

No. 141, Original

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In the  
SUPREME COURT OF THE UNITED STATES

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STATE OF TEXAS,

Plaintiff,

v.

STATE OF NEW MEXICO and  
STATE OF COLORADO,

Defendants.

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**OFFICE OF THE SPECIAL MASTER**

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**DECLARATION OF ROBERT J. BRANDES, PH.D., IN SUPPORT OF  
REPLY OF THE STATE OF TEXAS, STATE OF NEW MEXICO, AND  
STATE OF COLORADO TO UNITED STATES AND AMICI BRIEFS  
REGARDING THE STATES' PROPOSED CONSENT DECREE**

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February 3, 2023

I, Robert J. Brandes, declare as follows:

## **I. INTRODUCTION**

1. My name is Robert J. Brandes. I am over the age of 18, have personal knowledge of the facts set forth in this declaration, and if called as a witness could and would testify competently under oath to such facts.

2. I have a Bachelor of Science, Master of Science, and Doctor of Philosophy degrees from the University of Texas at Austin, specializing in the general field of water resources for my graduate studies.

3. I have been engaged in consulting practice since the late 1960s specializing in water resources and related environmental disciplines. Today, I own and operate my consulting business, Robert J. Brandes Consulting in Austin, Texas. My street address is 6000 Maurys Trail, Austin, Texas 78730.

4. A true and correct copy of my professional curriculum vitae was previously submitted to the Court on November 14, 2022, as Exhibit 3 to the Compacting States' Joint Motion for Adoption of a Decree.

5. I have been retained by Somach Simmons & Dunn, Attorneys at Law, on behalf of the State of Texas (Texas) to provide consulting services pertaining to hydrologic and water resources matters presented in this case. I have worked for Texas on this matter since 2013.

6. I have been requested to prepare this declaration to respond to information and statements contained in declarations prepared by experts representing the United States, the El Paso County Water Improvement District No. 1 ("EPCWID"), and the Elephant Butte Irrigation District ("EBID") in response to the proposed Consent Decree ("Decree") that has been prepared and agreed to by the States of Texas, New Mexico, and Colorado as a means for settlement of this case.

7. To prepare my declaration, I have reviewed the United States Memorandum in Opposition to Compacting States' Joint Motion to Enter Consent Decree and the amicus briefs of EBID, EPCWID, the City of El Paso, and the New Mexico Amici. I have also reviewed the declarations of David Palumbo and William Finn. The declarations that I have reviewed specifically for purposes of my testimony in this declaration are those prepared by Ian M. Ferguson, Ph.D., P.E. and Michelle Estrada-Lopez representing the United States, J. Phillip King, Ph.D., P.E. representing EBID, and Allie W. Blair, Ph.D., P.E. representing EPCWID. I will address each of these declarations separately in this declaration.

## **II. BACKGROUND**

8. In the States' Consent Decree, the Effective El Paso Index ("EEPI") is the methodology the States of Colorado, New Mexico and Texas ("the States") have agreed upon to ensure that Texas receives its equitable share of Rio Grande Project ("Project") water as required under the Decree (Section II.B.ii) and the Rio Grande Compact ("Compact").

9. The Project is a federal reclamation project, authorized in the Reclamation Act of June 17, 1902, 32 Stat. 390, and the Rio Grande Project Act of February 25, 1905, 33 Stat. 814, operated by the United States through the Bureau of Reclamation ("Reclamation") and irrigation districts located in New Mexico and Texas. The Project is the means by which Rio Grande Compact water stored in Elephant Butte Reservoir is delivered to users below the reservoir in New Mexico and Texas, and in Mexico.

10. The EEPI methodology includes provisions for annually calculating the volume of Texas's apportionment ("Index Obligation"), the annual volume of water actually delivered to Texas ("Index Delivery"), and the difference between the Delivery and Obligation, both on an annual and accrued basis ("Index Departure"). These calculations are officially finalized using annual data at the end of a calendar year; however, at the beginning of a year or during a

year, these calculations may also be made by Reclamation and others to project what the final Project Obligation and the Delivery to Texas are expected to be.

11. With the EEPI, the annual delivery of Project water to Texas is defined as the Rio Grande flows delivered and measured at the El Paso stream gage, adjusted for excess flows and deliveries to Mexico, plus the depletions to Rio Grande flows resulting from agricultural and domestic-commercial-municipal-industrial (“DCMI”) water uses in the Texas portion of the Mesilla basin upstream of the El Paso gage.

12. The relationship and parameters for determining the Index Obligation for annual deliveries of Project water to Texas are based on historical Project operations and conditions during the period from 1951 through 1978, the so-called D2 period. During this period, allocations of Project water to New Mexico and Texas were based on providing an equal amount of Project water per acre of irrigated land in the irrigation districts located in New Mexico and Texas, which translates to approximately 57 percent to New Mexico and 43 percent to Texas. Data from the 1951-1978 period were used to develop the Index Obligation equation that relates the required annual deliveries of Project water to Texas at the El Paso stream gage to the annual release of Project water from Elephant Butte Reservoir as measured at the Below Caballo Dam stream gage on the Rio Grande.

13. On behalf of Texas, I participated as a primary member of the settlement technical committee that assisted the Compacting States’ counsel in extensive negotiations and drafting of the Consent Decree and supporting Index appendix. I should note that Dr. Ferguson, Ms. Estrada-Lopez, Dr. King, and Dr. Blair were also members of the technical committee throughout the vast majority of its work, and they actively participated in its deliberations and production of information resulting in the concepts reflected in the Consent Decree.

14. As a member of the settlement technical committee, I worked closely with counsel on evaluating the Index methodology and the data supporting the calculations for the Index methodology. The States' final Consent Decree and supporting appendices are a result of my work with counsel and other State technical representatives. The statements in this declaration are my opinions derived from my direct involvement in developing the Consent Decree and assisting with compilation and analysis of supporting materials.

### **III. DECLARATION OF IAN M. FERGUSON**

15. In his declaration, Dr. Ferguson states that he addresses

hydrologic conditions and state of water use in the Rincon and Mesilla Valleys in 1930s as compared to those during the period 1951-1978, referred to as the D2 period; impacts of those changes on Project surface water supplies; and implications of those impacts with respect to the States' proposed decree.

16. Statements and information included in Dr. Ferguson's declaration can be characterized as factual based on his knowledge and experience with the Project and his interpretation of historical data and results from the model produced by New Mexico's experts in this proceeding.

17. I should point out that Texas does not agree with some of the numbers Dr. Ferguson presents from the New Mexico model. These numbers differ from those produced with the Texas model developed by Dr. Bill Hutchison.

### **IV. DECLARATION OF MICHELLE ESTRADA-LOPEZ**

18. In her ¶ 10, Ms. Estrada-Lopez erroneously suggests that the Consent Decree will be used to replace current operational procedures of the Project. It is my understanding that the Consent Decree will become the means for evaluating New Mexico's compliance with the Compact, through the EEPI methodology for quantifying delivery obligations to Texas and for measuring the actual deliveries to Texas. Conceptually, the EEPI methodology

is no different than existing provisions in the Compact that require Colorado to deliver Rio Grande water to New Mexico and New Mexico to deliver Rio Grande water to Elephant Butte Reservoir, with both of these state deliveries based on the index flow concept.

19. The 2008 Operating Agreement establishes procedures to allocate Project water between EBID and EPCWID (collectively, the “Districts”) and to Mexico. The Consent Decree requires that “Project operations and Project accounting must be consistent with this Decree” (Section III.A), just as deliveries of Rio Grande water by Colorado and New Mexico are presently accounted for today under provisions in the Compact (Articles III and IV).

20. I agree with Ms. Estrada-Lopez that implementation of the provisions of the Consent Decree will require certain changes to current Project operations and accounting procedures and likely will involve Reclamation undertaking some tasks using slightly modified procedures. *See* Barroll Decl. ¶¶ 18-20. In Ms. Estrada-Lopez’s ¶ 11, she characterizes these changes as “mandates” imposed by the States on Reclamation. During discussions of these changes during meetings of the settlement technical committee, I never heard anyone refer to these changes as mandates; they were simply recognized as changes that would be necessary as part of implementing the provisions of the Consent Decree.

21. Procedures for allocating and accounting for Project water are found in the Rio Grande Project Water Accounting and Operations Manual (“Operations Manual”). The Operations Manual was originally prepared in 2008 to describe and provide details regarding implementation of the 2008 Operating Agreement. The Operations Manual can be modified with the unanimous consent of EBID, EPCWID, and Reclamation (and without the approval of the States who are not parties to the Operating Agreement). Based on the 2018 version of the Operations Manual in my possession, changes were made in 2010, 2012, and 2018. So,

there is an existing mechanism for incorporating into the existing allocation and accounting procedures any changes that may be necessary to implement the provisions of the Consent Decree and the associated Appendix 1.

22. In her ¶ 16, Ms. Estrada-Lopez describes the activities and responsibilities of Reclamation for maintaining the stream gage on the Rio Grande below Caballo Dam to the standards of the U. S. Geological Survey (“USGS”), and she notes that this work costs between \$40,000 and \$80,000 per year. In the footnote to this paragraph, she correctly states that the Consent Decree would require that the existing stream gage on the Rio Grande at El Paso also be maintained to the USGS standards. I agree that this would be required for the El Paso gage and that it will require additional costs. Establishing how these costs will be paid will be part of the process of implementing the provisions of the Consent Decree – this kind of detail does not belong in the Consent Decree. *See also*, Second Hamman Decl., ¶¶ 25-26.

23. In ¶ 19 of Ms. Estrada-Lopez’s declaration, she asserts that “[u]nder the Proposed Decree Sections II.D.2.c and II.D.3.a, for example, New Mexico and Texas would assume control over the Project allocation to EBID and EPCWID....” However, Sections II.D.2 and II.D.3 actually are related to reducing excessive accrued Index Departures, negative or positive, including the possibility of transfers of apportionments between Texas and New Mexico. These transfers (“Compact Apportionment Transfers”) will be accomplished by making corresponding transfers of allocations between EBID and EPCWID as part of Project accounting. And yes, this may require some additional effort on the part of Reclamation, but is entirely in keeping with Reclamation’s current responsibilities involving the determination of allocations. *See, e.g.*, King Decl. ¶ 19, in which he discusses the

“continuous process” involved in allocation throughout the year, requiring updates and refinements as new information becomes available.

24. In her ¶¶ 20-24, Ms. Estrada-Lopez expresses concerns and questions about numerous issues regarding how the provisions of the Consent Decree are going to be implemented, and she states that the Consent Decree lacks clarity regarding future Project operations. Her concerns and questions pertain to such issues as:

- a. What if EBID does not have sufficient allocation to satisfy the imposed transfer from EBID to EPCWID for reducing accrued negative Index departures.
- b. Timing of end-of-year Project accounting procedures may not be consistent with the required Decree accounting schedule.
- c. There is uncertainty in the Decree regarding how the negative and positive departure allocation transfers would be treated by Reclamation.
- d. The Decree does not define what entity or entities would have authority to determine and enforce consistency with the provisions of the Decree.
- e. The Decree is vague as to what, and how many, Project operating procedures are being imposed on Reclamation.
- f. The Decree’s attempt to add new methodologies to the 2008 Operating Agreement and Manual is particularly problematic.

Without responding to each one of these and her other concerns, the point I would make here is that resolution of these kind of details does not belong in the Consent Decree, which is a high-level document that is to become part of the Compact clarifying the States’ understanding of how Compact apportionments to Texas and New Mexico are to be made below Elephant Butte Reservoir. The resolution of these issues will be part of the process of



incorporating the provisions of the Consent Decree into the existing Project operations and accounting procedures, with clarification from the States if necessary. This is no different than the process that Reclamation and the Districts have gone through in developing the “detailed programmatic operating procedures” that are used today for operating the Project and for accounting for Project water under the 2008 Operating Agreement in conjunction with the supporting Operations Manual.

25. In her ¶ 25, Ms. Estrada-Lopez expresses concerns about Reclamation, EBID, and EPCWID having the discretion and flexibility to make necessary modifications to the existing operating procedures in response to unexpected changes. She suggests that if the Decree is approved and implemented, “the States would have the ability to impose any adjustment they deem appropriate at any time.” I don’t understand her concern. In Section III.A of the Consent Decree, it clearly states “[e]xcept as required to facilitate compliance with the Compact, this Decree does not otherwise alter the discretion of the United States to operate the Project.” However, the Consent Decree does require the Project to be operated in a way that assures the delivery of the Compact’s equitable apportionment to Texas and New Mexico below Elephant Butte Reservoir in a manner consistent with the terms of the Decree.

## **V. DECLARATION OF J. PHILLIP KING**

26. In his ¶¶ 15-20, after Dr. King discusses his experience and qualifications, he provides background information pertaining to the 2008 Operating Agreement and how it has been implemented with regard to allocations of Project water, including interim allocations that are updated and refined as new information such as storage, releases, diversions, and allocation charges becomes available during the course of an irrigation season. In ¶ 19, he notes that the

Operating Agreement includes provisions for credits, diversion in excess of orders, accounting modification if EBID's allotted diversions end and deliveries and diversions continue for EPCWID, carryover and carryover transfers all based on daily accounting with sub-hourly measurements at thousands of points. These provisions were painstakingly developed and implemented by the Districts and Reclamation based on nearly a century of experience in the detailed operation of the Project.

27. In ¶ 21, Dr. King contrasts the “programmatically and iteratively process of determining allocation and charges under the Operating Agreement” as described in his ¶ 19 with the “simple EEPI obligation and delivery numbers.” Like Ms. Estrada-Lopez, Dr. King is confusing the purpose of the proposed Decree with the operation of the Project. The Consent Decree will become an integral part of the Compact, and it will dictate through an index approach how the annual apportionment of Compact water for Texas is to be determined as a function of the annual release of Project water from Elephant Butte Reservoir as measured at the stream gage below Caballo Dam. This is a calculation made at the end of a year; it does not influence how the Project is operated during that year.

28. Also, in ¶ 21, Dr. King notes that differences between the current complex Project operating and accounting procedures and the simple EEPI methodology in the Consent Decree will “lead to arbitrarily large negative or positive annual departures from the Index that are not self-correcting.” While I agree that annual differences between the Index Delivery and the Index Obligation certainly are expected, these should be less than those estimated to date based solely on historical data. One reason is that in order to accommodate the structure of the EEPI methodology, a two-year D2 regression will be used by Reclamation for Project allocations instead of the currently used one-year D2 regression. This will make

the procedure for determining annual Project allocations more consistent with the calculation of the annual Index Obligation under the Decree.

29. I agree with Dr. King in his ¶¶ 22-23 that, based on provisions in the Decree, one remedy for negative accrued Index departures that exceed certain thresholds is, with the agreement of Texas, to transfer part of EBID's allocation to EPCWID. The Decree does require New Mexico to implement groundwater management measures to reduce the depletions of Rio Grande flows caused by groundwater pumping as a means for reducing the negative Index departures, but it does not specify the nature and extent of such management measures. I would note that the majority of the groundwater depletions of Rio Grande flows below Elephant Butte Reservoir are the result of groundwater pumping within EBID, and if the objective is to reduce these depletions so more surface water will be available from the Rio Grande for both EPCWID and EBID, then, notwithstanding New Mexico's authority to manage groundwater pumping, EBID could be more aggressive in implementing its own groundwater management measures within its boundaries.

30. In his ¶ 28, Dr. King states that "the Index could, at the beginning of an irrigation season, reallocate water that the Districts had been planning for since the end of the previous season. In particularly bad circumstances, the transfer process could even result in a negative allocation to EBID." While, in the extreme, this could happen, it is more likely that Reclamation and the Districts will be monitoring throughout the course of a year estimated interim values of the Index Delivery and the Index Obligation, as well as any accrued Index departures, and this information will serve as an early signal that adjustments in allocations potentially could be required at the beginning of the next irrigation season. In my opinion, the continuation of the ongoing severe drought and future droughts that undoubtedly will occur

represent more of a challenge to the perseverance of EBID, and EPCWID, than the provisions of the Index process included in the Consent Decree.

## **VI. DECLARATION OF ALLIE W. BLAIR**

31. In his ¶ 6, Dr. Blair states that the “Operating Agreement resolved all matters relating to Project operations and ensured the reliable and efficient release and delivery of Project water supply to both EPCWID and EBID, accounting for losses in New Mexico and Texas attributable to groundwater diversions.” If this reflects the position of EPCWID, then it conflicts with EPCWID’s strong support for originally filing this lawsuit by the State of Texas to address depletions of Rio Grande flows, and reduced deliveries of Rio Grande water to Texas, caused by groundwater pumping in New Mexico. Furthermore, the phrase “accounting for losses in New Mexico attributable to groundwater diversions” suggests that all depletions of Rio Grande flows caused by groundwater pumping in New Mexico have been offset by the Operating Agreement, and this is not true. Both of New Mexico’s experts and Dr. Hutchison, Texas’s expert, have determined that groundwater depletions in New Mexico since implementation of the Operating Agreement have been somewhat greater than those during the D2 period.

32. In ¶ 14, Dr. Blair states that the proposed Decree “directly and adversely impacts the rights and obligations of EPCWID in and to its Project water supply under reclamation law and contracts”. He says it does this “because it is based on an artificial index contrived to facilitate post facto bookkeeping of water delivered to Texas and not the efficient hour-by-hour operation of the Project to deliver water to EBID and EPCWCD based on the ground, real-time conditions.” Like similar statements by Ms. Estrada-Lopez and Dr. King, this is like comparing apples and oranges. The Index methodology (referred to by Dr. Blair as an “artificial index”) pertains solely to the annual apportionment of Rio Grande water to Texas under the Consent Decree, and by extension under the Compact, and is not intended in any way to replicate or replace Project personnel’s hour-by-hour operational decision-making described by Dr. Blair.

Furthermore, the index-based approach contained in the Consent Decree is not artificial at all, but in fact was derived based on data from historical Project operations during the 1951 through 1978 period. If this approach is considered “artificial” by Dr. Blair, then the index-based deliveries of Rio Grande water by Colorado and New Mexico under the Compact also must be artificial.

33. This same theme is carried on by Dr. Blair in his ¶ 15, which states that the “proposed decree transfers the authority for making allocations from Reclamation and the Districts to the Rio Grande Compact Commission.” Again, the Consent Decree addresses only how annual apportionments and deliveries of Compact water to Texas are to be determined at the end of a calendar year based on actual data for that year. Allocations of Project water will continue to be made by Reclamation and the Districts at the beginning of and during irrigation seasons based on procedures contained in the Operating Agreement and Operations Manual, with some modifications to accommodate the structure of the index-based apportionment to Texas in the Consent Decree that will make the allocation of Project water to Texas more consistent with the Decree’s Index Obligation for Texas deliveries at the El Paso gage.

34. In response to Dr. Blair’s assertion in his ¶ 17 that the proposed Decree “mandates” that Project operations incorporate a modified D2 equation different from the D2 equation incorporated in the Operating Agreement, my comments articulated above in my ¶ 18 regarding “mandates” apply here as well. Furthermore, if changing the form of the D2 equation for allocation purposes requires other changes in the procedures currently in the Operating Agreement or the Operations Manual, from what Dr. Blair describes and based on

the several modifications made in the Operating Agreement since 2008, these changes do not seem to be overly complicated or burdensome.

35. With all of the hand-wringing by Dr. Blair in his ¶¶ 18-19 regarding how the Compacting States or the Rio Grande Compact Commission could unilaterally make changes in the future that could affect Project operations and accounting procedures, any such changes considered by the Commission in the future would be made only to clarify or improve the apportionment procedures contained in the Decree and its associated Appendix 1. Furthermore, the Commission requires unanimity to make such decisions.

36. In his ¶ 20, Dr. Blair is correct that, under the Decree, in some years EPCWID's allocations may be higher or lower compared to allocations under the Operating Agreement, and he notes that this is caused by replacement of the one-year D2 regression with the two-year D2 regression in the allocation process. If Dr. Blair is suggesting that the two-year D2 regression should not be used for allocations because it doesn't provide EPCWID with the allocations that he is accustomed to, it should be noted that the two-year D2 regression provides a more accurate representation of the relationship between reservoir releases and Project diversions during the D2 period than the one-year D2 regression, a fact that has been recognized by all experts, including Dr. Blair, in this proceeding. The releases-to-diversions D2 relationship is the underlying principle for allocations to the Districts under the Operating Agreement and for apportionments to Texas and New Mexico under the Decree; therefore, having allocations and apportionments both based on the two-year D2 regression will result in closer agreement between the allocation to EPCWID and the Index Obligation to Texas.


37. With regard to Dr. Blair's ¶ 21, some of the adjustments and limitations imposed on carryover water that he complains about may have been the result of give and

take during negotiations among the States. The “forgiveness” provision that Dr. Blair refers to in Section II.C.3.c of the Consent Decree causes the accrued negative Index departure to be set equal to zero when EPCWID has an average of 180,000 acre-feet or more of carryover water for three or more consecutive years, a condition considered by the Compacting States to indicate that EPCWID was receiving more than an adequate supply of water from the Project. Furthermore, it is important to note that triggering of the “forgiveness” provision can be avoided almost entirely by EPCWID through its own decisions regarding how its allocations of Project water are used and how much carryover water is left at the end of an irrigation season.

38. In his ¶ 21, Dr. Blair also notes that there is no provision in the Consent Decree for assessing or determining the cause of Index departures (annual or accrued). As has been the practice in the past with regard to issues that have arisen regarding Project operations and accounting, when a perceived irregularity is identified pursuant to the provisions of the Consent Decree or its associated Appendix 1, it is highly likely that multiple investigations will be initiated and undertaken to determine the cause. In the event that a legitimate and technically-supported cause is identified through this process that might warrant a change to the procedures described in Appendix 1, the issue can be reviewed by Reclamation and the Districts and, if warranted, taken up and addressed by the Compacting States through the Rio Grande Compact Commission.

39. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 3rd day of February, 2023, at Austin, Texas.

  
Robert J. Brandes, Ph.D.