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Overview of the Rio Grande in Texas and Below Fort Quitman, Texas

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An Overview to the Rio Grande in Texas and Below Fort Quitman, Texas

I. The Rio Grande Basin

The entire Rio Grande Basin has been divided by politics, Treaties and Compacts, and the needs of the time into two main segments. When looking at the entire Rio Grande Basin, the term "Upper Reach" is the segment of the River from its head waters in the San Juan range of the Rocky Mountains in Southern Colorado through central New Mexico to Fort Quitman, Texas, about 90 miles downstream of El Paso, Texas. A portion of far west Texas lies in the Upper Reach above Fort Quitman to the Texas-New Mexico state line. It is in the Far West Texas Region E planning area, which includes the El Paso area as the major water use area. The "Lower Reach" is that portion of the River from Fort Quitman, Texas downstream to the Gulf of Mexico.[1]

The water in the Upper Reach is from tributary sources or interbasin transfers located in the United States. In the Lower Reach, however, the majority of the flows derive from Mexico. Flows in the Lower Reach historically were mixed waters composed of United States flows from the Upper Reach, substantial inflows of water from several Mexican tributaries, and water from the Texas tributaries consisting mainly of the Pecos and Devils Rivers.

The Lower Reach in Texas has been further subdivided by custom, law, rules, and regulations into three separate segments referred to as the "Upper Rio Grande," being that portion of the River between Fort Quitman, Texas and Amistad Reservoir (near Del Rio, Texas); the "Middle Rio

[1]See Appendix Page 1, which shows the entire Rio Grande Basin from Colorado to the Gulf of Mexico. Note it also shows basin -watershed -in Mexico which is significant to the Lower Reach below Fort Quitman, Texas. This is in contrast to the basin -watershed above Fort Quitman in Colorado, New Mexico, and far west Texas, which is significant to water supply in the Upper Reach where inflows are from U.S. sources rather than from Mexico sources.

Grande," being that portion of the River between Amistad and Falcon Reservoirs; and the "Lower Rio Grande," being that portion of the Rio Grande downstream from Falcon Reservoir (downstream from Laredo, Texas) to the Gulf of Mexico, which includes an area called the Lower Rio Grande Valley at the southern tip of Texas where the River encounters the Gulf of Mexico . 30 TEX. ADMIN. CODE §303, contain specific rules governing River operations in Lower and Middle Rio Grande. Maps showing the entire Rio Grande Basin and the Lower Reach may be viewed in this paper.

II. Water Rights Legal Regime in Texas and the Lower Reach

A. Above Fort Quitman, Texas[2]

The water rights legal regime in the Far West Texas region is different from the legal regime in the Lower Reach because it depends upon surface water from Elephant Butte Reservoir in New Mexico, which is shared with New Mexico below the dam. This water supply is managed primarily through the Elephant Butte Water District and the El Paso Water Control & Improvement District No. 1. This water system is tied with Bureau of Reclamation laws in Contracts and administered differently than the Lower Reach below Fort Quitman. The water rights of the El Paso District have now been adjudicated in Texas which governs the water in Texas from the Rio Grande with respect to state law and the Rio Grande Compact. This region in Far West Texas also has groundwater resources to a greater extent than that available to those in Texas in the Lower Reach of the Rio Grande.

The laws, regulations, and contracts governing this reach of the Rio Grande is familiar to

[2]In the discussion hereafter references are made to "Fort Quitman, Texas," and to many this location is not well known in spite of its significance to the development of the Law of the Rio Grande in the 1906 Convention, Rio Grande Compact, and the 1944 Treaty. A satellite map view of its location in Hudspeth County, Texas, can be viewed at *www.mapquest.com/maps?city=fortquitman&state=tx*.

those in Colorado and New Mexico, and is beyond the scope of this presentation. An important issue to this reach is the Operating Agreement between the Elephant Butte District and El Paso District.

B. Below Fort Quitman, Texas

The legal regime in each reach of the Rio Grande downstream of Fort Quitman, Texas is unique. The water rights in the Lower Rio Grande below Falcon Reservoir were adjudicated by a District Court in Hidalgo County, Texas, over a twenty year period between 1951 and 1971. It began as the construction of Falcon Dam was completed. The District Court in Hidalgo County took judicial custody of the waters in Falcon Reservoir, and established a Watermaster under the direction of the Court while the rights were being adjudicated by the Court. Following the final judgment, the Watermaster's office established by the Court was transferred to the Texas Water Rights Commission (now the Texas Commission on Environmental Quality), and thus began water rights administration on the Lower Rio Grande. *State of Texas v. Hidalgo County Water Control and Improvement Dist. No. 18, et al.*, 443 S.W.2d 728 (writ ref'd. n.r.e.) commonly referred to as the "Valley Water Case."

In the meantime, Amistad Dam was constructed further upstream of Falcon Dam near Del Rio, Texas. In the 1970's and early '80s, the water rights in the Middle Rio Grande segment between the 2 Dams were adjudicated pursuant to the Texas 1967 Adjudication Act (Vernon's Ann. Texas Civil Stat., Texas Water Code, Subchapter G., §§11.376 *et seq.*) The Middle Rio Grande adjudication, although it involved some different legal issues than was involved in the Valley Water Case, was blended with the adjudication by the Court in the Valley Water Case with respect to management of the 2 reservoirs. This was done at that time because Amistad Reservoir had been complete, and a decision was made by the Commission and the courts that the Amistad and Falcon reservoir systems would be better utilized through coordinated water management as a unit. The

legal regime and water management system in the Middle Rio Grande and Lower Rio Grande were blended and are managed as a single system.

The Upper Rio Grande segment in Texas above Amistad Dam to Fort Quitman was later adjudicated by the Commission, (now the TCEQ). Since there were no reservoirs in this reach of the River from Fort Quitman, Texas to Amistad Reservoir, the water rights were adjudicated as regular "run of the river" water rights. Following the adjudication of these "run of the river rights" in the Upper Rio Grande segment, the Commission enlarged the jurisdiction of the Rio Grande Watermaster to include the Upper Rio Grande. (*See* 30 TEX. ADMIN. CODE, Chapter 303).

These events established the operations of the Rio Grande Watermaster in the three reaches of the Rio Grande from Fort Quitman, Texas to the Gulf of Mexico. The rules established in each reach reflect the marked differences between the water rights system in the Middle and Lower Rio Grande segments compared to the "run of the river" system above Amistad in the Upper Rio Grande segment. Water rights in the Middle and Lower Rio Grande are similar to bank accounts because all water is allocated based upon storage in the reservoirs. In contrast, under 30 TEX. ADMIN. CODE §303.23, the distribution of water in the Upper Rio Grande segment is based upon the "prior appropriation system" of first in time is first in right with respect to the exercise of each water rights.

III. Growth in Texas and the Lower Reach

A. Far West Texas above Fort Quitman, Texas

The Far West Texas region realistically lies in the Upper Reach of the Rio Grande historically, legally and by influence, and covers the El Paso area along the Rio Grande down to Fort Quitman. Attached, as Appendix Page 2; depicts how the Texas Water Development Board has divided the State into water planning regions. This part of the State was placed in Region E, which

covers the El Paso area and an area downstream of Fort Quitman. For regional and state water planning purposes, this is proper because of the demographics of the area included in Region E, and in respect to evaluating proper water planning in this area. As indicated in Appendix page 1, it relies upon surface water from the Rio Grande below Elephant Butte Dam under the 1906 Convention and Rio Grande Compact. The surface water supply is dependent on water from the watershed in the United States, which distinguishes the Upper Reach from the Lower Reach below Fort Quitman, Texas, where much of its surface water supply depends upon water sources in Mexico. The Upper Reach has a groundwater resource that can fulfill its short and long term needs. The estimate of available groundwater supply has changed in the last several years which has resulted in a larger quantity available for use and has enabled the Region to develop a conjunctive use management plan that utilizes groundwater together with surface water in a sustainable manner.

The primary growth area in this region is the El Paso area, which is experiencing rapid population growth along with industrial development with need for additional water supplies from the Rio Grande in addition to those available from groundwater resources. In the current Regional Water Plan (Far West Texas Water Plan, Region E, Texas Water Development Board, January 2011, Chapters 1-3),[3] it is projected that the population growth will grow from a little over 600,000 in 1990 to over 860,000 in 2010 and 1,500,000 in 2060. With a water demand increasing from about 650,000 acre feet in 2010 to over 720,000 acre feet in 2060.

Historically, the Far West Texas Region had extensive agricultural economy as did the Juarez area across the Rio Grande in Mexico. The increase in population is consuming agricultural lands.

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[3]Region E and Region M water planning materials and information may be reviewed at the Texas Water Development Board website: *www.twdb.state.tx.us/wrpl/rwp/rwp.asp*

The Plan projections for irrigation will drop about 9% from a little over 480,000 acre feet to 430,000 acre feet in 2050. This is due to a municipal and industrial water demand increasing 51% from a little over 150,000 acre feet in 2010 through over 230,00 acre feet in 2060.

The region has adopted far reaching water management strategies to fulfill future water needs in the region, including desalinization and conjunctive use of its available surface water and groundwater supplies. Irrigation water is converted to municipal use in the El Paso area through use of contracts with the irrigation district, El Paso County Water Improvement District No. 1, the U.S. Bureau of Reclamation, and the Lower Valley Water District that allow for conversion of water allocated for irrigation of lands owned or leased by the City into municipal supply. These contracts are in the nature of a forbearance by the landowners of the use of irrigation water and the transfer of water allocated to that land for municipal use purposes.

Currently, this amounts to approximately 60,000 acre feet per year in a full allotment year. Historical hydrologic data during the period 1940 to 2003 shows that 60,000 acre feet per year would be available for municipal use in 39% of the years, and that less than 20,000 acre feet per year would be available in 8% of the years. Thus, surface water is not a reliable stand-along source of municipal water supply. As a result, municipal suppliers must rely on groundwater sources and conjunctive use of ground water and surface water in order to sustain their needs. See *Far West Texas Water Plan (Texas Water Development Board Region E)*, January 2011, Chapter 4, Page 4-20.

B. The Lower Reach below Fort Quitman, Texas

Regions along the Rio Grande in Texas have experienced rapid population growth, a rise in retail, industrial, and services with a resultant need for additional surface water supplies from the Rio Grande. This supply depends upon water supply from the Rio Grande. As shown on Appendix

Page 1, the Lower Reach below Fort Quitman, Texas depends upon runoff in Mexico which represents more than 65% of its available water supply. The Lower Reach can not depend upon groundwater because of water quality issues except for reverse osmosis projects dealing with Gulf of Mexico water or brackish groundwater. This was the trade off in the 1944 Treaty where the western states supplied by United States waters in the Colorado River were divided between the 2 countries, whereas on the Rio Grande, Mexico supplies the greater source of supply to United States users in Texas.

In the past two decades growth in the Lower Reach has increased at a rapid rate. The developed land areas were once agricultural lands developed in the early 1900s for agricultural purposes. Water rights to surface waters were obtained for these agricultural uses when there was less need for municipal and industrial water. At the time of the Adjudication in the 1960's in the Lower Rio Grande and 1970's in the Middle Rio Grande, there were irrigation claims adjudicated to over 800,000 acres. Agricultural use amounted to more than 90% of the adjudicated water supply. As a result, most all of the Rio Grande water supply was appropriated (over appropriated) for agricultural use. Population growth with resultant urbanization of agricultural lands has changed the dynamics of water supply demand.

Population in the Middle and Lower Rio Grande region in Texas (below Amistad Reservoir in the Del Rio area) increased from approximately 400,000 in 1950 to over 1.62 million in 2010 with much of this increase occurring after 1970. Population is projected to increase to 3.94 million by 2060. During the period from 1970, soon after adjudication was made final in the Supreme Court, through 1990, six of the 31 fastest growing counties in Texas were within this Rio Grande region, and now some are the fastest growing areas in the United States. There is also tremendous growth

in the El Paso area in the Upper Rio Grande in Texas, and continued growth in the Middle Rio Grande reach principally in the cities of Laredo and Eagle Pass and in the Lower Rio Grande or the Rio Grande Valley area.

The population distribution in the Lower Rio Grande is concentrated in the Rio Grande Valley area (principally, Cameron, Hidalgo, Willacy and Starr Counties), and in the Middle Rio Grande area principally, Webb and Maverick Counties (Laredo and Eagle Pass). In 2010, the combined population of the Valley counties was 1.23 million or 75% of the region's total population. It is projected that the population in Cameron and Hidalgo Counties only, by the year 2060 will be over 2.9 million. Webb County (Laredo) likewise, has over 250,000 in 2010 with a projected population of over 725,000 in 2060 and Maverick County (Eagle Pass) now over 58,000 to near 100,000 in 2060. *Rio Grande Regional Water Planning Group* (Texas Water Development Board), Rio Grande Regional Water Plan, Region M, 2010 (Pgs. 2-5).

This population growth and urbanization of previous agricultural lands caused pressure for the conversion of irrigation water rights to municipal and industrial use rights.

The 2010 Regional Water Plan identified shortages of supply in all use areas. In agricultural use no strategy would offset shortage, but could be reduced by conservation projects. As to municipal and industrial use waters recommended water management strategies to overcome these shortages includes water conservation, desalinization, and the voluntary transfer and conversion of agricultural rights to municipal use water rights since much of the population growth involves the subdivision of lands which were previously under irrigation.

The continued growth and need for municipal and industrial waters, have brought about calls for the transfer of water from traditional agricultural use to meet the new demands for municipal and

industrial purposes. This has raised challenges and conflicts between agricultural and municipal use interests in how these water rights will be converted from one use to the other. It has also drawn attention to some use of less quality groundwater supplies.

There are many challenges for water planning in Far West Texas and the Lower Reach due to this population growth and changing needs for water. These challenges are being addressed in Texas through the Regional Water Planning process which is then accumulated and becomes the Texas Water Plan for all of the State of Texas.

IV. Current Issues - Water Accounting at Fort Quitman and Restoration of the Rio Grande below Fort Quitman

In the midst of all of these challenges, there are many current issues and ongoing projects along the Rio Grande. Because of time limitations, I have chosen two topics of concern. One to the Lower Rio Grande, which involves the 1906 Convention and the Rio Grande Compact, which is of interest to the Upper Reach, and its relationship to the 1944 Treaty but is of special interest to those in the Lower Reach below Fort Quitman, Texas. The second issue involves restoring the Rio Grande below Fort Quitman due to the results of the construction of upstream dams on the Rio Grande.

A. Water Accounting at Fort Quitman

This issue involves the Water Accounting between the United States and Mexico at Fort Quitman, Texas, which is significant to those in the Lower Reach because of the ownership of waters occurring in the Rio Grande upstream of Fort Quitman, Texas and the delivery point to Mexico of its share of water under the 1906 Convention.

Currently, the International Boundary and Water Commission ("IBWC") is accounting the ownership of water that reaches the Fort Quitman point on the River as 50% owned by Mexico and

50% owned by the United States for Texas use. It is asserted by water rights holders before Fort Quitman, that all of the water at Fort Quitman should be owned by the United States for Texas use. This is based upon the interaction between the 1906 Convention and the 1944 Treaty.

Pursuant to the 1906 Convention, among other things, Mexico is entitled to 60,000 acre feet of water annually from Elephant Butte Reservoir, and in exchange for this water, Mexico waived any interest or claim to waters downstream from its delivery point to Fort Quitman, Texas. This guarantee is subject to drought conditions when both countries share in shortages on a pro-rate basis.

The 1944 Treaty between the U.S. and Mexico, among other things noted above, divided the flows in the Rio Grande from Fort Quitman downstream to the Gulf between the United States and Mexico.

Mexico waived its claims to waters in the Rio Grande above Fort Quitman in the 1906 Convention, and Rio Grande waters constituting inflows at Quitman downstream to the Gulf of Mexico are governed by the 1944 Treaty. By virtue of the interaction between the 1906 Convention and the 1944 Treaty, waters in the Rio Grande flowing at Fort Quitman are U.S. waters.

Historical precedent shows this interaction between the 1906 Convention and the 1944 Treaty. During the negotiations for the 1944 Treaty, Mexico expressed its desire to increase the 60,000 acre feet delivery guarantee from Elephant Butte Reservoir provided for in the 1906 Convention by demanding more Upper Rio Grande water than the 60,000 acre feet, and also insisted ". . . on ½ of the run-off entering the stream between El Paso and Fort Quitman." The United States refused to consider this request with the contention that the earlier 1906 Convention had settled the question and accordingly, Mexico's requested change in ownership of water in the Rio Grande downstream from Mexico's 1906 Convention delivery point and upstream of Fort Quitman was not

included in the 1944 Treaty.[4]

Water in the Rio Grande between El Paso and Fort Quitman, including return flows from each country, is 100% owned by the United States for Texas use. Accounting of water ownership consistent with these long-standing agreements between the United States and Mexico is entrusted to the IBWC because Article 24 of the 1944 Treaty granted the IBWC the power and duty to enforce the 1944 Treaty and other treaties and agreements, including the 1906 Convention, between the two countries.

It is asserted under the 1906 Convention that Mexico waived all flows of the River to Fort Quitman, Texas. This was in exchange of the United State's agreement to commit 60,000 acre feet under the circumstances outlined in the 1906 Convention. Only time will tell whether the Texas position will prevail. It will continue to be urged, until the IBWC water accounting issue between Mexico and the United States is resolved.

B. Restoration of the Rio Grande

The Rio Grande below Fort Quitman has changed due to results of the construction of upstream dams over 100 years ago in the Upper Reach. This has been documented in many studies. There is no longer the traditional floods which occurred historically before the construction of Elephant Butte Dam, and its associated facilities in New Mexico and the earlier dams in Colorado. The dams protected against the damages of flood events, but it was these floods which gave the River its name, the "Rio Grande" - the "Big River," or "Rio Bravo." These floods flushed out the River so that it could flow in non-flood periods. This is no longer the case. Experience has shown

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[4]See, Hundley, *"Dividing the Waters" "A Century of Controversy Between the United States and Mexico"*, Univ. Of California Press (1966), Pages 131-136, footnote 73: "Royce J. Tipton to Norris Hundley, Oct. 9, 1962; memo from C.A. Timm to L. Lawson, Dec. 21, 1943, NA, SD, 711.1216M/2515a; memo from L. Duggan to Secretary of State, Sept. 15, 1943, as cited at 2460. See generally, also, Littlefield, *"Conflict on the Rio Grande, Water and the Law 1879-1939,"* Univ. Of Oklahoma Press: Norman (2008).

over this more than 100 year period, since these dams were constructed, what happens to downstream segments of a river. This is why the segment of the Rio Grande below Fort Quitman to Presidio, Texas, has come to be known as the "Forgotten River" segment of the Rio Grande.

In the reach between Fort Quitman and Presidio, Texas, where Mexico begins to contribute flows to the Rio Grande has through silt build up and salt cedar growth, no longer functions as a "River" with a defined stream with a bed and banks which allows normal flows to pass through for downstream needs.

Both the Far West Texas Regional Plan (Region E, TWDB) and the Rio Grande Regional Plan (Region M, TWDB) recommend restoration of the River in this reach of the Rio Grande.

Significant flows, from time to time, at or below Fort Quitman could reach the Lower Reach through this Forgotten River Reach if the River could be restored to a defined stream which would allow what United States flows exist at or below Fort Quitman to flow downstream. These are flows that could help satisfy the increasing need for water downstream in the Lower Reach without adversely affecting the water supply available to the Upper Reach in Colorado, New Mexico and far west Texas, and restore a segment of the Rio Grande environmentally.

Conclusion

Policies, agency action, legislation, and court cases dealing with the challenges to meet increasing water and changing needs for Rio Grande water in Texas is alive, and will continue in the future. This is consistent to challenges in the other western states because of shifts in population in the United States to the west from the east and the south, and resultant continued growth in population, commercial and industrial activities. The stress of need for more water supply will continue in arid and semi-arid western states and Texas, and it is now becoming more apparent in some of the eastern States where water supply has not been as critical as in the West.

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