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DEVELOPMENT OF THE RIO GRANDE COMPACT OF 1938

RAYMOND A. HILL

Thirty-six years have elapsed since the Rio Grande Compact of 1938, N.M.S.A. Section 75-34-3 (Repl. 1968), was entered into by Colorado, New Mexico, and Texas, and approved by the United States of America. Administration of the Compact since then has been the responsibility of many different persons, few of whom had personal knowledge of the circumstances of the negotiation of this Compact. Consequently, there has been a growing tendency towards interpretation of some of the provisions of the Rio Grande Compact in a manner contrary to the intent of those who participated in its negotiation.

Mr. Hill was intimately connected with the investigations that led to the Compact and with the negotiations of the Compact itself. He continued his connection in its administration throughout the year since 1938. It is for this reason that he was asked, on behalf of the Attorney General of Texas, to review the history of the Rio Grande Compact of 1938 and to analyze its provisions for the benefit of those who wish to clarify their understanding of the Compact. Mr. Hill's report was originally prepared for use in Texas and New Mexico v. Colorado, 386 U.S. 901 (1967), 389 U.S. 1000 (1967), 390 U.S. 933 (1968), 391 U.S. 901 (1968). Since his report concerns a matter of great importance and ongoing concern, the Editors feel that it should be made readily available to scholars and practitioners.

The report was edited for publication by Channing R. Kury and Stephen K. Quinn but the changes were not approved by Mr. Hill due to his death on April 6, 1973. Copies of the unedited original manuscript are available from the Natural Resources Journal.

The Rio Grande Compact of 1938 has to do only with the portion of the drainage basin of Rio Grande above Fort Quitman, located about 80 miles southeast of El Paso, Texas. This division of the total

drainage area of Rio Grande was adopted in the Treaty of 1906¹ between the United States and Mexico and has been used consistently since then.

Physical conditions in this upper portion of the drainage basin of Rio Grande were well set forth in the Report of the Rio Grande Joint Investigation submitted on December 23, 1937, to the President by the National Resources Committee. The introductory portion of this report is quoted below:

Rio Grande is an interstate and an international stream. It rises in Colorado and flows southward for more than 400 miles across New Mexico. After leaving New Mexico, it forms the boundary between Texas and the Republic of Mexico for about 1,250 miles to its mouth. The total length of the river is about 1,800 miles.

With respect to usage of water and the problems concerned with that usage, the river is divided into two distinct sections at Fort Quitman, or at the narrow gorge a few miles below. Above this nearly all the water of the river is being consumed by irrigation in Colorado, New Mexico, Texas, and Mexico. Below, in the lower basin, the river develops its flow mainly from tributaries in Mexico.

In the Upper Rio Grande Basin, including parts of Colorado and New Mexico, and a very small part of Texas, more than 99 percent of the water supply comes from Colorado and New Mexico in about equal amounts.

In accordance with natural divisions, the upper basin comprises three principal areas: the San Luis section in Colorado, the Middle section in New Mexico, and the Elephant Butte-Fort Quitman section in New Mexico, Texas and Mexico.

The San Luis section comprises the basin of Rio Grande in Colorado, the principal agricultural area of which is the San Luis Valley. This is a broad plain of smooth topography, surrounded by mountains except on the south near the Colorado-New Mexico State Line, where the river has cut an outlet for the southern portion of the valley. The northern portion is not thus drained and is known as the Closed Basin. The valley floor ranges in altitude from 7,440 to 8,000 feet and the surrounding mountains from 10,000 to more than 14,000 feet.

The Middle section comprises the basin of Rio Grande in New Mexico above San Marcial. Below the Colorado-New Mexico State line, Rio Grande flows through a canyon for about 70 miles to Embudo. The "Middle Valley" comprises the long narrow territory adjacent to the river from Embudo south to San Marcial, a distance of about 200 miles. It is a succession of narrow valleys separated by rock canyons or merely short "narrows." Of these subvalleys, Santo

1. Treaty with Mexico on Distribution of Waters of the Rio Grande for Irrigation, May 21, 1906, 34 Stat. 2953, T.S. No. 455.

Domingo, Albuquerque, Belen, and the northern two-thirds of Socorro constitute the area of the Middle Rio Grande Conservancy District. Altitudes in the Middle Valley range from 5,590 feet in Espanola, the uppermost subvalley, to 4,450 feet at San Marcial, at the lower end of Socorro Valley.

The Elephant Butte Reservoir of the Rio Grande Project, United States Bureau of Reclamation, occupies the immediate river valley from San Marcial narrows to Elephant Butte, a distance of about 40 miles. What is here designated as the Elephant Butte-Fort Quitman section includes the reservoir area and the wide plains and long strips of land adjacent to the river from Elephant Butte to Fort Quitman, some 210 miles, of which 130 miles are above El Paso. Like the Middle section, Elephant Butte-Fort Quitman section is a succession of valleys separated by canyons and narrows. Of these valleys, Rincon, Mesilla, and the northern half of El Paso Valley on the Texas side of the river comprise the area of the Rio Grande project. Included in the southern half of El Paso Valley, on the Texas side, is the area of the Hudspeth County Conservation and Reclamation District. The El Paso Valley area southwest of the river is in Mexico. Altitudes in the Elephant Butte-Fort Quitman section range from 4,200 feet at Elephant Butte to 3,710 at El Paso and 3,400 at Fort Quitman.

The valley lands of the Upper Rio Grande Basin are devoted almost entirely to agriculture. Because of scant precipitation throughout all valleys of the basin, irrigation is required for the successful growing of crops. Irrigation along the Rio Grande goes back to an unknown date when it was initiated by Pueblo Indians or their ancestors.

Recorded history of the Rio Grande Valley begins with its discovery by Coronado in 1540. Later, in the seventeenth and eighteenth centuries, Spanish colonization in the Middle and Elephant Butte-Fort Quitman sections was accompanied by an expansion of irrigation. Irrigation by white men in San Luis Valley was begun in the early 1850's, but it was not until about 1880 that extensive development occurred. Then, in the decade 1880-90, accelerated activity resulted in most of the large canal systems and other irrigation works that exist there today.

In the early 1890's water shortages began to occur along the Rio Grande in Mesilla and El Paso Valleys and people near Juarez, across the river from El Paso, complained to the Mexican Government. The latter filed a claim for damages against the United States, alleging that the water shortages were due to increasing diversions from the river in Colorado and New Mexico. The United States Department of State then instituted an investigation of the situation through the International Boundary Commission, and the outcome was the "embargo" of 1896 and the Mexican Treaty of 1906. The

"embargo" was an order by the Secretary of the Interior of the United States which prevented further irrigation development of any magnitude in the Rio Grande Basin in Colorado and New Mexico through suspension of all applications for rights-of-way across public lands in those States for use of Rio Grande water. With some modification in 1907, this embargo remained in effect until May 1925, when it was lifted. Under the terms of the Mexican Treaty, the United States guaranteed to Mexico, in return for relinquishment of all claims for damages, an annual delivery in perpetuity in the Rio Grande at the head of the Mexican Canal near El Paso, of 60,000 acre-feet of water.

Both to insure fulfillment of the Mexican Treaty and to develop a reclamation project in the Elephant Butte-Fort Quitman section, the United States provided for construction of the Elephant Butte Reservoir by the Bureau of Reclamation. This reservoir, with an original capacity of 2,639,000 acre-feet, together with other initial works for the Rio Grande Project, was completed in 1916.

The embargo was opposed in Colorado, since even by 1896 the irrigated lands in San Luis Valley used all the available natural flow of Rio Grande and its tributaries in that valley. Storage appeared necessary not only for further development but even to maintain existing developments. But storage of any magnitude was impossible under the embargo. The effort of Colorado to secure permission to build reservoirs thus began early, and has continued to date [1937].

About 1918, active interest developed in reclamation in the Middle Valley. Much land there had become badly seeped and it was affirmed that over a period of many years there had occurred a serious decline and failure of the irrigated acreage. This was attributed not only to a decrease in the flow of the river and to a shortage of water for irrigation but also to resultant deposition of silt, aggradation of the river bed, and elevation of the water table under the valley floor. It was affirmed that the decrease in river flow was due to depletions in San Luis Valley.

With the interstate situation becoming increasingly aggravated, it was suggested that a commission be named to study the water supply and to draft a compact between the States affected, under which an equitable allocation of the waters of the upper Rio Grande would be made. Accordingly the legislatures of Colorado and New Mexico enacted statutes in 1923 under which the respective Governors appointed commissioners. The President named a commissioner to represent the United States. Later, a commissioner for Texas was designated by the Governor of that State.

Negotiations looking to a compact were started, but they proceeded slowly, pending the outcome of engineering investigations instituted by Colorado and by New Mexico. Finally, after an extended session of the commission in January, 1929, a compact was

concluded which became effective upon its ratification, later that year, by the legislatures of the three States and by the Congress.

COMPACT OF 1929²

This Compact is of particular significance because it required the appointment of a commissioner from each of the signatory States for the purpose of concluding a new Compact among them providing for the equitable apportionment of the use of the waters of the Rio Grande and because the principles set forth in the 1929 Compact were accepted as guidelines by the commissioners who negotiated the Compact of 1938. Many of the provisions in the 1929 Compact were incorporated verbatim or substantially so in the Rio Grande Compact of 1938.

A number of these provisions had to do with maintenance of the "status quo", that is, conditions obtaining on the river and within the Rio Grande Basin at the time of signing of this Compact. In Article V of the 1929 Compact, Colorado agreed to maintain the "status quo" as follows:

It is agreed that to and until the construction of the closed basin drain and the State Line reservoir herein described, but not subsequent to June 1, 1935, or such other date as the signatory States may hereafter fix by acts of their respective State Legislatures, Colorado will not cause or suffer the water supply at the Interstate Gauging Station to be impaired by new or increased diversions or storage within the limits of Colorado unless and until such depletion is offset by increase of drainage return.

New Mexico committed itself to maintenance of the "status quo" by the provisions of Article XII of the 1929 Compact which read:

New Mexico agrees with Texas, with the understanding that prior vested rights above and below Elephant Butte Reservoir shall never be impaired hereby, that she will not cause or suffer the water supply of the Elephant Butte Reservoir to be impaired by new or increased diversion or storage within the limits of New Mexico unless and until such depletion is offset by increase of drainage return.

FIRST ACTION OF *TEXAS V. NEW MEXICO*

On October 28, 1935, the State of Texas moved in the Supreme Court of the United States for leave to file a bill in equity (leave granted on November 11, 1935) against the State of New Mexico and the Middle Rio Grande Conservancy District, basing its suit, as it

2. Laws of New Mexico 1929, ch. 42, p. 61.

contended, on two grounds: first, that New Mexico had violated the Compact of 1929 by impairing the water supply in the Elephant Butte Reservoir through excessive diversions and through injurious increase of the salt contents of the water; and second, that such excessive diversions and increase of salt contents were in violation of the rights of Texas water users, under the general doctrines of the Supreme Court and of water law in the southwest.

This action by Texas was precipitated by the storage of water in El Vado Reservoir on Rio Chama in 1935, a year of deficiency of the supply of water in Elephant Butte Reservoir resulting from less than the normal runoff in the Rio Grande in preceding years. El Vado Reservoir had been constructed pursuant to a plan developed by the Chief Engineer of the Middle Rio Grande Conservancy District following an extensive investigation of conditions in the Middle Rio Grande Valley, made from 1926 to 1928 by the U.S. Bureau of Reclamation under a cooperative agreement with that District. This plan also provided for construction of a system of drains in the Middle Rio Grande Valley to the end that any new or increased diversions for irrigation or storage of water in reservoirs within the limits of New Mexico would be offset by increases of drainage return.

It was stipulated, just before trial of this action was suspended, that the general program of measurements of streamflow, of canal diversions and canal waste, of drain discharge, of the quality of river water, and of groundwater fluctuations carried out in 1936 as part of the Rio Grande Joint Investigation should be continued during 1937 and that:

The abovementioned programs of measurement shall be carried on under the general supervision of a committee of engineers, one member of which shall be named by New Mexico, one by Texas, and the third by the United States Geological Survey, and this committee of engineers shall have authority, by unanimous agreement, to modify such programs as to detail to the end that proper basic data may be available to both States; and representatives of each State shall have access to any of the records of such measurement, and copies of any records obtained by one shall be promptly furnished to the other.

RIO GRANDE JOINT INVESTIGATION

Shortly before Texas initiated its action against New Mexico and presumably in the light of the situation that brought about this action, President Franklin D. Roosevelt issued the following executive memorandum:

The White House
Washington, September 23, 1935

To Federal agencies concerned with projects or allotments for water use in the Upper Rio Grande Valley above El Paso:

From information secured by the National Resources Committee, it appears that in view of the practically complete present appropriation of reliable water supply in the basin of the Rio Grande above El Paso, Federal investments in this region which promote increased use of water tend to impair the security of extensive prior investments of Federal funds, to violate the terms of an interstate compact to which the Federal Government is a party, and to promote social insecurity in the region.

Please instruct appropriate officials of your agency in Colorado and New Mexico, as well as in Washington or in other supervisory offices, not to approve any application for a project involving the use of Rio Grande waters without securing from the National Resources Committee a prompt opinion on it from all relevant points of view.

(Signed) FRANKLIN D. ROOSEVELT

Shortly thereafter the National Resources Committee proposed a conference with the commissioners designated by the States pursuant to the Rio Grande Compact of 1929 to see if there might be any way in which the National Resources Committee and the three States could cooperate in gathering the facts that might be helpful in arriving at a solution of the interstate water problem on the Rio Grande above Fort Quitman. This conference was held at Santa Fe on December 2-3, 1935, and resulted in the adoption of the following resolution by the Rio Grande Compact Commission:

Whereas, The Rio Grande Compact Commission was created for the purpose, among others, of making equitably division of the waters of the Rio Grande above Fort Quitman, Tex., between the States of Colorado, New Mexico, and Texas, and

Whereas, The National Resources Committee has expressed its willingness to cooperate, if practicable, with the Rio Grande Compact Commission in the collection of relevant basic data,

Now, therefore, be it resolved, That the National Resources Committee, through its Water Resources Committee, be requested, in consultation with the members of the Rio Grande Compact Commission, to arrange immediately for such investigation (1) of the water resources of the Rio Grande Basin above Fort Quitman, (2) of the past, present and prospective uses and consumption of water in such Basin in the United States, and (3) of opportunities for conserving and augmenting such water resources by all feasible means, as

will assist the Rio Grande Compact Commission in reaching a satisfactory basis for the equitable apportionment of the waters of the Rio Grande Basin in the United States above Fort Quitman, as contemplated by such Rio Grande compact.

In making this request the Rio Grande Compact Commission, and its individual members, declare it to be their desire to cooperate and assist in such investigation in all ways within their power, and it further declares that, through its individual members, it will seek to obtain the allotment of State funds, or services, or both, for the purposes of the investigation in such amounts as will equitably distribute the costs thereof between the Federal Government and the member States of Colorado, New Mexico, and Texas.

It is understood that the cooperative investigation requested herein shall be limited to the collection, correlation, and presentation of factual data, and shall not include recommendations, except upon request of the Rio Grande Compact Commission, based upon the unanimous agreement of its members.

It is further understood that the said investigation shall be in harmony with the spirit and intent of the Rio Grande compact, and nothing herein contained shall be taken to be a modification or alteration of the terms thereof.

Pursuant to this resolution, funds were allocated by the Federal Emergency Administration of Public Works to the National Resources Committee for the purposes of the investigation. Field work was started in April, 1936 and continued through July, 1937. The final report of the Rio Grande Joint Investigation, which was submitted to the President on December 23, 1937, by the National Resources Committee, covered 566 printed pages and is divided into five parts; to wit:

Part I: General Report of Rio Grande Investigation.

Part II: Groundwater Resources; Report of the United States Geological Survey.

Part III: Water Utilization; Report of the United States Bureau of Agricultural Engineering.

Part IV: Quality of Water; Report of the United States Bureau of Plant Industry.

Part V: Water Importation and Storage; Report of the United States Bureau of Reclamation.

Throughout the period of investigation by these several Federal agencies, numerous conferences were held in which representatives of Colorado, New Mexico, and Texas participated. In addition, the engineering adviser to each of the Rio Grande Compact commissioners worked closely with those carrying out the Joint Investigation.

Preliminary drafts of sections of the report of the Joint Investiga-

tion were made available from time to time to representatives of each of the States. Many suggestions were made by them for clarification of the report, questions were raised as to the accuracy of some of the data, and exceptions were taken to some findings deemed unsupported by factual data. It was generally recognized, however, that the final report of the Rio Grande Joint Investigation did bring together and make available to those concerned all essential data as to the sources and quantities of water available for use in the several States, the needs for water in these States, and means for development and use of those supplies.

The Rio Grande Commissioners thus entered the negotiations of the new Compact with adequate understanding of the problem of equitable apportionment of the waters of the Rio Grande Basin in the United States above Fort Quitman.

BASIC POSITIONS OF STATES

The first meeting of the Rio Grande Compact Commission, after receipt of the final draft of the report of the Rio Grande Joint Investigation, was held in Santa Fe on September 27, 1937. The purpose of the meeting, in the words of Chairman S. O. Harper, who was the representative of the United States, was:

for considering the report of the Rio Grande Joint Investigation, conferring with the consultants of the National Resources Committee, initiating the formulation and writing of a permanent compact, and transacting any other business which may properly come before the meeting.

Statements were made at this meeting setting forth the basic positions of the several States.

Colorado Position

The Commissioner for Colorado submitted a written statement on September 28, 1937, defining the basic position of Colorado. The following is quoted from that statement:

It is the position of Colorado that an adequate supply of water exists in the Upper Rio Grande Basin above Fort Quitman which, if properly regulated and used, will meet the requirements of present irrigation development in that Basin at the date of the signing of the Compact [1929], and under present conditions to the extent indicated by the Report of the Rio Grande Joint Investigation.

Facilities now exist in the Middle and Elephant Butte-Fort Quitman sections of the Basin to regulate the water in such manner as to provide a perfect water supply, except during very infrequent

periods of drouth. Such periods are so infrequent that it would be uneconomical to provide additional storage, or other means, to relieve shortages due to such drouths.

Inadequate facilities exist in the San Luis section to regulate the water supplies required for the proper irrigation of lands, the irrigation of which was initiated many years prior to the construction of all present reservoirs in the two lower sections of the river.

For more than forty (40) years Colorado has been denied the right to properly regulate the waters theretofore applied to beneficial use, which has resulted in a direct loss and injury to Colorado and its citizens, conservatively estimated at not less than \$200,000,000.

Colorado asserts that equitable apportionment of the use of the waters of the Rio Grande, as provided by the Rio Grande Compact, must include the necessary regulation of these waters for the most efficient use of the same.

Sufficient storage capacity can be provided and operated to furnish a water supply for the San Luis section comparable to that which now exists in the Middle and Elephant Butte-Fort Quitman sections, without adversely affecting the water supplies for those sections. As a matter of fact, the usable water supply for the Middle section would be improved by the construction and operation of the reservoirs required in the San Luis section.

* * *

Colorado submits that recognition be accorded its citizens to construct and operate the reservoirs required in the San Luis section of the Basin to place the water supplies of that section on a parity with the water supply of the Middle and Elephant Butte-Fort Quitman sections of the river.

New Mexico Position

The basic position taken by the Commissioner for New Mexico reflected the controversy between water users above and those below Elephant Butte Reservoir which had resulted in the action brought by Texas against New Mexico in the Supreme Court of the United States, but in which no decision had yet been rendered. His position also reflected the fact that Elephant Butte Dam had been built by the United States to supply water to lands in New Mexico as well as in Texas, and that it was not practicable to treat these areas separately.

In brief, it was the position of the Commissioner for New Mexico that, for the purposes of the Compact, Elephant Butte Dam should be deemed to be the dividing line between New Mexico and Texas. His statement is quoted in full below:

New Mexico is willing to negotiate with Colorado and Texas for a permanent compact to equitably distribute the waters of the Rio Grande among the states on the basis of the following minimum requirements for the State of New Mexico:

First. New Mexico is willing to negotiate with Colorado for increased storage within the Rio Grande Basin in Colorado, provided that proper safeguards for the rights of New Mexico shall be made to protect the interests of the water users of New Mexico; and provided also that the transmountain diversion from the San Juan River and its tributaries to the Chama River is made an accomplished fact coincident with the construction of such storage in Colorado.

Second. New Mexico is willing to negotiate with the State of Texas as to the right to the use of water claimed by citizens of Texas under the Elephant Butte Project on the basis of fixing a definite amount of water to which said project is entitled. Provided, however, that upon the completion of the All-American Diversion Dam and Canal, Mexico shall be limited strictly to treaty provision of 60,000 acre-feet per annum for use in the Republic of Mexico.

Third. Provided, further, that New Mexico and the Middle Rio Grande Conservancy District shall not be deprived of their rights to the full development and operation of the Middle Rio Grande Conservancy District, as shown by its plans on file with the State Engineer, for the development, irrigation and cultivation of approximately 123,000 acres from the waters of the Rio Grande.

Fourth. All existing rights to the use of water in the Rio Grande Basin in New Mexico shall be recognized as having the right to an adequate supply of water from said River System.

Fifth. New Mexico shall have the right to construct all necessary flood protection works to safeguard property, within the Rio Grande Basin in New Mexico, against flood damage.

Texas Position

The Rio Grande Compact Commissioner for Texas, who had been of counsel in the action *Texas v. New Mexico* in the Supreme Court of the United States, likewise considered that it was impracticable to separate the requirements of Texas from those of the lands in New Mexico supplied by water from Elephant Butte Reservoir. His basic position, therefore, was stated to be:

Although the State of Texas feels that it should share in the benefits from new works for the augmentation of the water supply of the Rio Grande, it will not insist thereon, provided that the States of Colorado and New Mexico will release and deliver at San Marcial a supply of water sufficient to assure the release annually from Elephant Butte Reservoir of 800,000 acre-feet of the same average

quality as during the past ten years, or the equivalent of this quantity if the quality of the supply is altered by any developments upstream.

DEVELOPMENT OF SCHEDULES

Article VII of the Rio Grande Compact of 1929 provided in part that the Governor of each signatory State should appoint a Commissioner for the purpose of concluding a Compact among the signatory States, and that:

The Commission so named shall equitably apportion the waters of the Rio Grande *as of conditions obtaining on the river and within the Rio Grande Basin at the time of the signing of this Compact* and no advantage or right shall accrue or be asserted by reason of construction of works, reclamation of land or other change in conditions or in the use of water within the Rio Grande Basin or the Closed Basin during the time intervening between the signing of this Compact and the concluding of such subsequent Compact to the end that the rights and equities of each state may be preserved unimpaired. (Emphasis added)

In its Fourth Annual Report issued in January 1934, the Rio Grande Compact Committee (defined in Article IV of the 1929 Compact) quoted from its First Annual Report as follows:

The purpose of the (1929) Compact is to maintain the status quo in the use of the waters of the Rio Grande, to provide for the accumulation and preservation of such data as may be necessary to a final and definite apportionment between the signatory States of the use of the waters of the Rio Grande and its tributaries above Fort Quitman, Texas, and for the purpose of enlisting the cooperation of the Federal Government in augmenting and stabilizing stream flow, on account of deliveries to Mexico under treaty obligations. . . . The object of all the signatory States is to permit the maximum use and future development of the water of the Rio Grande consistent with the rights of the respective States. Accurate information as to water supply, requirements and uses thereof, in the basin of the Rio Grande above Fort Quitman, Texas, and its correlation, is necessary to the maximum beneficial use of the waters and indispensable in the formulation of the final compact to which the present compact looks. (Emphasis added)

The Rio Grande Joint Investigation resulted in the assembly of all pertinent data as to the source and the amount of the waters of the Rio Grande and of the magnitude of historical depletions in flow of the Rio Grande in Colorado, in the Middle Rio Grande Valley, and along the reach between Elephant Butte Dam and Fort Quitman. It

thus became possible in 1938 to establish: (1) the relationship between major inflows to the San Luis Valley and outflows in the Rio Grande across the State line between Colorado and New Mexico; and (2) the relationship between major inflows to the Middle Rio Grande Valley and outflows into Elephant Butte Reservoir; both as of conditions obtaining on the Rio Grande at the time of the signing of the 1929 Compact.

These relationships became the basis of the schedules that are incorporated in Article III and in Article IV of the Rio Grande Compact of 1938.

Colorado Schedules

At a meeting of the Rio Grande Compact Commission on September 30, 1937 the Engineer Adviser for New Mexico submitted a schedule for the delivery of water by Colorado across the New Mexico-Colorado State Line. As stated in the minutes of that meeting, his schedule was based on the relation between the natural flow of the Rio Grande at Del Norte and the depleted flow of Rio Grande across the State Line, based in each case on aggregate discharges over periods of sixty consecutive months. The suggested schedule also provided for minimum deliveries during periods of low flow in Rio Grande.

On the next day, the Compact Commissioner for Colorado presented a schedule which provided for deliveries of water by Colorado at Lobatos gaging station near the Colorado-New Mexico State Line, in amounts corresponding to the relationship, under 1928-1937 conditions of development, between the recorded flow of the Rio Grande at the gaging station near Del Norte plus the recorded flow of the Conejos at the Mogote gaging station and the recorded flow of the Rio Grande at the Lobatos gaging station. This schedule called for progressively increasing deliveries in the Rio Grande at Lobatos, ranging from 20 per cent of the sum of the recorded flow of Rio Grande near Del Norte and the recorded flow of Conejos at Mogote in very dry years up to 56 per cent of these flows in very wet years. It was provided in this Colorado schedule that such deliveries should not be required on an annual basis, but that credits and/or debits should be allowed to accumulate over a period of years subject to several conditions. Among these were the following:

1. At any time when accumulated debits exceed the unfilled effective capacity of Rio Grande Project storage, that portion which is in excess of the unfilled capacity shall be written off.
2. Accumulated credits shall be reduced by the amount of actual

spill from Rio Grande Project storage during the periods when spill occurs.

3. The mean required releases from Rio Grande Project storage shall be considered as 750,000 acre-feet per year.

There was then extended discussion of these proposed schedules, which resulted in a resolution of the Commission directing that the Engineering Advisers meet as a Committee and report back to the Commission. Pursuant to this resolution, they held two meetings, the first in Santa Fe from November 22 to 24, and the second in Los Angeles from December 15 to 27, 1937. The following statement appears in their report, dated December 27, 1937, with respect to scheduled deliveries at Lobatos.

A consistent relationship has long been noted between the combined inflow of the major streams to San Luis Valley and outflow of the Rio Grande at Lobatos. This relationship, however, may be disturbed in the future due to construction of storage reservoirs, and we have therefore prepared separate schedules applicable to the Conejos and Rio Grande stream systems. This is a departure from previous plans but has no practical disadvantages and has certain definite advantages; variations in discharge of the contributing streams will automatically be taken into account, particularly if storage reservoirs are constructed; and will also enable the San Luis Valley water users to apportion among themselves their relative responsibility for meeting the obligation of Colorado.

The flow of Conejos River at its confluence with the Rio Grande was found to bear a close relation to the combined discharge of Conejos River near Mogote and its principal tributaries below that point. The following values are from a smooth curve expressing that relationship for the past ten years, and it is recommended that these be used as a schedule of future deliveries.

This statement was followed by a schedule of deliveries of water from Conejos River which differs only in detail from the schedule set forth in Article III of the Rio Grande Compact of 1938.

The December 27, 1937, report of the Engineering Committee then went on to say:

When from the total discharge of Rio Grande at Lobatos there is subtracted the contribution from Conejos River, a close relationship is also found to exist between that residual quantity and the discharge of Rio Grande near Del Norte. The following values are from a smooth curve expressing the relationship for the past ten years, and it is recommended that this be the schedule of deliveries for the future.

This statement was followed by a schedule of deliveries of water in the Rio Grande, exclusive of the Conejos River contribution, which was identical with that incorporated in Article III of the Compact of 1938.

Certain objections were raised to this report of the Engineering Advisers, but primarily with respect to the obligations of New Mexico. Accordingly, on instructions from the Commission, the Engineering Advisers again met in March, 1938, and submitted a revised report to the Commission on March 9, 1938. The scheduled deliveries of water from Conejos River and from the Rio Grande exclusive of Conejos River were not altered at that time, but some of the text of the prior report was changed for clarity.

On March 11, 1938, the Engineering Advisers submitted a supplemental report to the Compact Commissioners recommending certain modifications of their prior reports, but these changes did not affect the schedules of deliveries applicable to Colorado. On March 16, 1938, when the draft of Rio Grande Compact was approaching completion, the Engineering Advisers reported that they had found that a curve of relationship used in the prior reports was slightly in error and recommended a new schedule for deliveries of water from Conejos River. The differences were very minor, however, being generally less than one per cent downward.

The schedules recommended in the March 16 report of the Engineer Advisers were incorporated in Article III of the Rio Grande Compact, as executed two days later, but the overall obligation of Colorado to deliver water at Lobatos was then reduced by 10,000 acre feet per annum. This was done to avoid an impasse arising out of a conflict between water users along Conejos River and users of water from the Rio Grande.

New Mexico Schedule

September 30, 1937, the Engineering Adviser to the Commissioner for Texas submitted a schedule of deliveries of water at San Marcial based on a relationship between the full natural runoff at Otowi originating in New Mexico and the total discharge at San Marcial, both for periods of sixty consecutive months. The minutes of that meeting reflect the following explanation:

We made an analysis of the relation between the historical flow at San Marcial and the historical flow at Otowi, less the historical flow at Lobatos. Owing to material changes in the amount of flow at Lobatos, we subtracted the flow at Lobatos from that at Otowi so

that these changes in the Lobatos flow were washed out of the picture.

Most of the runoff originating above the Otowi gage is from New Mexico, excepting the flow at Lobatos, and if you deduct the flow originating in Colorado you get a factor which is a good index, although not an absolute one, of natural runoff; in other words a good index of the conditions that would affect the flow downstream. The relation between this and the flow at San Marcial in individual years shows a wide variation. However, on account of storage in Elephant Butte Reservoir, it is possible to consider groups of years. We took five years as the longest time it was possible to anticipate in operating the reservoir. Taking then the five-year moving averages of the flow at San Marcial, and comparing that to the five-year moving average of the difference between the Otowi and Lobatos, we find the relation is reasonably consistent, and particularly during the last ten or fifteen years it has been very consistent. In fact, the variations are well within the limits of accuracy of measurement.

There was only limited discussion thereafter of any New Mexico schedule until the Engineering Advisers met in Santa Fe from November 22 to 24 and then in Los Angeles from December 15 to 27, 1937, pursuant to the resolution of the Commission on October 1, 1937. In their report to the Commission dated December 27, 1937, the Engineer Advisers stated with respect to scheduled deliveries into Elephant Butte Reservoir, the following:

The relation between the amount of water in the Rio Grande above the principal agricultural areas in New Mexico and inflow to Elephant Butte Reservoir is quite erratic, due primarily to wide variations in the discharge of tributary streams. Your Committee tried many devices to eliminate the influence of such tributary inflow. Finally it was found that there was a reasonable relationship between the discharge of Rio Grande at Otowi Bridge and the inflow to Elephant Butte Reservoir when the discharge at Otowi Bridge and the inflow to the reservoir during the months of July, August, and September were excluded. Such a relationship does not reflect possible changes in consumptive use during the summer months between these points, and tributary flow in other months still results in considerable variation, but it is our opinion that no more precise relationship can be developed from present information, and that its use as a schedule of deliveries will be practicable.

In order that all available data might be used in determining the proper schedule, the flow of the Rio Grande at Otowi Bridge, exclusive of July, August and September, was first compared to the flow of the Rio Grande at San Marcial, excluding the same months,

and a curve was drawn which expressed most closely the relationship which existed in the past. However the gaging station at San Marcial is expensive to operate, and physical conditions make it difficult to obtain accurate records, while water released from Elephant Butte Reservoir can be measured with considerable precision. The second step was to determine the normal net loss from the river below San Marcial and from the reservoir. It was found that for more than ten years these losses have borne a very close and consistent relation to the discharge of the river at San Marcial. The third step was then the subtraction of the normal losses so found from the curve of relationship between the flow at Otowi Bridge and that at San Marcial. The net result was to give a curve which expressed the relation between the flow of the Rio Grande at Otowi Bridge and the usable supply of water at Elephant Butte, both exclusive of July, August, and September. This curve was then shifted arbitrarily to compensate for increased salinity of the Elephant Butte supply.

These statements were followed in the report of the Engineering Advisers by a tabulation showing the relationship between the Otowi Index Supply and the Elephant Butte Index Supply; the latter was defined as the actual release from Elephant Butte Reservoir plus any gain in the amount of water stored in that reservoir and minus any draft on it during each calendar year, exclusive of the months of July, August, and September.

Shortly, thereafter, the Compact Commissioner for New Mexico advised the Chairman of the Commission that the report of the Committee of Engineers was unacceptable to New Mexico and to the Middle Rio Grande Conservancy District.

Considerable discussion of the objections of New Mexico took place and the Engineering Advisers were requested by the Commission to review their report of December 27, 1937, and to report back to the Commission as quickly as practicable. The Engineering Advisers were also requested to collaborate with H. C. Neuffer, a consulting engineer to the Middle Rio Grande Conservancy District, to obtain his views and to minimize the time required for him to review any new report and to submit his comments to the Middle Rio Grande Conservancy District. The Commission then recessed.

The Committee of Engineering Advisers submitted its revised report on March 9, 1938, and the Commission reconvened on March 11, 1938. Colorado then moved that this report of the Engineering Committee be received and accepted as a basis for further discussions in the negotiations looking to a permanent compact. This motion was seconded by the Commissioner for New Mexico and unanimously carried.

This report of the Committee of Engineering Advisers resulted from protracted conferences extending from March 3 through March 9, during which time the discussions were largely directed towards the schedules of deliveries of water into Elephant Butte Reservoir. With respect to this the statement was made in the revised report that:

The relation between the amount of water in the Rio Grande above the principal agricultural areas in New Mexico and inflow to Elephant Butte Reservoir is quite erratic, due primarily to wide variations in the discharge of tributary streams. Your Committee tried many devices to minimize the influence of such tributary inflow and found that there was a reasonable relationship between the discharge of the Rio Grande at the Otowi Bridge and San Marcial gaging stations when the months of July, August, and September were excluded.

This statement was followed by a schedule which was identical with that incorporated in Article IV of the 1938 compact.

Subsequent Modification of Schedule

The Rio Grande Compact Commission in 1945 directed the Engineering Advisers to make a study to determine whether or not a schedule for delivery of water by New Mexico during the entire year could be worked out. The Engineering Advisers had to meet many times and it was not until February 24, 1947, that their report was submitted to the Commission. They then recommended that the obligation of New Mexico to deliver water in the Rio Grande into Elephant Butte Reservoir during only nine months of each year be superseded by a schedule of deliveries for an entire calendar year corresponding to the relationship between the flow of Rio Grande at the Otowi gaging station and the effective supply in Elephant Butte Reservoir. These two indices were defined as follows:

The Otowi Index Supply is the recorded flow of the Rio Grande at the U.S.G.S. gaging station at Otowi Bridge near San Ildefonso (formerly station near Buckman) during the calendar year, corrected for the operation of reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and Otowi Bridge.

Elephant Butte Effective Index Supply is the recorded flow of the Rio Grande at the gaging station below Elephant Butte Dam during the calendar year plus the net gain in storage in Elephant Butte Reservoir during the same year or minus the net loss in storage in said reservoir, as the case may be.

This schedule and other recommendations of the Engineering Ad-

visers were incorporated in a resolution adopted by the Rio Grande Compact Commission on February 24, 1948, to be effective January 1, 1949, if within 120 days the Commissioners for each State shall have received from the Attorney General of the State represented by him, an opinion approving this resolution. Such opinions were received within the time stated and the schedule set forth in this resolution has been used by the Rio Grande Compact Commission to determine the amount of annual debits or annual credits of New Mexico in each year since then.

ALLOTMENT TO TEXAS

No allotment to Texas was included in the statement of the basic position of Colorado on September 28, 1937, but the Commissioner for Colorado, quoting a pertinent portion of Article VII of the 1929 Compact, said:

That the Governors of each of the signatory states shall appoint a Commissioner for the purpose of concluding a compact among the signatory states providing for the equitable apportionment of the use of the waters of the Rio Grande among the said states, and that the Commission so named shall equitably apportion the waters of the Rio Grande as of conditions obtaining on the River and within the Rio Grande Basin at the time of signing of the Compact.

New Mexico did not designate any specific amount of water for Texas, but the Commissioner for New Mexico in his opening statement on September 28, 1937, said in part:

New Mexico is willing to negotiate with the State of Texas as to the right to the use of water claimed by citizens of Texas under the Elephant Butte Project on the basis of fixing a definite amount of water to which said project is entitled. Provided, however, that upon the completion of the All-American Diversion Dam and Canal, Mexico shall be limited strictly to treaty provision of 60,000 acre-feet per annum for use in the Republic of Mexico.

The Commissioner for Texas in his opening statement said that he felt the State of Texas should share in the benefits from the new works but it would not insist thereon provided that:

The States of Colorado and New Mexico will release and deliver at San Marcial a supply of water sufficient to assure the release annually from Elephant Butte Reservoir of 800,000 acre-feet of the same average quality as during the past ten years, or the equivalent of this quantity if the quality of the supply is altered by any developments upstream.

On October 1, 1937, Colorado presented a schedule subject to several conditions, one of which was:

The mean required releases from Rio Grande Project storage shall be considered as 750,000 acre-feet per year.

The Engineer Adviser for Colorado in discussion of this schedule stated in part:

Item No. 3 was worked out on two bases; the first being 800,000 acre-feet of releases from Elephant Butte, suggested the other day as a mean release over a period of years, and deducting from that all what appears to have been over-diversions by Mexico in an amount of some 74,000 acre-feet, as I remember, in 1930, up to 1935, and then adding an amount to that, 20 to 30,000 acre-feet, which brings it up to around 750,000. Another basis was taking releases from Elephant Butte Reservoir since the signing of the former compact, eliminating the year of low release in 1935, since the operation was materially curtailed that year, but not including the last two years, that amounts to a mean of 783,000. That's eliminating the low releases of 1935, deducting 74,000 acre-feet of over-diversions and then bringing it back up to 750,000 by adding an additional amount.

The report of the Committee of Engineering Advisers, submitted December 27, 1937, stated with respect to the water supply to be provided for all uses downstream of Elephant Butte Reservoir:

We do recommend that the normal release from Elephant Butte Reservoir be deemed to be 800,000 acre-feet per annum, adjusted for any gain or loss of usable water resulting from the operation of any reservoir below Elephant Butte. We also recommend that this normal release be reduced or increased by two-thirds of any change in aggregate diversions and loss to Mexico.

This report was not acceptable to the Commissioner for New Mexico. The value of 800,000 acre-feet per year as a normal release from Rio Grande Project storage reservoirs was among the items objected to by him. The Committee of Engineering Advisers was then instructed to review their report and to submit to the Commission, as quickly as practicable, any amendments found desirable.

On March 9, 1938, the Committee of Engineering Advisers submitted a report embodying certain modifications of its December 1937 report, among which was:

We recommend that the normal release from Elephant Butte Reservoir be deemed to be an average of 790,000 acre-feet per annum, adjusted for any gain or loss of usable water resulting from the operation of any reservoir below Elephant Butte.

Two days later, following a request for clarification the Committee of Engineering Advisers stated:

We recommend that the normal release of usable water from the lowest reservoir comprising project storage be deemed to be an average of 790,000 acre-feet per annum.

This value, 790,000 acre-feet per year was accepted by the Rio Grande Compact Commissioners, but it was only used in Rio Grande Compact, as executed, in the following places:

In Article I, paragraph (q):

“Hypothetical Spill” is the time in any year at which usable water would have spilled from project storage if 790,000 acre-feet had been released therefrom at rates proportional to the actual release in every year from the starting date to the end of the year in which hypothetical spill occurs; . . .

In Article VII:

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre-feet of usable water in project storage; provided, that if the actual releases of usable water from the beginning of the calendar year following the effective date of this compact, or from the beginning of the calendar year following actual spill, have aggregated more than an average of 790,000 acre-feet per annum, the time in which such minimum stage is reached shall be adjusted to compensate for the difference between the total actual release and releases at such average rate; . . .

In Article VIII:

During the month of January of any year, the Commissioner for Texas may demand of Colorado and New Mexico, and the Commissioner for New Mexico may demand of Colorado, the release of water from storage reservoirs constructed after 1929 to the amount of the accrued debits of Colorado and New Mexico, respectively, and such releases shall be made by each at the greatest rate practicable under the conditions then prevailing, and in proportion to the total debit of each, and in amounts, limited by their accrued debits, sufficient to bring the quantity of usable water in project storage to 600,000 acre-feet by March first and to maintain this quantity in storage until April thirtieth, to the end that a normal release of 790,000 acre-feet may be made from project storage in that year.

It is apparent from the foregoing that the Rio Grande Compact Commissioners, at the time of executing the Rio Grande Compact of 1938, anticipated that compliance by Colorado with the schedules of deliveries set forth in Article III of that Compact and compliance by

New Mexico with the schedules set forth in Article IV would result in enough water entering Elephant Butte Reservoir to sustain an average normal release of 790,000 acre-feet per year from Project Storage for use on lands in New Mexico downstream of Elephant Butte Reservoir and on lands in Texas and also to comply with the obligations of the Treaty of 1906 for deliveries of water to Mexico. It is also clear that the restrictive provisions quoted above were designed to protect Colorado and New Mexico from the adverse effects of releases from Project Storage at any greater average annual rate.

OTHER PROVISIONS OF COMPACT

Although the several schedules of deliveries set forth in Rio Grande Compact were of primary concern to the Rio Grande Compact Commissioners in effecting an equitable apportionment of the waters of the Rio Grande above Fort Quitman, the Compact contains many other provisions of importance, some having to do with administration, others defining special rights of separate States, and others placing limitations upon the separate States.

It is significant that the Committee of Legal Advisers to the Commissioners followed the language of the 1929 Compact insofar as they could do so in preparing the drafts of the 1938 Compact. The preamble is much the same; many of the definitions in Article I are the same; Article XV and Article XVI of the 1938 Compact are almost verbatim copies of Articles XIII and IX, respectively, of the 1929 Compact.

GENERAL AND ADMINISTRATIVE PROVISIONS

Article V provides for abandonment of stream gaging stations and the substitution of other stations and the use of new measurements which, in the unanimous opinion of the Commission, will result in substantially the same results, so far as rights and obligations to deliver water are concerned, as would have existed if such substitution of stations and measurements had not been so made. The current schedule of deliveries by New Mexico, which has been in use since January 1, 1949, was adopted by the Commission in 1948 pursuant to this Article.

Article IX provided for the contingency that water would be diverted from San Juan River, a tributary of Colorado River, into the Rio Grande Drainage Basin for use in New Mexico. The San Juan-Chama Project of the U.S. Bureau of Reclamation is now under construction for the purposes set forth in Article IX. The provisions of Article X will become operative when the San Juan-Chama Project

is completed and water is diverted into the Rio Grande Basin from San Juan River.

Impairment of the quality of the waters of the Rio Grande reaching Elephant Butte Reservoir was one of the causes of the action brought by Texas against New Mexico in the Supreme Court of the United States in October 1935. Trial of this action was suspended in March 1937 by the Special Master, leaving this allegation undecided. The intent of Article XI was to terminate this controversy, but with the provisos that:

Nothing herein shall be interpreted to prevent recourse by a signatory State to the Supreme Court of the United States for redress should the character or quality of the water, at the point of delivery, be changed hereafter, by one signatory State to the injury of another. Nothing herein shall be construed as an admission by any signatory State that the use of water for irrigation causes increase of salinity for which the user is responsible in law.

Article XII provides procedures for future administration of Rio Grande Compact and the division of costs of such administration. It also limits the jurisdiction of the Commission, as follows:

In addition to the powers and duties herein-before specifically conferred upon such Commission, and the members thereof, the jurisdiction of such Commission shall extend only to the collection, correlation and presentation of factual data and the maintenance of records having a bearing upon the administration of this Compact, and by unanimous action, to the making of recommendations to the respective States upon matters connected with the administration of this Compact.

This Article further provides that:

The findings of the Commission shall not be conclusive in any court or tribunal which may be called upon to interpret or enforce this Compact.

Article XIII provides that the Compact Commission shall meet at the request of any member of the Commission at the expiration of every five-year period after the effective date of the Compact to review any provisions which are not substantive in character and do not affect the basic principles upon which the Compact is founded. The Commissioner for New Mexico, pursuant to this provision, requested in 1945 review of the schedule of deliveries by New Mexico. No other action has been taken under Article XIII.

There were repeated and sometimes acrimonious arguments among the Commissioners and their Advisers during the negotiations of Rio

Grande Compact with respect to diversions of water for use in Mexico in excess of the 60,000 acre-feet per year allocated to Mexico under the Treaty of 1906. Colorado and New Mexico demanded that such diversions be kept down to the amount prescribed by the Treaty and that each of them share in any such reduction in diversions by Mexico. Texas, on the other hand, asserted that it had no control over such diversions and could not be responsible for them. Article XIV, which reads as follows, was thus a compromise:

The schedules herein contained and the quantities of water herein allocated shall never be increased nor diminished by reason of any increase or diminution in the delivery or loss of water to Mexico.

Article XV provides that Rio Grande Compact shall not be a precedent applicable to other interstate streams. This provision, taken from the 1929 Compact, was universally desired because each of the three States was involved in the allocation of water in other interstate streams.

Article XVI, also taken from the 1929 Compact, was incorporated to meet the requirements of the United States. This reads as follows:

Nothing in this Compact shall be construed as affecting the obligations of the United States of America to Mexico under existing treaties, or to the Indian Tribes, or as impairing the rights of the Indian Tribes.

Article XVII merely provides the procedure for ratification of the Compact and defines the time at which it shall become effective. Inasmuch as all computations under the schedules apply to calendar years, the Compact actually became operative on the first day of January following its effective date. The initial operative date was January 1, 1940, as the Public Act in ratification of the Compact, as passed by Congress, was approved by the President on May 31, 1939.

ARTICLE VI OF COMPACT

The provisions of Article VI were discussed in great detail by the negotiators of Rio Grande Compact and the intent of these provisions was clearly understood at the time the Compact was executed in 1938. Administration of the Compact since then, however, has been the responsibility of many different persons, few of whom had personal knowledge of the circumstances that led to negotiation of the Compact. Consequently, there has been a growing tendency toward interpretation of some of the provisions of Article VI in a manner contrary to the original intent.

The provisions of Article VI must be read in the light of the

definitions set forth in Article I of the Compact. It must also be recognized that the Commissioners, their Legal Advisers, and their Engineering Advisers were well aware: (1) that the historical relationships between stream flows at upper index stations and those at lower index stations reflected normal increments or decrements to the water supply; (2) that there had been and would be substantial variations or departures from these normal relationships in individual years in the future; and (3) that neither Colorado nor New Mexico could increase its beneficial use of water except by storage of floodwaters that would otherwise be spilled from Elephant Butte Reservoir.

The first unnumbered paragraph merely provides that credits and debits of Colorado and New Mexico shall be computed on a calendar year basis, because this was the basis upon which the schedules of deliveries were developed. Years of actual spill were logically excluded because any over-delivery or under-delivery of water in a year of spill would have had no effect on the supply available from Elephant Butte Reservoir for use downstream.

The intent of the first clause in the second unnumbered paragraph of Article VI might better have been stated as follows: "Colorado shall not incur an annual debit nor an accrued debit in excess of 100,000 acre-feet, . . ." Similarly, the opening clause in the third unnumbered paragraph could better have read: "New Mexico shall not accrue debits in excess of 200,000 acre-feet at any time, . . ."

It was found by the Committee of Engineering Advisers that departures from the relationships set forth in the schedules would have been substantial in individual years under the conditions of development existing at the time of execution of the 1929 Compact, but that such departures and accrual of any debits would have been within the limits stated in these two unnumbered paragraphs of Article VI. These limitations on departures from the schedules thus take into account natural variations in stream flow and other factors beyond the reasonable control of the affected States. Annual debits or accrued debits in excess of these stated amounts would presumptively be due to causes within the control of the affected States and hence were prohibited.

It was also recognized by the Committee of Engineers, and accepted by the Rio Grande Compact Commissioners, that there could be wider variations from the schedules in the future than any during the period of records on which the relationships incorporated in the schedules had been based. The provisions quoted below were incorporated in the Compact in recognition of such possible conditions:

In computing the magnitude of accrued credits or debits, New Mexico shall not be charged with any greater debit in any year than the sum of 150,000 acre-feet and all gains in the quantity of water in storage in such year.

In computing the amount of accrued credits and accrued debits of Colorado or New Mexico, any annual credits in excess of 150,000 acre-feet shall be taken as equal to that amount.

It having been accepted by all concerned that storage of water in upstream reservoirs was desirable to the extent that this could be done without adverse affect on the users of water in New Mexico and Texas below Elephant Butte Reservoir, it was provided in the second unnumbered paragraph of Article VI that Colorado could incur an annual debit or an accrued debit in excess of 100,000 acre feet if the excess were caused by holdover storage of water in reservoirs constructed after 1937, subject to the condition that, within the physical limitations of storage capacity in such reservoirs, Colorado would retain water in storage at all times to the extent of its accrued debit. In like manner, New Mexico was authorized to exceed an accrued debit of 200,000 acre feet, provided that such debit was caused by holdover storage of water in reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and San Marcial subject to New Mexico retaining water in storage at all times, within the physical limitations of storage capacity in such reservoirs, to the extent of its accrued debit.

The year 1929 was used in the case of New Mexico because between the time of execution of the first Rio Grande Compact and the negotiation of the second, El Vado Dam had been built on Rio Chama. The year 1937, referred to in the paragraph regarding Colorado, was used at the request of Colorado because it was the year in which negotiations of the 1938 Compact were commenced. Actually, the year 1929 could have been used in both of these provisions, because no new storage reservoir of material capacity had been constructed in Colorado between 1929 and 1937.

The fourth unnumbered paragraph in Article VI was incorporated in Rio Grande Compact to provide for the release of debit water from an upstream reservoir or reservoirs for either of two purposes: (1) to mitigate the effects of a temporary shortage of supply in an upstream State having an accrued debit; or (2) to augment the supply in Elephant Butte Reservoir then available to downstream users in New Mexico and Texas. This provision of the Compact has been invoked many times by the Rio Grande Compact Commissioners during the years of operation of the Compact.

Cancellation of Credits and Debits

It was recognized by all involved in the negotiations of Rio Grande Compact, that expansion of beneficial uses of water in Colorado and in New Mexico would have to stem from the storage of water in upstream reservoirs that would otherwise be spilled from Project Storage at rates in excess of releases for beneficial use downstream in New Mexico and Texas and for deliveries to Mexico pursuant to the Treaty of 1906. The sixth, seventh, and eighth unnumbered paragraphs of Article VI were incorporated to this end.

It was assumed for purposes of the Compact, that accrued credits, if any, of Colorado or New Mexico, or both, were stored in Elephant Butte Reservoir and were floating on top of usable water in that reservoir. Consequently, in event of actual spill the credit water would be the first water to pass downstream. This concept is set forth in the sixth unnumbered paragraph as follows:

In any year in which actual spill occurs, the accrued credits of Colorado, or New Mexico, or both, at the beginning of the year shall be reduced in proportion to their respective credits by the amount of actual spill; provided, that the amount of actual spill shall be deemed to be increased by the aggregate gain in the amount of water in storage, prior to the time of spill, in reservoirs above San Marcial constructed after 1929; provided, further, that if the Commissioners for the States having accrued credits authorize the release of part, or all, of such credits in advance of spill, the amount so released shall be deemed to constitute actual spill.

Cancellation of part or all accrued debits was provided for in the eighth paragraph as follows:

In any year in which the aggregate of accrued debits of Colorado and New Mexico exceeds the minimum unfilled capacity of project storage, such debits shall be reduced proportionally to an aggregate amount equal to such minimum unfilled capacity.

This provision stemmed from the premise that each of the upstream States would retain water in storage to the extent of its accrued debit, and that there would be actual spill and thereby waste of water if an amount of water equal to such accrued debits were added to the supply of usable water then in project storage.

Minimum Unfilled Capacity

The term "minimum unfilled capacity of project storage" used in the eighth unnumbered paragraph of Article VI, should be inter-

preted in the light of discussion during the time of negotiation of Rio Grande Compact.

"Unfilled Capacity" is defined in Paragraph (n) of Article I as "the difference between the total physical capacity of project storage and the amount of usable water then in storage."

"Usable Water," a term which is used frequently in the Compact, is defined in Paragraph (1) of Article I as:

..... all water, exclusive of credit water, which is in project storage and which is available for release in accordance with irrigation demands, including deliveries to Mexico.

The total physical capacity of project storage was stipulated by the Commissioner for Texas to be 2,638,000 acre feet at a meeting of the Commission on September 30, 1937. A slightly larger value was used in Paragraph (k) of Article I, where project storage is defined as:

..... the combined capacity of Elephant Butte Reservoir and all other reservoirs actually available for the storage of usable water below Elephant Butte and above the first diversion to lands of the Rio Grande Project, but not more than a total of 2,638,860 acre-feet.

The total physical capacity of Elephant Butte Reservoir in 1938 plus 350,000 acre feet of capacity to be provided in Caballo Reservoir was about equal to this initial capacity of project storage. In this connection, E. B. Debler, Engineer Adviser to the representative of the United States, stated on September 30, 1937:

You may recall that the contract with the State Department provides we (U.S. Bureau of Reclamation) must maintain 100,000 acre-feet for flood control at all times. You are going to get into this position sooner or later—where you have a heavy runoff from the Upper Rio Grande and the Elephant Butte spill in July. Under our contract with the State Department, we will have to have in July 100,000 acre-feet available in Caballo for flood control. We are under obligations under that contract to maintain an open capacity at 100,000 acre-feet at Caballo although that results in a spill down the river.

On October 1, 1937, during a discussion of the schedule proposed by Colorado, the Engineering Adviser for Colorado stated in part:

If Colorado owed the river 100,000 acre-feet and the Rio Grande Project Storage was up to within 50,000 acre-feet of spilling there would be 50,000 acre-feet of debits written off. In event of a spill, if Colorado had credits, the credit would be reduced by the amount of

the spill. In the former case, where Colorado owed water to the river, it would of course do no good to anyone to release that entire amount if that amount would fill the Rio Grande Project Storage overflowing and would be spilled and that is the purpose of writing that amount off.

Shortly thereafter, the following colloquy was recorded in the minutes of the meeting:

MR. HILL: Going back to No. 1, suppose that on the first of May that Elephant Butte, as you stated, was full to within 50,000 acre-feet of capacity, and at the same time you had an accumulated debit of 100,000. I presume the principle you are considering is that the release of that debit would result in waste.

MR. TIPTON: Yes.

MR. HILL: Actually in the month of June the releases from Elephant Butte Reservoir in the order of 2,500 second-feet will be as much as any release which you could physically make, so even if you did release the 100,000 acre-feet, by the time you did so the reservoir would be lower than when you started.

MR. TIPTON: That's true.

MR. HILL: So why should you wipe out a debit which if you were to satisfy that debit would not result in waste?

MR. TIPTON: Supposing we did satisfy the debit, it would result in waste—satisfy the debit say April 1. The date is immaterial; we fixed April 1 as the date for which you should be protected against a shortage during the oncoming season by virtue of any accumulated debits that we might owe the river, and so if we chose to release the debits as of that date it is conceivable there would be waste.

MR. HILL: But under paragraph 1 you say, "At any time, etc." I don't see the validity of that.

MR. TIPTON: There is not intended to be any joker in that particular provision; there is only an attempt to eliminate debits which if releases were made would result in basin waste. That's the only intent. If it can be worked out in a way that that is accomplished satisfactorily to all concerned, I don't see any reason why it should not be done.

MR. HILL: The debit might be 500,000 and you release up to 300,000 and wipe off the other 200,000.

MR. TIPTON: I see your point. The intent is plain. We are not intending by that provision—

MR. HILL: What you really mean, at any time when the release of accumulated debits would result in waste and spill at Elephant Butte you write that off?

MR. TIPTON: That's the underlying principle, but as I suggested, I think the intent of the provision is plain and if it can be worked out in a way that is satisfactory, the date can be set up.

MR. HILL: That's the principle you mean, that if release of debits would result in waste, then the debit to that extent should be written off.

It is evident from the foregoing that the contractual allotment of 100,000 acre feet of capacity to the State Department for flood control purposes in Caballo Reservoir does not automatically lessen the unfilled capacity of project storage during the months of June, July, August and September of each year. The extent to which accrued debits of Colorado or New Mexico are cancelled should be measured by the quantity of water that would have to be released from project storage in excess of irrigation demands and deliveries to Mexico if there were added to the supply physically in storage a quantity of water equal to the aggregate of the accrued debits of Colorado and New Mexico.

In brief, it was the intent of the next to the last paragraph of Article VI that accrued debits, irrespective of how incurred, should be reduced by the amount of water that would be wasted if such debit water were added to the water physically in storage in reservoirs of Rio Grande Project.

Actual Spill

Actual spill is defined in Paragraph (p) of Article I as:

..... all water which is actually spilled from Elephant Butte Reservoir, or is released therefrom for flood control, in excess of the current demand on project storage and which does not become usable water by storage in another reservoir; provided, that actual spill of usable water cannot occur until all credit water shall have been spilled.

This clause was interpreted and expanded by the Engineering Advisers in a report which was accepted by the Rio Grande Compact Commissioners and incorporated in the Rules and Regulations of the Commission on February 24, 1943, as follows:

(a) Water released from Elephant Butte in excess of Project requirements, which is currently passed through Caballo Reservoir, prior to the time of spill, shall be deemed to have been Usable Water released in anticipation of spill, or Credit Water if such release shall have been authorized.

(b) Excess releases from Elephant Butte Reservoir, as defined in

(a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total physical capacity of that reservoir, to the level of the uncontrolled spillway, i.e.-2,219,000 acre-ft in 1942.

(c) All water actually spilled at Elephant Butte Reservoir, or released therefrom, in excess of Project requirements, which is currently passed through Caballo Reservoir, after the time of spill, shall be considered as Actual Spill, provided that the total quantity of water then in storage in Elephant Butte Reservoir exceeds the physical capacity of that reservoir at the level of the sill of the spillway gates, i.e.-1,830,000 acre-ft in 1942.

(d) Water released from Caballo Reservoir in excess of Project requirements and in excess of water currently released from Elephant Butte Reservoir, shall be deemed Usable Water released, excepting only flood water entering Caballo Reservoir from tributaries below Elephant Butte Reservoir.

It is significant that the Engineering Advisers to the Commissioners at that time were the same persons who were Engineering Advisers to the Commissioners at the time of negotiation of the Rio Grande Compact of 1938.

Hypothetical Spill

The seventh unnumbered paragraph of Article VI is in part redundant. Obviously, if there were actual spill of usable water there would be no unfilled capacity of project storage and all accrued debits of Colorado or New Mexico, or both, would have been reduced to zero.

Hypothetical Spill was referred to, but not so designated, in the December 27, 1937 Report of the Committee of Engineering Advisers, under the heading of Unusable Spill, as follows:

...provided that, if the actual release from Elephant Butte Reservoir from the time of previous spill has averaged more than the normal release, the time of occurrence and amount of spill shall be adjusted by the difference between the total actual release and the accrued normal release.

This provision was expanded in the March 9, 1937, Report of the Engineering Advisers, under the same heading, as follows:

...provided that, if the actual releases from Elephant Butte Reservoir from the time of previous unusable spill have aggregated more than the sum of the normal releases, the time of occurrence of spill shall be adjusted by the difference between the total actual release and the accrued normal release.

This statement was further modified by the Committee of Engineering Advisers on March 11, 1938, by the proviso under the heading Unusable Spill, as follows:

... provided, that if the actual releases of usable water from the time of previous unusable spills have aggregated more than an average of 790,000 acre-feet per annum, the date spill would have occurred shall be determined by taking into consideration the difference between the total actual release and releases at such average rate, and the date so determined shall be adopted as the date of spill, and of the same effect as though the spill had actually occurred on said date.

These recommended clauses were finally consolidated into a definition of hypothetical spill set forth in Paragraph (q) of Article I, as follows:

"Hypothetical Spill" is the time in any year at which usable water would have spilled from project storage if 790,000 acre-feet had been released therefrom at rates proportional to the actual release in every year from the starting date to the end of the year in which hypothetical spill occurs; in computing hypothetical spill the initial condition shall be the amount of usable water in project storage at the beginning of the calendar year following the effective date of this Compact, and thereafter the initial condition shall be the amount of usable water in project storage at the beginning of the calendar year following each actual spill.

ARTICLE VII OF COMPACT

It was recognized from the beginning of the negotiations of Rio Grande Compact that lands in New Mexico and Texas supplied with water from Elephant Butte Reservoir had a superior right to storage of flood waters of the Rio Grande; further that, maintenance of the "status quo" as of 1929 conditions of development required that flood waters be no intercepted by storage in new upstream reservoirs whenever the supply in Elephant Butte Reservoir was insufficient to meet the needs of those lands downstream.

The appropriate minimum quantity of water in Project Storage was discussed at length in the Committee of Engineering Advisers. They recommended in their report of December 27, 1937, that:

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed since 1929 whenever there is less than 400,000 acre-feet of water in storage available for use in the Rio Grande Project . . .

The same language was used in the second report of the Committee of Engineering Advisers, dated March 9, 1938.

In each of these recommendations there was further language regarding the release from upstream storage reservoirs of accrued debits to bring the supply of water in Elephant Butte Reservoir up to the quantity required to permit a normal release. The propriety of combining these provisions was questioned by the Commissioners and there was a demand by the upper States for protection against the chance of the water storage in Elephant Butte being due to over-releases from that reservoir in prior years. The Engineering Advisers accordingly recommended on March 11, 1938, that:

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre-feet of usable water in project storage; provided that if the actual releases of usable water from the time of previous unusable spill have aggregated more than an average of 790,000 acre-feet per annum, the time at which such minimum stage is reached shall be adjusted by the difference between the total actual release and releases at such average rate.

This recommendation was accepted by the Commissioners with the further proviso that an upper State could relinquish credits and store water to that extent. The final wording of Article VII is as follows:

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre-feet of usable water in project storage; provided, that if the actual releases of usable water from the beginning of the calendar year following the effective date of this Compact, or from the beginning of the calendar year following actual spill, have aggregated more than an average of 790,000 acre-feet per annum, the time at which such minimum stage is reached shall be adjusted to compensate for the difference between the total actual release and releases at such average rate; provided, further, that Colorado, or New Mexico, or both, may relinquish accrued credits at any time, and Texas may accept such relinquished water, and in such event the State, or States, so relinquishing shall be entitled to store water in the amount of the water so relinquished.

The first proviso in Article VII and the provisions in Article VI having to do with Hypothetical Spill have been without substance and probably never will become applicable in administration of the Rio Grande Compact. The supply of water available for release from Elephant Butte Reservoir has been much less than 790,000 acre feet

per annum; even if there should be another series of wet years, it is almost certain that there would be curtailment of uses of water in the Rio Grande Federal Reclamation Project which would limit the average release of usable water to some amount less than 790,000 acre feet per year.

ARTICLE VIII OF COMPACT

The Report of the Engineering Advisers, dated December 27, 1937, provided for the release of debit water stored in upstream reservoirs, as follows:

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed since 1929 whenever there is less than 400,000 acre-feet of water in storage available for use in the Rio Grande Project, and if this minimum stage is reached on January first of any year, Colorado and New Mexico will each release on demand, at the greatest rate practicable, water from reservoirs in an amount equal to the total debit of each which was caused by storage of water in reservoirs.

This recommendation was modified in the March 9, 1938 Report of the Engineering Advisers. The provision for releases of debit water was separated from the prohibition against storage in any new upstream reservoir whenever there was less than 400,000 acre feet of water in project storage. The recommendation then made was as follows:

On or about January first of any year any authorized representative of the water users in Rio Grande Project may demand of Colorado and New Mexico the release from storage reservoirs of accrued debits, and such releases shall be made by each in proportion to the total debit of each and in amounts sufficient to bring the quantity of usable water in project storage to 600,000 acre-feet by March first and to maintain this quantity in storage until April thirtieth.

This provision was expanded slightly by the Committee of Legal Advisers and a statement was added setting forth the purpose of such releases of debit water. The final wording of Article VIII is quoted below:

During the month of January of any year, the Commissioner for Texas may demand of Colorado and New Mexico, and the Commissioner for New Mexico may demand of Colorado, the release of water from storage reservoirs constructed after 1929 to the amount of the accrued debits of Colorado and New Mexico, respectively, and such releases shall be made by each at the greatest rate practicable under the conditions then prevailing, and in proportion to the total

debit of each, and in amounts, limited by their accrued debits, sufficient to bring the quantity of usable water in project storage to 600,000 acre-feet by March first and to maintain this quantity in storage until April thirtieth, to the end that a normal release of 790,000 acre-feet may be made from project storage in that year.

SUMMATION

The Rio Grande Compact of 1938 has been condemned by some as being unduly complicated, poorly written, and of uncertain intent. If read, however, in the light of the history of irrigation developments along the Rio Grande in Colorado, New Mexico, and Texas and with appreciation of the antagonisms among these States and between segments of them at the time of negotiation of that Compact, its apparent complications are reconciled, the language is clarified, and the intent of the negotiators becomes evident.

Long before 1938, it had become obvious that the quantities of water obtainable for the Rio Grande were not sufficient to satisfy the demands on this supply for irrigation of all of the areas under canal systems in Colorado, New Mexico, and Texas. Elephant Butte Dam was built by the Federal Government to capture flood waters and thereby relieve the acute shortages in supply below that point that had been caused by expansion of irrigation agriculture in Colorado. In addition, an embargo was placed on further developments in Colorado.

Water resource developments in New Mexico above Elephant Butte were dormant during this period of expansion in Colorado. In 1926, however, a study was undertaken by the Federal Government, in cooperation with local interests, which had as its objective rehabilitation of the Middle Rio Grande Valley by construction of storage works, new canal systems, and drainage of the valley lands.

The reaction of Colorado to this program was adverse because of the resentment of the embargo on new developments in Colorado. The reaction among the water users in Texas and in New Mexico below Elephant Butte was also adverse because they feared that any expansion of use upstream would impair their water supply. It was in this atmosphere that the Rio Grande Compact of 1929 was negotiated.

The Middle Rio Grande Project was constructed soon thereafter, unfortunately just as a drought began and the natural flow of Rio Grande became insufficient to maintain an ample supply of water in Elephant Butte Reservoir. This condition brought about, in 1935, the action of the Supreme Court of the United States of *Texas v. New Mexico*. This action intensified the antagonisms that had long

existed between water users in the Rio Grande Federal Reclamation Project and those in the Middle Rio Grande Project.

Colorado had insisted on the inclusion in the 1929 Compact of provisions intended to result in the construction of the Closed Basin Drain by the Federal Government. If this drain had been built, Colorado would have been entitled to expand its consumptive use of water by the quantity so salvaged. This drain was not built, nor were any other works built in place of it. Colorado thus entered the negotiations of the 1938 Compact with the feeling that it had been treated unfairly by the representatives of New Mexico and Texas.

The Rio Grande Compact Commissioners, during their meetings in 1937 and 1938, thus had to divide an insufficient supply among three groups of water users, each of which was antagonistic to the other two. Their solution was to hold to the principles of the 1929 Compact and to depart as little as practicable from its provisions.

The Committee of Engineering Advisers was instructed to prepare schedules of deliveries by Colorado and by New Mexico that would insure maintenance of the relationships of stream inflow to stream outflow that had prevailed under the conditions existent when the Compact of 1929 was executed. The Committee of Engineering Advisers was also instructed to provide for freedom of development of all water resources in the drainage basin of Rio Grande above Elephant Butte subject only to compliance with these schedules. Both tasks were accomplished, but only after much time and effort and argument as to the wording of each phrase in their reports to the Commission.

The Committee of Legal Advisers, who prepared the draft of the 1938 Compact, used the language of the 1929 Compact where possible. They also adopted almost verbatim the wording of the reports of the Engineering Advisers to avoid renewal of controversies that had been resolved.

The Rio Grande Compact of 1938 should thus be looked upon as an expansion of the Compact of 1929, designed to provide for the maximum beneficial use of water in the basin of Rio Grande above Fort Quitman without impairment of any supplies beneficially used under the conditions prevailing in 1929.



