertheless "reach[ing] into Mississippi" is incorrect. Memphis's pumps are in Tennessee, and it is pumping groundwater that, when extracted, undisputedly lies beneath Tennessee's territory. Rep. 21. Any cross-border effects on water in Mississippi are the natural consequence of the laws of hydraulics. DFOF ¶¶ 41, 123-124 (App. 78a, 99a). All wells create cones of depression, and it is impossible to remove any water from an aquifer without causing water in the surrounding area to flow towards the well. *Id.* ¶ 41 (App. 78a). That Memphis's pumping "reaches, through the agency of natural laws, into the territory of another state" underscores why an equitable apportionment is Mississippi's exclusive remedy. *Kansas*, 206 U.S. at 97.

Ultimately, Mississippi's ownership claim fails because it ignores Tennessee's equal rights to develop the Aquifer within *Tennessee's* own borders. By challenging actions within Tennessee, Mississippi reaches beyond its borders while simultaneously arguing that "neither state can have any right beyond its territorial boundary." Miss. Exceptions Br. 23 (quoting *Rhode Island v. Massachusetts*, 37 U.S. (12 Pet.) 657, 733 (1838)) (emphasis omitted). Equitable apportionment is the Court's solution to this very problem: both States have "control over waters within their own territories," *Tarrant*, 569 U.S. at 631, and neither State "can legislate for[] or impose its own policy upon the other," *Kansas*, 206

U.S. at 95. The States' competing interests "must be reconciled as best they may." *New Jersey v. New York*, 283 U.S. 336, 342-43 (1931). As the Special Master previously explained, Mississippi has not "lost rights to the water" in the Aquifer; instead, "equitable apportionment supplies the proper method for determining rights." 2018 Op. 21.

D. Mississippi Cannot Rely On The Equal-Footing And Public-Trust Doctrines Or State Statutory Law

The equal-footing and public-trust doctrines do not support Mississippi's claims, as the Special Master correctly concluded. *See* Rep. 29-31; 2016 Op. 21. The equal-footing doctrine merely ensures that Mississippi has the same rights as all other States. *See Puerto Rico v. Sanchez Valle*, 136 S. Ct. 1863, 1871 (2016). It does not supplant the well-established principle that no State owns interstate water resources within its borders. *See, e.g., Hinderlider*, 304 U.S. at 102. Similarly, the public-trust doctrine establishes only that Mississippi holds in trust the waters and submerged lands confined within its own territorial borders, subject to fiduciary duties to preserve those resources for the public's benefit. *See Cinque Bambini P'ship v. State*, 491 So. 2d 508, 516-17 (Miss. 1986), *aff'd sub nom. Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469 (1988). Thus, as Mississippi recognizes (at 22, 31), the public-trust doctrine defines the relationship between a State and "its citizens." That doctrine does not apply to disputes among States over the use of interstate water resources, which implicate the coequal rights of neighboring sovereigns and would be subject to an equitable allocation by this Court. *See Kansas*, 206 U.S. at 97-98. Neither the equal-

footing doctrine nor the public-trust doctrine displaces the equitable-apportionment doctrine in the context of an interstate-water dispute.

State statutory law does not support Mississippi's position, either. The Tennessee and Mississippi statutes on which Mississippi relies (at 41-43) codify the public-trust doctrine. *See* Tenn. Code Ann. § 68-221-702 (recognizing that “the waters of the state are the property of the state and are held in public trust for the benefit of its citizens”); Miss. Code Ann. § 51-3-1 (similar). But the public-trust doctrine governs *intrastate* water located within a State's borders. *See supra* p. 32. These statutory provisions thus do not resolve this *interstate* dispute. *See Colorado*, 459 U.S. at 183-84 (“The laws of the contending States concerning intrastate water disputes are an important consideration governing equitable apportionment. . . . But state law is not controlling. Rather, the just apportionment of interstate waters is a question of federal law[.]”); *see also* 2014 Compl. ¶ 37 (recognizing that “[n]either State's legal regime provides any effective mechanism for resolving this dispute”).

If anything, Mississippi's statutory law undermines its position. The very chapter Mississippi cites (at 42-43) groups interstate groundwater together with surface water and recognizes that both are subject to equitable allocation. *See* Miss. Code Ann. § 51-3-41. Specifically, Mississippi law authorizes the Commission on Environmental Quality to negotiate “compacts and agreements concerning [Mississippi's] *share of ground water* and waters flowing in watercourses where a portion of those waters are contained within the territorial limits of a neighbor-

ing state.” *Id.* (emphasis added).¹¹ Mississippi law reveals the State’s own awareness that, under longstanding equitable-apportionment principles, an interstate compact could be necessary to establish its rights to an interstate groundwater resource like the Aquifer.

Were Mississippi’s legal theory correct, no such authority would be necessary: Mississippi’s “share” of such groundwater already would be fixed as a matter of sovereignty. And were Mississippi correct that groundwater is so unlike surface water as to demand a different legal regime, its own legislature would not have treated the two identically in contemplating interstate negotiations over Mississippi’s “share” of such waters. *Id.* Mississippi identifies no provision of Mississippi law asserting exclusive ownership of groundwater resources “where a portion of those waters are contained within the territorial limits of a neighboring state.” *Id.* The absence of any such provision undermines Mississippi’s attempt to exempt groundwater from ordinary equitable-apportionment principles.

III. IN THE ALTERNATIVE, THE COMPLAINT SHOULD BE DISMISSED BECAUSE MISSISSIPPI’S CLAIMS ARE BARRED BY ISSUE PRECLUSION

This Court also should dismiss the Complaint on the alternative ground that Mississippi’s claims are barred by issue preclusion. Issue preclusion “foreclos[es] successive litigation of an issue of fact or law actually litigated and resolved in a valid court

¹¹ In 1995, Mississippi’s legislature amended the interstate-compact provision to include “ground water.” *See* 1995 Miss. Laws ch. 505, § 4.

determination essential to the prior judgment.” *New Hampshire v. Maine*, 532 U.S. 742, 748-49 (2001). Because Mississippi’s claims depend on the very same property-rights theory that it advanced and lost in *Hood*, issue preclusion bars Mississippi’s claims as a matter of law.

A. Mississippi Seeks To Relitigate The Same Issue *Hood* Already Decided Against It

Mississippi’s claims rise and fall on one core issue: whether, in the absence of an equitable apportionment, Mississippi has an enforceable right to the groundwater in the Aquifer. *Hood* squarely held that it does not. *See Hood*, 570 F.3d at 630 (“The Aquifer is an interstate water source, and the amount of water to which each state is entitled from a disputed interstate water source must be allocated before one state may sue an entity for invading its share.”); 2014 Compl. ¶ 35 (“Prior attempts to litigate these issues [in *Hood*] have been unsuccessful.”). The ruling in *Hood* was “a valid court determination essential to [a] prior judgment.” *New Hampshire*, 532 U.S. at 748-49; *see* 2016 Op. 26.

Mississippi had “a full and fair opportunity to litigate” the issue that *Hood* resolved against it. *Montana v. United States*, 440 U.S. 147, 153 (1979). That opportunity included Mississippi’s unsuccessful efforts – based on the same arguments it advances here again – to convince this Court that the courts below erred in resolving that issue against Mississippi. *See Mississippi v. City of Memphis*, 559 U.S. 904 (2010).¹² Mississippi thus is precluded from

¹² *Compare* Miss. Cert. Pet. 12 (Mississippi “owns the surface water and ground water resources within the geographical confines of its boundaries as a function of statehood”) *with* 2014 Compl. ¶ 38 (Mississippi has “sovereign prerogative[.]”

challenging *Hood* in this action. *See Montana*, 440 U.S. at 153 (final “determination” of previously litigated issue “is conclusive in subsequent suits based on a different cause of action”).¹³

B. Issue Preclusion Applies In This Original Action

This Court’s original jurisdiction does not lessen *Hood*’s issue-preclusive effect. This Court has held that once “a [f]ederal court has decided” a jurisdictional issue – even where the court doing so lacks power to rule on the merits – a later court “in which the plea of *res judicata* is made has not the power to inquire again into that jurisdictional fact.” *Stoll v. Gottlieb*, 305 U.S. 165, 172 (1938). That conclusion holds true even when the later court has exclusive jurisdiction. For example, “a state court judgment

over “waters naturally residing within its boundaries”); *compare* Miss. Cert. Pet. 16-17 (invoking “public trust doctrine”; citing *Cinque Bambini*) with 2014 Compl. ¶¶ 11-12 (same); *compare* Miss. Cert. Pet. 12 (distinguishing “equitable apportionment cases” as “involv[ing] disputes between states over surface water flowing through both states in a river, its tributaries or water sheds”) with 2014 Compl. ¶ 48 (equitable apportionment applies only to water “such as rivers and other surface waters, and the watersheds supplying them”).

¹³ Although the *Hood* dismissal was under Federal Rule of Civil Procedure 19(b), the judgment remains binding as a matter of issue preclusion. *See* 18A Charles A. Wright, Arthur R. Miller & Edward H. Cooper, *Federal Practice and Procedure* § 4436, at 147 (3d ed. 2017 & 2019 Supp.) (non-merits dismissal “preclude[s] relitigation of the issues determined”). By contrast, because a non-merits dismissal “does not bar a second action as a matter of claim preclusion,” *id.*, *Hood* would not foreclose Mississippi from bringing a proper equitable-apportionment action. *Hood*, however, does preclude Mississippi from relitigating the *issue* of whether disputes over the Aquifer are governed by the equitable-apportionment doctrine.

may in some circumstances have preclusive effect in a subsequent action within the exclusive jurisdiction of the federal courts.” *Marrese v. American Acad. of Orthopaedic Surgeons*, 470 U.S. 373, 380 (1985); see *Becher v. Contoure Labs., Inc.*, 279 U.S. 388, 391-92 (1929) (reaching that conclusion in a patent suit). The same principle applies here. Just as state-court judgments may bar subsequent cases within the exclusive jurisdiction of federal courts, *Hood* retains issue-preclusive force here. In both contexts, the earlier forum’s inability to hear the later suit does not deprive its judgment of issue-preclusive effect.

Affording issue-preclusive effect to *Hood* is consistent with this Court’s prerogative to resolve “all controversies between two or more States.” 28 U.S.C. § 1251(a). *Hood* itself did not dispose of any claims that Mississippi might bring against Tennessee in an original action, and Tennessee does not contend that *Hood* has *claim*-preclusive effect here. It remains for this Court alone – assisted by the Special Master – to resolve this action. But the Court can and should apply issue-preclusion principles and bar Mississippi from relitigating the issue it already lost. That would represent not an abdication of the Court’s original jurisdiction, but rather a prudent exercise of it. See *Arizona v. California*, 530 U.S. 392, 410, 413-18 (2000) (applying issue-preclusion “principles” in an original action even when “the technical rules of preclusion [we]re not strictly applicable”) (quoting *Arizona v. California*, 460 U.S. 605, 619 (1983)).

C. Applying Issue Preclusion In This Water-Rights Dispute Advances That Principle's Core Purposes

Issue preclusion “is central to the purpose” of civil litigation. *Montana*, 440 U.S. at 153. By preventing “parties from contesting matters that they have had a full and fair opportunity to litigate,” issue preclusion avoids “the expense and vexation attending multiple lawsuits, conserves judicial resources, and fosters reliance on judicial action.” *Id.* at 153-54. Those principles assume particular importance “with respect to rights in real property,” including “the holding and use of water rights.” *Arizona*, 460 U.S. at 619-20.

Mississippi’s attempt to relitigate the issue it lost in *Hood* offends those core principles. Allowing Mississippi to relitigate the central contention that it lost in *Hood* – that the Aquifer water is an interstate resource governed by equitable-apportionment principles – has imposed significant added expense on Tennessee and this Court. And Mississippi’s efforts threaten to upend Tennessee’s settled expectations in an area where this Court has recognized a “compelling need for certainty.” *Id.* at 620. After *Hood* was decided, Defendants continued to use water in the Aquifer – which serves vital municipal needs – in reliance on the Fifth Circuit’s holding that Mississippi may not “sue an entity for invading its share” of the Aquifer unless and until the Aquifer is equitably apportioned. *Hood*, 570 F.3d at 630. Mississippi’s attempt to relitigate *Hood*’s holding now – and to seek damages for water pumped in direct reliance on *Hood* – undermines a “major purpose” of the rulings in *Hood*: to give Defendants “assurance” regarding “the amount of water they can anticipate to receive

from” the Aquifer. *Arizona*, 460 U.S. at 620. Future litigants should not have to experience what Tennessee has endured: multi-year relitigation of an issue that conclusively disposes of Mississippi’s claim to own water within an unapportioned interstate resource.

CONCLUSION

The Court should overrule Mississippi’s Exceptions to the Report of the Special Master, sustain Defendants’ Exception in Part, and dismiss Mississippi’s Complaint with prejudice.

Respectfully submitted,

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