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March 22, 2018

Via Overnight Courier & Electronic Mail

The Honorable Judge Eugene E. Siler, Jr.
Special Master
310 South Main Street, Suite 333
London, KY 40741
CA06-Siler_Chambers@ca6.uscourts.gov
Daniel_Yates@ca6.uscourts.gov

Re: State of Mississippi v. State of Tennessee, City of Memphis, Tennessee and Memphis Light, Gas & Water Division (No. 143, Orig.); Objection to Defendants' March 20, 2018, Letter Brief

Dear Judge Siler:

On March 20, 2018, Plaintiff and Defendants submitted a Joint Proposed Pre-Hearing Scheduling Order as required by the Joint Case Management Order entered on November 1, 2017, (Dkt. No. 61). This order provided that "if the parties cannot agree on certain elements of their proposed plan for the hearing or pre- or post-hearing briefing, they shall set forth their respective positions in letter briefs of not more than five pages…." The parties only disagreed on the issue of whether an additional round of dispositive motions should be built into this pre-hearing schedule. Mississippi complied with the CMO in submission of its letter brief, but Defendants did not, and in addition to exceeding the page limit, Defendants made unconditional statements and representations to which Mississippi must object.

Initially, Defendants' March 20, 2018, submission is nothing less than 14 pages of argument created by counsel for this purpose. While the body of the letter is within the five pages limitation, it cites to and relies heavily on Attachments "A" and "B" which were created by defense counsel from whole cloth, and do not reflect information pertinent to the particular issue submitted. Attachment "A" is defense counsel's summary of pretrial orders and some dispositive motions granted by special masters during the last 10 years which assumes those cases are similar to the present case. They are not. The summary determination of the rights of competing states to funds under federal banking law, or under existing interstate compacts, are not comparable to the present

case of first impression pending before the Court. Attachment "B" is represented by Defendants to be a chart of statements of fact proposed by Defendants, disputed by Plaintiff for the reasons stated, and allegedly proven to be undisputed by Defendants' selective quotes. In fact, in their Attachment "B," Defendants have deleted all but a fraction of Mississippi's responses with citations supporting its dispute of these facts. Exhibit "1" to this letter contains Mississippi's actual bases for its dispute to these proffered facts taken from the Parties' Joint Statement of Stipulated and Disputed Facts submitted in February (Dkt. No. 64). The language deleted by Defendants appears in bold font.

The letter brief is objectionable for additional reasons. Defendants assert that the facts highlighted in their 14 page submission are the only material facts in the case, so they should be allowed to file summary judgment motions. This is not true—Mississippi has identified a number of other material facts (many of which Defendants have disputed). Furthermore, the Defendants' argument disregards the August 12, 2016, Memorandum Decision (Dkt. No. 55), which specifically anticipates scientific evidence of "the nature and extent of hydrological and geological connections between the groundwater in Memphis and that in Mississippi, the extent of historical flows in the Aquifer between Mississippi and Tennessee, and similar considerations … ." (Dkt. No. 55 at 36). Defendants also disregard that they disputed all but a handful of the facts relating to such evidence tendered by Mississippi—while at the same time effectively accusing Mississippi of creating disputes.

Because both Attachments "A" and "B" are no more than summaries of counsel, they are nothing more than extensions of the letter brief disguised as something else and are a violation of the CMO without explanation. Given these violations of the CMO and the unreliability of what are in fact naked assertions of undisputed facts which do not address this specific case, Mississippi objects, and if necessary, requests that the Special Master strike Defendants' letter brief.

Respectfully Submitted,

s/ C. Michael Ellingburg
C. Michael Ellingburg
Counsel of Record
State of Mississippi

cc: Service List for No. 143, Original

EXHIBIT 1

Defendants' Proposed Uncontested Facts	Mississippi's Response ("excerpts" presented by Defendants are in regular font; language intentionally deleted from Mississippi's response (not disclosed by Defendants to the Special Master) is in bold font)
D25: The aquifer at issue in this lawsuit is locally referred to by many different names including: "Memphis-Sparta Aquifer," "Sparta Sand," "Sparta/Memphis Sand," "Sparta-Memphis Sand," "Sparta Aquifer Sand," "Memphis Sand," "Memphis Aquifer," "Middle Claiborne Aquifer," "Middle Claiborne," "Memphis Sparta Sand Aquifer," "MSSA," and "Sparta Memphis Sand." For purposes of this lawsuit, all of these names refer to the same aquifer.	Mississippi objects to Defendants' definition and use of the "Memphis-Sparta Aquifer" because it does not consider any of the specific local, or regional, subsurface geological and hydrological conditions at or near the specific geographic area impacted by the groundwater pumping in extreme northwest Mississippi and west Tennessee in dispute. The "Memphis-Sparta Aquifer" as defined by Defendants—allegedly covering parts of 8 states—does not consist of uniformly deposited layers of homogeneous geological materials and attempts to improperly conflate the entire Mississippi Embayment into one large uninterrupted body of subsurface water. **Table 1 from the USGS MERAS report cited by Defendants shows hydrogeologic and geologic units recognized in each state, all of which are not at issue in this case.** **The groundwater at issue in this lawsuit is located in the confined Sparta Sand formation/aquifer in northwest Mississippi which is confined on the top by the Cook Mountain formation, and on the bottom by the Zilpha Clay formation. The Sparta Sand formation and aquifer is recognized as a separate geologic formation within the Claiborne geological group in Mississippi, Louisiana, and Southern Arkansas. Its bottom confining layer (the Zilpha Clay formation) pinches out and disappears at about 35 degrees north latitude near the Mississippi-Tennessee border and in Tennessee the Sparta Sand is correlative to the top layer of Memphis Sand formation. The Sparta Sand and the Memphis Sand are distinct formations and distinct aquifers in the Middle Claiborne geological unit. Because these formations are hydraulically connected, they have been sometimes collectively referred to as the "Sparta-Memphis," "Memphis-Sparta," or the "Middle Claiborne" aquifer in studies**

	including the transition zone. U.S. Geological Survey Hydrological Atlas 730-F, Robert A. Renken ("Atlas 730-F"), 1998 at 17, *et seq*.; USGS Water-Resources Investigations Report 89-4131, Hydrology and Ground-Water Flow in the Memphis and Fort Pillow Aquifers in the Memphis Area, Tennessee (2001) ("Report 89-4131"), at 32; U.S. Geological Survey Water-Resources Investigations Report 86-4364 ("Report 86-4364"), at 4-7; United States Geological Survey Professional Paper 1416-G, R. L. Hoseman (1996) ("Paper 1416-G"), at G; USGS Professional Paper 813-N, Summary Appraisal of the Nation's Groundwater Resources-Lower Mississippi Region, at N15; USGS Professional Paper 569-A, Hydrological Significance of the Lithofacies of the Sparta Sand in Arkansas, Louisiana, Mississippi and Texas (1968) ("Paper 569-A"), at A1, A3, A5.
D26: The Memphis-Sparta Aquifer lies beneath portions of eight states: Tennessee, Mississippi, Arkansas, Kentucky, Missouri, Louisiana, Alabama, and Illinois	Mississippi objects based on Defendants' definition and use of Memphis-Sparta Aquifer. This Proposed Statement of Fact completely disregards the specific local, or regional, natural subsurface geological and hydrological conditions at or near the specific geographic area impacted by the groundwater pumping in extreme northwest Mississippi and west Tennessee in dispute. The Memphis-Sparta Aquifer as defined by Defendants, allegedly covering parts of 8 states, is not made up of uniformly deposited layers of homogeneous geological materials which Defendants attempt to improperly conflate into one large uninterrupted body of subsurface water. **MERAS Table 1; B. Waldron, et al., Mississippi Embayment Regional Groundwater Study (January 2011) ("MERGWS") at 15, 21, 24-26, 42-44. The definition also ignores the local complexities found throughout the Mississippi Embayment, and the specific complexities in the area of the Mississippi-Tennessee border. Atlas 730-F, at 17, et seq.; Report 89-4131, at 32; Report 86-4364, at 4-7; Paper 1416-G, at G15, G18-20, G31; Paper 569-A, at A1, A3, A5.**
D33: A transboundary aquifer is an aquifer that exists on both sides of a political boundary, such as a state line. Wiley Dep. 22:23-23:1.	Mississippi objects because "transboundary aquifer" is excessively broad, potentially misleading, and confusing. The phrase has no generally understood and accepted scientific or

	legal definition or significance with regard to the jurisdiction or responsibility of the separate sovereigns with respect to management of surface or groundwater resources within their respective sovereign territory; water rights of either sovereign state within its sovereign territory under the Constitution and laws of the United States; or the application of either state's water law within its sovereign territory. **Atlas 703-F, at 17, et seq.; Report 89-4131, at 32; Report 86-4364, at 4-7; Paper 1416-G, at G15, G18-20, G31; Paper 569-A, at A1, A3, A5; MERAS at 9, 15.**
D34: The Memphis-Sparta Aquifer is a transboundary aquifer. Wiley Dep. 23:2-6; Spruill Dep. 77:4-14.	**Mississippi objects to Defendants' definition and use of the Memphis-Sparta Aquifer, and Defendants' definition of "transboundary aquifer." Mississippi will agree to the following statement of fact: "The geologic formations classified as aquifers underlying extreme northwest Mississippi and west Tennessee have been the subject of scientific studies in the area of the common state border dividing the two states by the United States Geological Survey. These studies recognize certain hydrological connections between parts of the Memphis Sand and Sparta Sand aquifers near the common border between the two states." Atlas 703-F, at 17, *et seq.*; Report 89-4131, at 32; Report 86-4364, at 4-7; Paper 1416-G; Paper 569-A, at A1, A3, A5.**
D35: All of the groundwater in the Memphis-Sparta Aquifer, including all of the groundwater beneath Mississippi, was continually flowing under pre-development conditions and continues to flow today.	Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer. Mississippi also objects to the statement as incomplete and misleading. For example, the phrase "continually flowing," is clearly intended to suggest the equivalent of an underground stream flow, perpetuating the misconception addressed in USGS Groundwater Supply Paper 2220 cited above as Heath, *Basic Ground-Water Hydrology.* **"Common misconceptions include the belief that ground water occurs in underground rivers resembling surface streams whose presence can be detected by certain individuals. These and other have hampered the development and conservation of ground water and have adversely affected the protection of its quality." *Id.* Preface. Natural surface water movement is measured in miles**

	per day, compared to the natural confined groundwater movement in the relevant territorial area measured in inches per day or less, depending on the specific hydraulic properties of the aquifer and confining beds within that area. Such groundwater movement can take "thousands of years (millennia)." Wiley Report at 9-10; Wiley Rebuttal at 4 and Figure 1. Groundwater age, the time since recharge, is important in determining groundwater flow velocity and recharge rate. MERGS at 83. The phrase all of the groundwater in the entire Mississippi Embayment was continually moving disregards the discontinuous, heterogeneous and anisotropic nature of the formations, and the fact that the groundwater resides in pores between rock particles. Atlas 703-F, at 17, *et seq.*; Report 89-4131, at 32; Report 86-4364, at 4-7; Paper 1416-G, at G15, G18-20, G31; Paper 569-A, at A1, A3, A5; Heath, at 19.
D42: The Memphis-Sparta Aquifer is hydrologically connected to other aquifers in the Mississippi Embayment, including the Fort Pillow Aquifer, below, and the surficial or water-table unconfined aquifers, above.	**Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer. Mississippi also objects to Defendants' statement of fact without additional qualifying facts as incomplete and misleading. MERGWS at 15, 21, 24-26, 42-44; MERAS Table 1; Wiley Report at 5-8.** The use of "hydrologically connected" in the context is misleading. With regard to the Fort Pillow specifically, it is separated from the Memphis Sand by a 140 to 310 foot clay confining layer, and head differences occur because of pumping. **It is not a source of meaningful natural recharge for the Memphis Sand, it does not exist in Mississippi, and groundwater within it is not the subject of Mississippi's lawsuit. Brahana & Broshears Report at 13-15.**
D43: The Memphis-Sparta Aquifer is hydrologically connected to surface water in Mississippi and Tennessee, including tributaries of the Mississippi River such as the Wolf River and the Coldwater River.	**Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer. Mississippi also objects to Defendants' statement of fact without additional qualifying facts as incomplete and misleading as discussed in its Responses to D40 &41 above. MERGWS at 15, 21, 24-26, 42-44; MERAS Table 1; Wiley Report at 5-8; Paper 569-A at A6.**
D48: There are no barriers in the Memphis-Sparta	**Mississippi objects to Defendants' definition of**

Aquifer that align with state boundaries that impede or prevent the flow of groundwater across the Tennessee-Mississippi border, and there never have been such barriers.	**Memphis- Sparta Aquifer. Mississippi also objects to Defendants' statement of fact without additional qualifying facts as incomplete and misleading. Mississippi agrees that there is no physical subterranean wall or dam underlying the Tennessee- Mississippi border, and that there never has been such a physical "barrier" constructed which totally blocks all possible groundwater movement between states.** This Proposed Statement of Fact completely disregards the major natural geological and hydrological changes within and between the Memphis Sand in Tennessee, and the Sparta Sand in Mississippi near the Mississippi-Tennessee border. **This major geological and hydrological transition is clearly seen in the changes in geological formations shown in Table 1 of the MERAS report. These changes in geology are very complex and not fully understood, but it is well documented that they introduce a hydraulic "lateral impermeable boundary" at the transition which must be considered in any discussion on this topic. Table 1 in the MERAS report clearly shows the geological transitions. The hydraulic complexities related to these types of geological changes are discussed in Heath, Basic Ground-Water Hydrology, 46 -51. *See also* Wiley Report at 5, 7, 10-11, 13-14, Figure 12 (natural (pre-development) hydrologic conditions in northwest Mississippi impede or prevent flow of confined groundwater into Tennessee under natural conditions).**
D50: Under pre-development conditions, some groundwater in the Memphis-Sparta Aquifer naturally flowed within the Aquifer from Mississippi, across the state line, into Tennessee.	Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer. Mississippi also objects to Defendants' statement of fact without additional qualifying facts as incomplete and misleading. Mississippi acknowledges that in certain, limited locations, some confined groundwater that had been in Mississippi for hundreds or thousands of years moved very slowly at a rate of inches a day from Mississippi into Tennessee under pre-development conditions. **Wiley Report at 7, 109-11; Wiley Rebuttal at 4 and Figure 1.**
D53: A groundwater flow path that passes through multiple states is an interstate flow path	Mississippi objects to Defendants' Statement of Fact as overly broad, vague, incomplete and impossible to verify. Neither the United States

	Supreme Court nor Congress has ever defined "interstate groundwater flow" within a confined aquifer. **Given the almost infinite differences and complexities in groundwater aquifers at or near state borders, no such overly broad, general definition which disregards such local differences is appropriate. Wiley Report at 9-10; Wiley Rebuttal at 4 and Figure 1.**
D54: Under pre-development conditions, some of the groundwater that recharged into the Memphis-Sparta Aquifer in Mississippi followed interstate flow paths, including into Tennessee.	**Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer, and to Defendants' definition of "interstate groundwater flow." Mississippi also objects to Defendants' statement of fact as overly broad, vague, incomplete and misleading without additional qualifying facts. Subject to these objections, Mississippi acknowledges that some confined groundwater that had been in Mississippi for hundreds of years moved very slowly at a rate of about an inch a day north across the common Mississippi-Tennessee border under pre-development conditions. Wiley Report at 7, 9-101; Wiley Rebuttal at 4 and Figure 1.**
D65: Wells in Tennessee and wells in Mississippi access and pump from the same aquifer, the Memphis-Sparta Aquifer.	**Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer. Mississippi also objects to Defendants' statement of fact as overly broad, vague, incomplete and misleading without additional qualifying facts. MERAS Table 1; Spruill Report at Figure 4; MERGWS at 15, 21, 24-26, 42-44.** Without waiving its objections, Mississippi acknowledges that near the Mississippi/Tennessee territorial border, there is hydrological connection between the Memphis Sand and the Sparta Sand within Mississippi. Depending on their distance from the border, pumping in each state may have some impact in the other. **Spruill Dep. at 227-29. The impact of pumping in Mississippi is not material on Tennessee's naturally occurring groundwater resources. The pumping within Tennessee has taken billions of gallons of naturally occurring groundwater out of Mississippi and had a material impact on Mississippi's natural groundwater resource. Wiley Report at 5-8; Randall W. Gentry Deposition (August 7, 2006) ("Gentry Dep.") at 10, 14-15, 20-24, 28-43, 77-79, 130-31, 178-41 and Exhibits 2, 3 and**

	4; MERGWS at 7-9.
D66: Arkansas, Tennessee, and Mississippi utilize the Memphis-Sparta Aquifer and each has a stake in the Aquifer.	**Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer and the Aquifer. Mississippi also objects to Defendants' statement of fact as a legal conclusion and as overly broad, vague, incomplete and misleading without additional qualifying facts. MERAS Table 1; Spruill Report at Figure 4; MERGWS at 15, 21, 24-26, 42-44.** Arkansas has not made any claims that Mississippi has taken its natural resource by pumping or otherwise, and has never asserted a "stake" in Mississippi pumping within the Mississippi Sparta Sand. Likewise, Mississippi has not asserted a "stake" in groundwater naturally residing within Tennessee's borders. **Without waiving its objections, Mississippi acknowledges that neither state has a right to develop groundwater within its borders in such a way that it has a material impact on its neighboring state's groundwater natural resources as Defendants have done in Tennessee. Wiley Report at 5-11.**
D67: Both Tennessee and Mississippi have an interest in this shared resource (i.e., the Memphis-Sparta Aquifer).	**Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer. Mississippi also objects to Defendants' statement of fact as a legal conclusion and overly broad, vague, incomplete and misleading without additional qualifying facts.** Mississippi denies that the groundwater naturally residing in either state is a shared natural resource as claimed by Defendants. **Wiley Report at 5-11; Wiley Rebuttal at 4 and Figure 1.**
D72: Pumping groundwater from the Memphis-Sparta Aquifer in one state can impact the groundwater in that same Aquifer in another state.	Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer and the Aquifer. Mississippi also objects to Defendants' statement of fact as overly broad, vague, incomplete and misleading without additional qualifying facts. **Whether groundwater pumping in a hydrologically connected aquifer in one State has an impact across the border in another State depends on specific geology and groundwater hydrology surrounding the well(s); the location of the well(s) relative to the common border; the size of the well bore(s) and the pump(s) being used; the amount of groundwater withdrawn from the well(s); and the duration of pumping at constant pumping**

	rate(s). Spruill Dep. at 227-29; Waldron Dep. at 156-58; Wiley Report at 6-7. Without waiving its objections, Mississippi acknowledges that subject to all of the factors listed, pumping groundwater from an aquifer in one state within a specified distance from the border of another state will likely have some theoretical or actual impact in the other state.
D73: Pumping from the Memphis-Sparta Aquifer in Tennessee can affect groundwater in the Aquifer in Mississippi by changing its potentiometric surface and flow direction.	Disputed as phrased but undisputed in part. Mississippi objects to Defendants' definition and use of Memphis-Sparta Aquifer and the Aquifer because it distorts and confuses the facts by its overbreadth. **It is undisputed that pumping from the Memphis Sand in Tennessee has created a massive cone of depression in Mississippi, significantly drawing down the potentiometric surface in the Sparta Sand aquifer in Mississippi, and changing the natural groundwater flow direction from east to west towards the north into Tennessee. Wiley Report at 4-6; Spruill Rebuttal at 16. Mississippi also objects to Defendants' statement of fact as overly broad, vague, incomplete and misleading without additional qualifying facts. Whether groundwater pumping in a hydrologically connected aquifer in one State "affects" groundwater across the border in another State depends on specific geology and groundwater hydrology surrounding the well(s); the location of the well(s) relative to the common border; the size of the well bore(s) and the pump(s) being used; the amount of groundwater withdrawn from the well(s); and the duration of pumping at constant pumping rate(s). Spruill Dep. at 227-29; Waldron Dep. at 156-58; Wiley Report at 6-7. Without waiving its objections, Mississippi acknowledges that subject to all of the factors listed, pumping groundwater from an aquifer in one state within a specified distance from the border of another state will likely have some theoretical or actual impact in the other state.**