

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 Bill of Complaint
Before the Special Master, Hon. Eugene E. Siler, Jr.**

**POST-HEARING BRIEF OF DEFENDANTS THE CITY OF MEMPHIS,
TENNESSEE, AND MEMPHIS LIGHT, GAS & WATER DIVISION**

LEO M. BEARMAN

Counsel of Record

DAVID L. BEARMAN

KRISTINE L. ROBERTS

BAKER, DONELSON, BEARMAN,

CALDWELL & BERKOWITZ, PC

165 Madison Avenue, Suite 2000

Memphis, Tennessee 38103

(901) 526-2000

Counsel for Defendants

City of Memphis, Tennessee, and

Memphis Light, Gas & Water Division

CHERYL W. PATTERSON

CHARLOTTE KNIGHT GRIFFIN

MEMPHIS LIGHT, GAS & WATER

DIVISION

220 South Main Street

Memphis, Tennessee 38103

Counsel for Defendant

Memphis Light, Gas & Water Division

BRUCE A. MCMULLEN

City Attorney

CITY OF MEMPHIS, TENNESSEE

125 North Main Street, Room 336

Memphis, Tennessee 38103

Counsel for Defendant

City of Memphis, Tennessee

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2016 Op.	Memorandum of Decision on Tennessee’s Motion to Dismiss, Memphis and Memphis Light, Gas & Water Division’s Motion to Dismiss, and Mississippi’s Motion to Exclude, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Aug. 12, 2016) (opinion of Special Master) (Dkt. No. 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) (opinion of Special Master) (Dkt. No. 93)
Compl.	Complaint, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. June 6, 2014) (Dkt. No. 1)
Compl. App.	Appendix to Mississippi’s Motion for Leave to File Bill of Complaint in Original Action, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. June 6, 2014) (Dkt. No. 1)
Defs.’ Joint Mot. to Exclude Irrelevant Evidence	Defendants’ Joint Motion to Exclude Evidence Irrelevant to the Limited Evidentiary Hearing, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Nov. 1, 2018) (Dkt. No. 81)
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Defs.' Opp. to Leave	Brief of the City of Memphis, Tennessee, and Memphis Light, Gas & Water Division in Opposition to the State of Mississippi's Motion for Leave to File Bill of Complaint in Original Action, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Sept. 4, 2014) (Dkt. No. 3)
Defs.' PFOF	Defendants' Joint Proposed Findings of Fact, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. Sept. 5, 2019)
<i>Hood</i> Litigation	<i>Hood ex rel. Mississippi v. City of Memphis</i> , 533 F. Supp. 2d 646 (N.D. Miss. 2008), <i>aff'd</i> , 570 F.3d 625 (5th Cir. 2009), <i>cert. denied</i> , 559 U.S. 904 (2010)
<i>Hood</i> Am. Compl.	First Amended Complaint, <i>Hood ex rel. Mississippi v. City of Memphis, et al.</i> , Civil Action No. 2:05CV32-D-B (N.D. Miss. Oct. 5, 2006)
<i>Hood</i> Compl.	Complaint, <i>Hood ex rel. Mississippi v. City of Memphis, et al.</i> , Civil Action No. 2:05CV32-D-B (N.D. Miss. Feb. 1, 2005)
Order Denying Leave	Order denying Mississippi's Motion to File a Bill of Complaint, <i>Mississippi v. City of Memphis</i> , 559 U.S. 901, No. 139, Orig. (Jan. 25, 2010)
Pl.'s 5th Cir. Br.	Brief for Appellant, <i>Hood ex rel. Mississippi v. City of Memphis, et al.</i> , Case No. 08-60152 (5th Cir. May 14, 2008)

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Pl.'s Resp. to MJOP	The 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. April 6, 2018) (Dkt. No. 42)
Pl.'s Resp. to RFA	Mississippi's Responses to The City of Memphis, Tennessee, and Memphis Light, Gas & Water Division's Request for Admissions (Exhibit 18 in Support of Motion of State of Tennessee, City of Memphis, and Memphis Light, Gas & Water Division for Summary Judgment <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. June 1, 2018) (Dkt. No. 70))
Pl.'s Resp. to MSJ	Plaintiff's Response to Defendants' Motion for Summary Judgment, <i>Mississippi v. Tennessee, et al.</i> , No. 143, Orig. (U.S. July 6, 2018) (Dkt. No. 71)
U.S. Amicus Br.	Brief for the United States as Amicus Curiae (Dkt. No. 9)

I. INTRODUCTION

This Post-Hearing Brief follows the evidentiary hearing before the Special Master on the question of whether the aquifer at issue, including the groundwater in it, is an interstate resource. In his August 12, 2016, Memorandum of Decision, the Special Master ordered “an evidentiary hearing on the limited issue of whether the Aquifer and the water constitutes an interstate resource.” 2016 Op. at 36. That hearing took place in Nashville, Tennessee, over five days beginning on May 20, 2019. The evidence presented conclusively settles the issue raised by the Special Master, as the testimony and documentary evidence prove that the aquifer at issue, including the water in it, is an interstate resource.

This is a dispute over the use of groundwater from the Middle Claiborne Aquifer (the “Aquifer”). The State of Mississippi (“Mississippi” or “Plaintiff”) sued the State of Tennessee (“Tennessee”), the City of Memphis, Tennessee (“City” or “Memphis”), and Memphis, Light, Gas & Water Division (“MLGW”),¹ alleging conversion of and trespass to groundwater in the Aquifer.² The Aquifer is an extensive, water-bearing resource underlying portions of Mississippi, Tennessee, and six other states. The Aquifer’s groundwater has never been

¹ MLGW is the City’s utility division, supplying residents with electricity, gas, and water. Compl. ¶¶ 4, 18.

² As explained herein, the Aquifer at issue is the Middle Claiborne Aquifer. The Middle Claiborne Aquifer is locally known by different names including the Memphis Sand Aquifer and Sparta Sand Aquifer.

apportioned among the overlying states by judicial decree, interstate compact, or congressional act.

This Post-Hearing Brief provides an overview of Mississippi's claims and the procedural history that led to the evidentiary hearing, the hydrogeological setting in which this dispute is centered, and the evidence offered into the record at the hearing. The Brief explains why the application of established legal principles to the evidence requires the conclusions that the Aquifer is an interstate resource and that Mississippi's claims should be dismissed. As explained below, the only judicial mechanism to resolve disputes between states over rights to use an interstate resource is the doctrine of equitable apportionment; yet Mississippi has expressly disclaimed any such cause of action. As a result, the Special Master should recommend the dismissal of Mississippi's claims. The Brief also points out the significant flaws in Mississippi's position and explains why Mississippi's proposed approach should not be adopted as a method to resolve interstate groundwater disputes. Mississippi's Complaint should be dismissed with prejudice.

II. PROCEDURAL HISTORY

A. Mississippi's Previous Litigation of the Same Issues.

This action is not the first time that Mississippi has sued Memphis and MLGW seeking monetary damages for withdrawing and using groundwater from

the Aquifer within Tennessee's borders. Mississippi brought and lost the same tort claims asserted in this case in *Hood, ex rel. Mississippi v. City of Memphis, Tenn.*, 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) (the "*Hood* Litigation").

In 2005, Mississippi filed suit against Memphis and MLGW in the U.S. District Court for the Northern District of Mississippi for the alleged wrongful taking of "Mississippi's water" from the Aquifer. The district court rejected Mississippi's claim that Memphis was "pumping water that belongs to the State of Mississippi" because it "has not yet been determined which portion of the aquifer's water is the property of which State." *Hood*, 533 F. Supp. 2d at 648. The court held that "the doctrine of equitable apportionment has historically been the means by which disputes over interstate waters are resolved," and the dispute at issue fell within "the original and exclusive jurisdiction of the United States Supreme Court because such a dispute is necessarily between the State of Mississippi and the State of Tennessee." *Id.* The court dismissed Mississippi's claim under Rule 19 of the Federal Rules of Civil Procedure, holding that Tennessee was an indispensable party that could not be joined without the court's losing jurisdiction. *Id.* at 650.

The Fifth Circuit affirmed. *Hood*, 570 F.3d at 633. Mississippi filed a Petition for Writ of Certiorari (Case No. 09-289), which the Supreme Court denied.

At the same time it sought certiorari, Mississippi filed a separate Motion for Leave to File Bill of Complaint in an Original Action (No. 139, Orig.). Mississippi reasserted the same tort claims brought in the *Hood* Litigation against Memphis and MLGW, but also included a “provisional” or “conditional” claim for equitable apportionment against Tennessee. The Supreme Court denied Mississippi’s Motion for Leave on January 25, 2010, citing *Virginia v. Maryland*, 540 U.S. 56, 74 n.9 (2003) (“Federal common law governs interstate bodies of water, ensuring that the water is equitably apportioned between the States and that neither State harms the other’s interest in the river.”), and *Colorado v. New Mexico*, 459 U.S. 176, 187 n.13 (1982) (“[A] state seeking to prevent or enjoin a diversion by another state bears the burden of proving that the diversion will cause it ‘real or substantial injury or damage.’”).

B. Mississippi’s Claims in the Present Case.

In this action, Mississippi again brings claims against Memphis, MLGW, and Tennessee for the alleged wrongful taking of groundwater from the Aquifer. Mississippi concedes that the Aquifer lies beneath both Mississippi and Tennessee. Compl. ¶ 41. Mississippi also concedes that water in the Aquifer naturally flowed across the Mississippi-Tennessee state line before any pumping from the Aquifer began. Compl. App. 70a. Yet Mississippi asserts that the Aquifer “is *neither* interstate water *nor* a naturally shared resource.” Compl. ¶ 50.

Mississippi instead alleges again that it “owns” a fixed portion of the Aquifer that is defined solely by Mississippi’s territorial boundaries. Mississippi claims that Defendants’ withdrawal of groundwater from the Aquifer by wells located entirely within Tennessee has pulled “Mississippi’s groundwater” across the state line, Compl. ¶ 24, and constitutes “a violation of Mississippi’s retained sovereign rights under the United States Constitution, and a wrongful and actionable trespass upon, and conversion, taking and misappropriation of, property belonging to Mississippi and its people,” Compl. ¶ 52. According to Mississippi, “Defendants’ actions have resulted in a permanent taking of groundwater owned and held by Mississippi in trust for its people.” Compl. ¶ 53. Mississippi seeks a declaratory judgment, injunctive relief—including that Memphis be forced to develop an alternate water system to use water from the Mississippi River—and \$615 million in alleged damages arising out of what Mississippi claims to be Defendants’ conversion of and trespass to the water at issue.

C. Defendants’ Motions for Judgment on the Pleadings.

Defendants filed Motions for Judgment on the Pleadings in February 2016, asking the Special Master to grant judgment in their favor and dismiss Mississippi’s claims. Defendants argued that Mississippi’s theory of sovereign ownership over a portion of the water in the interstate Aquifer lacks merit and is contrary to the established doctrine of equitable apportionment.

The Special Master ruled on Defendants’ Motions in his August 12, 2016 Memorandum of Decision. The Special Master recognized that “[e]quitable apportionment is the doctrine of federal common law that governs disputes between states concerning their rights to use the water of an interstate stream.” 2016 Op. at 19 (quoting *Colorado v. New Mexico*, 459 U.S. at 183). Because “groundwater pumping generally resembles surface water pumping” and “both could have an effect on water in another state through the operation of natural laws,” the Special Master held that “equitable apportionment appears to apply to disputes between States over interstate groundwater.” *Id.* at 25.

The Special Master found that, because Mississippi “has explicitly stated that it does not seek an equitable apportionment of the Aquifer,” *id.* at 19 (citing Compl. ¶¶ 38, 48), “the question then becomes whether Mississippi’s claims touch on . . . an interstate resource.” *Id.* at 25.

The Special Master concluded that Mississippi had failed to allege plausibly that the Aquifer at issue is not interstate. As such, “dismissal would likely be appropriate under Rule 12(c).” *Id.* at 35. However, noting his “responsibility to prepare an adequate record for review,” the Special Master denied Defendants’ Motions and ordered an evidentiary hearing on the threshold “limited issue of whether the Aquifer and the water constitutes an interstate resource.” *Id.* at 36.

D. Discovery and Expert Witnesses.

The parties exchanged written discovery requests and responses and produced tens of thousands of documents. Additionally, the parties identified expert witnesses: Dr. David Langseth for Memphis and MLGW, Mr. Steven Larson and Dr. Brian Waldron for Tennessee, and Dr. Richard Spruill and Mr. David Wiley for Mississippi. The experts submitted reports, and the counsel for the parties took their depositions.

E. Defendants' Joint Motion for Summary Judgment.

After the close of discovery, Defendants filed a joint Motion for Summary Judgment. Defendants argued that they were entitled to judgment as a matter of law because the “(1) water at issue is interstate in nature, (2) equitable apportionment is the exclusive remedy for interstate water disputes when States have not entered into a compact, (3) no compact exists here, and (4) Mississippi has not sought equitable apportionment.” 2018 Op. at 2. Defendants asserted that there were no disputed material facts concerning the interstate character of the Aquifer because Mississippi’s own experts had conceded that the Aquifer underlies eight states, including Tennessee and Mississippi; groundwater pumping from the Aquifer in one state can and does affect groundwater in the Aquifer beneath another state; before pumping began, groundwater in the Aquifer flowed naturally

across state lines, including from Mississippi to Tennessee; and the Aquifer is hydrologically connected to interstate surface water.

In his November 2018 Memorandum of Opinion, the Special Master stated that he “remains convinced that Defendants present a strong case”³ and warned that, “by rejecting equitable apportionment, Mississippi might have abandoned [its] only mechanism for relief.” 2018 Op. at 3, 27. However, the Special Master

³ The Special Master provided guidance to the parties about the kinds of evidence relevant to deciding whether the Aquifer is interstate and why the positions taken by Mississippi actually support a finding that the Aquifer is interstate:

- “[B]ecause Mississippi had conceded that the Sparta Sand extends into Tennessee, that the Memphis Sand is ‘supplied in large part by the Sparta Sand,’ and that natural seepage causes water to move between Mississippi and Tennessee, the water at issue is likely interstate in nature.” 2018 Op. at 13 (citing 2016 Op. at 32) (quoting Compl. ¶¶ 18-19, 22-24).
- “If the water Mississippi claims is part of a larger interstate resource – such as an interstate Aquifer – then the water is likely interstate in nature. 2018 Op. at 14.
- “[I]f a body of water is such that the removal of water within a State’s borders can have a direct effect on the availability of water in another State, the resource is likely interstate in nature.” 2018 Op. at 14 (quoting 2016 Op. at 31).
- “[B]ecause MLGW’s pumping within Tennessee affects the availability of water in Mississippi, the water is likely interstate in nature.” 2018 Op. at 16 (citing 2016 Op. at 31).
- “[W]hen ‘the removal of water within a State’s borders can have a direct effect on the availability of water in another state, the resource is likely interstate in nature.’” 2018 Op. at 17-18 (quoting 2016 Op. at 31).
- “If anything, the fact that some water has already left Mississippi suggests that ‘the extent of historical flows in the Aquifer between Mississippi and Tennessee’ support an interstate character.” 2018 Op. at 19 (quoting 2016 Op. at 36).

denied Defendants’ Motion in the interest of creating a “robust record.” *Id.* at 27; *see also id.* (“The Special Master will ‘err on the side of over-inclusiveness in the record for the purpose of assisting the Court in making its ultimate determination.’”) (quoting 2016 Op. at 35-36).

F. The Evidentiary Hearing.

On May 20, 2019, the Special Master held an evidentiary hearing “on the limited—and potentially dispositive—issue of whether the Aquifer is, indeed, an interstate resource.” 2016 Op. at 1. Mississippi presented live testimony from its two expert witnesses, Dr. Richard Spruill and Mr. David Wiley. Tennessee, Memphis and MLGW presented live testimony from their three expert witnesses: Mr. Larson and Dr. Waldron (Tennessee) and Dr. Langseth (Memphis and MLGW). The parties also submitted proof in the form of exhibits and deposition designations. The material factual findings and legal contentions based on the proof at the evidentiary hearing are stated below.⁴

⁴ Contemporaneous with this Post-Hearing Brief, Defendants jointly filed Proposed Findings of Fact and Conclusions of Law (cited herein as “Defs.’ PFOF ¶ []”). The proposed factual findings submitted by Defendants are numerous and, in many cases, included facts noted in anticipation of possible arguments raised by Mississippi. However, the core facts required for the Special Master to hold that the Aquifer at issue is an interstate water resource that is subject to equitable apportionment are relatively few, and, as shown herein, they are undisputed.

III. OVERVIEW OF THE HYDROGEOLOGICAL FRAMEWORK.

A. Mississippi Embayment Aquifer System.

The Mississippi Embayment Aquifer System (the “Mississippi Embayment”) is a regional hydrogeological formation located in the Gulf Coast Plain. Defs.’ PFOF ¶ 48. The northern extent of the Mississippi Embayment is approximately where the Ohio River joins the Mississippi River, and its southern extent is in southern Mississippi and central Louisiana. Defs.’ PFOF ¶ 54. The Mississippi Embayment underlies Louisiana, Mississippi, Alabama, Arkansas, Tennessee, Kentucky, Missouri, and Illinois. Defs.’ PFOF ¶¶ 55, 56. The Mississippi Embayment is composed of multiple hydrogeologic units. Defs.’ PFOF ¶ 50, 51. These different units are hydrologically interconnected, which means that there is an exchange of water between them. Defs.’ PFOF ¶ 52.

B. Middle Claiborne Aquifer.

The aquifer at issue is the Middle Claiborne Aquifer (sometimes, the “Aquifer”). The Middle Claiborne Aquifer is one of the aquifers within the Mississippi Embayment. Defs.’ PFOF ¶ 57. The Aquifer is composed of geologic materials—primarily sand with interbedded layers of less permeable materials such as silt—and is saturated with water. Defs.’ PFOF ¶ 58. It extends throughout most of the Mississippi Embayment, including beneath portions of eight states: Kentucky, Illinois, Missouri, Tennessee, Arkansas, Mississippi, Louisiana and Alabama. Defs.’ PFOF ¶¶ 60, 64. The composition of the Middle Claiborne

Aquifer is continuous as it crosses beneath the borders of the states it underlies, including the Tennessee-Mississippi border. Defs.’ PFOF ¶ 67. There are not now and have never been physical or hydrological barriers that stop the flow of water in the Middle Claiborne Aquifer across the Mississippi-Tennessee border in either direction. Defs.’ PFOF ¶¶ 76, 77. Wells in both Mississippi and Tennessee are pumping groundwater from the Middle Claiborne Aquifer. Defs.’ PFOF ¶ 66.

The Middle Claiborne Aquifer is sometimes called by other names including the “Sparta Aquifer,” “Memphis Aquifer,” and other variations of those names such as the “Memphis-Sparta Aquifer.” Defs.’ PFOF ¶ 59.

IV. THE MIDDLE CLAIBORNE AQUIFER, THE AQUIFER AT ISSUE, IS AN INTERSTATE RESOURCE.

An “interstate aquifer” is a continuous hydrogeological unit that extends beneath two or more states. Defs.’ PFOF ¶ 86; *see also* U.S. Amicus Br. at 14 (“This Court has taken a practical approach to assessing whether a natural resource is interstate in character. Under this Court’s precedents, a resource that crosses state lines, even intermittently, can be an interstate resource.”). This definition of “interstate aquifer” is consistent with the plain meaning of both words and the use of the term in scientific publications. Defs.’ PFOF ¶¶ 88, 89. It is also consistent with the Supreme Court’s pronouncements in its equitable apportionment decisions that recognize the co-equal interests of all states in which a natural resource exists. *See Kansas v. Colorado*, 206 U.S. 46, 97-98 (1907) (“Yet, whenever . . . the action

of one state reaches, through the agency of natural laws, into the territory of another state, the question of the extent and the limitations of the rights of the two states becomes a matter of justiciable dispute between them, and this court is called upon to settle that dispute in such a way as will recognize the equal rights of both and at the same time establish justice between them.”); *Hinderlider v. LaPlata River & Cherry Ditch Co.*, 304 U.S. 92, 102 (1938) (“The river throughout its course in both states is but a single stream, wherein each state has an interest which should be respected by the other.”) (quoting *Wyoming v. Colorado*, 259 U.S. 419, 466 (1922)) (internal quotation marks omitted).

That an aquifer exists beneath the ground is no reason to treat it differently than a surface stream or lake. There are established methods by which scientists can determine the lateral extent of an aquifer and confirm its interstate nature. One method is the use of borehole logs to analyze the composition of material beneath the surface. Hydrogeologists correlate areas where various properties of the material are similar in order to identify the extent of distinct hydrogeological units. Defs.’ PFOF ¶ 21. For purposes of this case, the geographical extent of the Middle Claiborne Aquifer is not disputed. Defs.’ PFOF ¶ 62.

Based on the undisputed facts, the Middle Claiborne Aquifer is an interstate aquifer. Defs.’ PFOF ¶ 95. It is undisputed and conceded by Mississippi that the Middle Claiborne Aquifer extends beneath portions of eight states: Illinois,

Kentucky, Tennessee, Mississippi, Alabama, Louisiana, Arkansas, and Missouri. Defs.’ PFOF ¶ 64. That the Aquifer crosses the geographic boundaries of these eight states is, by itself, dispositive of the Aquifer’s interstate character.

It is also undisputed that pumping groundwater from the Middle Claiborne Aquifer in one state can and does impact the groundwater in the same Aquifer in another state. Defs.’ PFOF ¶¶ 123-125, 127-130. It is undisputed that under predevelopment conditions, before the influence of any pumping, groundwater in the Aquifer naturally flowed across state lines—including from Mississippi to Tennessee, Mississippi to Arkansas, and Tennessee to Arkansas. Defs.’ PFOF ¶¶ 135-141, 143-150. It is undisputed that state boundary lines have no impact on groundwater flow in the Aquifer and that there are no physical or hydrological barriers to impair or impede the flow of groundwater in the Aquifer across state lines. Defs.’ PFOF ¶¶ 73-77. It is undisputed that the groundwater in the Aquifer is hydrologically connected to interstate surface rivers, including the Mississippi River and the Wolf River. Defs.’ PFOF ¶¶ 176-184. For at least 90 years, the U.S. Geological Survey has described the Aquifer as a regional resource extending across state borders. Defs.’ PFOF ¶ 97.⁵

⁵ See also U.S. Amicus Br. at 15 (“The interstate character of the groundwater in the Aquifer is apparent from the face of Mississippi’s proposed complaint. Mississippi acknowledges that the Aquifer ‘underlies both Mississippi and Tennessee.’ Compl. para. 50. And it is clear from the allegations underlying Mississippi’s claims that when Tennessee pumps groundwater from the Aquifer *in*

A. The Aquifer Underlies Multiple States, Including Tennessee and Mississippi.

As noted above, the Middle Claiborne Aquifer underlies portions of Tennessee and Mississippi, as well as portions of Kentucky, Illinois, Missouri, Arkansas, Louisiana and Alabama. Defs.' PFOF ¶¶ 62, 64. Borehole log data confirms that the Middle Claiborne Aquifer is a single hydrogeological unit that continues without interruption across the Mississippi-Tennessee state line. Defs.' PFOF ¶ 65. There are not now and have never been physical or hydrogeological barriers that impede the flow of water in the Aquifer across the state line. Defs.' PFOF ¶¶ 76, 77. Wells in both Mississippi and Tennessee are pumping groundwater from the Middle Claiborne Aquifer. Defs.' PFOF ¶ 66.

B. Before and After Pumping Began, Groundwater in the Aquifer Has Flowed Across State Lines, Including From Mississippi Into Tennessee.

1. Groundwater in the Aquifer naturally flowed across state lines.

Predevelopment conditions (also called natural conditions) refers to the state of the Aquifer prior to 1886, when pumping from the Aquifer began in the southwest Tennessee area. Defs.' PFOF ¶ 131. Every study of predevelopment conditions in the Middle Claiborne Aquifer has concluded that there was natural flow across state borders, including from Mississippi into Tennessee. Defs.' PFOF

Tennessee, it has an impact on the movement of groundwater in the Aquifer in Mississippi. See, e.g., *id.* paras. 22, 26.”).

¶¶ 135, 136, 137-141. The existence of natural cross-border flow in the Middle Claiborne Aquifer from Mississippi into Tennessee is also confirmed by all existing computer or “numerical” groundwater models that can be used to estimate predevelopment conditions. Defs.’ PFOF ¶¶ 144, 145, 146, 147.

2. The Aquifer is dynamic: groundwater is constantly moving and continually replaced by the processes of recharge and discharge.

The water within the Middle Claiborne Aquifer is not static. Before and after pumping began, the groundwater in the Middle Claiborne Aquifer was and is constantly moving. Defs.’ PFOF ¶ 172.

Groundwater is continually recharging into and discharging out of the Middle Claiborne Aquifer. Defs.’ PFOF ¶¶ 173, 264. Under natural conditions, water in the Middle Claiborne Aquifer generally flowed from areas of recharge on the east and west edges of the Aquifer, then moved laterally toward the deepest part of the Aquifer, and finally travelled upward before discharging into overlying hydrogeologic units. Defs.’ PFOF ¶¶ 35, 53. Thus, the groundwater in the Middle Claiborne Aquifer leaving the area beneath Mississippi was, and is still, constantly replaced by water recharging into the Aquifer from rainfall infiltration, surface water, or groundwater flow from overlying or underlying hydrogeologic units. Defs.’ PFOF ¶ 175. The constant movement of groundwater in the Middle

Claiborne Aquifer includes continual flow across the Mississippi-Tennessee border and other state borders. Defs.' PFOF ¶¶ 75, 265.

Because there has always been constant recharge into and discharge from the Middle Claiborne Aquifer, all of the water particles in the Aquifer beneath Mississippi will eventually leave Mississippi. Defs.' PFOF ¶ 174.

C. Pumping in Both Tennessee and Mississippi Can and Does Have an Effect on Groundwater in Other States.

The Special Master found that “[i]f a body of water is such that the removal of water within a State’s borders can have a direct effect on the availability of water in another State, the resource is likely interstate in nature.” 2016 Op. at 29. Here, it is undisputed that pumping from the Middle Claiborne Aquifer in one state can and does impact other states. Pumping from the Middle Claiborne Aquifer within Mississippi affects the flow of groundwater in the same Aquifer beneath Tennessee and can cause groundwater to flow south across the state line from Tennessee into Mississippi. Defs.' PFOF ¶ 123. Pumping from the Middle Claiborne Aquifer within Tennessee affects the flow of groundwater in the same Aquifer beneath Mississippi and can cause groundwater to flow across the state line from Mississippi into Tennessee. Defs.' PFOF ¶ 124. There is a regional cone of depression centered near Memphis, Tennessee, which crosses the border between Tennessee and Mississippi and is caused by pumping from the Middle Claiborne Aquifer in both Tennessee and Mississippi. Defs.' PFOF ¶¶ 120, 121.

D. The Groundwater at Issue Is Hydrologically Connected to Interstate Surface Water.

The Middle Claiborne Aquifer is hydrologically connected to interstate surface waters. Defs.' PFOF ¶¶ 176, 177, 180, 183. For example, the Aquifer has a direct hydrological connection to the Mississippi River where the River passes through the outcrop area and an indirect hydrological connection in other areas where water from the Aquifer flows upward through overlying confining layers and aquifers to discharge into the Mississippi River. Defs.' PFOF ¶¶ 181-184. The Aquifer also has a hydrological connection to the Wolf River which begins in Benton County, Mississippi, flows north into Fayette County, Tennessee, then west to Shelby County, Tennessee, where it empties into the Mississippi River. Defs.' PFOF ¶¶ 177-181. Where the Wolf River exists in the outcrop area, its water can recharge directly into the Middle Claiborne Aquifer, and water from the Aquifer can discharge directly into the Wolf River. Defs.' PFOF ¶ 180.

E. Additional Proof Confirming the Interstate Character of the Middle Claiborne Aquifer.

1. Mississippi has affirmatively asserted and conceded the interstate character of the Aquifer.

Throughout the *Hood* Litigation, Mississippi repeatedly asserted that the Aquifer at issue in this case (including its groundwater) was an interstate resource and affirmatively relied on the interstate character of the Aquifer as a basis for subject-matter jurisdiction. *See, e.g., Hood* Compl. ¶ 9 (“Jurisdiction in this

interstate groundwater dispute is proper in this Court under 28 U.S.C.A. Sections 1331 & 1332 inasmuch as, inter alia, there are presented herein certain federal questions calling for application of federal and/or interstate common law”); *Hood* Am. Compl. ¶ 11 (“This is an interstate groundwater action.”); Pl.’s 5th Cir. Br. at 1 (describing “the Memphis Sand Aquifer [as] an interstate underground body of water”); *id.* at 21 (“The interstate nature of the aquifer confers federal question jurisdiction on the District Court.”). Mississippi again relied on (in fact, assumed) the interstate character of the Aquifer its first motion for leave to file an original action. Pl.’s Mot. for Leave Br. (No. 139, Orig.) Notably, in that case, Mississippi acknowledged that the Supreme Court had not yet exercised its original action jurisdiction over an interstate aquifer, but urged the Court for the same reasons the Court has accepted disputes over interstate lakes and rivers. *See id.* at 19 (“That this Court has most frequently exercised its § 1251(a) jurisdiction over suits between states concerning the manner and use of waters of interstate lakes and rivers (albeit not ground water in subterranean geological sand formations) is beyond peradventure.”).⁶

⁶ Defendants have previously argued that Mississippi was precluded from arguing that the Aquifer was not interstate because the issue was raised, litigated, and decided adversely to Mississippi in the *Hood* Litigation. *See generally* Defs.’ Joint Opp. to Leave; Defs.’ Joint MSJ. Memphis and MLGW reassert that position here and rely on their prior arguments. Issue-preclusion principles bar Mississippi from re-litigating the question whether the Aquifer is an interstate water resource subject exclusively to equitable apportionment. *New Hampshire v. Maine*, 532 U.S. 742,

2. The federal government and scientific community recognize the Aquifer as a regional, multi-state resource.

The groundwater in the Middle Claiborne Aquifer is a natural resource that is shared among the states overlying it. Defs.’ PFOF ¶¶ 108, 109. For a century, the U.S. Geological Survey has recognized the Aquifer as extending beneath multiple states and the importance of studying it on a regional basis. Defs.’ PFOF ¶¶ 97, 98. The U.S. Environmental Protection Agency has likewise acknowledged the importance of studying the Middle Claiborne Aquifer on a regional basis. Defs.’ PFOF ¶¶ 102, 103. Mississippi’s own Department of Environmental Quality (“MDEQ”) agrees that to efficiently protect this shared water resource, Mississippi and Tennessee must cooperate. Defs.’ PFOF ¶¶ 105-107.

3. The Courts in the *Hood* Litigation held, and the Supreme Court acknowledged in Original Action 139, that the Aquifer is an interstate resource.

In the *Hood* Litigation described above, both the Fifth Circuit and the Northern District of Mississippi held that the Aquifer was an interstate resource. *See Hood*, 570 F.3d at 630 (“The Aquifer is an interstate water resource”); *Hood*, 533 F. Supp. 2d at 648 (finding that “interstate water is the subject of the suit”). Further, the Supreme Court acknowledged the interstate character of the Aquifer when it denied Mississippi’s first Motion for Leave to file an Original Action. *See*

748-49 (2001) (holding that issue preclusion “foreclos[es] successive litigation of an issue of fact or law actually litigated and resolved in a valid court determination essential to the prior judgment”).

Order Denying Leave (citing *Virginia v. Maryland*, 540 U.S. at 74 n.9 (“Federal common law governs interstate bodies of water, ensuring that the water is equitably apportioned between the States and that neither State harms the other’s interest in the river.”)).⁷

V. THE DOCTRINE OF EQUITABLE APPORTIONMENT APPLIES TO INTERSTATE GROUNDWATER DISPUTES; THEREFORE, MISSISSIPPI’S COMPLAINT MUST BE DISMISSED.

A. The Doctrine of Equitable Apportionment.

“[I]n the absence of an interstate compact, the Court has authorized only one avenue for States to pursue a claim that another State has depleted the availability of interstate waters within its borders: equitable apportionment.” 2016 Op. at 35; *see also Florida v. Georgia*, 138 S. Ct. 2502, 2513 (2018) (“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 [its] inquiry.”) (citing *Colorado v. New Mexico*, 459 U.S. at 183, and *Virginia v. Maryland*, 540 U.S. at 74 n.9); *Colorado v. New Mexico*, 459 U.S. at 183 (“Equitable apportionment is the doctrine of federal common law that governs disputes between states concerning their rights to use the water of an interstate stream.”).

⁷ *See* U.S. Amicus Br. at 19 (observing that “[t]he Court’s 2010 order denying Mississippi leave to file a bill of complaint against defendants suggested [that the Aquifer is interstate] by citing footnote 9 in *Virginia v. Maryland*”).

When, as in this case, the Court is “confronted with competing claims to interstate water, the Court’s ‘effort always is to secure an equitable apportionment without quibbling over formulas.’” *Florida v. Georgia*, 138 S. Ct. at 2513 (quoting *New Jersey v. New York*, 283 U.S. 336, 343 (1931)). Because “equitable apportionment is ‘flexible,’ not ‘formulaic,’” the Court reaches a “‘just and equitable’” result by “‘consider[ing] ‘*all relevant factors.*’” *Id.* at 2515 (quoting *South Carolina v. North Carolina*, 558 U.S. 256, 281 (2010)).

At the heart of equitable apportionment is the “[o]ne cardinal rule . . . underlying all the relations of the states to each other . . . equality of right.” *Kansas v. Colorado*, 206 U.S. at 97. “Each state stands on the same level with all the rest. It can impose its own legislation on no one of the others, and is bound to yield its own views to none.” *Id.* The doctrine of equitable apportionment is rooted in “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.” *Id.*

B. Equitable Apportionment Applies to Disputes Between States Over Their Rights to Use an Interstate Aquifer.

The Supreme Court originally created the doctrine of equitable apportionment to address disputes between states over rights to interstate surface water resources. *See Kansas v. Colorado*, 206 U.S. 46 (1907). However, the Court has applied equitable apportionment broadly to include rivers that share a

direct hydrological connection with groundwater.⁸ And in *Idaho v. Oregon*, 462 U.S. 1017 (1983), the Court ruled that a dispute over rights to migratory fish was “sufficiently similar” to water rights litigation “to make equitable apportionment an appropriate mechanism for resolving allocative disputes.” *Id.* at 1024.

The instant dispute over rights to an interstate groundwater resource presents facts that are “sufficiently similar” to the Court’s original application of equitable apportionment to interstate surface water disputes—even more so than migratory fish. *See* 2016 Op. at 20 (“[G]roundwater pumping generally resembles surface water pumping; both could have an effect on water in another state through the operation of natural laws”). Applying equitable apportionment to interstate groundwater is entirely consistent with the Court’s broad application of the doctrine.⁹ As the Special Master has stated, “when a resource is interstate in

⁸ *See Hood*, 570 F.3d at 630 n.5 (citing *Texas v. New Mexico*, 462 U.S. 554, 556-57 nn.1-2 (1983), and *Wisconsin v. Illinois*, 449 U.S. 48, 50 (1980)); *see also Kansas v. Colorado*, 206 U.S. at 114-15 (rejecting the argument that “subsurface water” should be distinguished from a surface stream in an equitable apportionment analysis).

⁹ Ward H. Fisher, *Equitable Apportionment of Interstate Ground Waters*, 21 RMMLF-INST 22 (1976) (noting the Supreme Court’s recognition in *Kansas v. Colorado* of its obligation to establish justice between states when the action of one “reaches through the agency of natural laws into the territory of another” “practically defines interstate groundwater”); Albert E. Utton, *Sporhase, El Paso, and Unilateral Allocation of Water Resources: Some Reflections on International and Interstate Groundwater Law*, 57 U. COLO. L. REV. 549, 556 (1986) (“Water resources which underlie a state boundary should be treated in the same way as those that flow on the surface across state boundaries. Unilateral, or self-allocation

nature, equitable apportionment supplies the proper method for determining rights.” 2018 Op. at 21.

C. Equitable Apportionment Is Mississippi’s Sole Judicial Remedy. Because Mississippi Disclaimed That Remedy, Mississippi’s Complaint Must Be Dismissed With Prejudice.

The Middle Claiborne Aquifer is an interstate resource. Interstate aquifers are “sufficiently similar” to interstate surface water such that disputes between states over their respective rights to use either can be resolved only by interstate compact or equitable apportionment. *Idaho v. Oregon*, 462 U.S. at 1024. It is undisputed that no compact exists between Mississippi and Tennessee, and Mississippi has expressly disavowed relief under equitable apportionment. Mississippi has failed to state a viable claim, and its Complaint should be dismissed with prejudice.

VI. MISSISSIPPI’S FACTUAL AND LEGAL POSITIONS ARE WITHOUT MERIT.

A. There Is no Credible Evidence to Support Mississippi’s Position That the Aquifer Is not an Interstate Resource.

1. Mississippi’s claims assume that the Aquifer is and, in fact, require that it be an interstate resource.

The crux of Mississippi’s allegations is that groundwater pumping from the Aquifer within the borders of Tennessee has impacted groundwater in the same Aquifer beneath Mississippi. Thus, Mississippi’s claims necessarily require and

of groundwater resources should be restrained, just as it is in the case of surface waters.”).

assume that the Aquifer is interstate. Further, as discussed in Section IV(E)(1) above, Mississippi conceded and even relied on the interstate character of the Aquifer (and its water) to assert its claims in the *Hood* Litigation. For these reasons, Mississippi’s erroneous contention that the Aquifer is “*neither* interstate water *nor* a shared natural resource,” Compl. ¶ 50, lacks credibility.

2. The proof and scientific analysis refutes Mississippi’s contention that the Aquifer at issue is two aquifers.

During this litigation, Mississippi has argued that there are two different aquifers at issue. Mississippi claims that the Sparta Sand Aquifer and the Memphis Sand Aquifer are “separate geologic formations and aquifers.” Pl.’s Resp. to MSJ at 5. For the reasons set out below, Mississippi’s “two-aquifer” theory is not supported by the facts or applicable law and should be rejected.

First, the proof at the evidentiary hearing and in the record shows that the Middle Claiborne Aquifer is called by different names in different areas. For example, the name “Memphis Sand Aquifer” is the name commonly used for the same Aquifer in Tennessee, northern Mississippi, and parts of Arkansas. Defs.’ PFOF ¶ 193. The name “Sparta Sand Aquifer” is the name commonly used for the Aquifer in Mississippi and Louisiana. Defs.’ PFOF ¶ 194. Mississippi’s own expert witnesses concede that the Middle Claiborne Aquifer, Memphis Sand Aquifer, Sparta Sand Aquifer, Memphis-Sparta Sand Aquifer, and 500-Foot Sand Aquifer all refer to the same Aquifer—the interstate water resource at issue. Defs.’

PFOF ¶ 59. Mississippi’s expert witnesses further admit that the Middle Claiborne Aquifer is a continuous hydrogeological unit underlying eight states, Defs.’ PFOF ¶ 64, and that there are not now and have never been physical or hydrological barriers that impair or impede the flow of water in the Aquifer from Mississippi to Tennessee or from Tennessee to Mississippi, Defs.’ PFOF ¶¶ 76, 77.

Second, over the course of the *Hood* Litigation and this case, Mississippi has used the names “Sparta Sand Aquifer” and “Memphis Sand Aquifer” interchangeably to refer to the single Aquifer at issue—the Middle Claiborne Aquifer—which Mississippi has conceded underlies both Tennessee and Mississippi. *See* Compl. ¶ 41 (claiming the “geological formation in which the groundwater is stored straddles two states”); *id.* ¶ 18 (alleging “the Memphis Sand Aquifer was supplied in large part by the Sparta Sand, which also underlies southwest Tennessee and Memphis); *id.* ¶ 22 (stating that the “Sparta Sand formation . . . extends into western Tennessee”); *id.* ¶ 50 (“The Sparta Sand formation underlies both Mississippi and Tennessee”); Pl.’s Resp. to MSJ at 6 (noting the “extension of the Memphis Sand a few miles into Mississippi”); *see also* Miss. Resp. to RFA No. 1 (admitting that “that the general geologic formation known as the Sparta Sand underlies several states, including Mississippi, Tennessee, and Arkansas”). Thus, Mississippi’s own allegations and admissions

demonstrate that, even if the Memphis and Sparta Sand were considered separately, they would each be interstate resources.

Third, the Supreme Court has rejected an argument directly analogous to Mississippi's "two-aquifer" theory. In *Kansas v. Colorado*, 206 U.S. 46 (1907), the Court found "untenable . . . the contention of Colorado that there are really two rivers, one commencing in the mountains of Colorado and terminating at or near the state line, and the other commencing at or near the place where the former ends, and, from springs and branches, starting a new stream to flow onward through Kansas and Oklahoma towards the Gulf of Mexico." *Id.* at 115. Mississippi's erroneous contention that there are "really two [aquifers]," one terminating at the Mississippi-Tennessee border and another "commencing at or near the place where the former ends," is equally untenable and should be rejected for the same reason.¹⁰

The determination of the Aquifer's interstate character must consider the natural resource as a whole because all of the states overlying it, including Mississippi and Tennessee, "have real and substantial interests in the [Aquifer.]" *Hinderlider v. LaPlata River & Cherry Ditch Co.*, 304 U.S. at 102 (quoting *Wyoming v. Colorado*, 259 U.S. at 466, and *New Jersey v. New York*, 283 U.S. at

¹⁰ See also Defs.' Joint Mot. to Preclude Two Aquifer Theory (arguing that Mississippi's "two-aquifer theory" should be excluded for the additional reason that Mississippi did not raise it before the close of discovery).

342-43); *id* (“The river throughout its course in both states is but a single stream wherein each state has an interest which should be respected by the other”); *see also* 2016 Op. at 33 (“Simply put, no Supreme Court decision appears to have endorsed one State suing another State, without equitable apportionment, for the depletion of water that is part of a larger interstate resource by limiting its claims to a specific portion of the water.”); 2018 Op. at 14 (finding that “Mississippi has presented nothing to alter the Special Master’s position” set out in his 2016 ruling).

3. Mississippi presented no proof to support its contention that the “residence time” of groundwater is relevant to determining whether it is interstate.

Mississippi contends that the groundwater entering the Aquifer within its borders flows so slowly that it remains in (i.e. “resides” in) Mississippi for years and for that reason is, somehow, transformed into an intrastate resource. Mississippi’s “residence time” theory fails for the reasons stated below.

First, Mississippi’s “residence time” argument requires the Special Master to accept Mississippi’s erroneous contention that determining the interstate character of an aquifer requires the groundwater in aquifer to be considered separately from the geological material in the aquifer. The Special Master has already rejected Mississippi’s position on this issue. *See* 2016 Op. at 32 (“This distinction does not appear to be material for purposes of determining whether the water at issue is interstate water.”). The undisputed proof presented at the evidentiary hearing

confirms that the Special Master’s decision was correct: water and geologic material are both required to form an aquifer—the absence of either one precludes the existence of an aquifer. Defs.’ PFOF ¶ 10.¹¹

Second, it is undisputed that the groundwater in the Aquifer is constantly moving, albeit slowly. Defs.’ PFOF ¶¶ 172, 173. It is further undisputed that, both under predevelopment conditions and since pumping began, all of the water recharging into the Aquifer in Mississippi will eventually leave Mississippi and be replaced by new water recharging into the Aquifer. Defs.’ PFOF ¶¶ 174, 175.

Third, even if the water in the Aquifer were considered separately from the geologic material—as Mississippi wrongly urges—the groundwater would still unquestionably be an interstate resource.¹² It is undisputed that, under

¹¹ That water is an indispensable component of an aquifer is evident from the Latin roots of the word: “aqua” meaning “water,” and “fère” meaning “bearing.” Merriam-Webster Online Dictionary, <http://www.merriam-webster.com/dictionary/aquifer>.

¹² The Special Master has previously rejected Mississippi’s argument that its claims were limited to only a portion of the groundwater in the Aquifer. *See* 2016 Op. at 30-32 (finding the authority relied on by Mississippi to “provide little insight into whether certain water should be considered ‘intrastate’ for purposes of equitable apportionment” and concluding instead that the Supreme Court’s cases “evince a functional approach to determining when water is subject to equitable apportionment: If a body of water is such that the removal of water within a State’s borders can have a direct effect on the availability of water in another State, the resource is likely interstate.”); *see also* U.S. Amicus Br. at 16-17 (“Mississippi declares that any water depicted in that figure entering Tennessee from Mississippi under natural conditions ‘is not included in [its] claim.’ Miss. Br. 9 n.7. But the figure undermines Mississippi’s core theory that groundwater in the Sparta Sand in Mississippi is a purely intrastate resource that would stay within Mississippi absent

predevelopment conditions and since pumping began, groundwater in the Aquifer has flowed across state lines, including the state line between Mississippi and Tennessee. Defs.’ PFOF ¶¶ 135-139, 141, 473-148, 267. Mississippi’s expert witnesses both characterize groundwater flow that crosses state lines as “interstate flow.” Defs.’ PFOF ¶ 140.

Fourth, in its equitable apportionment decisions, the Supreme Court has observed that the flow of interstate rivers can vary drastically, can be artificially manipulated, and can even stop completely. However, the Court has never held that the velocity of a river’s flow or even the absence of flow changes the fact that a river is interstate. *Florida v. Georgia*, 138 S. Ct. at 2508 (noting several dams and reservoirs that interrupt and control the amount of flow in the Chattahoochee River); *Kansas v. Nebraska*, 136 S. Ct. 1042, 1049 (2015) (noting that the Republican River has experienced extended droughts and a deadly flood); *Colorado v. New Mexico*, 459 U.S. 176, 178 (1982) (describing the Vermejo River as a “small, nonnavigable river”); *Kansas v. Colorado*, 206 U.S. at 114 (“That there is a great variance in the amount of water flowing down the channel at different seasons of the year and in different years is undoubted; that at times the

Tennessee’s pumping. In any event, under the way Mississippi conceptualizes the ownership of water in the Aquifer, even though part of the Aquifer underlies Tennessee, Tennessee could not pump any water from the Aquifer because doing so would cause water that is underneath Mississippi to flow out of Mississippi into Tennessee.”).

entire bed of the channel has been in places dry is evident from the testimony.”). To the contrary, these cases indicate that the flow or velocity of water is immaterial to the determination of whether a resource is interstate.

Finally, the essence of Mississippi’s “residence time” theory is that Mississippi is entitled to a certain portion of the water in the interstate Aquifer that allegedly originates in Mississippi. The Supreme Court’s equitable apportionment decisions have consistently rejected this position. *See Colorado v. New Mexico*, 467 U.S. 310, 323 (1984) (“Last Term, the Court rejected the notion that the mere fact that the Vermejo River originates in Colorado automatically entitles Colorado to a share of the river’s waters.”); *Idaho v. Oregon*, 462 U.S. at 1028 n.12 (“While the origin of the fish may be a factor in the fashioning of an equitable decree, it cannot by itself establish the need for a decree.”); *see also* 2018 Op. at 24 (“[A] strict geographic-sovereignty analysis of an interstate water source appears to be at odds with the equitable apportionment doctrine.”) (quoting 2016 Op. at 24).

Mississippi’s position fails because it requires the Court “to ignore the Aquifer’s potential interstate character and focus solely on the Mississippi-based water in the Aquifer. That line-drawing finds no support in the case law.” 2018 Op. at 14. Because “the water Mississippi claims is part of a larger interstate resource”—the Middle Claiborne Aquifer—the water is “interstate in nature.” *Id.*

B. Mississippi’s Legal Contentions Are Without Merit and Must Be Rejected.

1. Mississippi’s “sovereign ownership theory” cannot be maintained.

Mississippi’s Complaint asserts claims sounding in tort—for conversion and trespass—and for declaratory judgment. Compl. ¶ 14. Mississippi’s position that tort law should control this dispute is based on two fatally flawed contentions: First, Mississippi contends that tort law should apply because Mississippi allegedly “owns” a portion of the Aquifer at issue that “naturally resides” within Mississippi’s borders. Second, Mississippi alternatively contends that equitable apportionment does not apply to its claims because the Aquifer is “*neither* interstate water *nor* a shared natural resource.” Compl. ¶ 50.

Mississippi’s first contention—that it owns a portion of the Aquifer—has no support in any federal or even Mississippi state law.¹³ Mississippi invokes the doctrine of “equal footing” to support a claim of “sovereign ownership” over a portion of the groundwater in the Aquifer that lies within its borders. 2016 Op. at 22. Mississippi further contends that its claims are supported by the “public trust” doctrine ““because the water was located within Mississippi when [the] Defendants took it.”” *Id.* at 13 (quoting Pl.’s Resp. to MJOP at 30). In response to Mississippi’s arguments, the Special Master previously held that “Mississippi’s

¹³ Mississippi’s second contention is addressed in Sections IV and VI(A).

discussion of equal footing does not appear to show that the doctrine applies to disputes concerning a State’s pumping from an interstate resource.” 2016 Op. at 21; 2018 Op. at 21 (“Indeed, the Special Master has already found this argument inconsistent with precedent and theory. . . . It remains so.”); *see also* U.S. Amicus Br. at 13 (“Allowing Mississippi to proceed on its theory of sovereign ownership of water in an interstate aquifer would contravene basic principles of water law.”).

The Special Master also held that Mississippi’s “sovereign ownership theory” fails because the “the Supreme Court has held that states do not own wild resources like migratory birds . . . fish and game, . . . and—relevant here—groundwater.” 2018 Op. at 22 (citing *Sporhase v. Nebraska*, 458 U.S. 941 (1982)). The Supreme Court’s ruling in *Sporhase v. Nebraska* “confirmed the ‘demise of the state ownership theory.’” 2018 Op. at 23 (quoting 458 U.S. at 951). Thus, while “states have an important interest in, and may regulate and control natural resources, . . . they do not own those resources.” *Id.*

Notably, Mississippi’s “sovereign ownership theory” is directly refuted by its own state law.¹⁴ Section 51-3-41 of the Mississippi Code grants the following authority to the Mississippi Department of Environmental Quality:

The commission shall have authority to negotiate and recommend to the Legislature compacts and agreements concerning this state’s share

¹⁴ Federal common law, rather than state law, governs disputes over interstate resources. *See* Section V(A) above. That Mississippi asserts claims contrary to its own statutory and judge-made law simply confirms their lack of merit.

of ground water and waters flowing in watercourses where a portion of those waters are contained within the territorial limits of a neighboring state.

Miss. Code. Ann. § 51-3-41 (emphasis added).

By acknowledging that Mississippi must negotiate for its “share of ground water” in a resource that extends into the “territorial limits of a neighboring state,” Mississippi concedes that it was not granted sovereign ownership over a portion of an interstate water resource by the equal footing, public trust, or any other doctrine. Further, the need for Mississippi to negotiate a compact with another state for its share of groundwater in an aquifer can only exist if an aquifer is interstate. Mississippi law thus recognizes that an interstate water resource is one in which a “portion of the waters are contained within the territorial limits of [Mississippi and] a neighboring state.” Miss. Code. Ann. § 51-3-41. The Middle Claiborne Aquifer is precisely such an interstate resource. Thus, Mississippi’s own law recognizes that its “share of ground water” in the Aquifer has not yet been apportioned and can only be determined by a negotiated compact or by equitable apportionment.

The Supreme Court of Mississippi has also expressly rejected Mississippi’s claim of “sovereign ownership” over water, recognizing that “[i]n its ordinary or natural state water is neither land, nor tenement, nor susceptible of absolute ownership. It is a movable, wandering thing and admits only of a transient,

usufructuary property.” *Dycus v. Sillers*, 557 So. 2d 486, 501-02 (Miss. 1990) (quoting *State Game & Fish Comm’n v. Louis Fritz Co.*, 193 So. 9, 11 (Miss. 1940)). Thus, the foundational premise of Mississippi’s lawsuit—that all groundwater “located and stored naturally under Mississippi is owned and held by Mississippi as a sovereign State,” Compl. ¶ 44—is contradicted by its own law.

2. Equitable apportionment displaces and/or preempts Mississippi’s asserted tort claims.

The Special Master previously rejected Mississippi’s “various state-law theories: trespass, conversion, ‘intentional tortious conduct,’ and restitution.” 2016 Op. at 24 (quoting Pl.’s Resp. to MJOP at 23-25). The Special Master found that, if the Aquifer is interstate, Mississippi’s state-law claims are displaced by federal common law. *Id.* Further, to the extent Mississippi seeks to rely on state law to inform the content of federal common law, such reliance is unfounded because “the Supreme Court has indicated that equitable apportionment is the federal common-law principle that applies to disputes over interstate water.” *Id.* (citing *Colorado v. New Mexico*, 459 U.S. at 183).

3. Mississippi’s position would, if adopted, encourage litigation between states over money and discourage states from working together to protect shared interstate resources.

Equitable apportionment actions require the complaining state to prove a real or substantial injury. *Colorado v. New Mexico*, 459 U.S. at 187 n.13.

Equitable apportionment provides no possibility of recovering money damages, as the goal is to ensure that each state obtains its equitable share of the natural resource.¹⁵ These characteristics act as an incentive for states to resolve their differences by negotiating interstate compacts and to seek equitable apportionment only as a last resort. *See Kansas v. Nebraska*, 135 S. Ct. 1042, 1052 (2015) (“When the division of water is not “left to the pleasure” of the upstream State, but States instead ‘know [] that some tribunal can decide on the right,’ then ‘controversies will [probably] be settled by compact.’”) (quoting *Kansas v. Colorado*, 185 U.S. 125, 144 (1902)).

Mississippi’s “sovereign ownership” theory asks the Supreme Court to abandon equitable apportionment and, in its place, apply tort law to govern disputes over interstate resources and allow for money damages. Doing so would drastically increase the incentive for states to sue one another by adding a powerful motivator—the potential to “provide a windfall to the public treasury.” *New Mexico v. Gen. Elec. Co.*, 467 F.3d 1223, 1247 (10th Cir. 2006) (quoting *Puerto Rico v. SS Zoe Colocotroni*, 628 F.2d 652, 676 (1st Cir. 1980)). Under Mississippi’s theory, the lack of a real and substantial injury would no longer be a

¹⁵ *Idaho v. Oregon*, 462 U.S. at 1025 (“Because apportionment is based on broad and flexible equitable concerns rather than on precise legal entitlements, *see Colorado v. New Mexico*, 459 U.S., at 183; *Nebraska v. Wyoming*, 325 U.S. [589, 618 (1945)], a decree is not intended to compensate for prior legal wrongs. Rather, a decree prospectively ensures that a State obtains its equitable share of a resource.”).

barrier to filing suit. Instead, a state could sue another state merely by complaining about the other state's use of a shared interstate resource. Neither the just and equitable use of the interstate resource nor the sustainability of the resource would be relevant.

For these reasons, Mississippi's "sovereign ownership" theory lacks the "seriousness and dignity," *Illinois v. City of Milwaukee, Wis.*, 406 U.S. 91, 93 (1972), that "justif[ies] the expense and time necessary to obtain a judicial resolution" from this Court, *Texas v. New Mexico*, 462 U.S. at 576. Mississippi's theory is antithetical to the legal and public policy foundations underpinning the doctrine of equitable apportionment, and it should be rejected. The Aquifer at issue is an interstate resource, and the Special Master should find that equitable apportionment is Mississippi's exclusive remedy.

C. Defendants' Motions in Limine and Motions to Exclude Expert Testimony Should Be Granted.

Prior to the evidentiary hearing, Defendants jointly moved to exclude evidence irrelevant to whether the Aquifer, including the water in it, is an interstate resource. Defendants asked the Special Master to exclude evidence regarding MLGW's alleged "groundwater management practices," as well as the volume of groundwater MLGW has pumped from the Aquifer and the amount of water MLGW has supposedly diverted across the state boundary. Defs.' Joint Mot. to Exclude Irrelevant Evidence at 1. Defendants also jointly moved to exclude

Mississippi's expert witnesses' testimony. While the Special Master did not exclude Mississippi's evidence prior to the hearing, the Special Master indicated that he would consider Defendants' motions after presentation of the proof. The merit of Defendants' motions is even more apparent after the hearing. Defendants' motion in limine and motions to exclude expert testimony should be granted.

1. Testimony regarding groundwater management/wellfield development is irrelevant.

Defendants moved in limine to exclude Mississippi's evidence regarding MLGW's groundwater management practices on the basis that such evidence has no bearing on the inherent character of the Aquifer being interstate or intrastate. Defs.' Joint Mot. to Exclude Irrelevant Evidence at 4. In fact, Mississippi did not produce any evidence to support a contention that MLGW was not a good manager of the Aquifer. For example, Mississippi's witness, Dr. Richard Spruill, did not opine that MLGW's wellfields were inconsistent with good wellfield design. Defs.' PFOF ¶ 221. He also made no effort to analyze whether groundwater wells in Mississippi that are pumping from the Aquifer are consistent with the principles of good well design. Defs.' PFOF ¶ 224. In any event, none of Mississippi's evidence on this subject had any relevance to whether the Aquifer is an interstate resource. This evidence should be excluded.

2. Testimony regarding MLGW's pumping and alleged diversion of water is irrelevant.

Defendants also moved to exclude any evidence regarding the amount of MLGW's pumping or alleged diversion of water from Mississippi. Specifically, Defendants argued that MLGW's pumping volumes, and any supposed consequences such as the alleged diversion of groundwater, are irrelevant because an entity's pumping actions cannot change the fundamental hydrogeological characteristics that determine whether an aquifer is interstate. Defs. Joint Mot. to Exclude Irrelevant Evidence at 7. In fact, the proof showed that MLGW's total pumping has decreased from roughly 162 million gallons per day in 2000 to approximately 124 million gallons per day in 2016. Defs.' PFOF ¶ 226. The volume of groundwater in the Aquifer flowing from Mississippi to Tennessee has decreased because pumping in Shelby County, Tennessee, has decreased, and, at the same time, pumping in DeSoto County, Mississippi, has increased. Defs.' PFOF ¶ 231. If relevant at all, this evidence further bolsters Defendants' position that the Middle Claiborne Aquifer is—and can only be—an interstate resource.

3. Mississippi's experts' testimony should be disregarded.

Finally, the testimony of Mississippi's expert witnesses, Dr. Richard Spruill and Mr. David Wiley, should be disregarded. For example, Mississippi's Expert David A. Wiley offered testimony on the irrelevant questions of what volume of water MLGW has allegedly pumped from the Aquifer and the volume of water

MLGW has purportedly diverted from Mississippi into Tennessee. *See* Defs.’ Joint Mot. to Exclude Wiley. Neither of these issues bears on the hydrogeological characteristics that determine whether the Aquifer is interstate—except that both assume that the Aquifer is continuous beneath both Mississippi and Tennessee and is, therefore, an interstate resource.¹⁶

At the evidentiary hearing, Mississippi’s experts conceded key facts that require the conclusion that the Middle Claiborne Aquifer is an interstate resource: the Aquifer extends beneath portions of eight states, including Tennessee and Mississippi; pumping from the Aquifer in one state can and does impact the groundwater in the Aquifer in another state; under predevelopment conditions, groundwater in the Aquifer naturally flowed across state lines; and groundwater in the Aquifer is hydrologically connected to interstate surface water.¹⁷ The irrelevant portions of their testimony should be excluded.

¹⁶ During Mississippi’s case in chief, Mississippi’s experts did not offer any opinion about whether the Middle Claiborne Aquifer or the groundwater at issue in this case is interstate or intrastate in nature. However, on cross examination, Dr. Spruill admitted that he has used the term “interstate aquifer” to describe an aquifer that exists beneath two or more States, and, based on that definition, the Middle Claiborne would be an interstate aquifer. Defs.’ PFOF ¶ 96.

¹⁷ *See also* U.S. Amicus Br. at 23 (“Mississippi’s admissions concerning the interstate character of the Aquifer . . . compel the conclusion that the Aquifer is an interstate resource to which equitable apportionment applies.”).

CONCLUSION

The purpose of the evidentiary hearing was to present evidence on the threshold question posed by the Special Master: Is the Aquifer an interstate resource? The proof conclusively established that the Middle Claiborne Aquifer, including the groundwater in it, is an interstate resource. As such, the only cause of action available to determine the rights of the states overlying the Aquifer is equitable apportionment. Because Mississippi has expressly disavowed any claim for equitable apportionment, it has failed to state a viable claim for relief, and the Special Master should recommend that Mississippi's complaint be dismissed with prejudice. "[B]y rejecting equitable apportionment," Mississippi has "burned its boats." 2018 Op. at 27. Mississippi's "long and arduous journey, navigating the federal courts" should finally end. 2018 Op. at 26.

Respectfully submitted,

/s/ Leo M. Bearman

Counsel of Record

David L. Bearman

Kristine L. Roberts

Baker, Donelson, Bearman,

Caldwell & Berkowitz, PC

165 Madison Avenue, Suite 2000

Memphis, Tennessee 38103

Tel: (901) 526-2000

Fax: (901) 577-0716

*Counsel for Defendants City of Memphis,
Tennessee, and Memphis Light, Gas &
Water Division*

Of counsel:

Cheryl W. Patterson
Charlotte Knight Griffin
Memphis Light, Gas & Water Division
220 South Main Street
Memphis, Tennessee 38103
Tel: (901) 528-4721
Fax: (901) 528-7776

Bruce A. McMullen
City Of Memphis, Tennessee
125 North Main Street, Room 336
Memphis, Tennessee 38103
Tel: (901) 636-6614
Fax: (901) 636-6524

CERTIFICATE OF SERVICE

Pursuant to Paragraph 3 of the Special Master’s Case Management Plan (Dkt. No. 57), I hereby certify that all parties on the Special Master’s approved service list (Dkt. No. 26) have been served by electronic mail, this 19th day of September, 2019.

/s/ Leo M. Bearman _____

Leo M. Bearman
*Counsel for Defendants City of Memphis,
Tennessee and Memphis Light, Gas & Water
Division*