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Via Electronic and U.S. Mail

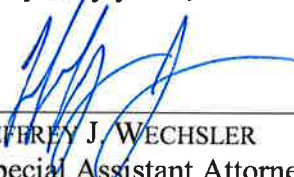
Hon. Michael J. Melloy
Special Master
United States Circuit Judge
111 Seventh Avenue, S.E., Box 22
Cedar Rapids, IA 52401
Michael_Melloy@ca8.uscourts.gov

Re: *Texas v. New Mexico and Colorado*, No. 141, Original:
Historical Documents Related to Return Flow and Groundwater Pumping

Dear Special Master Melloy,

As discussed during the status conference held March 17, 2021, the State of New Mexico submits the attached list of selected documents responsive to Paragraph 2.A of your March 2, 2021 Order. The listed documents were submitted by the State of New Mexico, or one of the other parties, during the briefing on dispositive motions.

Very truly yours,



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State of Texas v. State of New Mexico and State of Colorado, United States Supreme Court,
Original Jurisdiction No.141

**Historical Documents Responsive to Paragraph 2.A. of Special Master March 2, 2021 Order,
Relevant to the Issues of Groundwater Pumping and Return Flows**

1. **TX_MSJ_000022, Rio Grande Joint Investigation, Table 90, at TX_MSJ_000132 (1937).**

Table 90—Estimated percentages of reservoir water, arroyo inflow and drainage in net diversions and disposal of reservoir releases, Elephant Butte-Fort Quitman section, 1930-1936.

Table shows that the Compact contemplated the use of Project return flows, including return flows generated within the El Paso Valley. In particular, Table 90 shows that the diversions in the upper El Paso Valley, near the New Mexico border consisted of 35.1% return flow. Further downstream within EPCWID, the percentage of return flows diverted at the Tornillo Canal increased to 57.7%. The difference between these two percentages is the amount of return flow generated within the El Paso Valley itself at that time, and formerly used in the Tornillo part of the Project. (*See also*, Dr. Barroll Declaration, NM-EX 001, at 19-23 (Project Return Flow: Use and Interception), describing EPCWID’s elimination of its use of return flows increases the amount of water it orders from Project storage.)

2. **NM-EX 332, John J. Vernon & Francis E. Lester, Agricultural Experiment Station, N.M. College of Agriculture and Mechanical Arts, Bulletin No. 45, Pumping for Irrigation from Wells, at 12-14, 56 (1903).**

As early as 1903, farmers in the El Paso area and in the Mesilla Valley in New Mexico used groundwater wells to irrigate their crops when surface water supplied were inadequate, so they would not be forced to “abandon all agricultural work.”

3. **NM-EX 342, Charles S. Slichter, United States Geological Survey, Water Supply and Irrigation Paper No. 141, Observations on the Ground Waters of the Rio Grande Valley, at 22, 29 (1905).**

U.S. Geological Survey report notes that “a number” of irrigation wells had been installed in the Mesilla Valley as of 1905, and that there was a “reasonable expectation of increasing enormously the specific capacity of the wells, and consequently the amount of ground water available for irrigation.”

4. **NM-EX 306, Letter from B.M. Hall, Supervising Engineer, United States Reclamation Service, to David L. White, Territorial Irrigation Engineer, Territory of New Mexico (1906).**

Notice of appropriation filed with the New Mexico Territorial Irrigation Engineer states

that Reclamation intended to appropriate 730,000 acre-feet of surface water annually from the Rio Grande for the Project.

5. **NM-EX 309, Letter from Louis C. Hill, Supervising Engineer, United States Reclamation Service, to Vernon L. Sullivan, Territorial Engineer, Territory of New Mexico (1908).**

Notice of appropriation filed with the New Mexico Territorial Irrigation Engineer states that Reclamation intended to appropriate all remaining unappropriated surface water of the Rio Grande and its tributaries for the Project.

6. **NM-EX 310, 61st Congress, 3rd Session, House of Representatives, Document No. 1262: Fund for Reclamation of Arid Lands, H.R. Doc. 61-1262 (1911).**

“The duty of water is 3 acre-feet per acre measured at the farm. Allowing for a 20 percent loss in the distribution system, there will be required for diversion to lands in the United States 581,250 acre-feet, to which must be added the 60,000 acre-feet required by treaty to be delivered to Mexico, making a total of 641,250 acre-feet. In addition to losses in the distribution system there will be losses in transit between the reservoir and the diversion dams. With a 20 percent allowance for this loss, approximately 800,000 acre-feet of reservoir water would be required. The losses in transit, however, will be partly offset by the return seepage in upper parts of the valley, which will be available for diversion lower down. It, therefore, appears that the available supply accords closely with the demand.” (Page 106, ¶ 18).

7. **NM-EX 348, D.C. Henny, Board of Engineers, Rio Grande Project, *Report on Water Supply and Project Area High Line Canal Construction Power Development and City Water Supplies*, at 35-36 (Nov. 1919).**

Reclamation report on the Project area noted on page 36: “There is also a possibility that the quality of the ground water may in time improve so that it may be used to reduce shortages as they occur provided cheap power is obtainable.”

8. **NM-EX 345, Letter from Raymond A. Hill, Engineer Advisor, State of Texas, to Frank B. Clayton, Rio Grande Compact Commissioner, State of Texas, at US_186530 (Jan. 27, 1936).**

This letter from Texas’s Engineer Adviser to its Compact Commissioner stated groundwater investigation would “neither be necessary nor particularly desirable” because groundwater supplies in the Rio Grande “are of little importance in relation to the total supply.”

9. **NM-EX 328, Letter from Frank Clayton to Sawnie B. Smith (Oct. 1938).**

Texas Compact Commissioner Frank Clayton explains that New Mexico delivers water into Elephant Butte Reservoir because “the obstacles in the way of providing for any fixed

flow at the Texas line were considered insuperable.” Rather than taking “continual measurements” in the various canals, ditches, and laterals crossing and re-crossing the state line, Commissioner Clayton noted “the question of the division of the water released from Elephant Butte reservoir is taken care of by contracts between the districts under the Rio Grande Project and the Bureau of Reclamation.” For lands in Texas outside the Project, Commissioner Clayton explains that the “lands above Fort Quitman and below the Rio Grande Project eastern boundary receive only ‘tail-end’ or waste water.” Commissioner Clayton wrote this letter in response to Mr. Smith’s letter “concerning the amount of water to which Texas is entitled” under the Rio Grande Compact. NM-EX 353.

10. NM-EX 352, Rio Grande Compact Commission, *First and Second Annual Reports of the Rio Grande Compact Commission 1939 and 1940*, at 15 (Feb. 25, 1941).

The Rio Grande Compact Commission’s Rules and Regulations, adopted just after the Compact’s approval by the same commissioners who negotiated the Compact, states that each State could “develop its water resources at will, subject only to its obligations to deliver water in accordance with the schedules set forth in the Compact.”

11. NM-EX 417, Excerpts of Rio Grande Project Histories 1951-1957, at NM_00029819 and NM_00030596 (cited in NM-EX 006, Barroll 2d. Dec. para. 17); see also NM-CSMF ¶¶ 209-210 (citing similar documents).

A 1952 Reclamation water announcement reported that low Project Supply in that year would be “supplemented by the flow from several hundred private irrigation wells and utilization of available return flow.” (NM_0029819; see also NM_0029822-23). Reclamation also requested in a 1954 water announcement that Project farmers with wells use them “to the greatest extent possible.” (NM_00030596; see also NM_0030599).

12. NM-EX 419, Excerpts of Rio Grande Project Histories 1951, at NM_00029507 (cited in NM-EX 006, Barroll 2d. Dec. para. 17).

A 1951 Reclamation announcement requests “[w]ater users who have pumps of good capacity ... to arrange for transfer of a part of their unused allotment water to those who are in need of additional water.”

13. NM-EX 420, Excerpts of Rio Grande Project Histories 1951-1957, at NM_00029465, NM_0029793, NM_00031107, NM_00030570, NM_00030577 (cited in NM-EX 006, Barroll 2d. Dec. para. 17).

Reclamation worked with Project farmers during the 1950s to distribute pumped groundwater through Project conveyances. NM_00029465, NM_0029793.

A 1956 Reclamation report states that “[t]he main source of irrigation water through the past year has been the farm wells as the storage carry over and the ensuing run off was extremely subnormal.” NM_00031107.

The 1954 Project History O&M Report for Ysleta reports that “418 irrigation wells, installed since 1950” supplied “enough irrigation water for almost normal requirements,” and the 1954 Project History O&M Report for Las Cruces reports that “the storage water carryover was so limited that even the first irrigation had to be made with a combination of water pumped from farm wells and water from the storage supply.” NM_00030577, NM_00030570.

14. NM-EX 424, C.S. Conover, United States Geological Survey, Geological Survey Water Supply Paper 1230, Ground-Water Conditions in the Rincon and Mesilla Valleys and Adjacent Areas in New Mexico (1954).

Project farmers drilled irrigation wells with increasing frequency starting in the late 1940s in the face of impending drought. NM_00124601. Also, while groundwater pumping during dry years might be expected to decrease the volume of return flows in Project drains, the aquifer would recover during wet periods. NM_00124615 to NM_00124621.

15. NM-EX 452, J.F. Friedkin (IBWC), Memorandum re: 1906 Treaty Deliveries to Mexico (1956).

A key memorandum from an IBWC engineer based on his conversation with Project officials describing how Reclamation allocated water from the Project as of the mid-1950s, including looking at operating efficiency of the Project, including fluctuating return flows (then current year having negligible return flows), and in particular describes how Reclamation determined a delivery of 3.024 acre-feet per acre was the full supply of water from the Project.

16. NM-EX 432, Narendra N. Gunaji, Engineering Experiment Station, New Mexico State University, Groundwater Conditions in Elephant Butte Irrigation District (Nov. 1961).

Project farmers drilled irrigation wells with increasing frequency during the drought of the 1950s. (PDF page 7/77). This document also describes rapid recovery of the ground water table from pumping (“Long time fluctuations of the ground water table; its decline during the period of drought; and its quick recovery upon the return of surface water supply to normal, indicate the recharge capacity of the aquifer.” (PDF page 18/77)).

17. NM-EX 422, License Agreement with EPCWID for Installation of 4 Water Wells (Feb. 1, 1978).

Reclamation granted EPCWID permission to construct four wells within federally owned rights of way in Texas.

18. NM-EX 415, Memorandum Opinion - *Mestas, et al. v. Elephant Butte Irrigation District, et al.*, Civ. No. 78-138-B, D.N.M. (05-11-1979).

- a. “Though withdrawal of water from this aquifer occurred as early as 1890 or 1900,

no real development of the underground water occurred until the 1950s. Because of severe drought conditions at that time, many farmers drilled irrigation wells to supplement the little surface water that was available.” NM_00096399 (describing further use of wells through time).

- b. “Once EBID made this decision, it consulted with the Bureau of Reclamation and others on the question of where to place the wells.” NM_00096400 (describing US approval of EBID wells on US right-of-way)

19. NM-EX 418, Statement of Texas Rio Grande Compact Commissioner Jesse Gilmer to the Rio Grande Compact Commission, 43rd Annual Meeting, Transcript of Meeting, at 66 (Mar. 25, 1982).

“Steve [Reynolds, Commissioner for New Mexico], I want to mention one thing to you. It has been reported in the newspapers that when you closed the basin, the Rio Grande Basin and the Mesilla Basin in New Mexico, that you imposed a ceiling on the combined use of surface or ground water to be three acre-feet. If that is the case, I would urge that you give reconsideration to that, for the immediate future in any event, because we have developed below Elephant Butte Reservoir in Texas and New Mexico agriculture which requires an objective of 12 months farming out of the year. The old thing of farming cotton and alfalfa where you needed three acre-feet of water, and we considered that as normal, has passed. We now need to farm about 12 months out of the year, and we need an absolute minimum in most crops of three acre-feet, and in many crops of much more than three acre-feet.”

20. NM-EX 400, Bureau of Reclamation, Rio Grande Project: Water Supply Allocation Procedures (Undated).

Reclamation’s procedure developed in early 1980s for allocating water to the districts, instead of to individual Project farmers and acres, incorporates data from the years 1951 to 1978, when pumping was occurring in the Project area in both States, to determine how much water can be delivered based on a given release. Reclamation capped releases at approximately 767,000 acre-feet in this document, as it determined this was the amount of release needed to deliver 3.024 acre-feet per acres to Project lands.

21. NM-EX 515, Texas Adjudication, Final Judgment and Decree (2006).

EPCWID’s adjudicated right under state law “to divert and use 376,000 acre-feet of water per year from the Rio Grande.” The United States was a co-claimant with EPCWID.

22. NM-EX 448, Email from Christopher (Chris) Rich, Office of the Solicitor (U.S. Department of Interior) to Pat Gordon, Texas Rio Grande Compact Commissioner (May 17, 2011).

In this email Mr. Rich, U.S. Solicitor, explains why groundwater pumping in Texas causes Project supply losses and notes that the City of El Paso would have to repay depletions to Project supply caused by El Paso municipal pumping in the Mesilla and Hueco basins,

which cause depletions to Project supply and/or increased calls by EPCWID for reservoir releases.

23. **NM-EX 541, Final Judgment, *State of New Mexico ex rel. Office of the State Engineer v. Elephant Butte Irrigation District*, CV-96-888 In the Third Judicial District, Dona Ana County, State of New Mexico (SS101 LRG Adjudication Order, August 22, 2011).**

This Final Order of the Adjudication Court determined maximum Farm Delivery Requirements and Consumptive Irrigation Requirements for LRG water users. It approves conjunctive use of surface water and groundwater, requiring that surface water allotments be used before groundwater is used. The United States was a party to this order; it did not object to the Final Order contents nor file an appeal.

24. **NM-EX 535, Order Granting the State’s Motion to Dismiss the United States’ Claims to Groundwater and Denying the United States’ Motion for Summary Judgment, *State of New Mexico ex rel. Office of the State Engineer v. Elephant Butte Irrigation District*, CV-96-888 In the Third Judicial District, Dona Ana County, State of New Mexico (Aug. 16, 2012).**

This order from the New Mexico Adjudication Court denied the United States’ claims to groundwater rights for the Project on the basis that the United States’ notices of appropriation did not specifically claim groundwater rights or points of diversion, that the United States had never developed groundwater points of diversion for the Project.

The order also recognizes that the United States is entitled to return flows when it maintains control over those return flows, and reasoned that the New Mexico State Engineer could determine as a technical matter which water percolating through the ground would be considered a return flow and which would be considered groundwater. (Pages 6-7).

25. **NM-EX 529, Bureau of Reclamation, Continued Implementation of the 2008 Operating Agreement for the Rio Grande Project, New Mexico and Texas: Final Environmental Impact Statement, at 25, 219 (Appendix D), E-13 (Sept. 30, 2016).**

“In addition to their allocations of surface water from the [Rio Grande Project], irrigators within EBID and EPCWID have historically relied on groundwater pumping for supplemental irrigation” (p. 25); “as in Texas, Project farmers in New Mexico are free to pump groundwater from privately-owned wells on their lands to supplement Project surface-water supplies” (App. D, p. 219); and “[g]roundwater use for supplemental irrigation is widespread during periods of low Project supply” (p. E-13).

26. **NM-EX 112, Dr. Jennifer Stevens Expert Report, The History of Interstate Water Use on the Rio Grande: 1890-1955 (October 2019) at 83-85 (New Mexico Expert Historian) (referencing numerous historical documents describing El Paso’s development of its municipal supply from groundwater wells, including a USGS study occurring at time of the Rio Grande Joint Investigation.)**

“Although the USGS investigation into El Paso’s groundwater supply was separate from the RGJI, the RGJI team was aware of El Paso’s plight as well as of the city’s dependence on groundwater supplies. (See RGJI Report, (RIO30) p. 105)”

“Furthermore, contemporaries knew of El Paso’s and other municipalities’ dependence on groundwater, and also knew that these cities would grow. As such, it is not surprising to find a lack of evidence in the historic record indicating that Compact framers made any effort to preclude this resource’s development.”

27. NM-EX 100, Dr. Barroll Expert Report (October 31, 2019):

- a. § 5.2 Drain Flows and Project Return Flows;

Describes the significance of return flows and specifically the reuse of New Mexico Drain Flows (5.2.1) and Texas Drain Flows (5.2.2) and the historical data that represents the reuse of the drain flows. In Texas at the time of the Compact, large amounts of drain flow occurred in the El Paso Valley, was available for diversion, and was counted as Project supply. See Figure 5.2-Total Annual Gaged Drain Flow for El Paso Valley Drains above Fabens.

- b. § 6.3.3 (pages 44-45) and § 9.6.2 (page 78);

Describes why EBID believed that entering the 2008 Operating Agreement eliminated Texas’s concerns with continued groundwater pumping in New Mexico. The 2008 Operating Agreement, however resulted in increased groundwater pumping by EBID members and declining return flows via drains.

- c. § 6.3.8 (pages 49-50);

Discusses and provides evidence of the failure to count as Project water the effluent “return flow” generated in the El Paso Valley.

- d. § 7.3.2 (page 56), Appx C.2.3, C.2.4, C.3 (pages C-26 to C-29), and New Mexico Motion for Summary Judgement Oral Argument PowerPoint slide number 25:

Describes and quantifies (based on historical data) the effect of the cessation of using El Paso Valley generated return flows as Project Supply, and the cited PowerPoint slide illustrates the same.

- e. §§ 9.3 – 9.7 (pages 71-78), also reflected in NM-EX 118.

Explains that the decrease in surface water to EBID resulting from the 2008 Operating Agreement results in decreased aquifer recharge to the New Mexico aquifers which results in decreased return flows and ultimately reduces Project performance.

28. NM-EX 006, Dr. Margaret Barroll 2d Decl. ¶¶ 15, 17, 18, 21.

Dr. Barroll discusses Reclamation's prior encouragement of groundwater pumping in the Project area (¶¶ 15, 17-18). Dr. Barroll also discusses Reclamation's work with the Districts during the 1970s to develop District-owned wells to supplement Project surface supplies (¶ 21).