

# [***ARTICLE: IMPLEMENTATION OF INTEGRATED SURFACE AND GROUNDWATER ADMINISTRATION UNDER THE 1969 ACT IN THE RIO GRANDE BASIN, WATER DIVISION NO. 3.***](https://advance.lexis.com/api/document?collection=analytical-materials&id=urn:contentItem:5XBK-6JB1-F7VM-S42G-00000-00&context=1516831)

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**Text**

**[\*249]**

I. Introduction

One overriding goal of the Water Right Determination and Administration Act of 1969 ("1969 Act") , [*section 37-92-101 et. seq.of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3FM-00000-00&context=1516831), was the integrated administration of surface water and tributary groundwater. This need arose from the proliferation of wells constructed before well permits were required or before the state engineer had the authority to deny well permits. The 1969 Act provided the structure for the type of well regulation that the ***Colorado*** Supreme Court required in [*Fellhauer v. People, 167* ***Colo.*** *320, 447 P.2d 986 (1968)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1Y50-003D-90XB-00000-00&context=1516831).

The primary tool in the 1969 Act to integrate groundwater use into the priority system is plans for augmentation pursuant to which out-of-priority depletions caused by groundwater use, not out-of-priority diversions, are replaced to prevent injury to other vested water rights. [[2]](#footnote-3)2Plans for augmentation for tributary groundwater typically look at effects on stream flows but do not evaluate aquifer conditions. Thus, they typically do not consider the sustainability of the aquifer involved or if groundwater mining will result from the groundwater use covered by the augmentation plan.

For alluvial aquifer systems, such as those found in the South Platte ***River*** downstream from Chatfield Reservoir or in the Arkansas ***River*** downstream from Pueblo Reservoir, plans for augmentation are useful tools because such systems are linear flow systems in which groundwater depletions result, eventually, in depletions to stream flow. In Water Division No. 3, the Rio Grande Basin, the groundwater flow system is not linear. This means that not all groundwater consumption results in a depletion to stream flow. Rather, a portion of groundwater consumption comes from groundwater storage. In a non-linear flow system, augmentation plans can have the effect of facilitating groundwater mining.

***Colorado*** is currently dealing with the adverse effects of groundwater mining in the Denver Basin aquifers where, after 1973, a large urban population has been allowed to develop in the southwest Denver metropolitan area with a water supply based on the nonrenewable Denver Basin groundwater. Similarly, designated groundwater mining in the Republican ***River*** Basin (Northern High Plains Designated Groundwater Basin) has contributed to ***Colorado***'s violation of its obligations under the Republican ***River*** Compact. [[3]](#footnote-4)3Until relatively recently, the 1969 Act did not address groundwater mining or the sustainability of aquifer systems. It was amended in 2004 to add provisions that address groundwater mining and aquifer sustainability in Water Division No. 3. As explained in this article, the 2004 amendments addressing aquifer sustainability were the result of efforts by water users in Water Division No. 3 to address the omission of such provisions in the 1969 Act. This article discusses the history that led to **[\*250]**the new approach to groundwater management now being undertaken in Water Division No. 3.

History is important: it informs and shapes our understanding. To understand the implementation of the 1969 Act in Water Division No. 3, it is necessary to understand the history of water rights development and administration in the Rio Grande Basin. That history includes water use practices in ***Colorado*** that developed, in part, in response to international and interstate disputes over the waters of the Rio Grande. Those international and interstate disputes and their resolutions define how much water ***Colorado*** may consume and when and under what conditions reservoirs constructed after 1929 can store water. That history also helps explain the unique conjunctive use of surface water and groundwater practiced in much of Water Division No. 3. This article attempts to summarize the salient aspects of that history that continue to play an important role in water allocation and administration in Water Division No. 3.

Understanding the implementation of the 1969 Act in Water Division No. 3 also requires a basic understanding of the unique and complex hydrology and geology of the San Luis Valley. Thus, this article begins with a general description of the Rio Grande Basin, and the geology and hydrology that circumscribe water distribution and water administration in Water Division No. 3.

II. Physical Setting

A. Upper Rio Grande Basin

The Rio Grande Basin is in south-central ***Colorado*** and forms part of ***Colorado***'s southern boundary with New Mexico. The San Luis Valley ("Valley") portion of the Rio Grande Basin is a large plain extending some ninety miles north to south and some fifty miles east to west. [[4]](#footnote-5)4The elevation of the Valley ranges from about 7,440 feet on the south to about 8,000 feet around its rim. [[5]](#footnote-6)5The Valley is bounded on the east by the Sangre de Cristo and Culebra mountains; on the north by the Cochetopa hills; and on the west by the San Juan Mountains. Another significant physical feature of the Valley is the San Luis Hills, a prominent series of mesas and eroded hills in the southern Valley and abutting, in part, the lower reaches of the Conejos ***River***.

The water producing areas are the mountains above the Valley's rim. The Rio Grande arises in the San Juan mountains to the west and enters the Valley at Del Norte. It then flows generally southeast across the Valley to Alamosa, where it turns south, flowing through a gap in the San Luis Hills before entering New Mexico some forty miles south of Alamosa. [[6]](#footnote-7)6

The Closed Basin comprises the portion of the Valley that generally lies north of the Rio Grande. It is separated from the Rio Grande by a low topographic divide [[7]](#footnote-8)7and hydraulic divide. [[8]](#footnote-9)8The topographic divide extends southeast **[\*251]**from near Del Norte to a point several miles north of Alamosa, then easterly to the Valley's east rim. [[9]](#footnote-10)9The lowest point of the Closed Basin, known as the sump, is located northeast of Alamosa at the foot of the Sangre de Cristos. It is characterized by a series of small lakes, including Head and San Luis Lakes, and alkali flats. [[10]](#footnote-11)10There are a number of streams that enter the Closed Basin, including La Garita, Carnero and Saguache Creek from the west, San Luis Creek from the north, and Rito Alto, Crestone, Sand, and Medano Creeks from the east. Historically, practically all water produced by these streams not used in irrigation was consumed by evapotranspiration in the sump. More recently, some of this water is salvaged by the Closed Basin Project and delivered to the Rio Grande south of Alamosa.

The southwest portion of the Valley is the area that lies south and west of the Rio Grande and north of the New Mexico state line. The principal stream in the southwest area is the Conejos ***River***. It enters the Valley in the southwest corner and flows northeasterly, joining the Rio Grande just north of Los Sauces. [[11]](#footnote-12)11The two principal tributaries of the Conejos ***River*** are the Rio Los Pinos and Rio San Antonio that enter the Valley near Ortiz and join the Conejos ***River*** near Manassa. [[12]](#footnote-13)12South of the Conejos ***River*** and the San Luis Hills is the dry Punche Valley and the Taos Plateau. The southwest area also contains three tributaries of the Rio Grande: the Alamosa ***River***, La Jara Creek, and Rock Creek. [[13]](#footnote-14)13

The southeastern portion of the Valley is located between the Rio Grande and the Sangre de Cristo and Culebra mountains. The principle streams in this area are, from north to south, Trinchera Creek, Culebra Creek, and Costilla Creek. Costilla Creek arises in New Mexico, flows north and west into ***Colorado***, then turns south into New Mexico before joining the Rio Grande. [[14]](#footnote-15)14The water of Costilla Creek is apportioned between ***Colorado*** and New Mexico by the Amended Costilla Creek Compact. [[15]](#footnote-16)15These three streams contribute very little water to the Rio Grande due to upstream storage and irrigation. [[16]](#footnote-17)16

Downstream from ***Colorado***, the Rio Grande can be divided into an upper and lower section. The upper section extends through New Mexico and western Texas to Fort Quite, located downstream of El Paso. Effectively all of the water supplies in the upper section of the ***river*** are consumed by irrigation and other uses. Below Fort Quitman, the Rio Grande forms the 1,250 mile-long border between Texas and the Republic of Mexico, [[17]](#footnote-18)17and the ***river*** is supplied with flows mainly from Mexico.

Downstream from ***Colorado*** there are two distinct sections of the Rio Grande: the Rio Grande in New Mexico above San Marcial, the "Middle Rio **[\*252]**Grande," and the Elephant Butte-Fort Quitman section in southern New Mexico, western Texas, and northeast Mexico. [[18]](#footnote-19)18The Rio Grande Compact of 1938 apportions the water of the Rio Grande's upper basin between the San Luis Valley, the Middle Rio Grande, and the Elephant Butte-Fort Quitman section, a drainage area of some 31,100 square miles excluding the Closed Basin in the San Luis Valley.

The Middle Rio Grande Basin includes the Rio Grande and its tributaries between the ***Colorado***-New Mexico state line and the San Marcial Narrows at the head of Elephant Butte Reservoir, near Truth or Consequences New Mexico, a distance of about 270 miles. [[19]](#footnote-20)19The Elephant Butte-Fort Quitman section of the Upper Rio Grande Basin covers 250 miles from San Marcial, New Mexico, just upstream from Elephant Butte Reservoir, to Fort Quitman, Texas. [[20]](#footnote-21)20Elephant Butte Reservoir is the centerpiece of the Rio Grande Project and provides water to lands in southern New Mexico, Texas, and to the Republic of Mexico. Water stored in Elephant Butte Reservoir is allocated by treaty [[21]](#footnote-22)21between the United States and Mexico, and is allocated by contract and Compact between ***Colorado***, the Middle Rio Grande, and the Elephant Butte-Fort Quitman section. The Elephant Butte Irrigation District holds the contract for Rio Grande Project water delivered to lands in southern New Mexico. The El Paso Water Improvement District No. 1 holds the contract for Rio Grande Project water delivered to Texas.

B. Hydrogeology of the San Luis Valley

The Valley is part of the Rio Grande Rift, a place where the earth's crust is slowly separating. [[22]](#footnote-23)22The geology of the Valley is complex and mind-numbing. Most of the important hydrogeological layers do not extend across the entire Valley, thus different regions of the Valley have different hydrogeology that must be considered when attempting to integrate groundwater use into the priority system and when attempting to manage the aquifers. Therefore, implementation of groundwater regulation in the Valley required significant new scientific investigations (discussed further below) and the development of a sophisticated groundwater model to simulate the groundwater system and estimate the impact of groundwater pumping on stream flows.

The important hydrogeological layers of the Valley are as follows:

*Unconfined Aquifer* [[23]](#footnote-24)23

The shallowest aquifer in the San Luis Valley, called the unconfined aquifer, is composed primarily of unconsolidated sand and gravel. The unconfined **[\*253]**aquifer varies from less than 50 feet to more than 500 feet thick, and is present across the majority of the Valley, but is not present in the San Luis Hills. This aquifer exists across the entire Closed Basin. It is generally thinner in the Conejos ***River*** valley than in the Closed Basin. It is thickest in the alluvial fans along the mountain fronts. In Costilla County, the unconfined aquifer varies from less than 10 feet to more than 200 feet thick and is present across most of the Trinchera Creek valley and the Costilla Plain. Valley-wide, unconfined-aquifer well yields generally range from 50 to more than 1,000 g.p.m.

*Confined Aquifer Aquitard (Confining Clay series) - Upper Alamosa Formation and equivalent formations*

The majority of the Valley is overlain by the upper Alamosa Formation, which is composed primarily of lacustrine (lakebed or marsh environment) sediments largely in the form of discontinuous layers of blue-gray clay, separated by thin sand, gravel, or sandstone layers. On the whole, this layer acts as an aquitard that confines the deeper aquifer layers and is locally referred to as the "blue clay." Where this formation is present, it is considered to be the boundary that separates the unconfined and confined aquifers. It is important to understand that the blue clay is an aquitard, not an aquiclude. This means that there is limited flow between to the two aquifer systems even though they have quite distinct hydrological characteristics.

In the Closed Basin, the thickness of the upper Alamosa Formation (blue clay) varies from very thin near the edges of the Valley, to more than 800 feet in the Mosca-Hooper area. In the Conejos ***River*** valley, this formation becomes progressively thinner to the south, with the clays thinning or not present between La Jara and Antonito, ***Colorado***. This formation is not present in the San Luis Hills.

The Alamosa Formation's blue clays were not deposited in Costilla County, but a series of discontinuous clay and sand layers act primarily as an aquitard in most areas of Costilla County. Thickness of this layer in Costilla County ranges from less than 20 feet to more than 100 feet.

*Alamosa Formation sandstone-dominated layer*

This layer represents the part of the Alamosa formation present in the majority of the Valley and is generally composed of at least 50 percent sand or sandstone layers. This formation is the first relatively continuous confined aquifer encountered below the blue clay series. This formation provides high yields to wells (generally 100 to more than 2,500 g.p.m.) and is in continuous hydraulic connection with the underlying, deeper confined aquifer layers. While deeper confined aquifer layers have distinct and identifiable lithologies and aquifer characteristics, in most areas of the Valley, these layers form a continuous, interconnected confined aquifer system.

In the Conejos and Alamosa ***River*** valleys, the Alamosa Formation sandstones and the underlying Santa Fe Formation sands and sandstone layers are interbedded with Hinsdale Formation Basalt lava flows. These lava flow layers vary from thin and highly fractured to massive and unfractured. Total thickness **[\*254]**of the interbedded sediments and volcanic rocks varies from less than 200 feet at the valley edge to more than 800 feet thick in the Conejos and Alamosa ***river*** valleys. The fractured lava flows and the interbedded sandstone layers form a productive confined aquifer. Permeabilities are generally high, and well yields in this area can exceed 3,000 g.p.m. Where the lava flows are massive and unfractured, they form a confining layer (aquitard). Except for a thin, unsaturated Hinsdale basalt caprock and small, isolated erosional remnants, the Hinsdale, Alamosa, and Santa Fe formations do not exist in the San Luis Hills.

In Costilla County, the primary aquifer is the Servilleta Formation, consisting primarily of basalt lava flows. This formation was deposited primarily in the area south of the San Luis Hills and does not exist to any significant degree in the Conejos ***River*** valley. The Servilleta Formation is composed of layers of fractured lava flows interbedded with sediments of sand and clay. The Servilleta has high permeability due to fracturing, and well yields from this aquifer typically range from 500 to more than 2,500 g.p.m. The Servilleta varies from less than 50 feet to approximately 350 feet thick.

*Santa Fe Formation sandstone and conglomerate*

This deep confined aquifer is generally composed of Santa Fe Formation sediments, which, based on available geophysical logs, is comprised of 30 to 60 percent sandstone and conglomerate. It provides relatively high well yields (generally 100 to 1,500 g.p.m.), although from available data it appears to have generally lower permeability than the overlying Alamosa Formation sandstone. While this confined aquifer layer is tapped by some wells, it is less developed than the Alamosa due to its greater depth.

The deep confined aquifer in the Conejos ***River*** and Alamosa ***River*** valleys is the Conejos Formation volcanic and volcaniclastic rocks of Oligocene age. These deposits vary greatly in composition, but in general they act as a relatively low permeability layer due to the high degree of compaction, cementation, and the presence of clay-rich minerals caused by chemical weathering of the volcanic source rocks. The total thickness of this layer has not been penetrated by wells but is estimated to be up to 2,000 feet thick. This formation is not considered an aquifer due to its overall relatively low permeability.

*Santa Fe clay-rich sediments and deeper formations*

The deepest layer of hydrologic significance in the Closed Basin consists of a series of relatively well-cemented conglomerate and sandstone beds, generally with greater than 60 percent clay. This layer is the lower Santa Fe formation and it varies from an estimated 1,000 feet to more than 4,000 feet thick, but it is generally deeper than 2,000 feet in the Closed Basin. While data on this layer is relatively sparse, the available data shows that these sediments are of relatively low permeability. This layer has not been subject to groundwater development due to its great depth, low permeability, and indications of relatively poor water quality. It is present only in the north-central Closed Basin area, where these sediments in the Valley reach their greatest depth.

**[\*255]**A schematic cross-section of these geologic layers is shown below.

Figure 1

III. Development of Surface and Groundwater in the Valley

A. Summary of Surface Water Development

Hispanic immigrants founded the first permanent settlements in the San Luis Valley in the 1850s. [[24]](#footnote-25)24These settlements were located along the Conejos ***River*** and Culebra and Costilla Creeks. Between 1850 and 1879, there was a small, but steady, migration of American settlers to the San Luis Valley. By **[\*256]**1870, 50,000 acres were under irrigation in the Valley, and by 1879, this number had increased to about 122,000 acres. [[25]](#footnote-26)25In 1879, the Denver and Rio Grande Railroad reached the San Luis Valley, prompting a large influx of settlers. Construction of the large irrigation canals in the San Luis Valley occurred between 1882 and 1892. The large canals constructed during that time included the Rio Grande Canal (1,699 c.f.s), the Monte Vista Canal (340 c.f.s), the Empire Canal (512 c.f.s), the San Luis Valley Canal (575 c.f.s.), the Farmers Union Canal (841 c.f.s.), the Prairie Ditch (367 c.f.s), and the Costilla Ditch (103 c.f.s.). By 1889, some 1,200 miles of canals had been constructed and were supplying irrigation water to more than 300,000 acres. [[26]](#footnote-27)26Due to the local topography, no ditches were constructed to divert water from the Rio Grande below its confluence with the Conejos ***River***. Consequently, there was no downstream water right whose call could affect either water rights on the Rio Grande or the Conejos ***River***. As a result, those stream systems operated independently of one another under the priority system.

The relatively plentiful stream flows in the Valley between 1880 and 1888 drove the large canal-building efforts. The drought that began in 1889 and lasted until 1896, however, demonstrated that the existing water supply was inadequate to serve all of the lands lying under the canals. As a consequence, by 1892, most large canal construction had stopped, and the rate of expansion of irrigated lands had slowed greatly. [[27]](#footnote-28)27Some 400,000 acres were under irrigation by 1894, but this number declined as the drought persisted. [[28]](#footnote-29)28It was during this same time period that the first adjudication of water rights on the streams in the Valley began. [[29]](#footnote-30)29By 1896, all of the streams in the San Luis Valley had been adjudicated and priorities and rates of flow assigned to most water rights.

After 1896, the use of water in the Valley slowly increased, but after 1927, there was essentially no increase in "depletions" to the Rio Grande and its tributaries in ***Colorado***. [[30]](#footnote-31)30In 1936, the total irrigated acreage in the Valley was estimated at about 700,000, with about 278,000 irrigated acres in the Closed Basin. The total irrigated acreage in the Valley has decreased since then to about 515,600 acres in 2010. [[31]](#footnote-32)31Agricultural irrigation remains the primary and largest water use in the Valley.

B. Development of Water Storage

From 1896 to 1927, and 1937 to 1938, the development of water storage **[\*257]**in the Rio Grande Basin in ***Colorado*** (and New Mexico) was prevented by embargos on the use of public lands. The initial embargo was imposed by the United States in 1896 as part of the United States' efforts to negotiate a treaty with the Republic of Mexico to allocate the waters of the Rio Grande in and around El Paso, Texas and Juarez, Mexico. [[32]](#footnote-33)32The embargos continued in somewhat relaxed forms until 1927 for the purpose of protecting the water supply of the Rio Grande Project. The embargo was reimposed in 1935 to "encourage" the completion of Rio Grande Compact negotiations.

At the time of the initial embargo, water users in the Valley had the capacity to divert most of the usable flows of the Rio Grande except during times of peak stream flow. The water users' problem, therefore, was not diversion capacity, but rather making the water supply parallel with crop water demand. To do this, they needed to store spring peak flows for release later in the season when needed by crops. The only reservoir sites of any consequence, however, required the use of public lands. [[33]](#footnote-34)33Accordingly, the ***Colorado*** water users were nearly apoplectic over the embargo on the use of public lands for irrigation purposes.

The most immediate consequence of the embargo was the over-diversion of water in ***Colorado*** and the development of a practice known as subirrigation. In the Valley, the method of irrigation that was practiced almost universally was as follows:

[A] modification of subsurface irrigation, locally known as "subirrigation.' ... In subirrigation, as practiced in the valley, the water is conducted onto the field in trenches at such distances apart as experience and the character of the soil shall determine. These trenches are closed at the lower ends and water is supplied to them only so fast as it is taken up by the sides and bottom of the trenches, care being taken to prevent overflowing. The loamy character of the soil allows it to absorb the water rapidly, while the level character of the surface permits the raising of the level of groundwater to a height within reach of the rootlets of the growing crops. The object in view is to keep the level of the underground water at this height. If the spring rains have not left the water level near the surface, it may be brought so by a preliminary flooding. [[34]](#footnote-35)34

The use of subirrigation was essential to the growth of crops under the prevailing water supply conditions. This method of irrigation "really constitutes in part a substitution of underground storage for "headwater' or stream storage in an effort to adjust the water to irrigation demand." [[35]](#footnote-36)35The problem with subirrigation is that it results in greater losses to evaporation and transpiration and the "subbing out" of lower lands by rendering them unfit for irrigation and the accumulation of alkali on the land surface. The problem of "subbing out" lower lands could only be solved by drainage and upstream storage to replace the need for the underground storage accomplished by subirrigation. [[36]](#footnote-37)36

The treaty allocating the waters of the Upper Rio Grande Basin between **[\*258]**the United States and Mexico, known as the Rio Grande Convention, was signed in 1906. [[37]](#footnote-38)37At the same time, some relaxation of the embargo on the use of public lands began to occur. In February 1906, the director of the Geological Survey advised the Secretary of the Interior that, provided the Department of State had no objection, the Geologic Survey agreed the embargo could be modified to permit approval of rights-of-way for irrigation purposes on the tributaries of the Rio Grande, if such rights-of-way were initiated by actual filed surveys based upon notices of appropriation of water filed under the laws of ***Colorado*** prior to March 1, 1903. This relaxation of the embargo, however, was conditioned upon a determination by the Geologic Survey that granting a right of way for the use of public lands for irrigation purposes would not interfere with any project of the Reclamation Service or with the obligations of the United States under the Rio Grande Convention of 1906. [[38]](#footnote-39)38

This policy allowed only the construction of reservoirs for which the applicant could demonstrate either that the appropriation had been initiated prior to March 1, 1903, the beginning of active operations of the Rio Grande Project, or that the proposed storage project would not impair the water supply of the Rio Grande Project. [[39]](#footnote-40)39Accordingly, most of the reservoir development in the Valley that could be accomplished based on appropriations prior to March 1, 1903 was completed by 1915. During this time, the Rio Grande and Santa Maria Reservoirs were completed on the upper Rio Grande with a combined capacity of some 93,000 acre-feet. The La Jara Reservoir on La Jara Creek and the Terrace Reservoir on the Alamosa ***River*** were completed in 1910 and 1912, respectively, with a combined capacity of 32,000 acre-feet. Several other smaller reservoirs were completed during this time as well, including Sanchez Reservoir on Culebra Creek and Mountain Home and Smith Reservoirs on Trinchera Creek. [[40]](#footnote-41)40

***Colorado*** remained very dissatisfied with the limited scope of its allowed reservoir development. ***Colorado*** water users needed large reservoirs capable of storing large quantities of water during peak runoff and with the capacity to carry water over from wet years to dry years. On the Rio Grande, such reservoirs were the proposed Wagon Wheel Gap Reservoir capable of storing nearly 1,000,000 acre-feet and the Vega Sylvestre Reservoir capable of storing about 250,000 acre-feet. [[41]](#footnote-42)41On the Conejos ***River***, a number of reservoir sites were contemplated to store in excess of 100,000 acre-feet. [[42]](#footnote-43)42

Meanwhile, interstate relations between ***Colorado*** and New Mexico over the Rio Grande continued to deteriorate. In an effort to find a solution to the acrimony, in 1923, both the ***Colorado*** and New Mexico legislatures adopted **[\*259]**legislation authorizing the appointment of representatives to negotiate an interstate Compact on the Rio Grande. [[43]](#footnote-44)43While ***Colorado*** was reluctant for Texas to be a party to the negotiations, it ultimately relented, resulting in Compact negotiations being delayed until 1925 when the Texas Legislature would be in session and could authorize the appointment of representative to participate in the negotiations. [[44]](#footnote-45)44

At about the same time the Reclamation Service recommended that it be

authorized to negotiate for the release of specific areas of public land for purposes of water storage under conditions that will best conserve and utilize the water resources and will protect vested rights in all parts of the Rio Grande basin - such negotiations to be subject to the approval of the Secretary of the Interior, and, prior to such approval, to be subject to the scrutiny of all interested parties. [[45]](#footnote-46)45

In response, ***Colorado*** began to produce engineering reports to demonstrate to the Reclamation Service that through drainage of lands that had become too seeped to farm and the construction of the Closed Basin Drain, ***Colorado*** could build reservoirs to increase its water use without diminishing flows at the ***Colorado***-New Mexico state line. [[46]](#footnote-47)46

The year 1925 brought ***Colorado*** temporary relief from the embargo, but not from controversy over development of reservoirs in the Rio Grande Basin in ***Colorado***. Dr. Hubert Work, a physician from Pueblo, ***Colorado***, was appointed as secretary of the interior in 1923 by President Harding. On May 20, 1925, Secretary Work vacated the embargo order after he had approved the application of the ***River*** Ranch Company for the use of public lands for the construction of the Vega Sylvestre Reservoir on the Rio Grande in ***Colorado***, both of which upset the then-nascent Rio Grande Compact negotiations. [[47]](#footnote-48)47The Vega Sylvestre Reservoir was not built due to the conflict between ***Colorado*** and New Mexico. Eventually, Compact negotiations resumed and in 1929, the states of ***Colorado***, New Mexico, and Texas entered into the temporary Rio Grande Compact of 1929.

The temporary compact contemplated the construction of a drain from the Closed Basin [[48]](#footnote-49)48to the Rio Grande to provide a supplemental supply of water for development in ***Colorado*** and the construction of a reservoir on the Rio Grande near the ***Colorado***-New Mexico state line. The temporary compact also contemplated the states would conclude a permanent compact on or before **[\*260]**the completion of the Closed Basin drain and the state line reservoir, but not later than June 1, 1935. The new Compact was to equitably apportion the waters of the Rio Grande based on the conditions existing as of the date of the temporary compact, provided, however, that ***Colorado*** would not be denied the right to divert and/or use water in additional amounts equivalent to the flow introduced into the ***river*** from the drain from the Closed Basin. [[49]](#footnote-50)49

In 1935, the states were no closer to an agreement on a final compact than they had been in 1929. Each of the states extended the temporary compact for an additional two years, through 1937. [[50]](#footnote-51)50In addition, in 1935, the improvements to the irrigation and drainage works of the Middle Rio Grande Water Conservancy District, including El Vado Reservoir, had been completed and the bonds funding this project were purchased by the federal Reconstruction Finance Corporation, creating a conflict of interest with the Rio Grande Project for the federal government. [[51]](#footnote-52)51Because of this, and because further development of the water of the Upper Rio Grande would lead to further conflicts among federal interests, President Franklin D. Roosevelt re-imposed the embargo by letter dated September 23, 1935, directing that no approval be granted for any application involving the use of waters of the Rio Grande in ***Colorado*** or New Mexico without first securing from the Natural Resources Committee "a prompt opinion on it from all relevant points of view." [[52]](#footnote-53)52

After the re-imposition of the embargo, a conference was held among the Natural Resources Committee and the representatives of the states of ***Colorado***, New Mexico, and Texas, at which the parties agreed that the Natural Resources Committee, in consultation with the Compact Commission, would undertake an investigation into (1) the water resources of the Rio Grande above Fort Quitman, (2) the past, present, and prospective uses of water in the Basin, and (3) the opportunities for conserving and augmenting the water supply, all in aid of providing the factual basis for a permanent Rio Grande Compact. [[53]](#footnote-54)53This investigation is known as the Rio Grande Joint Investigation.

The Joint Investigation was completed in 1937. It summarized the essential water problem of the Upper Rio Grande Basin as the division of the water supply between the San Luis Valley of ***Colorado***, the middle section of New Mexico, and the Elephant Butte-Fort Quitman section of Texas and New Mexico. For ***Colorado*** in particular, the Joint Investigation described its major problem as

The provision of storage capacity sufficient to regulate stream flow so that the supply of water may parallel and meet the irrigation demand of the San Luis Valley lands that are now irrigated and for which irrigation works were largely constructed prior to 1890. [***Colorado***'s] contention has been that the required major reservoir development to equalize the water supply will not result in any substantial increased depletion of Rio Grande flow at the State line; that in conjunction with drainage development it may, indeed, bring about increase **[\*261]**in that flow. [[54]](#footnote-55)54

With the information provided in the Joint Investigation, the states were able to conclude a permanent compact, and on March 18, 1938, the Rio Grande Compact ("Compact") was signed in Santa Fe, New Mexico and subsequently ratified by each state and the United States. [[55]](#footnote-56)55The Compact marked the end of the embargo on the use of public lands for purposes of irrigation. It also expressly sanctioned the development of new upstream reservoirs in ***Colorado*** and New Mexico, subject to the limitations on their operations contained in Articles VI, VII, and VIII of the Compact.

In 1939, the Bureau of Reclamation approved the San Luis Valley Project, and in 1940, the secretary of the interior authorized the project. [[56]](#footnote-57)56The San Luis Valley Project contemplated the construction of multiple-purpose reservoirs on the Rio Grande at Wagon Wheel Gap and on the Conejos ***River*** at Platoro. [[57]](#footnote-58)57The secretary's authorization also included a conditional appropriation for the Closed Basin Drain. [[58]](#footnote-59)58No progress was made on the San Luis Valley Project during World War II, but after the war ended, construction began on Platoro Reservoir and was completed in 1951. The construction of Wagon Wheel Gap Reservoir did not proceed immediately because of the excess-land provisions of federal reclamation law that prohibited landowners with more than 160 acres from receiving water from the project. In 1952, Congress exempted the San Luis Valley from the 160-acre limit imposed by the excess-land provisions of the federal reclamation law. [[59]](#footnote-60)59In 1956, the Bureau completed a supplemental report recommending construction of Wagon Wheel Gap Reservoir and submitted it to interested states and other federal agencies for review and comment. [[60]](#footnote-61)60However, by that time, ***Colorado*** had substantially under-delivered to New Mexico and Texas the water due them under the Compact, which effectively foreclosed the possibility of new reservoir construction in ***Colorado***. As explained below, ***Colorado***'s under-deliveries continued until 1967 and were not fully eliminated until 1985. Thus, no large reservoirs, other than Platoro Reservoir, were constructed in the Valley after 1927.

C. The Rio Grande Compact

The purpose of the Compact is to affect an equitable apportionment of the waters of the Upper Rio Grande Basin above Fort Quitman, Texas, between ***Colorado***, New Mexico, and Texas. The Compact defines the Rio Grande Basin as all of the territory drained by the Rio Grande and its tributaries in **[\*262] *Colorado***, New Mexico, and in Texas above Fort Quitman, including the Closed Basin in ***Colorado***. [[61]](#footnote-62)61The Closed Basin is defined as that portion of the Rio Grande Basin in ***Colorado*** where the streams drain into the San Luis Lakes and adjacent territory and do not normally contribute to the flow of the Rio Grande. [[62]](#footnote-63)62

***Colorado***'s delivery commitment under the Compact is set forth in two separate tables of relationships contained in Article III. These tables are based upon the relationship between inflows at upstream gauging stations and outflow at downstream gauging stations. The resulting tables, and the mathematical curve from which they were derived, were intended to represent the relationship between inflows and outflows during the period 1928 to 1937, the Compact study period. The first schedule of deliveries in Article III is that of the Conejos ***River***. The upper index stations on the Conejos ***River*** are the Conejos ***River*** at Mogote and the Los Pinos and San Antonio ***Rivers*** measured near Ortiz, ***Colorado***. The lower index, where Compact deliveries by the Conejos are measured, is the Los Sauces gauge, located where the Conejos ***River*** flows into the Rio Grande.

The second schedule of deliveries in Article III is that of the Rio Grande. Its upper index gauging station is on the Rio Grande near Del Norte, ***Colorado***, where the Rio Grande enters the Valley. The Rio Grande's lower index station is the Lobatos gauge, located downstream of the confluence of the Rio Grande and the Conejos. Scheduled deliveries by the Rio Grande are computed as the flow of the Rio Grande at Lobatos minus the flow of the Conejos ***River*** at Los Sauces. The combination of the Conejos's and Rio Grande's separate schedules, less 10,000 acre-feet, is ***Colorado***'s scheduled annual delivery.

The schedules of delivery in Article III were intended to reflect the level of depletion to stream flows in ***Colorado*** during the Compact study period. The effect of the schedules of delivery is to prevent ***Colorado*** from increasing its consumptive use of water over that which occurred during the Compact study period, except under specific circumstances described in other provisions of the Compact. [[63]](#footnote-64)63

In *Alamosa-La Jara Water Users Protective Assn. v. Gould*, the ***Colorado*** Supreme Court determined that separate delivery schedules in Article III impose separate obligations on the Rio Grande and on the Conejos ***River*** to meet their respective delivery schedules. [[64]](#footnote-65)64Thus, ***Colorado***'s Compact obligation is allocated intrastate based upon the Compact's separate delivery schedules, not by operation of a unified basin-wide administration under the priority system. One reason for this is that prior to the time of the Compact, the Conejos ***River*** and the Rio Grande operated independently of one another, and the Compact was not intended to alter this historical intrastate administration. [[65]](#footnote-66)65

Because the streams entering the Closed Basin do not contribute to the **[\*263]**flow of the Rio Grande, they are not administered for Compact purposes. Moreover, not all surface streams outside of the Closed Basin are subject to administration in priority to meet ***Colorado***'s Compact delivery schedule. In particular, the normal surface flows of Trinchera Creek, Culebra Creek, La Jara Creek, and the Alamosa ***River*** are not subject to priority administration to meet the second schedule in Article III (Rio Grande) because these streams were fully developed by the time of the Compact and therefore contributed little or no surface flows to the Rio Grande. [[66]](#footnote-67)66These streams did, however, contribute flood flows and return flows to the Rio Grande during the study period, [[67]](#footnote-68)67and the maintenance of those return flows is necessary to prevent enlarged use from shifting the burden of Compact compliance to other water rights.

Article VI of the Compact permits ***Colorado*** to accrue credits for over-deliveries and to incur debits for under-deliveries. ***Colorado***'s annual credits are capped at 150,000 acre-feet, with no cap on accrued credits. ***Colorado***'s annual and accrued debit may not exceed 100,000 acre-feet "except as either or both may be caused by holdover storage of water in reservoirs construct after 1929 in the drainage basin of the Rio Grande above Lobatos." [[68]](#footnote-69)68

Article VII and VIII of the Compact further limit the use of reservoirs constructed after 1929 in ***Colorado*** and New Mexico. [[69]](#footnote-70)69Pursuant to Article VII, there can be no increase in storage in such reservoirs whenever there is less than 400,000 acre-feet of usable water in Rio Grande Project storage. [[70]](#footnote-71)70However, ***Colorado*** or New Mexico can relinquish all or part of their respective accrued credits in Rio Grande Project storage and then store an equivalent amount of water in post-1929 reservoirs. [[71]](#footnote-72)71Under Article VIII, during January of any year Texas may require ***Colorado*** and New Mexico to release from reservoirs constructed after 1929 the amount of their accrued debts so as to cause the amount of usable water in Rio Grande Project storage to be 600,000 acre-feet by March 1 and to maintain that quantity until April 30 to aid in providing a "normal release" of 790,000 acre-feet from project storage. [[72]](#footnote-73)72

The United States Congress ratified the Compact in 1939, and 1940 was the first year of Compact accounting. An "actual spill" of "usable water" from Rio Grande "project storage" (as those terms are defined in the Compact) in New Mexico occurred in 1942, which relieved ***Colorado*** of its obligation for any scheduled delivery that year. [[73]](#footnote-74)73By 1949, ***Colorado*** had an accrued credit of 144,700 acre-feet; New Mexico had an accrued debit of 286,000 acre-feet and had retained 137,220 acre-feet in storage in El Vado Reservoir, a reservoir constructed after 1929. [[74]](#footnote-75)74At the end of 1949, project storage was 815,700 acre-feet, **[\*264]**including 130,000 acre-feet of credit water. [[75]](#footnote-76)75

The 1950s were very dry. Both 1950 and 1951 were well below normal and were followed by a wet year in 1952. [[76]](#footnote-77)76In 1952, ***Colorado*** under-delivered by 153,300 acre-feet, thereby exceeding its allowed debit of 100,000 acre-feet. [[77]](#footnote-78)77This pattern of under-deliveries by ***Colorado*** continued throughout the 1950s and most of the 1960s. The 1953-1956 years were the driest four consecutive years of record, and there was no comparable dry period in any of the prior records of the Rio Grande until 2000-2004. [[78]](#footnote-79)78The under-deliveries by ***Colorado*** were not caused by hold-over storage in reservoirs constructed after 1937 because ***Colorado***'s only post-Compact reservoir of any consequence was the 60,000 acre-foot Platoro Reservoir on the Conejos ***River***. [[79]](#footnote-80)79***Colorado***'s debit continued to increase, and by 1966, ***Colorado***'s accrued debit was 927,300 acre-feet. [[80]](#footnote-81)80At that point, Texas and New Mexico sued ***Colorado*** for violation of the Compact. [[81]](#footnote-82)81In 1967, ***Colorado***'s debit reached its maximum of 944,400 acre-feet [[82]](#footnote-83)82, and in 1968, ***Colorado***, New Mexico, and Texas stipulated a stay of the pending litigation so long as ***Colorado*** met its delivery obligations on an annual basis without an allowance for accumulated debits and used all available legal powers, including curtailment of diversions, to assure annual compliance. [[83]](#footnote-84)83

***Colorado*** thereafter implemented strict administration of surface water rights [[84]](#footnote-85)84and imposed a moratorium on new well construction. [[85]](#footnote-86)85As a consequence, ***Colorado*** began to slowly reduce its accrued debit. By 1975, the accrued debit had been reduced to 725,200 acre-feet, [[86]](#footnote-87)86and in 1980, the accrued debit stood at 674,600 acre-feet. [[87]](#footnote-88)87In 1984, the unfilled capacity of Rio Grande Project storage was less than the combined debits of ***Colorado*** and New Mexico. Thus, under the ninth paragraph of Article VI of the Compact, ***Colorado***'s accrued debit was reduced to 512,100 acre-feet. [[88]](#footnote-89)88In 1985, there was an Actual **[\*265]**spill of Usable water from Project storage for the first time since 1942. [[89]](#footnote-90)89The spill eliminated the accrued debit of ***Colorado***, and on December 9, 1985, the U.S. Supreme Court granted the motion filed by Texas and New Mexico to dismiss with prejudice their lawsuit against ***Colorado***. [[90]](#footnote-91)90Since 1985, ***Colorado*** has been in continuous compliance with its obligations under the Compact.

D. Groundwater Development

Groundwater development in the Valley began with the discovery of the confined aquifer in 1887. [[91]](#footnote-92)91By 1891, there were estimated to be 2,000 flowing artesian wells in the Valley. [[92]](#footnote-93)92The first comprehensive report on the Valley's geology, aquifer systems, and irrigation practices is C.E. Siebenthal's 1910 report entitled "Geology and Water Resources of the San Luis Valley." [[93]](#footnote-94)93Siebenthal reported that by 1904, there were 3,234 flowing wells in the Valley with an average production rate of 40 g.p.m. [[94]](#footnote-95)94The majority of these wells were used for domestic use and stock watering. By 1916, there was estimated to be 5,000 flowing wells in the Valley. [[95]](#footnote-96)95A 1936 inventory of flowing wells in the Valley estimated the total number of such wells had increased to 6,074, with an estimated annual discharge of 118,945 acre feet. [[96]](#footnote-97)96In 1958, Powell estimated that the number of flowing wells had increased to 7,500. [[97]](#footnote-98)97As of 1970, only some 650 of the wells withdrawing water from the confined aquifer were classified as large capacity irrigation wells, and the balance were small capacity domestic, stock, and pasture-irrigation wells. [[98]](#footnote-99)98

The unconfined aquifer is the principle source of groundwater for irrigation. Powell reports that the first irrigation well in the unconfined aquifer was constructed in 1903, but that there was little or no further development of the unconfined aquifer for irrigation purposes for the next twenty-five years. [[99]](#footnote-100)99Significant development of the groundwater from the unconfined aquifer for irrigation did not begin until the 1930s drought. The number of wells withdrawing water from the unconfined aquifer increased from 176 in 1936 to approximately 1,300 in 1952. [[100]](#footnote-101)100More unconfined aquifer wells were constructed during the **[\*266]**drought in the early 1950s, and by 1970, 80 percent of the large-capacity irrigation wells in the Valley withdrew from the unconfined aquifer. [[101]](#footnote-102)101Since these wells were conjunctively used to supplement surface supplies, annual withdrawals from the unconfined aquifer varied from approximately 590,000 acre-feet in the dry year of 1967 to 250,000 acre-feet in 1970. [[102]](#footnote-103)102

Well construction in both the confined and the unconfined aquifers continued until 1972, when, in furtherance of the stipulation in *Texas and New Mexico v.* ***Colorado***, the state engineer imposed a moratorium on the issuance of well permits for new appropriations of groundwater from the confined aquifer and from the unconfined aquifer outside of the Closed Basin. [[103]](#footnote-104)103This moratorium did not extend to wells in the unconfined aquifer of the Closed Basin, so well permits for large capacity irrigation wells continued to be issued in the Closed Basin until 1981. That year, in response to engineering reports prepared by the Rio Grande Water Conservation District and the Rio Grande Water Users Association showing the risk of over appropriation of the unconfined aquifer in the Closed Basin, the state engineer imposed a moratorium on the issuance of well permits for new appropriations from that aquifer, effectively ending new appropriations of groundwater in the Valley, except for small-capacity exempt wells. [[104]](#footnote-105)104

The majority of the groundwater use in the Valley is for irrigation; only a comparatively small amount is used for domestic, municipal, industrial, and fish and wildlife use. From 1999-2010, the estimated annual average groundwater withdrawals for irrigation use was 539,953 acre-feet, ranging from a high of 715,712 acre-feet in the severe drought of 2002 to a low of 431,307 acre-feet in 2009. [[105]](#footnote-106)105During that same period, the estimated groundwater use for all other purposes (principally domestic, municipal, industrial, and fish and wildlife) averaged 52,378 acre-feet, ranging from a high of 60,103 acre-feet in 1999 to a low of 44,141 acre-feet in 2004. [[106]](#footnote-107)106In addition, in 1970-2010 the estimated average annual flow from unregulated small capacity artesian wells was estimated to be 112,385 acre-feet. [[107]](#footnote-108)107In 2018 there were some 3,500 active wells of all types that are capable of producing more than 50 g.p.m.

E. Practice of Subirrigation

The embargos on the use of public lands for reservoir construction deprived farmers in the Valley of the ability to make water supply parallel their crop water demand by storing water in the spring and releasing it later in the summer when stream flows had diminished. To solve this problem, farmers in the Valley were forced to resort to the practice of subirrigation, or "subbing" (as described above). With respect to the practice of subirrigation, the Division No. 3 Water Court has previously found:

**[\*267]**

This unique mode of irrigation was highly efficient from the point of view of the water users. It eliminated many capital and labor costs. *Most importantly, subirrigation allowed water users to make parallel their water supply and the actual demands of growing crops.*The necessity for achieving parallel timing stems from the fact that the Rio Grande is a typical western stream in that it has a relatively short period of high flow. Crop demands, however, continue long after the peak flows have passed and water available for direct flow diversion is then less than sufficient. Because the practice of subirrigation maintained an underground water reservoir after the peak flows had passed, water was available to the crops for an extended period, thus circumventing the water supply timing problems inherent in a western surface irrigation system... . [[108]](#footnote-109)108

Subirrigation by flooding was once very common in many parts of the Valley, particularly in the Closed Basin area north of the Rio Grande. The Joint Investigation reported:

A method of subirrigation ... was claimed to be essential to the successful growth of crops under the soil and water-supply conditions which prevail. By it the ground water is built up to within 1 to 3 feet of the surface and water is then allowed to run slowly through small ditches spaced about 8 rods apart. Water from these ditches seeps outward, supplying moisture to the plants. *This method really constitutes in part a substitution of underground storage for "headwater" or stream storage in an effort to adjust the water supply to the irrigation demand*.

It results, however, in overdiversion during the spring runoff, in unduly high water tables, and in excessive evaporation and transpiration losses. [[109]](#footnote-110)109

In the Closed Basin area, the effect of subirrigation was to create an "artificial" aquifer. The Joint Investigation reported:

With continued large diversions from Rio Grande to the porous and shallow soils in the closed basin, the underground basin had filled rapidly; the water table had risen from depths ranging from 40 feet on the east to 100 feet on the west to a position practically at the surface on the east, bordering the sump, and to a level within 10 to 15 feet of the surface on the west. [[110]](#footnote-111)110

The practice of subirrigation had both its drawbacks and its critics. Again, as reported in the Joint Investigation:

A serious condition soon complicated the situation. It was brought about by the rise in ground-water levels to such an extent that lands in the lower parts of the valley were becoming seeped... .

The rise in ground water and the seeping of lower lands soon began to force abandonment of acreages along the eastern side of the closed basin, with concomitant substitution of lands farther west. This gradual process of abandonment at the east and extension westward ... until it reached the extreme west **[\*268]**side of the valley, while the broad stretch of once-occupied lands to the eastward was left to revert to its natural state, badly damaged, however, by alkali. Drainage to reclaim seeped lands in various parts of the valley began about 1911 and by 1921 eight drainage systems serving about 90,000 acres had been constructed. [[111]](#footnote-112)111

The development of groundwater and the advent of center pivot sprinklers have ended the widespread practice of subirrigation in the Valley. As explained by the Division No. 3 Water Court:

A combination of factors has worked to render subirrigation no longer a feasible method of irrigation. An extended period of low water years, the attendant imposition of curtailments on diversions from the Rio Grande in aid of assuring compliance with the Rio Grande Compact, and the development of pumps to extract huge quantities of ground water were all factors contributing to a lowering of the ground water table in the Closed Basin area. Such a lowered water table in turn eliminates the possibility for subirrigation.

The increased use of wells drilled into the underground aquifers became an important part of the economy of the Closed Basin. While subirrigation was still feasible, the essentially artificial aquifer created by that irrigation practice in which the water table level was quite near to the ground surface assured that irrigation water could be pumped from that shallow aquifer quite economically. This pumping itself, however, worked at cross purposes with the method of subirrigation because subbing depends on holding the water table near the ground surface and pumping from the shallow aquifers tends to lower the water table... .

The advent of center pivot sprinklers once again changed the irrigation practices in the Closed Basin. Sprinkler irrigation has increased the yield of crops and represents a more efficient use of water with reduced waste. Water for the sprinklers is most efficiently supplied from wells in the underground aquifers but, because these aquifers are not maintained by natural recharge, continuation of pumping is necessarily dependent upon artificial recharge. (citation omitted) Just as they have in the past, [San Luis Valley Irrigation District] landowners have imported water into the Closed Basin from the Rio Grande and used it to recharge the underground aquifers, in effect using these aquifers as storage facilities. The stored water is then extracted from the aquifers by means of wells which supply the sprinklers. [[112]](#footnote-113)112

F. Conjunctive Use of Surface and Groundwater.

For much of the irrigated land in the Valley, surface water and groundwater are used conjunctively to meet the irrigation needs. As explained by the Division No. 3 Water Court:

While the earliest use of center pivot sprinkler systems occurred in the Closed Basin area north of the Rio Grande, center pivot sprinklers are now used throughout the Valley. State's Exhibit No. 6 at p. 38, Fig. 8, 13 and 14. And **[\*269]**while many center pivot irrigation systems are supplied only from groundwater, the practice of artificially recharging the unconfined aquifer with surface water is what sustains the groundwater supply in many parts of the Valley. In addition, some farmers use both surface water and groundwater to their sprinkler systems for irrigation of their crops. *Id.*The evidence establishes that it is not uncommon, particularly south of the Rio Grande, to deliver surface water to center pivot sprinklers and to use groundwater to supplement the surface water supply in times of shortageFalse The evidence also establishes that surface water used for flood irrigation is also supplemented with groundwater in times of shortage. And, as established both by the evidence in this case and by the prior decrees of this Court in Cases No. W-3979, W-3980, 1995 CW 45, and 1995 CW 46..., there long has been a practice of using surface water to recharge or replenish the unconfined aquifer to provide a water supply for wells dependent upon that aquiferFalse These practices of conjunctive use of surface water and groundwater are common in much of the San Luis Valley, with groundwater recharge being practiced most extensively in the Closed Basin area north of the Rio Grande. [[113]](#footnote-114)113

The water court went on to find that in 1998, more than half of the Valley's farms conjunctively used both surface water and groundwater to meet their crop's irrigation requirements. [[114]](#footnote-115)114

The historical practice of subirrigation and the essentially artificial aquifer that it created in the Closed Basin led four large irrigation enterprises that divert water into the Closed Basin to seek judicial confirmation of this historical practice and their corresponding right to withdraw from the aquifer water imported into the Closed Basin and recharged into the aquifer system. The resulting decrees are referred to locally as "recharge decrees." The four large irrigation enterprises that have obtained recharge decrees are the Rio Grande Canal Water Users Association, Case No. W-3979; the San Luis Valley Irrigation District, Case No. W-3980; the Prairie Ditch Company, Case No. 1996CW45; and the San Luis Valley Canal Company, Case No. 1996CW46.

The decrees in Cases No. W-3979 and W-3980 involve both confirmation of the historical recharge practices and the storage of the ditches' respective direct flow water rights upstream in Rio Grande, Santa Maria, and Continental Reservoirs. The decrees in Cases 1996CW45 and 1996CW46 are limited to confirmation of historical recharge practices. With respect to historical recharge practices, each decree contains a methodology for quantification of the recharge and grants the right to use, reuse, and fully consume the water so recharged. For example, the right of reuse in Cases W-3979 and W-3980 is predicated on the fact that water diverted into the Closed Basin does not return to the Rio Grande. The decrees find:

The Closed Basin is referred to as "closed" because it has no natural drainage outflow. Water that flows off the surrounding mountain areas into the Closed Basin flows either into the underground aquifers or into one of several open lakes in the southeast portion of the Basin, in what is known as the sump area, where it is eventually evaporated from the open water surfaces. Water imported from the Rio Grande into the Closed Basin likewise remains in the **[\*270]**Basin and does not return naturally to the ***river***. [[115]](#footnote-116)115

These decrees go on to recognize that the water diverted into the Closed Basin has been introduced into an unconnected stream system and is "foreign" or "imported" water within the meaning of [*section 37-82-106 of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J372-00000-00&context=1516831); that the application of such foreign or imported water for recharge of underground aquifers is not a relinquishment of dominion or control over the water; that use of water for recharge of underground aquifers and its subsequent withdrawal for application to irrigation is a beneficial use; and that the proposed method of recharge of the aquifers constitutes the placing of water in an underground aquifer by other than natural means by a person having a decreed right thereto, within the meaning of sections 37-87-101(2), 37-92-103(10.5) and 37-92-305(9)(e).

The decrees for the Prairie Ditch Company and the San Luis Valley Canal Company, in Cases No. 1996CW45 and 1996CW46 respectively, are similar; both recognize the Companies' irrigation practice of recharging the unconfined aquifer in the Closed Basin with water diverted from the Rio Grande and utilizing the water so recharged for irrigation purposes. In accordance with the terms of the decrees, the company's shareholders are entitled to use and to fully consume by first use and, if necessary, by repeated reuse, all water recharged to the unconfined aquifer in the Closed Basin, as quantified by the decrees, for the purpose of providing a water supply for the irrigation of lands within the companies' service areas.

Each recharge decree recognizes the right of the applicant's shareholders (or for the San Luis Valley Irrigation District, landowners) to reclaim through well withdrawals from the underground aquifers an amount of water equivalent to that recharged into those aquifers as quantified by the decrees. Finally, each recharge decree recognizes that withdrawal of groundwater from the wells of the shareholders (or landowners) is not limited to the amount of water applied to recharge and that the well owners may also be entitled to withdraw additional water pursuant each well's own independent priority.

The Rio Grande Water Users Association obtained an additional decree for a winter recharge right for recharge of the aquifers underlying the lands of the eight large ditches that elected to participate in the program. [[116]](#footnote-117)116That decree, originally entered in Case No. 1979CW91, authorizes the diversion of water during the months of November and December to replenish the aquifers underlying the lands served by the participating ditches, which includes the four large ditches with recharge decrees (described above). In addition to providing an additional source of recharge water, the decree operates to limit over-deliveries by the Rio Grande under the Compact. This is beneficial to water users on the Rio Grande because it helps sustain the aquifer on which their conjunctive use of water depends and prevents the loss of over-deliveries (credit water) to evaporation in or spills from Rio Grande Project storage. Accordingly, this winter recharge decree is only exercised in years when the division engineer **[\*271]**determines that, but for winter recharge, the Rio Grande would materially over-deliver on its separate schedule of delivery under the Compact.

IV. The 1975 Proposed Rules and Regulations Governing the Use, Control, and Protection of Water Rights for both Surface and Underground Water Located in the Rio Grande and Conejos ***River*** Basins and their Tributaries

In August 1975, the state engineer promulgated Rules and Regulations Governing the Use, Control, and Protection of Water Rights for Both Surface and Underground Water Located in the Rio Grande and Conejos ***River*** basins and their tributaries ("1975 Rules"). The 1975 Rules were comprised of three parts: the definitions, the rules for surface water administration, and the rules for groundwater administration. The 1975 Rules applied to all "waters of the state" as then defined in [*section 37-92-103(13) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SY73-CGX8-03R2-00000-00&context=1516831) (1973) and to all "underground water" as then defined in section 37-92-103(10) (1973). The 1975 Rules did not apply to wells exempt from administration under section 37-92-602(13) (1973), provided that the exempt well was equipped with a suitable control device or was otherwise capped to prevent unlawful waste of water.

The 1975 Rules were the state engineer's first attempt to implement the 1969 Act's goal of integrated administration of surface water and groundwater rights. The 1975 Rules were also intended, in part, to fulfill the terms of the stipulation to stay the lawsuit in  *Texas v.* ***Colorado***, in which ***Colorado*** agreed:

to deliver water at the ***Colorado***-New Mexico state line to meet every year the delivery obligation established by the schedules of Article III of the Rio Grande Compact. To this end the State of ***Colorado*** shall exercise its best efforts and *use all available administrative and legal powers including, if necessary, the curtailment of diversions enforced by agents of the State*. The State of ***Colorado*** shall make frequent and regular reports to the plaintiffs of all measures taken to effect compliance." [[117]](#footnote-118)117

To that end, the 1975 Rules proposed the administration of all surface water and all groundwater tributary to the Rio Grande or the Conejos ***River*** was based on the fact that the meeting scheduled deliveries of water pursuant to the Compact "constitutes the most senior water commitment in the Rio Grande and Conejos ***River*** Basins." [[118]](#footnote-119)118As a result, all surface water and tributary groundwater diversions from those systems were to be regulated at the times and to the extent necessary to deliver the amount of water required by the terms of the Compact and stipulation.

Part II of the 1975 Rules, addressing surface water administration, was based upon the state engineer's authority under [*section 37-80-104 of the Colorao Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J35H-00000-00&context=1516831) to promulgate rules to implement interstate Compacts. Part II required the Rio Grande and its tributaries (exclusive of the Conejos ***River***) and the Conejos ***River*** and its tributaries to be administered separately **[\*272]**and for each to annually comply with its respective schedule of delivery under Article III of the Compact. To assist in meeting the scheduled Compact delivery, the rules prohibited all surface diversions during the months of January, February, March, November, and December, except for storage in pre-Compact reservoirs and water rights decreed for year-round use. [[119]](#footnote-120)119The 1975 Rules also prohibited groundwater diversions for irrigation during January, February, March, November, and December. [[120]](#footnote-121)120

In order to maximize the amount of surface water available for use in ***Colorado***, under the 1975 Rules the state engineer could permit pre-Compact reservoir to store water that the state engineer determined might not be needed to meet the scheduled Compact deliveries. Any water so stored was subject to the control of the state engineer unless and until he or she determine that the water was not needed for Compact compliance. If the stored water was not needed for Compact compliance, then it reverted to the control of the owner of the reservoir. [[121]](#footnote-122)121

Part III of the 1975 Rules sought to implement the 1969 Act's goal to integrate groundwater use into the priority system. The 1975 Rules proposed to do so by requiring all non-exempt tributary groundwater uses to replace injurious stream depletions as a precondition to continued diversion of groundwater. To effectuate this requirement, the 1975 Rules required groundwater users to progressively curtail diversions over a five-year period. Beginning in 1976, groundwater diversions were allowed only on Monday through Friday and in each successive year, one day of allowed diversions was eliminated, such that by 1981 no groundwater diversions were to be allowed. [[122]](#footnote-123)122These limitations also applied to water rights diverting from drains, apparently on the theory that drains were, in effect, wells. [[123]](#footnote-124)123

In order to be able to exercise a groundwater right free from these limitations, groundwater users were required to demonstrate to the state engineer the following:

(l) That the well or wells are operating pursuant to a decreed plan of augmentation or to a decree as an alternate point of diversion, or that a change in point of diversion to the well has been decreed for a surface water right. The well or wells will then be administered in the priority system on the basis of the seniority of the associated surface decree: or

(2) That the underground water appropriation can be operated under its own priority within the priority system without impairing the right of a senior appropriator; or

(3) That the water produced by a well does not come within the definition of underground water as found in [*Section 37-92-103(11), C.R.S. 1973*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SY73-CGX8-03R2-00000-00&context=1516831), as set **[\*273]**forth in paragraph I-A of these rules and regulations. [[124]](#footnote-125)124

The 1975 Rules also permitted wells to operate pursuant to a temporary plan of augmentation approved by the state engineer pursuant to [*section 37-92-307 of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G6-00000-00&context=1516831) (1973), which statute was subsequently repealed. To prevent waste, the 1975 Rules required all flowing wells to be equipped with a suitable control device or to be permanently capped and plugged. [[125]](#footnote-126)125

A. Water Court Review of the 1975 Rules

The 1975 Rules were filed with the water court for approval pursuant to [*section 37-92-501(2) of the* ***Colorado*** *Revised Statutes.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) Numerous statements of opposition were filed contesting the validity of the proposed rules. Some statements of opposition included challenges to the water court's jurisdiction over questions of interpretation of the Compact and whether the provisions of section 37-92-501(2) applied to the provisions of part II of the 1975 Rules that established the standards for Compact administration. [[126]](#footnote-127)126In response to these jurisdictional challenges, the Rio Grande Water Users Association filed a motion asking the court to determine that it had jurisdiction to hear and adjudicate any and all claims arising under the laws, treaties, or Constitution of the United States and under the Compact. [[127]](#footnote-128)127The state engineer also filed a motion that requested the court to determine that it had jurisdiction to hear and determine all matters raised by the opposers concerning the 1975 Rules and to order all opposers who had raised procedural objections to the proposed rules to set forth specifically their procedural objections and the basis therefor. [[128]](#footnote-129)128

In response to these motions, in June 1976, the water court entered an order dismissing the proposed rules and remanding them to the state engineer for revision in accordance with the court's order. In so ordering, the court determined, *inter alia*, that the state engineer's authority and the procedures for promulgation of rules for regulation of use of groundwater under [*section 37-92-501(2) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) did not apply to the rules for implementation of interstate Compacts within the ambit of section 37-80-104. [[129]](#footnote-130)129The water court also determined that the ***Colorado*** Administrative Procedure Act, section 24-4-101 *et seq*. of the ***Colorado*** Revised Statutes, governed the promulgation of Compact regulations under section 37-80-104 and the state engineer could not combine Compact rules with groundwater rules promulgated under section 37-92-501(2). [[130]](#footnote-131)130The water court therefore remanded the 1975 Rules to the state engineer for the purpose, *inter alia*, of separating the rules into two separate sets of rules, each to be adopted pursuant to the procedure the water **[\*274]**court determined to be applicable. [[131]](#footnote-132)131

In response to separate Motions to Alter or Amend the Judgment or for New Trial filed by the state engineer and the opposer Conejos Water Conservancy District, the water court modified its June 23, 1976 Order by removing certain factual statements, but otherwise left its ruling unchanged. [[132]](#footnote-133)132Thereafter, the state engineer and some opposers appealed the dismissal to the ***Colorado*** Supreme Court. On appeal, the ***Colorado*** Supreme Court reversed the decision of the water court, explaining:

It is crystal clear that, in order to promulgate and enforce rules for compliance with Compact commitments, the State Engineer must promulgate and enforce appropriate rules for the administration of water rights. The latter rules must of necessity be under the authority of [[***Colo.*** *Rev. Stat. § 37-92-501(1)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831)] the "water rule power." Any achievement under [[***Colo.*** *Rev. Stat. § 37-80-104*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J35H-00000-00&context=1516831)] the "Compact rule power" will be dependent upon and inextricably commingled with rules under the "water rule power." Promulgation, adoption and approval or disapproval of the proposed rules under both sets of procedures would be analogous to driving a wagon with teams hitched to each end pulling in opposite directions.

The General Assembly adopted the Water Right Determination and Administration Act of 1969 following intensive and extensive debate and study. It is inconceivable that it would at that time, with its perspective of the subjects involved, remove the "Compact rule power" from the last mentioned Act and place it under the State Administrative Procedure Act. It was obviously the legislative intent that rule making be accomplished under the "Compact rule power" in a proceeding conducted in accordance with the Water Right Determination and Administration Act of 1969; and we so hold. [[133]](#footnote-134)133

After remand, the water court held a trial on the protests to the 1975 Rules. The trial began on March 5, 1979 and concluded on July 24, 1979. Shortly before the end of the trial, on July 17, 1979, the state engineer entered into a stipulation with numerous opposers that excluded wells withdrawing groundwater from the unconfined aquifer of the Closed Basin and overlying the confining blue clay layers from the operation of the 1975 Rules' requirement to curtail diversions and/or operate in compliance with Rule III.C. [[134]](#footnote-135)134The basis for this stipulation was the parties' agreement that pumping of such wells did not deplete the flow of surface streams located outside of the Closed Basin and did not impair ***Colorado***'s ability to fulfill its obligations under the Compact.

On January 31, 1980, the water court (Judge William Eakes) entered a judgment to uphold in part and disapprove in part the 1975 Rules. Based on an extensive review of the history of the Compact and the applicable principles of statutory construction, the water court upheld the separate delivery requirements for the Rio Grande and Conejos ***River*** systems in Rule II of the 1975 Rules. [[135]](#footnote-136)135The water court, however, disapproved the provisions of Rule II.E that allocated the Compact's 10,000 acre-foot "paper credit" equally between the **[\*275]**Rio Grande and the Conejos ***River***. The water court reasoned that the credit "was intended as a "cushion' to protect against hardships and inequities caused by variations from predicted performance of each ***river*** due to "vagaries of nature' or other causes. It should be applied to relieve such hardship and inequities when they occur on either ***river***." [[136]](#footnote-137)136

Certain opposers had argued that water rights on tributaries of the Rio Grande, including Trinchera Creek, Rock Creek, La Jara Creek, and the Alamosa ***River***, should not be subject to administration for Compact purposes because the water supply on those streams had been fully developed by the time of the Compact study period and therefore contributed little if any flows to the Rio Grande. The water court agreed that these streams had made little contribution to the flow of the Rio Grande during the Compact study period and that Compact negotiators had not assigned index gauging stations to these tributaries to the Rio Grande. The water court reasoned, however, that these streams had contributed return flows to the Rio Grande during the Compact study period and there was no language in the Compact that excluded them from the delivery obligation, and thus the court concluded that these stream were subject to Compact administration by the state engineer. [[137]](#footnote-138)137

The water court disapproved the groundwater rules for several reasons. First, the court determined that the rules violated the requirement of [*section 37-92-502 of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:637R-W883-GXJ9-334R-00000-00&context=1516831) that each diversion must be evaluated and administered based on its individual circumstances. The court concluded that the state engineer had not made the necessary determination of material injury to senior surface water rights caused by each well, so the proposed rules' general prohibition of groundwater diversions after five years was invalid. [[138]](#footnote-139)138

The water court also found that, based on the evidence (much of which has been shown by further research to be incorrect [[139]](#footnote-140)139), there were vast amounts of usable groundwater in the Valley. The water court also found that there was a great amount of evapotranspiration by phreatophytes, some of which was "salvaged" by groundwater pumping. The water court found that by increasing groundwater production in areas then not farmed, large quantities of non-beneficial evapotranspiration could be salvaged, a small fraction of which would satisfy ***Colorado***'s Compact obligation. [[140]](#footnote-141)140The water court concluded that a means must be found to salvage this large amount of non-beneficial evapotranspiration. [[141]](#footnote-142)141

Relying upon these factual findings, the water court went on to conclude that the proposed rules, effectively, permitted surface water users to operate unlawful inefficient means of diversion. The water court reasoned that requiring well owners to replace depletions to surface streams thereby allowed the surface diversions to "command the whole flow of the stream, whether above or below ground surface, to facilitate the taking of a mere fraction of" the flow. [[142]](#footnote-143)142 **[\*276]**The water court concluded that this was a violation of the reasonably efficient means of diversion requirement of ***Colorado*** *Springs v. Bender*, [[143]](#footnote-144)143as codified in section 37-92-102(2)(b), as well as ***Colorado***'s policy of maximum utilization first articulated in *Fellhauer v. People*, [[144]](#footnote-145)144and the requirement for integrated use of surface and groundwater set forth in section 37-92-102(1). The water court held that surface water users could be required to construct wells to supplement their surface diversions before requiring the curtailment of junior groundwater diversions.

B. Alamosa La Jara Water Users Protective Assn. v. Gould

Judge Eakes' decision was appealed to the ***Colorado*** Supreme Court. In the appeal, the opposers representing water users on the Conejos ***River*** appealed the water court's decision upholding Rule II's separate Compact delivery requirements for the Rio Grande and Conejos ***River*** systems; surface water users on Trinchera Creek, La Jara Creek, and the Alamosa ***River*** appealed the water court's decisions subjecting the surface water rights on these streams to Compact administration; and the state engineer and Conejos Water Conservancy District appealed the water court's disapproval of the groundwater rules. On appeal the ***Colorado*** Supreme Court upheld the separate Compact delivery requirements for the Rio Grande and Conejos ***River*** systems; reversed the water court's ruling that surface water rights on Trinchera Creek, La Jara Creek, and the Alamosa ***River*** were subject to Compact administration; and, after clarifying the applicable legal standards for groundwater regulation, upheld the water court's disapproval of the groundwater rules. The court returned the rules to the state engineer for further consideration in light of its decision. [[145]](#footnote-146)145

With respect to the separate Compact delivery requirements for the Rio Grande and Conejos ***River*** systems, the court specifically upheld the water court's ruling that:

In an equitable apportionment of an interstate stream, the State of ***Colorado*** has legal power and authority to allocate by Compact different burdens and entitlements between various sections of the ***river***. This is especially true where, as here, the burden represents only that quantity of water which was not consumed on each ***river*** at the time of the Compact. [[146]](#footnote-147)146

The court found that the Compact was clear on its face and that the purpose of the separate delivery schedules in Article III of the Compact was to allocate intrastate the obligations for meeting the state's Compact commitments. [[147]](#footnote-148)147The Conejos Water Conservancy District, however, argued that the separate delivery requirements conflicted with the prior appropriation system embodied in the ***Colorado*** Constitution, and that water rights in ***Colorado*** must be administered **[\*277]**under a unitary priority system for purpose of making the deliveries required by the Compact. Overruling this claim, the Court explained:

[A] Compact obligation should not be viewed as a senior water right which upsets historical development and reshuffles rights according to a chronological formula. Under the doctrine of prior appropriation, streams which have been independently appropriated remain independent. If the water of those streams becomes subject to equitable apportionment by Compact, the streams must be administered as mandated by the CompactFalse The separate delivery rules, therefore, are not inconsistent with constitutional and statutory provisions for priority administration of water rights. [[148]](#footnote-149)148

In so ruling, the court clarified the relationship between interstate Compacts and administration of water rights under ***Colorado***'s prior appropriation system. [[149]](#footnote-150)149

In addressing the challenge of applying Article III of the Compact to Trinchera Creek, La Jara Creek, and the Alamosa ***River***, the court found that the Compact was ambiguous and therefore looked to extrinsic evidence to determine the meaning and intent of the Compact. Based on the evidence, the court reversed the water court's decision allowing the application of Article III to these three tributary streams, explaining:

Our independent evaluation of the legislative history, coupled with the Water Court's finding that at the time of the Compact the streams contributed little water to the mainstem, leads us to conclude that the drafters did not intend to include the normal surface flows of Alamosa Creek, La Jara Creek and Trinchera Creek under Article III Compact administration, and therefore, that the state engineer does not have the authority to apply the tributary rule to these creeks. [[150]](#footnote-151)150

The court then turned to Part III of the 1975 Rules governing the use of groundwater. It explained that the groundwater provisions of the 1975 Rules tied tributary groundwater administration to regulation for Compact purposes by integrating tributary groundwater into the priority system for surface streams [[151]](#footnote-152)151and by requiring that, over five years, well diversions would be curtailed unless individual well owners either remedy such injury through plans for augmentation or prove that their wells do not cause injury to senior water rights. [[152]](#footnote-153)152The court then described the voluminous evidence presented by the state engineer that showed the effects of well pumping and the resulting stream flow depletion and the state engineer's conclusion that junior well diversions were causing material injury to senior water rights throughout the Valley. [[153]](#footnote-154)153

The court summarized the water court's finding that (1) withdrawal of tributary **[\*278]**groundwater was depleting stream flows and resulting in increased curtailment of senior surface water rights and (2) the effect of groundwater withdrawals had neither been specifically quantified nor attributed to individual wells. The court pointed out that the parties did not dispute the water court's general factual findings, but the proponents of the 1975 Rules did challenge the legal bases on which the water court disapproved Part III of 1975 Rules. [[154]](#footnote-155)154

The court first addressed the legal challenge to the water court's ruling that the state engineer was required to make a well-by-well demonstration of injury before a well could be curtailed. The water court had relied on the provisions of section 37-92-502(2) prohibiting the curtailment of a diversion unless the diversion is causing material injury to senior water rights and on that statute's reference to "each case" and "each diversion," and the water court concluded that the material injury must be determined individually for each well before that well may be curtailed. The court held that the purpose of the "each case" and "each diversion" language relied upon by the water court from section 37-92-502(2) and incorporated by reference into section 37-92-501 must be read in the context of the purposes for authorizing the state engineer to adopt groundwater rules. It held that the "purpose of the material injury standard was to prevent futile curtailment of underground water diversions, not to erect a procedural roadblock to effective regulation of wells." [[155]](#footnote-156)155

The court held that the state engineer had complied with the requirements of section 37-92-501 and had considered each of the applicable statutory standards in adopting the proposed rules when determining, on an aquifer-wide basis, that junior wells were causing material injury to senior surface water rights. [[156]](#footnote-157)156The court then held:

Where, as here, streams are over-appropriated and underground water diversions from an aquifer have been found to significantly affect stream flow, it may be presumed that each underground water diversion materially injures senior appropriators. The state engineer, therefore, will not be required to repeat for every well curtailed the painstaking analysis which led to the aquifer-wide determination of material injury. [[157]](#footnote-158)157

The court then turned to the legal challenge of the water court's determination that the proposed groundwater rules were invalid because they did not require surface water users to supplement their surface diversions with groundwater before the curtailment of junior groundwater rights. The water court ruled that this was required by the reasonable-means-of-diversion requirement of ***Colorado*** *Springs v. Bender*, as codified in section 37-92-102(2)(b), ***Colorado***'s policy of maximum utilization first articulated in *Fellhauer v. People*, [[158]](#footnote-159)158and the requirement for integrated use of surface and groundwater set forth in section 37-92-102(1). [[159]](#footnote-160)159

The state engineer argued that the proposed rules correctly put the burden **[\*279]**on the groundwater users to remedy the injury caused by junior groundwater users because they were not entitled to divert water that otherwise would be available for use by holders of senior water rights. [[160]](#footnote-161)160The state engineer also argued that in *Kuiper v. Well Owners Conservation Association,* [[161]](#footnote-162)161the court held that "it is not the present state of the law that the state engineer is required to compel a person with a senior surface priority to use his groundwater to apply on that priority before he makes a call." [[162]](#footnote-163)162Accordingly, the state engineer believed that the proposed rules' requirement that junior wells augment their stream depletions or cease diverting simply applied to the controlling legal standard. [[163]](#footnote-164)163

In addressing the state engineer's arguments, the court began by noting that the *Well Owners* decision "sharply limited application of the state's policy of maximum utilization of water announced in *Fellhauer*." [[164]](#footnote-165)164The court then explained that the policy of maximum utilization was codified in the 1969 Act, that section 37-92-102(2)(b) recognized that one method of achieving maximum utilization of water is to require that each diverter establish a reasonable means of effectuating his diversion, and that section 37-92-102(2)(b) was based on the Court's holding in ***Colorado*** *Springs v. Bender.*In *Bender* the Court held:

At his own point of diversion on a natural water course, each diverter must establish some reasonable means of effectuating his diversion. He is not entitled to command the whole or a substantial flow of the stream merely to facilitate his taking the fraction of the whole flow to which he is entitledFalse This principle applied to diversion of underflow or underground water means that priority of appropriation does not give a right to an inefficient means of diversion, such as a well which reaches to such a shallow depth into the available water supply that a shortage would occur to such senior even though diversion by others did not deplete the stream below where there would be an adequate supply for the senior's lawful demand. [[165]](#footnote-166)165

The court concluded that its decision in *Well Owners* construed the 1969 Act too narrowly and that the prior appropriation doctrine is not a legal barrier to the state engineer's consideration of various methods to implement the 1969 Act's stated policy of maximum utilization. [[166]](#footnote-167)166The court overruled *Well Owners* to the extent that it precluded "consideration of a reasonable-means-of-diversion requirement as a method of maximizing utilization of integrated underground and surface waters." [[167]](#footnote-168)167

The court then affirmed the water court's ruling that under certain circumstances, surface appropriators can be required to withdraw groundwater tributary to the stream in order to satisfy their surface appropriations. [[168]](#footnote-169)168The court **[\*280]**returned the 1975 Rules to the state engineer to consider "whether the reasonable-means-of-diversion doctrine provides, in this case, a method of achieving maximum utilization of water - a consideration which the state engineer erroneously believed was foreclosed." [[169]](#footnote-170)169In explaining how the state engineer should approach this task, the court famously explained:

We note that the policy of maximum utilization does not require a single-minded endeavor to squeeze every drop of water from the valley's aquifers. Section 37-92-501(2)(e) makes clear that the objective of "maximum use" administration is "optimum use." (footnote omitted). Optimum use can only be achieved with proper regard for all significant factors, including environmental and economic concerns. (citations omitted). The Water Court observed that the state engineer's reconsideration might take the form of requiring senior appropriators to drill new wells before requiring curtailment of junior rights and listed a number of suggestions for increasing utilization. (Footnote omitted). Similarly, the state engineer's reconsideration might result in assessment to junior appropriators of the cost of making those improvements to seniors' diversions which are necessitated by junior withdrawals. Selection among these and other possibilities, including retention of the scheme of the proposed rules, is a policy decision to be made by the state engineer, after consideration of all relevant factors. [[170]](#footnote-171)170

After the 1984 decision in *Alamosa La Jara*, the state engineer commenced discussion with water users in the Valley on how best to move forward with the integration of surface and groundwater administration as contemplated by the 1969 Act. That effort was rendered moot by the 1985 agreement among the Rio Grande Water Conservation District and water user groups in the Valley concerning the allocation of the anticipated yield of the Closed Basin Project as a means to offset existing well depletions and protecting surface water rights without separate well regulations.

V. The Closed Basin Project - Allocation Agreement

A. Drainage of the Closed Basin to Supplement Irrigation Water Supplies

The effort to develop a drainage system to salvage shallow groundwater from the sump of the Closed Basin began as part of ***Colorado***'s effort to lift the embargo on the use of public lands so that reservoirs could be constructed and the water supply could be made parallel to crop water demands. [[171]](#footnote-172)171In a 1923 report on drainage projects and return waters, irrigation engineer R. I. Meeker estimated that some 475,000 acre-feet could be recovered from comprehensive drainage of lands in the Valley. [[172]](#footnote-173)172

The need to provide drainage from the Closed Basin to supplement the **[\*281]**flows of the Rio Grande was a central component of the temporary Rio Grande Compact of 1929. The temporary Compact contemplated that not later than June 1, 1935, the states would conclude a permanent Compact. [[173]](#footnote-174)173The permanent Compact was to equitably apportion the waters of the Rio Grande based on the conditions existing as of the date of the temporary Compact provided, however, that ***Colorado*** would not be denied the right to divert and/or use water in additional amounts equivalent to the flow introduced into the ***river*** from the drain from the closed basin.

The 1939 Compact does not contain the same provisions as the 1929 temporary Compact, but the last paragraph of Article III provides:

In event any works are constructed after 1937 for the purpose of delivery of water into the Rio Grande from the Closed Basin, ***Colorado*** shall not be credited with the amount of such water delivered, unless the proportion of sodium ions shall be less than forty-five percent of the total positive ions in that water when the total dissolved solids in such water exceeds three hundred fifty parts per million. [[174]](#footnote-175)174

This provision confirms that ***Colorado*** will receive credit against its scheduled Compact deliveries for water introduced into the ***river*** from the Closed Basin provided that it is of suitable quality.

In 1939, after approval of the Compact by Congress, the United States Bureau of Reclamation approved the San Luis Valley Project, and in 1940, the secretary of the interior authorized the project. [[175]](#footnote-176)175The secretary's authorization also included a conditional appropriation for the Closed Basin Drain, making its construction contingent on a justification for the drain on the basis of cost and the quantity and quality of water to be secured and permanent arrangements for maintenance of the drain. [[176]](#footnote-177)176

Given ***Colorado***'s substantial Compact under-delivery that began in 1952, water users in ***Colorado*** turned their attention to the Closed Basin Drain to increase the water supply and to aid it in meeting ***Colorado***'s commitments under the Compact and the United States' obligations to the Republic of Mexico. In 1957, the ***Colorado*** Water Conservation Board ("CWCB") and the San Luis Valley Water Conservancy District requested the Bureau of Reclamation to conduct a feasibility study to solidify its 1956 reconnaissance report on the Closed Basin Project. [[177]](#footnote-178)177

By January 1960, the Bureau of Reclamation had completed a partial draft feasibility report on the plan of development for the Closed Basin Project ("Project"). [[178]](#footnote-179)178That report concluded that approximately 101,700 acre-feet of acceptable quality water could be salvaged annually from the Closed Basin area without adverse effects on adjoining irrigation developments. [[179]](#footnote-180)179In February 1962, the **[\*282]**CWCB conditionally recommended moving forward with the Project, provided, *inter alia*, that the construction and operation and maintenance costs will be borne by the United States. [[180]](#footnote-181)180The reason the CWCB thought the Project should be built and operated at the cost of the United States, a position long-held by the state of ***Colorado*** and expressed in the 1929 temporary Compact, was that:

The construction of the Closed Basin Drain will result in benefits to the States of Texas and New Mexico and to the Republic of Mexico, as well as to the State of ***Colorado***. It seems only reasonable that the cost of construction and the cost of operation of the salvage facilities should be a Federal expense in connection with the Compact, and the treaty with Republic of Mexico. [[181]](#footnote-182)181

In 1963, the regional director of the Bureau of Reclamation completed a feasibility report for the Project. The report recommended a plan to "salvage for beneficial use an average of 101,700 acre-feet of water annually, which is ... ...being lost by evaporation or consumed by salt grass, rabbit brush, greasewood, and other vegetation." [[182]](#footnote-183)182The report concluded that the construction, operation, and maintenance of the water salvage features should be nonreimbursable federal expenses. [[183]](#footnote-184)183

Meanwhile, the 1968 stipulation in *Texas v.* ***Colorado***and the resulting substantial curtailment of senior surface water rights added new urgency to completion of the Closed Basin Project.

On October 20, 1972, the president signed the Closed Basin Authorizing Act. Under section 101(a) of that Act:

The secretary of the interior is authorized to construct, operate, and maintain the closed basin division, San Luis Valley, ***Colorado*** ... ...for the principal purposes of salvaging, regulating, and furnishing water from the closed basin area of ***Colorado***; transporting such water into the Rio Grande; making water available for fulfilling the United States obligation to the United States of Mexico in accordance with the treaty dated May 21, 1906 ([*34 Stat. 2953*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:5C8C-P7W0-01XN-S4V0-00000-00&context=1516831)); furnishing irrigation water, industrial water, and municipal water supplies to water deficient areas of ***Colorado***, New Mexico, and Texas through direct diversion and exchange of water; establishing the Mishak National Wildlife Refuge and furnishing a water supply for the operation of the Mishak National Wildlife Refuge and the Alamosa National Wildlife Refuge and for conservation and development of other fish and wildlife resources; providing outdoor recreational opportunities; augmenting the flow of the Rio Grande; and other useful purposes, in substantial accordance with the engineering plans set out in the report of the Secretary of the Interior on this project: *Provided*, That no wells of the project, other than observation wells, shall be permitted to penetrate the aquiclude, or first confining clay layer. [[184]](#footnote-185)184

**[\*283]**Section 104(a) provides that "project costs shall be nonreimbursable" except as specifically provided in the Authorizing Act. [[185]](#footnote-186)185Under section 104(b):

After the project of any phase thereof has been constructed and is operational, the Secretary shall make water available in the following listed order of priority:

To assist in making the annual delivery of water at the gaging station on the Rio Grande near Lobatos, ***Colorado***, as required by article III of the Rio Grande Compact: *Provided*, That the total amount of water delivered for this purpose shall not exceed an aggregate of six hundred thousand acre-feet for any period of ten consecutive years...

To maintain the Alamosa National Wildlife Refuge and the Mishak National Wildlife Refuge: *Provided*, That the amount of water delivered to the Alamosa National Wildlife Refuge shall not exceed five thousand three hundred acre-feet annually, and the water delivered to the Mishak National Wildlife Refuge shall not exceed twelve thousand five hundred acre-feet annually.

To apply to the reduction and elimination of any accumulated deficit in the deliveries by ***Colorado*** as is determined to exist by the Rio Grande Compact Commission under article VI of the Rio Grande Compact...

For irrigation or other beneficial uses in ***Colorado***: *Provided*, That no water shall be delivered until agreements between the United States and water users in ***Colorado***, or the Rio Grande Water Conservation District acting for them, have been executed providing for the repayment of such costs as in the opinion of the Secretary are appropriate and within the ability of the users to pay. [[186]](#footnote-187)186

Significantly, the Project's Authorizing Act did not address the intrastate allocation of the Project yield allocated for assisting ***Colorado*** in meeting its commitments under the Compact.

As described by the ***Colorado*** Supreme Court,

The goal of the Closed Basin project is to lower the water table in the sump area by approximately two feet through the construction and operation of over one-hundred shallow wells, and to reduce water losses to evaporation and evapotranspiration. Water salvaged from the sump area is to be delivered to the Rio Grande ***River*** to help meet ***Colorado***'s obligations to New Mexico and Texas under the Rio Grande Compact. [[187]](#footnote-188)187

The Closed Basin Project Act specifically limits the Project's wells to withdrawal from the unconfined aquifer and limits the amount of groundwater draw-down by the Project wells. Construction of the Closed Basin Project began in the early 1980s and production began in 1988. The Project's "salvage" wells pump unconfined aquifer groundwater into the Closed Basin conveyance channel. That channel delivers the water out of the Closed Basin and into the Rio Grande downstream of Alamosa and upstream of the Rio Grande's confluence **[\*284]**with Trinchera Creek. [[188]](#footnote-189)188

B. Allocation of the Yield of the Closed Basin Project

"After the *Alamosa-La Jara*decision, water user groups in the Valley began discussing alternatives to continued litigation over the impact of well pumping on surface streams." [[189]](#footnote-190)189Those discussions looked to the Closed Basin Project and its promised additional supply of water to the Rio Grande as a means of resolving the conflict. After lengthy negotiations, in 1985 the Conejos Water Conservancy District, Rio Grande Water Users Association, San Luis Valley Water Conservancy District, Alamosa-La Jara Water Conservancy District, and Rio Grande Water Conservation District entered into an agreement known as the Resolution Regarding the Allocation of the Yield of the Closed Basin Project  *(*"60/40 Agreement"). Each party adopted substantially identical resolutions that asked the Rio Grande Water Conservation District to allocate the yield of the Project between the Rio Grande and the Conejos ***River*** and the District did so.

The 60/40 Agreement sought to address stream depletions caused by the then existing levels of production by wells in the Valley and thereby prevent injury to senior surface water rights as contemplated by the 1969 Act. The bases for and purposes of the 60/40 Agreement, as stated therein, include, *inter alia,*

(1) reducing the burden of curtailment of surface water rights to meet the obligations of the Compact which threatened "the economic stability of the San Luis Valley by reducing the total agricultural production within the Rio Grande Water Conservation District;" (2) avoid the threat to "the economic stability of the San Luis Valley" presented by a further reduction of total irrigated acreage within the Rio Grande Water Conservation District from well regulation; (3) use of the Project water to reduce the curtailment of surface diversions that would otherwise be required by the Compact while at the same time reducing claims of stream depletions from well pumping; and (4) to reduce the burdens of curtailment of surface diversions which are currently required to meet the delivery obligations of the Compact; (5) to restore higher levels of surface diversions within the District; and (6) to relieve well users within the District from claims that the operation of wells has reduced the discharges of the Rio Grande and Conejos ***River***. [[190]](#footnote-191)190

The 60/40 Agreement made a permanent allocation between the Rio Grande and Conejos ***river*** systems of that portion of the yield of the Project that is subject to section 104(b)(l) of the Project Authorization Act, priority one water. [[191]](#footnote-192)191The agreement calls for the yield of the Project's priority one water to be divided, as nearly as possible, on a 60/40 basis between the Rio Grande and the Conejos ***River***. It also contemplated that the water would be beneficially used **[\*285]**by exchange. [[192]](#footnote-193)192The use of Project water by exchange is physically possible because the Project water is delivered to the Rio Grande downstream of Alamosa and upstream of the confluences of the Rio Grande and both the Conejos ***River*** and Trinchera Creek. [[193]](#footnote-194)193"Essentially all surface water rights on the Rio Grande divert upstream from the outfall of the Project." [[194]](#footnote-195)194Diversions by the upstream water rights on the Rio Grande are typically curtailed to satisfy the Rio Grande's separate Compact delivery obligation at the ***Colorado***-New Mexico state line. [[195]](#footnote-196)195This means that Project water delivered to the Rio Grande can be used as a substitute supply for water that would otherwise be curtailed from upstream senior water rights to satisfy the Rio Grande's separate Compact obligation. [[196]](#footnote-197)196This has the effect of making more water available for diversion by the upstream water users on the Rio Grande.

Project water can be exchanged to the Conejos ***River*** system in much the same manner. The Conejos ***River***'s separate "Compact delivery obligation is measured at the Los Sauces gage, located on the Conejos ***River*** at its confluence with the Rio Grande." [[197]](#footnote-198)197Project water delivered in the Rio Grande can be substituted for the Compact deliveries otherwise required from the Conejos ***River*** at Los Sauces, thereby reducing the required Compact curtailment upstream on the Conejos, Los Pinos, and San Antonio ***rivers***. [[198]](#footnote-199)198

The Conejos Water Conservancy District and the Rio Grande Water Users Association obtained decrees approving plans of substitution and exchange that confirmed the use of Project water in the manner contemplated by the 60/40 Agreement. [[199]](#footnote-200)199The decree for the Conejos Water Conservancy District was entered in Case No. 1990CW47, and the decree for the Rio Grande Water Users Association was entered in Case No. 1990CW45. [[200]](#footnote-201)200

The Closed Basin Project did not commence partial operation until 1988, by which time Elephant Butte reservoir had spilled, ***Colorado***'s accrued debit under the Compact had been eliminated, and the lawsuit by Texas and New Mexico against ***Colorado*** had been dismissed. [[201]](#footnote-202)201For about the first ten years of its operation, the Closed Basin Project largely fulfilled its role, producing up to 45,000 acre-feet in some years. However, beginning in the late 1990s, iron bacteria began plugging the screens in the Project's production wells, greatly reducing their ability to produce water. All efforts short of drilling replacement wells failed to cure the iron bacteria problem. In addition, the drought of the early 2000s substantially reduced the inflow to the Closed Basin necessary to sustain the production of the Project. Accordingly, the Project is currently not capable of producing the full amount of water contemplated by the 60/40 Agreement.

**[\*286]**

VI. Groundwater Claims of American Water Development Inc.

If water users in the Valley believed that with the state engineer's moratorium on new groundwater appropriations and the 60/40 Agreement had laid to rest the disputes over groundwater use, that belief was shattered in December 1986 when American Water Development, Inc. ("AWDI") filed what was captioned as an "Application For Underground Water Rights or, in the Alternative, for the Determination of Rights to Nontributary Groundwater Outside of Designated Groundwater Basins" in the District Court for Water Division 3. [[202]](#footnote-203)202In that application, AWDI sought the right to withdraw 200,000 acre-feet of groundwater annually from wells to be located on more than 100,000 acres in the Closed Basin. The lands consisted of two separate parcels in the Closed Basin, one containing approximately 4,683 acres near the Town of Villa Grove in the northeastern part of the Valley and the other consisting of the 100,000-acre Baca Grant No. 4 and adjacent lands, located some twenty miles south of Villa Grove. [[203]](#footnote-204)203The application proposed to use 112 wells, 2,500 feet deep and perforated between the depths of 200 and 2,500 feet, the majority of which were to be located on Baca Grant No. 4 to withdraw water from the confined aquifer. [[204]](#footnote-205)204

AWDI's original application asserted four alternative legal bases for its claims:

(1) a claim for determination of a right to nontributary groundwater pursuant to section 37-90-137(4); (2) a claim to water underlying Baca Grant No. 4 under Spanish and Mexican law and the 1848 Treaty of Guadalupe Hidalgo between the United States and Mexico; (3) a claim to water underlying Baca Grant No. 4 under the Act of June 21, 1860, Ch. 167, [*12 Stat. 71*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:5C6W-DC90-01XN-S2RB-00000-00&context=1516831) (1860), under which AWDI's predecessors acquired that land from the United States, and (4) a claim for tributary ground water. [[205]](#footnote-206)205

Claims (2) and (3) asserted, in essence, "that by reason of the manner in which AWDI's predecessor obtained title to Baca Grant No. 4, all rights to underground water, whether tributary or not, underlying that tract were acquired by the original grantee and were later conveyed to AWDI." [[206]](#footnote-207)206

AWDI later amended the application to propose implementing pumping in phases, to change the number and location of wells, and to add a new fifth claim seeking approval of a plan for augmentation to address injury from the proposed groundwater withdrawals as well as other protective measures. [[207]](#footnote-208)207The original application indicated that the water would be used within the Valley, and the amended application disclosed that AWDI intended to export some of the water to ***Colorado***'s Front Range. [[208]](#footnote-209)208

During the pretrial proceedings, AWDI argued "that any injury to the Closed Basin Project that might otherwise result from AWDI's proposed **[\*287]**pumping should be addressed by requiring that the Project wells be deepened to produce water from the confined aquifer." [[209]](#footnote-210)209The decree for the Project's water rights included a requirement that, consistent with the Project's authorizing legislation, the depth of the production wells be restricted to the unconfined aquifer. [[210]](#footnote-211)210The water court granted partial summary judgment against AWDI on this issue, ruling that AWDI was barred by the underlying water rights decree for the Project from challenging the reasonableness of the means of diversion of the Project's wells. [[211]](#footnote-212)211

After more than five years of bruising pretrial litigation, during which AWDI's land grant and related claims to ownership of groundwater had been dismissed, [[212]](#footnote-213)212at the pretrial conference, AWDI moved (without notice) to dismiss without prejudice its claim to tributary groundwater and to proceed to trial only on its nontributary groundwater claim. [[213]](#footnote-214)213The water court granted the motion to dismiss the tributary claim without prejudice, subject to AWDI's payment of the opposers" costs and attorney fees incurred in preparing to defend against that claim. [[214]](#footnote-215)214

The case proceeded to trial and AWDI lost on the merits of the nontributary claim. [[215]](#footnote-216)215The water court found as a matter of fact that AWDI's proposed pumping would deplete the flows of the Rio Grande and San Luis Creek by some 7,400 acre-feet per year and Big Spring Creek in the Great Sand Dunes National Monument by some 3,600 acre-feet per year, and the court also found that there would be depletions to other streams, the Closed Basin Project, and to the unconfined aquifer of the Closed Basin. [[216]](#footnote-217)216The quantities of these depletions demonstrated that the groundwater AWDI sought to appropriate did not meet the standard for nontributary groundwater in [*section 37-90-103(10.5) of the* ***Colorado*** *Revised Statutes.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:68BY-DJC3-GXF6-82XJ-00000-00&context=1516831) [[217]](#footnote-218)217In post-trial proceedings, the water court awarded opposers their costs and attorney fees incurred in opposing the dismissed tributary claim. [[218]](#footnote-219)218AWDI appealed the water court's decisions, all of which were upheld on appeal. [[219]](#footnote-220)219

VII. San Luis Valley Protection Act, Title XV, § 1501, *Public Law 102-575*.

The United States owns a number of water dependent public resources in the San Luis Valley in addition to the Closed Basin Project and its related mitigation features. Those public resources included the Great Sand Dunes National Monument, now a national park, and the Alamosa and Monte Vista National Wildlife Refuges. AWDI's claims threatened to deplete stream flows in **[\*288]**the Great Sand Dunes National Monument, the water supply for the Closed Basin Project, and could have impacted the surface water supplies for the wildlife refuges, which are supplied from the Rio Grande. These threats to federal facilities did not go unnoticed in Congress.

In October 1992 Congress adopted the San Luis Valley Protection Act, § 1501-04 of *P.L. 102-575* to protect federal facilities from impacts from water projects that seek to export water from the Valley. [[220]](#footnote-221)220This act prohibits any agency or instrumentality of the United States from issuing

any permit, license, right-of-way, grant, loan or authorization or assistance for any project or feature of a project to withdraw water from the Valley for export to another basin in ***Colorado*** or to any portion of another State, unless the Secretary of Interior determines that the project will not (1) increase the costs or negatively affect operation of the Project; (2) adversely affect the purposes of any national wildlife refuge or Federal wildlife habitat area withdrawal in the Valley; or (3) adversely affect the purposes of the Grand Sand Dunes National Monument. [[221]](#footnote-222)221

In so doing, Congress made clear its view of the importance of the protection of water supplies for water-dependent federal facilities and purposes in the Valley.

VIII. Compact Limitations on New Appropriations in Water Division No. 3: Application of Tres Rios Ranch, Case No. 91CW29.

In December 1991, shortly after the conclusion of the AWDI trial, Tres Rios Ranch filed an application for conditional surface water rights claiming 12 c.f.s. from the Rio Grande. [[222]](#footnote-223)222The points of diversion for the claimed water rights were on the Rio Grande downstream of its confluence with Trinchera Creek and adjacent to the confluence of the Rio Grande and the Conejos ***River*** at Los Sauces. [[223]](#footnote-224)223The claimed points of diversion were downstream from all other water rights diverting from the Rio Grande, the outfall of the Closed Basin Project, and the outfall of the Norton Drain that returned water to the Rio Grande from the La Jara Creek drainage. [[224]](#footnote-225)224The central dispute was whether there was unappropriated water available for diversion by Tres Rios without injury to the vested water rights of others. [[225]](#footnote-226)225

The Rio Grande Water Users Association ("RGWUA") opposed the application and argued, *inter alia*, that, on the over-appropriated Rio Grande, Tres Rios may only divert water without causing injury to senior vested water rights when either of the following two conditions is satisfied:

(1) Elephant Butte Reservoir (Rio Grande Project storage) has spilled or, is **[\*289]**certain to spill so that under Article VI of the Compact no credits and debits will be calculated for ***Colorado*** under the Compact for that year; or

(2) ***Colorado*** has obtained or is certain to obtain an annual credit in excess of 150,000 acre-feet, the maximum amount allowed by the Compact in any year. [[226]](#footnote-227)226

RGWUA also asserted that any diversions by Tres Rios must also be in priority with respect to other water rights in ***Colorado***. [[227]](#footnote-228)227

Tres Rios, on the other hand, asserted that because it was the last and most junior water right on the Rio Grande before the New Mexico state line, diversions from the Rio Grande could not cause injury to upstream water rights. [[228]](#footnote-229)228The applicant argued that it was entitled to divert water "in priority" when: (1) both ***Colorado*** and the Rio Grande have either a zero balance or a credit under the Compact; (2) the Rio Grande has met or is certain to meet its annual obligation under its separate schedule of deliveries; and (3) no senior water rights are then being curtailed for Compact purposes. [[229]](#footnote-230)229Tres Rios also asserted the right to divert "in priority" under the two conditions identified by the RGWUA. [[230]](#footnote-231)230

The RGWUA's argument was based upon the terms of the Compact, the manner in which water rights on the Rio Grande are administered for Compact purposes, the authorizing legislation for the Closed Basin Project, the 60/40 Agreement, and the Rio Grande Water Conservation District's allocation between the Rio Grande and the Conejos' salvaged water developed by the Norton Drain and delivered to the Rio Grande. [[231]](#footnote-232)231The RGWUA argued that diversions by Tres Rios would reduce the amount of water being delivered by the Rio Grande to comply with its separate Article III delivery schedule. [[232]](#footnote-233)232A reduction in those deliveries, except under the specific conditions identified by the RGWUA, would result in greater curtailment of senior upstream water rights on the Rio Grande in order to comply with the Rio Grande's Article III Comact delivery schedule. [[233]](#footnote-234)233In other words, the RGWUA's argument was that Tres Rios would be diverting water that was being curtailed from upstream senior water rights for delivery to the state line, thereby injuring upstream senior water rights,or reducing ***Colorado***'s credits that were intended to protect levels of use existing during the Compact study period. In addition, to the extent that Project water or Norton Drain water was being delivered to the Rio Grande to assist in meeting the state of ***Colorado***'s commitments under the Compact, the applicant had no right to divert and use such water. [[234]](#footnote-235)234

To resolve these conflicting claims, the water court found it necessary to review the history of water development in the San Luis Valley, the history and **[\*290]**purpose of the Compact, including the purposes and operation of the credits and debits provisions of Article VI of the Compact, and the administration of the Compact. [[235]](#footnote-236)235The water court also had to address the purposes of the Closed Basin Project, the 60/40 Agreement, and the agreement allocating the flows of the Norton Drain. [[236]](#footnote-237)236

After reviewing the history of the Compact, the water court concluded that:

The overriding object sought to be attained in the equitable apportionment of the Rio Grande was the maintenance of the levels of water use then existing in the various sections of the Basin. The mechanism utilized for equitable apportionment consists principally of fixing delivery obligations that preserve a level of water usage in ***Colorado*** and New Mexico by means of the tabulations of relationship established for the Conejos ***River*** and the Rio Grande mainstem (in Article III), and for the portion of New Mexico above Elephant Butte Reservoir (in Article IV), and the provision for credits and debits (in Article VI) to account for anticipated departures from scheduled deliveries. [[237]](#footnote-238)237

The water court went on to explain that an important component of Compact deliveries is the gain to flows of the Rio Grande below Alamosa and above the Lobatos gage. [[238]](#footnote-239)238The gains were relied upon to preserve the levels of use contemplated by the Rio Grande's Article III schedules of delivery. [[239]](#footnote-240)239Moreover, the gains in flow below Alamosa historically were available to assist the Rio Grande in meeting its separate delivery obligation so that a decrease in the amount of the gains in this reach of the Rio Grande will generally result in a decrease in Compact deliveries absent a corresponding increase in curtailment of upstream senior water rights. [[240]](#footnote-241)240The water court then explained that credits for over-delivery in any one year are available for use in ***Colorado*** by exchange in the following year or years in the form of a reduction in quantity of water that must be delivered to meet the Rio Grande's separate Compact delivery schedule. [[241]](#footnote-242)241Thus, diversion by Tres Rios that depleted the flows of the Rio Grande could cause injury to upstream senior water rights by reducing the quantity of water being delivered to satisfy the Rio Grande's delivery schedule, either by reducing credits or increasing debits, both of which would result in increased curtailment of senior water rights.

The water court then turned to the question of whether Tres Rios was entitled to benefit from water delivered by the Closed Basin Project to the Rio Grande upstream of the Tres Rios diversions. The water court explained that the first priority for use of Project water is to assist water users on the Rio Grande and Conejos ***River*** to meet their respective delivery obligations under Article III of the Compact; the second priority for the use of Project water is for the delivery of water to wildlife areas; and the third priority is sale for use in ***Colorado*** for irrigation and other purposes. [[242]](#footnote-243)242The water court concluded that **[\*291]**water provided from the Project under the first priority was not intended to be used as a source of supply for new appropriations. [[243]](#footnote-244)243Instead, that water is made available to assist existing users on the Rio Grande and the Conejos ***River*** to meet the ***rivers***' respective obligations under Article III of the Compact. [[244]](#footnote-245)244Any new uses of water made possible by the Project are to come from water delivered under the third priority and be purchased by contract. [[245]](#footnote-246)245

Water from the Norton Drain enters the Rio Grande upstream of the Tres Rios points of diversion. [[246]](#footnote-247)246The Rio Grande Water Conservation District owns the water right decreed to the Norton Drain in Case No. W-4 dated March 16, 1971. [[247]](#footnote-248)247The Norton Drain intercepts and salvages water in Conejos County, and one-half of the water flowing in the drain is "salvaged" or "developed" water, and the remainder is tributary water subject to administration within the priority system. [[248]](#footnote-249)248The water court explained that the Rio Grande Water Conservation District had allocated the yield of the Norton Drain between the Rio Grande and the Conejos ***River***. [[249]](#footnote-250)249That allocation was made in connection with a Memorandum of Understanding entered into in January 1991 between the state engineer, the Conejos Water Conservancy District, and the RGWUA to address Compact administration and related issues. [[250]](#footnote-251)250Thus, the water produced by the Norton Drain was fully allocated to the Rio Grande and Conejos ***River*** systems for use in meeting their respective Compact delivery schedules.

With this background, the water court addressed Tres Rios's argument that its claimed conditional water rights were "in priority" to divert water "any time at which: (a) both ***Colorado*** and the Rio Grande have either a zero balance or a credit under the Compact; (b) the Rio Grande has met or is certain to meet its annual obligation under its separate schedule of deliveries; and, (c) no senior water rights are then being curtailed for Compact purposes." [[251]](#footnote-252)251As part of this argument, Tres Rios claimed that in determining whether the Rio Grande has met its annual scheduled Compact delivery, all the Project water delivered under the first priority and all Norton Drain water delivered to the credit of the Rio Grande should be included. [[252]](#footnote-253)252The water court pointed out that the effect of this claim was to make Tres Rios a beneficiary of Project priority one deliveries and Norton Drain water. [[253]](#footnote-254)253The water court rejected this claim, finding that Tres Rios had no entitlement to benefit from this water under either the Project authorizing legislation or the Rio Grande Water Conservation District's water rights decrees for either the Project or the Norton Drain. [[254]](#footnote-255)254

With respect to the remaining claims, the water court found diversions under such circumstances would result in injury to senior vested water rights. The **[\*292]**water court held:

The evidence establishes, as a matter of fact, that new depletions, such as those proposed by the Applicant, will reduce Compact credits and require increased curtailment of senior water rights to ensure ***Colorado***'s compliance with the Compact. The effect of this will be to deprive senior vested water rights of water that would otherwise be available at the time and in the place of their need. [[255]](#footnote-256)255

Tres Rios and the RGWUA agreed that the claimed conditional water rights would be in priority and entitled to divert in years when Elephant Butte Reservoir (Rio Grande Project Storage) spills or when a spill is certain to occur and in years when ***Colorado*** has or is certain to obtain an annual credit in excess of 150,000 acre-feet under Article VI of the Compact. [[256]](#footnote-257)256Based on this agreement and its findings based on the evidence and applicable law, the water court approved conditional water rights for Tres Rios, subject to the conditions that Tres Rios could divert water from the Rio Grande only in years in when:

(1) Elephant Butte Reservoir has spilled or, in the judgment of ***Colorado***'s Commissioner on the Rio Grande Compact Commission, is certain to spill and under Article VI of the Compact no credits and debits will be calculated for ***Colorado*** under the Compact for that year; or, (2) ***Colorado*** has obtained or, in the judgment of ***Colorado***'s Commissioner on the Rio Grande Compact Commission, is certain to obtain an annual credit in excess of 150,000 acre-feet. Any such diversions must also be in priority with respect to other water rights in ***Colorado***. [[257]](#footnote-258)257

The *Tres Rios* decision is a significant milestone under the 1969 Act because it looks to the administration and operation of an interstate Compact to determine when there is unappropriated water available in priority. It operates to afford the existing water rights in ***Colorado*** the protections intended to be provided by the Compact and prevents new appropriations from eroding those protections.

IX. HB 98-1011: The Need for Better Science to Manage the Confined Aquifer

As part of ***Colorado***'s effort to acquire the information needed to implement the 1969 Act in Water Division No. 3, the U.S. Geological Survey, in cooperation with the ***Colorado*** Water Conservation Board, conducted a number of investigations into the water resources of the San Luis Valley in the late 1960s and early 70s. [[258]](#footnote-259)258After 1973, however, there had been no systematic investigations into the hydrology and geology of the Valley as a whole to provide **[\*293]**a better and more complete understanding of the Valley's water resources. In the mid-1990s, AWDI's successor, Cabeza de Vaca Land and Cattle, renewed efforts to develop groundwater from the confined aquifer for export from the San Luis Valley. In the face of this renewed threat to the Valley's groundwater resources, water users in the Valley sought help from the State of ***Colorado*** to undertake the scientific investigations needed to determine if and how further groundwater development could occur in the Valley without injury to vested water rights or interference with the state's obligations under the Compact. The result of this effort was House Bill 1998-1011 ("HB 98-1011"), which amended the 1969 Act.

As summarized by the water court:

HB 98-1011 recognized that, at that time, there was insufficient comprehensive data and knowledge of the relationship between the surface streams and the Confined Aquifer System to permit a full understanding of the effect of the groundwater withdrawals upon the natural stream and aquifer system within Water Division 3. Ch. 231, sec. 1, 1998 ***Colo.*** Sess. Laws 852, [*section 37-90-102(3)(a), C.R.S.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3C2-00000-00&context=1516831) (2005). HB 98-1011 directed the State Engineer to promulgate rules governing new withdrawals of groundwater affecting the Confined Aquifer System, based upon a specific study of the Confined Aquifer System. *Id*. sec. 2; [*section 37-90-137(12)(b)(I), C.R.S.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SN93-GXF6-81VM-00000-00&context=1516831) (2003). Subsection (12)(b)(I), provided that any well permit in Water Division 3 that involves a new withdrawal of groundwater that will affect the rate or direction of movement of water in the Confined Aquifer System, referenced in section 37-90-102(3), shall be permitted pursuant to a judicially approved plan for augmentation that, in addition to all other lawful requirements for such plans, shall be subject to the requirements of rules for the withdrawal of such groundwater that are promulgated by the State Engineer pursuant to the procedures of section 37-92-501(2). Subsection (12)(b)(I) required that those rules be promulgated by July 1, 2001, which date was later extended several times to July 1, 2004. Ch. 67, sec. 2, 2001 ***Colo.*** Sess. Laws 158, 159; Ch. 239, sec. 3, 2003 ***Colo.*** Sess. Laws 1595, 1597. [[259]](#footnote-260)259

Section 37-90-137(12)(b)(I) stated that the state engineer, when promulgating the rules, "shall recognize that unappropriated water is not made available and injury is not prevented as a result of the reduction of water consumption by nonirrigated native vegetation." [[260]](#footnote-261)260That section went on to provide that any such rules must

permit the development of the water resources of water division 3 in a manner that will protect ***Colorado***'s ability to meet its interstate Compact obligations and to prevent injury to senior appropriators in the order of their priorities, and with due regard for daily, seasonal, and longer demands on the water supply... .The state engineer and the ***Colorado*** Water Conservation Board shall proceed with diligence to complete needed studies. [[261]](#footnote-262)261

**[\*294]**HB 98-1011 also addressed augmentation plans for the use of water from the confined aquifer, and it added section 37-92-305(6)(c) to require plans for augmentation for any application in Water Division 3 that involves new withdrawals of groundwater that will affect the rate or direction of movement of water in the confined aquifer system. [[262]](#footnote-263)262It went on to provide that, in addition to all other lawful requirements for such plans, the augmentation plan must "recognize that unappropriated water is not made available and injury is not prevented as the result of the reduction of water consumption by nonirrigated native vegetation." [[263]](#footnote-264)263Significantly, it also required that "in any such augmentation plan decree, the court shall also retain jurisdiction for the purpose of revising such decree to comply with the rules and regulations promulgated by the state engineer pursuant to section 37-90-137(12)(b)(I)." [[264]](#footnote-265)264This latter provision eliminated any potential benefit to obtaining approval of a plan for augmentation of new uses from the confined aquifer before the required studies were completed and the rules were adopted.

The specific study required by HB 98-1011 was undertaken jointly by the state engineer and the ***Colorado*** Water Conservation Board and is known as the Rio Grande Decision Support System, or RGDSS. The study

involved collection and evaluation of existing data, supplementation of the existing data with new studies, development of several models and the organization of the data and models into an accessible format. The RGDSS Study was carried out in phases from 1998 through 2004 and cost some $ 5 million of state funds, together with significant monetary and in-kind resources from water users. The evidence before the Court shows that the RGDSS Study is one of the most comprehensive studies of the Valley's geology and hydrology that has ever been undertaken. [[265]](#footnote-266)265

The RGDSS Study provided the basis for the state engineer's 2004 promulgation under the 1969 Act of the Rules Governing New Withdrawals of Ground Water in Water Division 3 Affecting the Rate or Direction of Movement of Water in the Confined Aquifer System, also known as the Confined Aquifer New Use Rules, discussed in section XI below.

X. The Drought of 2000-2004 and Senate Bill 04-222

Prior to 2000, the average annual flow of the Rio Grande at the Del Norte gauge was 640,000 acre-feet. In 2002, the annual flow at Del Norte was only 156,400 acre-feet, the driest year of record on the Rio Grande, falling below the lowest level of the Rio Grande's schedule of deliveries in Article III of the Compact. The average annual flow of the Rio Grande at Del Norte for the period 2000 to 2004 was 423,980 acre-feet, making it the driest consecutive five-year period of recorded stream flow on the Rio Grande. With decreased stream flow came increased reliance on groundwater, which in turn resulted in declines in groundwater levels and depletions to stream flows. In 2002, no Compact **[\*295]**curtailment was needed to make the scheduled Compact deliveries. As a consequence, water delivered to the Rio Grande by the Closed Basin Project did not make more water available for diversion by upstream surface water rights to offset the effects of well pumping. Given this, water users in the San Luis Valley began discussing ways to protect both surface water rights and groundwater uses and groundwater supplies in the Valley, and to do so in a manner that was less destructive than the methods of groundwater regulation applied in the Arkansas and South Platte ***River*** Basins.

In 2004, at the urging of water users from the San Luis Valley, the General Assembly enacted Senate Bill 04-222 ("SB 04-222"). [[266]](#footnote-267)266SB 04-222 amended the 1969 Act by adding a new subsection (4) to section 37-92-501 that is applicable only to rules and regulations governing the use of "underground water" in Water Division No. 3. [[267]](#footnote-268)267This new subsection provides, in part:

(4) (a) In addition to the provisions of subsection (2) of this section, when adopting rules governing the use of underground water in division 3, and in recognition of the unique geologic and hydrologic conditions and the conjunctive use practices prevailing in division 3, the state engineer shall have wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights ... . In regulating an aquifer or system of aquifers in division 3, the state engineer shall apply the following principles:

(I) Use of the confined and unconfined aquifers shall be regulated so as to maintain a sustainable water supply in each aquifer system, with due regard for the daily, seasonal, and long-term demand for underground water... .

(III) Fluctuations in the artesian pressure in the confined aquifer system have occurred and will continue to occur in response to climatic conditions, water supply, and water demands. Subject to subparagraph (IV) of this paragraph (a), such pressure fluctuations shall be allowed with the ranges that occurred during the period of 1978 through 2000. Artesian pressures shall be allowed to increase in periods of greater water supply and shall be allowed to decline in periods of lower water supply in much the same manner and within the same ranges of fluctuation as occurred during the period of 1978 through 2000, while maintaining average levels similar to those that occurred in 1978 through 2000... .

(V) Underground water use shall not unreasonably interfere with the state's ability to fulfill its obligations under the Rio Grande compact, codified in article 66 of this title, with due regard for the right to accrue credits and debits under the compact. [[268]](#footnote-269)268

SB 04-222 also contains additional requirements for the groundwater rules:

(b) In adopting rules pursuant to paragraph (a) of this subsection (4), the state engineer shall:

**[\*296]**

(I) Recognize contractual arrangements among water users, water user associations, water conservancy districts, groundwater management subdistricts, and the Rio Grande water conservation district, pursuant to which:

(A) Water is added to the stream system to assist in meeting the Rio Grande compact delivery schedules or to replace depletions to stream flows resulting from the use of underground water; or ...

(III) Not recognize the reduction of water consumption by phreatophytes as a source of replacement water for new water users or to replace existing depletions, or as a means to prevent injury from new water uses. [[269]](#footnote-270)269

SB 04-222 also provides that the state engineer is not to curtail pumping from wells in Division No. 3 that are included in a groundwater management subdistrict with a judicially approved management plan that meets the requirements of paragraphs (a) and (b) of section 37-92-501(4). [[270]](#footnote-271)270

SB 04-222 signifies an important evolution of the 1969 Act and imposes a limitation on the doctrine of "maximum utilization." No longer is the goal of groundwater management in Water Division No. 3 simply to maximize the use of the available water supply. Rather, the goal is to manage the groundwater supply to make it sustainable, to protect surface water rights from injurious stream depletions, and to assure compliance with the Compact. The fundamental and unique requirement of this statute is that the aquifers in Water Division No. 3 are to be managed to achieve and maintain a sustainable water supply in each aquifer system, with due regard for the daily, seasonal, and long-term demand for groundwater. [[271]](#footnote-272)271

It also requires that injurious stream depletions be replaced or that they be remedied *by a means other than providing water*. [[272]](#footnote-273)272This unique provision has allowed for forbearance agreements pursuant to which a water user can agree to forego replacement water in exchange for money or other consideration. This is another significant evolution of the "no-injury" standard of the 1969 Act: it recognizes the right of a water user to contract for a remedy different than the receipt of water to offset well depletions to stream flow.

This legislation also permits a limited form of self-regulation not available in other parts of the state. Groundwater users whose wells are included in a groundwater management subdistrict where the withdrawals are made pursuant to a groundwater management plan adopted by the subdistrict that meets the requirements of the statute are not subject to separate regulation by the state engineer. [[273]](#footnote-274)273The state engineer and the water court must approve the plan of water management to ensure that it prevents or otherwise remedies injury to other vested water rights and meets the aquifer sustainability requirements of [*section 37-92-501(4)(a) of the* ***Colorado*** *Revised Statutes.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) [[274]](#footnote-275)274

To provide for equitable administration between groundwater users and **[\*297]**surface water rights that are administered for Rio Grande Compact purposes, SB 04-222 required the state engineer to establish criteria for the beginning and end of the Division No. 3 irrigation season for all irrigation water rights. [[275]](#footnote-276)275This means that both surface water rights and groundwater rights used for irrigation purposes have the same lawful season of use. Thus, when the irrigation season ends for surface water rights, groundwater users must stop irrigation as well. This is, in effect, a codification of the coordinated curtailment of both surface water and groundwater rights first proposed in the 1975 Rules.

XI. Confined Aquifer New Use Rules

A. Summary of Rules

In June 2004, the state engineer promulgated the rules governing new uses of the confined aquifer as directed by HB 98-1011. [[276]](#footnote-277)276They are titled "Rules Governing New Withdrawals of Ground Water in Water Division 3 Affecting the Rate or Direction of Movement of Water in the Confined Aquifer System," and are also referred to as "Confined Aquifer New Use Rules for Division 3," or simply "New Use Rules". [[277]](#footnote-278)277The New Use Rules govern new withdrawals of groundwater from the Confined Aquifer System (as defined therein).

There are only nine New Use Rules. Rule 1 is the title, Rules 2 states the authority for the rules, and Rule 3 explains the scope and purpose of the rules. As stated in Rule 3, the New Use Rules establish

(1) criteria to determine if a new withdrawal of groundwater from the Confined Aquifer System will affect the rate or direction of movement of water in the Confined Aquifer System; (2) requirements for new withdrawals of groundwater from the Confined Aquifer System that will affect the rate or direction of movement of water in the Confined Aquifer System, and (3) requirements to ensure that a new withdrawal of groundwater from the Confined Aquifer System will not cause fluctuations in the artesian pressures in the Confined Aquifer to fall outside the ranges that occurred during the period of 1978 through 2000 and to maintain average artesian pressure levels similar to those that occurred in 1978 through 2000. [[278]](#footnote-279)278

Rule 4 contains the definition of terms used in the New Use Rules. Central to these rules are definitions of "Confined Aquifer" and "Confined Aquifer System." Rule 4.A.1. defines Confined Aquifer to mean:

the formations, groups of formations, or parts of formations underlying portions of Water Division 3 consisting in part of unconsolidated clays, silts, sands, gravels, and interbedded volcanic rock and containing saturated permeable material that yields water under artesian pressure that is or may be extracted and applied to a beneficial use. The Confined Aquifer includes any formation, group of formations, or part of a formation containing saturated permeable material that yielded water under artesian pressure during the period **[\*298]**1978-2000, whether or not the water level in the formation, group of formations, or part of a formation is under artesian pressure conditions at the time of the proposed new withdrawal of groundwater. [[279]](#footnote-280)279

This Rule defines the Confined Aquifer to include aquifers that were under artesian pressure during the 1978 to 2000 time period, regardless of whether the aquifer or portion thereof continued to have artesian pressure after 2000. [[280]](#footnote-281)280Thus, to determine whether a proposed well is in the Confined Aquifer for purposes of these Rules, it is necessary to know the aquifer conditions existing in the 1978 to 2000 time period at the location in question.

Rule 4.A.2 defines "Confined Aquifer System" to mean "the Confined Aquifer and those areas in Water Division 3 not overlying a confining layer, but which provide inflow to the Confined Aquifer." [[281]](#footnote-282)281This means that wells around the periphery of the Valley, in areas that provide inflow to the Confined Aquifer, are within the Confined Aquifer System and subject to the rules, despite the fact that the wells in such locations are not under artesian pressure. It was plainly necessary for the state engineer to include such wells in the New Use Rules because withdrawal of water from these areas will reduce the water supply to the Confined Aquifer and affect the pressure regime in the Confined Aquifer.

Rule 4.A.8 defines "new withdrawals of ground water" to mean the withdrawal of groundwater from a well not yet in existence, the withdrawal of a new, increased, or additional supply of groundwater from an existing well, or the conversion of an existing observation or monitoring well into a production well. [[282]](#footnote-283)282This covers any new wells and any non-permitted or undecreed withdrawals from existing wells in the Confined Aquifer System.

Rule 5 contains the principles and findings upon which the New Use Rules are based. Rule 5 summarizes the legal and factual standards the state engineer must apply when promulgating the rules. [[283]](#footnote-284)283Rule 5.D makes the significant finding that a groundwater model is necessary to determine whether new withdrawals of groundwater from the Confined Aquifer System will affect the rate or direction of movement of water in the Confined Aquifer System as well as the effects of such withdrawals on the unconfined aquifer, fluctuations in artesian pressures in the Confined Aquifer, and the flows of natural streams. [[284]](#footnote-285)284Rule 5 goes on to find that RGDSS provides a basis for understanding the relationship between surface streams and the Confined Aquifer System and the effect of groundwater withdrawals from the Confined Aquifer on fluctuations in artesian pressures in the aquifer. [[285]](#footnote-286)285

Rule 5.F. contains the predicate finding for the New Use Rules, namely that the Confined Aquifer System is over-appropriated and that new withdrawals of groundwater from the Confined Aquifer System will cause changes in the artesian pressures in the Confined Aquifer and will affect the rate and direction of **[\*299]**movement of groundwater in the Confined Aquifer System. [[286]](#footnote-287)286Thus, absent proper augmentation, new withdrawals of groundwater subject to the New Use Rules that will affect the rate or direction of movement of water in the Confined Aquifer System will materially injure vested water rights and increase the burden of ***Colorado***'s scheduled deliveries under the Rio Grande Compact.

Rule 6 is the heart of the New Use Rules: the requirements for new withdrawals of groundwater affecting the Confined Aquifer System. Pursuant to Rule 6.A.1, the state engineer will use the RGDSS Groundwater Model to determine if a new withdrawal of groundwater from the Confined Aquifer System will affect the rate or direction of movement of water in the Confined Aquifer System. [[287]](#footnote-288)287In making this determination, the reduction of water consumption by non-irrigated native vegetation does not make unappropriated water available, cannot be used to offset depletions caused by new withdrawals of groundwater, and does not prevent injury. [[288]](#footnote-289)288

Rule 6.B. establishes the standards to be applied by the state engineer to determine if injury to vested water rights caused by new withdrawals of groundwater from the Confined Aquifer System will be prevented. [[289]](#footnote-290)289To prevent injury to other vested water rights caused by a new withdrawal of groundwater from the Confined Aquifer, the applicant must offset the new withdrawals by either changing the point of diversion or permanently retiring existing vested water rights to withdraw groundwater from the Confined Aquifer that have an historical withdrawal that is equal to the new, increased, or additional supply of groundwater the applicant proposes withdraw from the Confined Aquifer. [[290]](#footnote-291)290This Rule effectively requires one-for-one replacement of new withdrawals.

If a new withdrawal from the Confined Aquifer System is to be based upon the change or permanent retirement of an existing right to withdraw groundwater from the Confined Aquifer, then Rule 6.B.2.a requires that the changed or retired water right be located such that the water to be made available by permanently retiring the right or rights will prevent injury to the vested water rights of others from a new withdrawal. [[291]](#footnote-292)291Exhibit 1 to the rules is a map that divides the Valley into four hydrologic zones, and Rule 6.B.2.a creates a rebuttable presumption that an existing well in a different hydrologic zone, or that withdraws from a different layer of the Confined Aquifer, is not located so as to prevent injury. [[292]](#footnote-293)292

Moreover, under Rule 6.B.4., no new withdrawal of groundwater from the Confined Aquifer system is permitted if such withdrawal would cause fluctuations in artesian pressures in the Confined Aquifer to fall outside of the ranges that occurred during the period of 1978 through 2000, or prevent the maintenance of average artesian pressure levels similar to those that occurred in 1978 through 2000, which again is the pressure range established by SB 04-222. [[293]](#footnote-294)293

**[\*300]**With respect to Compact compliance, Rule 6.B.5. recognizes that:

because there are only limited times when depletions to the flows of natural streams ... ...will not cause injury to senior appropriators or impair ***Colorado***'s ability to meet its interstate Compact obligations under the Rio Grande Compact, the applicant must demonstrate that replacement water necessary to meet the lawful requirements of a senior appropriator at the time and location and to the extent the senior would be deprived of his or her lawful entitlement, and to meet ***Colorado***'s interstate Compact obligations under the Rio Grande Compact, will be available to replace all depletions to the flows of natural streams, including a natural stream defined in section 37-82-101(2) and 37-92-102(1)(b), caused by a new withdrawal of ground water from the Confined Aquifer System. [[294]](#footnote-295)294

The effect of Rule 6.B.5. is to require adequate water supplies to replace depletions to both flowing surface streams and to the unconfined aquifer of the Closed Basin. The requirement to replace depletions to the unconfined aquifer in the Closed Basin arises under [*sections 37-82-101(2)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J36W-00000-00&context=1516831) and [*37-92-102(1)(b) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3FN-00000-00&context=1516831), which apply to the streams entering the Closed Basin and the unconfined aquifer of the Closed Basin. [[295]](#footnote-296)295

Rule 6.B, however, does not preclude an applicant seeking a new withdrawal of groundwater from the Confined Aquifer from proposing and attempting to demonstrate that injury to the vested water rights - including fluctuations in the artesian pressures in the Confined Aquifer that would fall outside the ranges that occurred during the period of 1978 through 2000 - can be prevented through recharge or injection of water into the Confined Aquifer System. [[296]](#footnote-297)296

Rule 6.B.6. requires the state engineer to use the RGDSS Groundwater Model to determine the amount, time, and location of depletions and fluctuations in artesian pressures that would be caused by any new withdrawal of groundwater from the Confined Aquifer System. [[297]](#footnote-298)297Rule 6.B.6. also creates a rebuttable presumption that the version of the RGDSS Groundwater Model in use at the time an application for a plan for augmentation is filed accurately determines the amount, time, and location of depletions and fluctuations in artesian pressures that would be caused by a new withdrawal of groundwater from the Confined Aquifer System. [[298]](#footnote-299)298

In summary, the New Use Rules preclude new withdrawals from the Confined Aquifer System without retiring an equal amount of existing use from that aquifer or recharging the Confined Aquifer System with an amount of water equal to the quantity of the proposed withdrawal. Moreover, no new withdrawal of groundwater from the Confined Aquifer can cause fluctuations in artesian pressures in the Confined Aquifer to fall outside of the ranges that occurred during the period of 1978 through 2000 and average artesian pressure levels similar to those that occurred in 1978 through 2000 must be maintained.

**[\*301]**

B. Challenge to Rules, Water Court Decision, and ***Colorado*** Supreme Court Decision on Appeal

The New Use Rules were filed with the water court in June 2004. Nine Statements of Opposition were filed, a number of which supported the Rules, including the Statements of Opposition filed by the Rio Grande Water Conservation District ("RGWCD"), the Rio Grande Water Users Association ("RGWUA"), and the Conejos Water Conservancy District ("CWCD"). [[299]](#footnote-300)299Only the protests filed by Cotton Creek Circles, LLC, San Luis Valley Water Company, and ***Colorado*** Association of Homebuilders ("Protestors") went to trial. [[300]](#footnote-301)300

The Protestors challenged the constitutionality of the Rules and the laws on which they are based, HB 98-1011 and SB 04-222, on three grounds: (1) the Rules *,*HB 98-1011, and SB 04-222 prohibit the right to appropriate the water of the State contrary to Article XVI, sections 5 and 6 of the ***Colorado*** Constitution; (2) the Rules *,*HB 98-1011, and SB 04-222 violate Equal Protection provisions under [*Article II, section 25 of the* ***Colorado*** *Constitution*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61VF-9YD1-DYDC-J4KT-00000-00&context=1516831) and the [*Fourteenth Amendment of the United States Constitution*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8T9R-T5M2-D6RV-H38C-00000-00&context=1516831); and (3) the Rules *,*HB 98-1011, and SB 04-222 are unconstitutionally vague in violation of the due process requirements of the ***Colorado*** and United States Constitutions. [[301]](#footnote-302)301

The Protestors also challenged the provisions that require that all new appropriation be "offset by the retirement or change of an equivalent existing water right, (i.e., 100% augmentation), without regard to whether such new appropriations cause injury to a vested water right, and the provisions that relate to the treatment of evapotranspiration of groundwater ... ...of non-irrigated native vegetation." [[302]](#footnote-303)302Protestor Cotton Creek also asserted that "the Rules improperly assume the Confined Aquifer is over appropriated in the same manner as the unconfined aquifer and surface streams." [[303]](#footnote-304)303

The Protestors asserted further that the New Use Rules improperly sought "to maintain artesian pressure in a range and at an average that occurred between 1978-2000 without giving a valid legal basis for requiring that such range or average be maintained." [[304]](#footnote-305)304They also claimed that to the extent the Rules rely upon SB 04-222, the Rules have "interpreted SB 04-222 in a way that is unlawful, unconstitutional, arbitrary and capricious, or, alternatively, that SB 04-222 itself is unlawful and unconstitutional." [[305]](#footnote-306)305In addition, the Protestors raised an extensive list of challenges to the adequacy and reliability of the RGDSS Groundwater Model and numerous challenges to the statutory bases for the Rules and the state engineer's administration of groundwater rights in the Valley. [[306]](#footnote-307)306

A twenty-six day trial was held on the protests in January, February, and **[\*302]**March 2006. In November 2006, Water Judge O. John Kuenhold entered his 191-page Findings of Fact, Conclusions of Law, Judgment, and Decree upholding the Confined Aquifer New Use Rules. In December 2006, Judge Kuenhold made several technical amendments to this decision. The New Use Rules Decree contains a comprehensive review of the evidence and detailed factual and legal analyses, and it ultimately rejects each of the Protestors' challenges to the Rules and approved the Rules subject to certain terms and conditions. The decision is remarkable for its scope, completeness, and scholarship.

The Protestors appealed the water court's decision to the ***Colorado*** Supreme Court. On appeal, the Protestors raised the same legal challenges they raised before the water court. In *Simpson v. Cotton Creek Circles*, the ***Colorado*** Supreme Court sustained Judge Kuenhold's decision in all respects. [[307]](#footnote-308)307

XII. Groundwater Measurement Rules

The RGDSS Groundwater Model, used as the basis for the Confined Aquifer New Use Rules, relied upon estimates of groundwater pumping. To provide better data for future phases of the RGDSS Groundwater Model and to assist in the enforcement of well permits and groundwater decrees, in June 2005, the state engineer promulgated the Rules Governing the Measurement of Ground Water Diversions Located in Water Division No. 3, the Rio Grande Basin. [[308]](#footnote-309)308The Groundwater Measurement Rules required all active, non-exempt wells decreed or permitted to divert more than fity gpm to have a measurement device installed by March 1, 2007. [[309]](#footnote-310)309Beginning December 1, 2008, all well users had to begin reporting to the division engineer their groundwater usage for the preceding November 1 to October 31 period. [[310]](#footnote-311)310The Groundwater Measurement Rules contain standards for acceptable measurement methods and periodic verification of the accuracy of the meter or other measurement methodology. [[311]](#footnote-312)311The data provided under these Rules has improved and will continue to help improve the reliability of the RGDSS Groundwater Model.

XIII. Great Sand Dunes National Park and Preserve Act of 2000 and Associated Water Rights

Central to the administration of groundwater rights under the 1969 Act in Water Division No. 3 is the unique in-place groundwater right of the Great Sand Dunes National Park. In the late 1990s, Cabeza de Vaca Land and Cattle Company, AWDI's successor-in-title to the Baca Grant Ranch and adjacent lands, expressed an interest in selling that property. The National Park Service, the Fish and Wildlife Service, and the Forest Service were all interested in federal ownership of major parts of this property. The Nature Conservancy, the owner of the Medano and Zapata Ranches, which lie generally south of the **[\*303]**Great Sand Dunes National Monument, was very interested in seeing the Baca Grant Ranch and adjoining lands protected from further development. In addition, ***Colorado***'s then United States Senators Scott McInnis and Wayne Allard were interested in the prospect of acquiring some or all of the property and the expansion of the Great Sand Dunes National Monument into a national park. Water users in the Valley were interested in no longer having to protect their water rights against speculative groundwater development projects on this property. The combination of these interests led to the enactment of the Great Sand Dunes National Park and Preserve Act of 2000 ("Great Sand Dunes Act of 2000"). [[312]](#footnote-313)312

Under this Act, the secretary of the interior was authorized to establish both the Great Sand Dunes National Park, the Great Sand Dunes National Preserve, and the Baca National Wildlife Refuge once sufficient lands had been acquired by the United States to fulfill the land ownership requirements of the Act. In addition, since a portion of the lands to be acquired were mountainous and adjoined the National Forest land, the Act provided for adjustment of the park and preserve boundaries and transfer of certain lands to the secretary of agriculture for management by the U.S. Forest Service. Sufficient lands were acquired to meet the requirements of the Act, and the Great Sand Dunes National Park, the National Preserve, and the Baca National Wildlife Refuge were established.

The Great Sand Dunes Act of 2000 specifically addresses pre-existing water rights and water resources associated with federal property. [[313]](#footnote-314)313With respect to the pre-existing water rights for the National Forest and the National Monument, the act provided that those water rights are considered to be of equal use and value for the National Park or National Forest ?and retain their priority and purpose when included in the National Park. [[314]](#footnote-315)314With respect to the Closed Basin Project, the Act recognizes that portions of the Project and its facilities may fall within the boundaries of the National Park and the National Wildlife Refuge. The Act provides that none of the Project's facilities are affected by the Act and that the Project will continue to be the responsibility of and operated by the Bureau of Reclamation. [[315]](#footnote-316)315

The Great Sand Dunes Act of 2000 also specifically provides for appropriative water rights for the National Park and National Preserve. It empowers the secretary of the interior to obtain and exercise any water rights required to fulfill the purposes of the National Park and the National Preserve subject to the limitations that (1) the water rights "be appropriated, adjudicated, changed, and administered pursuant to the procedural requirements and priority system of the laws of the State of ***Colorado***" and (2) "the purposes and other substantive characteristics of such water rights shall be established pursuant to [***Colorado***] law, except that the secretary is specifically authorized to appropriate water under this subchapter exclusively for the purpose of maintaining groundwater levels, surface water levels, and stream flows on, across, and under the national park and national preserve, in order to accomplish the purposes of the national **[\*304]**park and the national preserve and to protect park resources and park uses." [[316]](#footnote-317)316The Act goes on to require that "such water rights be established and used without interfering with" (1) "any exercise of a water right in existence on November 22, 2000, for a non-federal purpose in the San Luis Valley, ***Colorado***"?and (2) "the Closed Basin Division, San Luis Valley Project." [[317]](#footnote-318)317The Act further provides that it does not affect "the use, allocation, ownership, or control, in existence on November 22, 2000, of any water, water right, or any other valid existing right; any vested absolute or decreed conditional water right in existence on November 22, 2000, including any water right held by the United States; any interstate water Compact in existence on November 22, 2000;" or, except as specifically provided in the Act, "state jurisdiction over any water law," in other words, the 1969 Act. [[318]](#footnote-319)318

The United States acquired existing water rights with its purchase of the Baca Grant Ranch, and the Act restricts the use and management of those water rights to the protection of resources and values for the National Monument, the National Park, the National Preserve, or the National Wildlife Refuge, fish and wildlife management and protection, and irrigation necessary to protect water resources. It also expressly recognizes the water service agreement between Cabeza de Vaca Land and Cattle Company and the Baca Grande Water and Sanitation District, which district uses water rights acquired by the United States to supply its customers. The Act permits the sale of acquired water rights to the Baca Grande Water and Sanitation District provided that the sale is not detrimental to the protection of the resources of Great Sand Dunes National Monument, Great Sand Dunes National Park, and National Preserve, and the Baca National Wildlife Refuge.

Finally, section 9 of the Great Sand Dunes Act of 2000 amends the San Luis Valley Protection Act to remove the Great Sand Dunes National Monument and to add and make subject to that Act the Great Sand Dunes National Park and National Preserve and the National Wildlife Refuge.

A. In-Place Groundwater Right for the Great Sand Dunes National Park

In December 2004, the United States filed an application in water court seeking the in-place groundwater water right for the Great Sand Dunes National Park ("Park") contemplated by the Great Sand Dunes Act of 2000. The United States requested the right to use, in-place, "all unappropriated groundwater in the unconfined aquifer underlying the Great Sand Dunes National Park so as to maintain, as nearly as possible, the water table elevations in the unconfined aquifer subject to natural hydrologic variations," as well as (1) "water rights in existence on November 22, 2000 for non-federal purposes in the San Luis Valley or operations of the Bureau of Reclamation's Closed Basin Division, San Luis Valley Project," and (w) by operation of ***Colorado*** law, all water rights decreed senior in priority to the claimed water right. [[319]](#footnote-320)319The application claimed **[\*305]**that the United States' appropriation of this water right is necessary for the maintenance of a water table in the unconfined aquifer, which is necessary "in order to accomplish the purposes of the [National Park and the National Preserve] and to protect Park resources and Park uses." [[320]](#footnote-321)320

The source of water claimed in the application was groundwater in the unconfined aquifer comprising the groundwater system underlying the Park, including surface flows that recharge the underlying aquifers and upward leakage from the confined aquifer, which are necessary to maintain groundwater table elevations, surface water levels and stream flows on, across, and under the Park. [[321]](#footnote-322)321The extent of the groundwater right claim was for maintenance of the water table elevations in the unconfined aquifer underlying the Park and encompasses all of the water within the unconfined aquifer underlying the Park from its base to the top of the water table. The total depth of the unconfined aquifer groundwater system underlying the Park was estimated to range from approximately sixty feet thick to several hundred feet thick. [[322]](#footnote-323)322"The bottom of the aquifer is defined by the "blue clay layers' where they exist, and by the underlying strata of consolidated rock in areas where the blue clay layers do not exist." [[323]](#footnote-324)323The amount of groundwater claimed was all groundwater in the unconfined aquifer underlying the Great Sand Dunes National Park so as to maintain, as nearly as possible, the water table elevations in the unconfined aquifer, within the limits described therein, in order to accomplish the purposes of the National Park and Preserve and to protect Park resources and Park uses. [[324]](#footnote-325)324

On August 4, 2008, the water court entered its Findings of Fact, Conclusions of Law, Judgment and Decree. [[325]](#footnote-326)325The decree establishes a unique in-place groundwater right that is entitled to protection from declines in groundwater levels caused by new groundwater uses in the Valley. [[326]](#footnote-327)326As a predicate for this unique water right, the decree makes the following findings concerning the Congressional purposes of the Great Sand Dunes National Park and the need for and importance of the associated in-place groundwater right:

Congress mandated the preservation of the existing diversity of resources in order to ensure the perpetuation of the entire ecosystem for the enjoyment of future generations, and authorized the designation of the Park (footnote omitted), which encompasses the previous Great Sand Dunes National Monument and additional lands with the purpose of providing greater long-term protection of the geological, hydrological, paleontological, scenic, scientific, educational, wildlife, and recreational resources of the area, specifically including the sand sheet associated with the dune mass and the surface and groundwater system on which the sand dune and wetland systems depend. *See* [*16 U.S.C. § 410hhh-2*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PK-00000-00&context=1516831).

Congress specifically recognized that the surface and groundwater systems on **[\*306]**and underlying the Great Sand Dunes National Monument and public and private lands adjacent thereto are necessary to the preservation of the geological, hydrological, paleontological, scenic, scientific, educational, wildlife, and recreational resources of the area, specifically including the unique pulse flow characteristics of Sand and Medano Creeks that are integral to the existence of the dune system, and the sand sheet associated with the dunes. *See* [*16 U.S.C. § 410hhh*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PH-00000-00&context=1516831), [*410hhh-7*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PS-00000-00&context=1516831).

Congress directed the Secretary to obtain and exercise water rights required to fulfill the purposes of the Park by maintaining groundwater levels, surface water levels, and stream flows on, across, and under the Park, in order to accomplish the purposes of the Park and to protect Park resources and Park uses. *See* [*16 U.S.C. § 410hhh-7(b)(2)(B)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PS-00000-00&context=1516831). [[327]](#footnote-328)327

The decree then addressed the water-dependent features of the Park that Congress intended the in-place groundwater right to protect, including the unique pulse flows of Sand Creek and Medano Creek that are of scientific interest and integral to the existence of the dunes system. [[328]](#footnote-329)328"These pulse flows were also among the objects of scientific and educational interest that gave rise to the creation of the Great Sand Dunes National Monument." [[329]](#footnote-330)329

The decree explains that the flows of streams, such as Sand Creek, are dependent upon the groundwater mound that builds up beneath them and allows the streams to flow. [[330]](#footnote-331)330Lower groundwater levels would mean less surface flow, reduced length of flow, and a reduced frequency in the times when the flow will reach the wetland areas west of the mountain front, thereby reducing wetlands, riparian areas, and interdunal ponds on the National Park. [[331]](#footnote-332)331

The decree also finds that wetlands are widespread in the eastern portion of the Valley, including in the Park and along the streams in the National Park, and that there are wet meadows, interdunal ponds, and wetland complexes that are supported by and dependent on the groundwater level beneath the Park. [[332]](#footnote-333)332

Moreover, the decree finds that the wetlands, marshes, and ponds within the Park that are supported by the water table elevation in the unconfined aquifer also support the greatest numbers of amphibians, whose reproductive success is associated with ponds and shallow lakes in the lower reaches of Sand Creek, Big Spring Creek, and Little Spring Creek, located in the southwest boundaries of the Park. [[333]](#footnote-334)333The decree goes on to note that Great Plains toads and chorus frogs are especially prevalent in areas that have a high groundwater table. [[334]](#footnote-335)334

The decree then addresses how the in-place groundwater right for the Park was to be defined and administered:

**[\*307]**

in order to accomplish the purposes of the Park and to protect Park resources and Park uses, the water right ...is to all water within the unconfined aquifer underlying the Park sufficient to maintain water table elevations, subject to water rights in existence on November 22, 2000 for a non-Federal purpose in the San Luis Valley, the Closed Basin Division and, by operation of ***Colorado*** law, all water rights senior in priority to the appropriation and adjudication of the water right [[335]](#footnote-336)335

To provide a standard for measurement and administration of the water right, and to determine if the water right was being injured, the decree defines the water rights as the maximum historical water table elevation at the Park boundary between 1980 and the December 2004 filing date of the application. [[336]](#footnote-337)336To further define the water right with respect to the Park's western boundary, the decree contains a table of the highest observed groundwater levels at ten locations along the Park boundary prior to June 11, 2007. [[337]](#footnote-338)337The decree uses these ten locations as points where the United States was required to install piezometers (and has done so) to be used a permanent monitoring wells to assist the division engineer in administration of the water right. [[338]](#footnote-339)338At times when the groundwater levels are about the same as the table values, the water right is deemed to be satisfied. [[339]](#footnote-340)339The water court went on to note that varying hydrologic conditions will cause variation in the groundwater table, but that variation and decline in water levels do not extinguish or render unenforceable the in-place groundwater right for the Park. [[340]](#footnote-341)340

The water right was decreed as an absolute water right, the water having been applied to the decreed beneficial uses. [[341]](#footnote-342)341The decree also concluded that even though the water supplies of the Valley are over-appropriated, that fact does not prohibit in-place uses that do not injure other existing water rights. Rather, the decree holds:

The fact that there may be no unappropriated water available for withdrawal from the aquifers does not defeat the United States' application as a matter of law. The United States' claim is for an in-place right to use ground water, similar to an in-stream flow water right, the in-priority maintenance of water table elevations under this water right cannot injure any vested water rights. See [***Colorado*** *Water Conservation Board v. City of Central, 125 P.3d 424, 437-38 (****Colo.*** *2005)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4HNY-2S60-0039-43MS-00000-00&context=1516831). The primary value of the water right claimed by the United States ...is the right to in-priority administration of the water right and to be protected from injury from a changed or expanded use of existing appropriative rights, or new junior appropriative rights. In this respect the water right confers on the United States authority similar to the authority of the ***Colorado*** Water Conservation Board to protect from injury in-stream flow and minimum lake level water rights. *See*  [*Id. at 439*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4HNY-2S60-0039-43MS-00000-00&context=1516831). Congress expressly authorized and directed the Secretary of the Interior to appropriate this particular in-place water right in the Great Sand Dunes National Park and Preserve Act of 2000. Because the in-place use of the water right decreed herein does not change **[\*308]**aquifer conditions or water flow within the unconfined aquifer, it presents no potential for injury to vested senior water rights. Therefore, the United States has demonstrated that water is available for appropriation in the unconfined aquifer underlying the Park for the purpose of in-place use. [[342]](#footnote-343)342

This decree is unique within the state of ***Colorado*** and presents a unique challenge in the administration of groundwater. It effectively requires the state engineer and the water judge to deny any new appropriation of groundwater that would adversely affect the groundwater levels under the Park, even if all resulting stream depletions for such groundwater use are otherwise replaced. It has the effect of reserving in-place a vast quantity of groundwater that cannot be used if the effect of doing so is to cause a decline in the groundwater levels under the Park.

XIV. Implementing [*Section 37-92-501(4)(C) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831): Formation of the First Groundwater Management Subdistrict

After the enactment of SB 04-222, the Rio Grande Water Conservation District convened a group of water users representing the major irrigation enterprises that divert water from the Rio Grande north into the Closed Basin and Closed Basin irrigators that rely solely on groundwater. The purpose of the group was to try to develop the framework for a groundwater management subdistrict in the south half of the Closed Basin where there is a high concentration of center pivot irrigation systems that rely on conjunctive use of surface water and groundwater and some groundwater only lands. The goals of the proposed subdistrict were to address the substantial decline in water levels in the unconfined aquifer of the Closed Basin caused by the drought and to protect surface water rights from unreplaced groundwater depletions to the Rio Grande.

After several years of work, the group had identified the land area to be covered by the planned subdistrict, Subdistrict 1, and the general outline of the subdistrict's plan of water management. Subdistrict 1 contains some 174,000 acres of irrigated farm land and approximately 3,000 irrigation wells, some 300 of which withdraw water from the confined aquifer system, and the balance of which withdraw water from the unconfined aquifer. [[343]](#footnote-344)343Subdistrict 1 lands are "primarily served by five major ditches or canals: the Rio Grande Canal, the Billings Ditch, the Farmers Union Canal, the Prairie Ditch, and the San Luis Valley Canal." [[344]](#footnote-345)344The working group then set about the arduous process of collecting sufficient petitions to establish Subdistrict 1 as a special improvement district of the Rio Grande Water Conservation District. Since the proposal was to include all irrigation groundwater users within a specific geographic area, petitions were required from more than 50 percent of the landowners of the irrigated land and the owners of more than 50 percent of the irrigated acres. [[345]](#footnote-346)345

**[\*309]**In May 2006, after sufficient petitions were collected and verified, pursuant to [*section 37-48-123 of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J2WB-00000-00&context=1516831), the Rio Grande Water Conservation District filed a Petition for Establishment of a Special Improvement District No. 1 ("Subdistrict 1") of the Rio Grande Water Conservation District in Case Number 06CV64, Alamosa County District Court. [[346]](#footnote-347)346Numerous objections were filed. On July 19, 2006, the district court approved the petition. Pursuant to section 37-48-124(2), upon approval of the petition the Alamosa County District Court had original and exclusive jurisdiction over Subdistrict 1, coextensive with its boundaries and other property included in or affected by Subdistrict 1. [[347]](#footnote-348)347

In September of 2006, the Rio Grande Water Conservation District's board of directors appointed an eleven-member board of managers as the governing body for Subdistrict 1, each of whom were selected from a slate of candidates provided by the representative ditch companies and groundwater users. [[348]](#footnote-349)348"The board of managers was charged with preparing a plan of water management, pursuant to section 37-48-126, and did so in a series of public meetings." [[349]](#footnote-350)349

A. Original Plan of Water Management

The board of managers prepared the original Plan of Water Management ("Plan"), which was approved by the Rio Grande Water Conservation District and submitted to the state engineer for his review and approval in compliance with [*section 37-92-501(4)(c) of the* ***Colorado*** *Revised Statutes.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) [[350]](#footnote-351)350After some revisions, the state engineer approved the Plan, and notice of the approval was published in the Division 3 Water Court resume as required by law. [[351]](#footnote-352)351Numerous objections were filed against the plan, and the court consolidated objections to the Plan filed pursuant to section 37-48-126 in Case No. 06CV64 with objections filed pursuant section 37-92-501(4)(c) in Case No. 07CW52. [[352]](#footnote-353)352

The objective of the Plan was to provide a water management alternative to regulations imposed by the state engineer that would limit the use of irrigation wells within Subdistrict 1 and to use instead a system of self-regulation based on economic incentives to promote responsible irrigation water use and management and ensure the protection of senior surface water rights. [[353]](#footnote-354)353Additionally, the operation of this Plan was intended to comply with the requirements of SB 04-222. [[354]](#footnote-355)354The goals of the Plan were "to cause groundwater levels in the Unconfined Aquifer of the Closed Basin to recover, and then to maintain a sustainable irrigation water supply in the Unconfined Aquifer with due regard for **[\*310]**the daily, seasonal, and longer term demands on the aquifer and to protect senior surface water rights and to avoid interference with ***Colorado***'s obligations under the Rio Grande Compact." [[355]](#footnote-356)355

The acts and improvements that Subdistrict 1 intended to implement to achieve the goals of the Plan included, among other things: (1) a program of temporary fallowing, potentially in cooperation with federal programs, to remove sufficient acreage from production, on an on-going basis, to achieve reduction in water consumption necessary to achieve the goals of the plan; (2) economic incentives for the permanent removal of lands from irrigation, potentially in cooperation with federal programs; (3) replacement of stream depletions and/or increases in groundwater recharge; (4) purchase and retirement of irrigated lands and/or water rights, either within or without the exterior boundaries of Subdistrict 1; and (5) improvement and operation of ditches, headgates, and recharge facilities to make the best use of available water and to improve groundwater recharge. [[356]](#footnote-357)356The primary mechanism in the plan for protection of senior surface water rights was restoring and subsequently maintaining the hydraulic divide between the Rio Grande and the Closed Basin.

In the fall of 2008, the water court held a seven-day trial on the objections to the Plan and on February 18, 2009, issued its Findings of Fact, Conclusions of Law and Order in which the court remanded the Plan to Subdistrict 1 for reconsideration and revision. In summarizing its ruling, the court stated:

The Court specifically finds the current Plan is conceptually compatible with SB 04-222 and the constitutional principles governing ***Colorado*** water law, but the Court also concludes that this Plan should be referred back to the board of managers of the Subdistrict and the board of directors of the District for further consideration and amendment because it lacks detail, grants discretion with no guidance, fails to acknowledge the replacement of injurious depletions as a priority, and simply is not a "comprehensive and detailed plan" [*§ 37-48-126(2), C.R.S.*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J2WF-00000-00&context=1516831) As the Court is referring the Plan back, the majority of the issues in 07CW52 are held in abeyance for further proceedings in light of the amendment... .

The Court concludes that an Amended Plan should include: (1) the timeframe and the methodology to be used to determine the depletions "calculated" to occur to the Rio Grande and its tributaries resulting from the operation of Subdistrict Wells; (2) a procedural timeframe for disclosure of the methodology for replacement of the depletions to the Rio Grande and its tributaries resulting from the operation of Subdistrict Wells; (3) a timeframe for annual review and calculations regarding the past irrigation season and procedures for addressing under or over-delivery; (4) a "template" for the annual operating plan which should contain the specific information concerning the operation of the plan in a coming year; and (5) provisions for review of the operation of the plan at the end of the year. [[357]](#footnote-358)357

The court's February 18, 2009 Order went on to address a number of disputed legal issues and to provide detailed guidance on what information the **[\*311]**court thought should be included in any amendment to the Plan. [[358]](#footnote-359)358The court deferred ruling on a number of the disputed issues in Case No. 07CW52 in the event the concerns were addressed or resolved by the amendments to the Plan. [[359]](#footnote-360)359

B. Amended Plan of Water Management

In response to this remand, Subdistrict 1 prepared an Amended Plan of Water Management ("Amended Plan") to address the issues identified in the court's February 18, 2009 Order. [[360]](#footnote-361)360The Amended Plan was approved by the state engineer and republished. [[361]](#footnote-362)361Thereafter, in the fall of 2009, the court held a ten-day trial on the objections to the Amended Plan under [*section 37-92-501(4)(c) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) and on objections to the Amended Plan as the official plan of Subdistrict 1 pursuant to section 37-48-127(3)(b). [[362]](#footnote-363)362

The Amended Plan sought to reduce and manage overall groundwater consumption in order to cause groundwater levels in the unconfined aquifer to recover and then to maintain a sustainable irrigation water supply. [[363]](#footnote-364)363The Amended Plan levies fees for groundwater usage in excess of the volume of surface water brought into Subdistrict 1; the funds collected are to be used to acquire water supplies to replace injurious stream depletions and to pay for the temporary and permanent fallowing of currently irrigated lands and other similar activities designed to reduce groundwater consumption. [[364]](#footnote-365)364The Amended Plan also levies an administrative fee and a fee for implementation of federally funded land fallowing programs. [[365]](#footnote-366)365

The Amended Plan continued to call for the retirement of up to 40,000 irrigated acres in order to restore the groundwater levels in the unconfined aquifer. [[366]](#footnote-367)366The Amended Plan used irrigated acres as a surrogate for groundwater pumping because, at that time, the Measurement Rules had just gone into effect, and there was an insufficient record of historical groundwater pumping to be used as a baseline. It sets interim targets of retiring 20,000 acres within five years, 30,000 acres within seven years, and up to 40,000 acres within ten years. [[367]](#footnote-368)367If those efforts were not sufficient to restore the aquifer, then Subdistrict 1 would raise and spend revenue to reduce groundwater consumption further. [[368]](#footnote-369)368The Amended Plan also requires Subdistrict 1 to submit to the state engineer an annual operating plan pursuant to which Subdistrict 1 will replace injurious **[\*312]**stream depletions. [[369]](#footnote-370)369The annual operating plan contains comprehensive information that will allow the state engineer to determine that its operation will prevent injury to senior vested water rights. [[370]](#footnote-371)370The Amended Plan only proposed to replace injurious stream depletions that were the result of pumping that occurred after the approval of the Amended Plan. [[371]](#footnote-372)371

After a two-week trial on the Amended Plan, the water court entered a comprehensive ruling addressing the myriad issues raised by the parties objecting to the Amended Plan. [[372]](#footnote-373)372The water court rejected Subdistrict 1's proposal to only replace depletions caused by Subdistrict 1 well pumping that occurred after the approval of the Amended Plan, and instead the court ruled that Subdistrict 1 must replace all injurious depletions impacting the flow of the Rio Grande caused by Subdistrict 1 wells, regardless of when the pumping occurred. [[373]](#footnote-374)373In other words, Subdistrict 1 was responsible for remedying the ongoing injurious depletions from past pumping by Subdistrict 1 wells. Otherwise, the water court concluded that the Amended Plan was lawful and approved the Amended Plan subject to eighteen supplemental terms and conditions for its implementation. [[374]](#footnote-375)374The objectors appealed this decision; Subdistrict 1 did not cross-appeal. [[375]](#footnote-376)375

[*C. Appeal of Approval of Amended Plan of Water Management: San Antonio, Los Pinos, and Conejos* ***River*** *Acequia Preservation Ass'n v. Special Improvement District No. 1, 270 P.3d 927 (2011)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831)

On appeal, the objectors argued that a plan of water management can only be approved if it meets the same standards for approval of a plan for augmentation under sections 37-92-305(3)(a), (5) and (8) of the ***Colorado*** Revised Statutes, namely, that approval is conditioned upon the court finding that there will be no material injury to senior vested water rights. [[376]](#footnote-377)376This presented a difficulty for Subdistrict 1 because without an approved plan of water management, it is not statutorily authorized to levy and collect fees to implement any proposed plan. Thus, at the time it sought approval of the Amended Plan, it could not provide, for example, specific proof of the sources of water it would use to replace injurious stream depletions because it would not have funds to acquire the replacement supplies until after the Amended Plan was approved.

The ***Colorado*** Supreme Court rejected the objectors' argument, holding that the threshold no-injury finding and other requirements for approval of an augmentation plan do not apply to review and approval of a plan of water management unless the plan includes adjudication of an augmentation plan, citing **[\*313]**sections 37-48-123(2)(g), 37-48-126(1), and 37-92-305(6)(c). [[377]](#footnote-378)377The court explained:

So long as the General Assembly acts consistently with the constitution, it is free to create new tools allowing out-of-priority depletions, with a different mechanism for ensuring non-injury than an augmentation plan. A subdistrict water management plan is "comprehensive" and "detailed," *see* § 37-48-126(1), and "consistent with preventing material injury to senior surface water rights," *see* § 37-92-501(4), if it meets two criteria. First, the ground water management plan must be sufficiently comprehensive and detailed to warrant State Engineer and Water Court approval. Second, the plan must include such provisions as will ensure that no material injury results from operation of the plan. [[378]](#footnote-379)378

The court concluded that the water court's finding that the Amended Plan included sufficient measures for replacement of all injurious depletions was sufficient for approval of the Amended Plan. [[379]](#footnote-380)379It went on to point out that Subdistrict 1 must replace all injurious stream depletions and bears the burden of proof of non-injury. [[380]](#footnote-381)380It also pointed out that if Subdistrict 1 fails to comply with the Amended Plan, the state engineer must curtail all wells included in the Amended Plan to the extent necessary to prevent injury to senior surface water rights. [[381]](#footnote-382)381

The objectors next argued that the state engineer lacked the statutory authority to approve Subdistrict 1's annual replacement plan, and that such approval was a water matter within the exclusive jurisdiction of the water court. [[382]](#footnote-383)382The court rejected this argument as well, pointing out that the ***Colorado*** General Assembly had specifically delegated authority over certain "water matters" to the state engineer, including discharging obligations of the State of ***Colorado*** imposed by judicial order, regulating distribution of waters of the state, and conducting investigations related to carrying out these duties. [[383]](#footnote-384)383The court concluded that these powers substantiate the state engineer's authority to determine the adequacy of an annual replacement plan to prevent injury and whether to allow Subdistrict 1 to operate under such a plan. [[384]](#footnote-385)384

The objectors also argued that the water court did not have authority to add terms and conditions to Subdistrict 1's Amended Plan as a condition of approval. [[385]](#footnote-386)385The water court had imposed additional terms and conditions on the Amended Plan, which largely consisted of increased notice and opportunity to comment on Subdistrict 1's proposed annual replacement plan. [[386]](#footnote-387)386Those additional terms and conditions were expressly accepted by Subdistrict 1 and the **[\*314]**state engineer. [[387]](#footnote-388)387The court rejected this argument based upon the terms of [*section 37-92-501(4)(c) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831), which expressly provides for retained jurisdiction to ensure, *inter alia*, "conformity with the terms of the court's decree approving the water management plan." [[388]](#footnote-389)388In addition, it pointed out that section 37-92-304, which governs judicial review of groundwater management plans, expressly allows the water court to "either confirm, *modify,* reverse, or reverse and remand" a ground water management plan. [[389]](#footnote-390)389

The objectors also argued that it was an error for the water court to delay the implementation of the Amended Plan for eighteen months after entry of the decree approving the Amended Plan because the delay would permit continued injury to senior vested water rights. [[390]](#footnote-391)390The court rejected this argument as well, pointing out that Subdistrict 1 could not be funded for approximately eighteen months after the entry of the decree, and that the Amended Plan could not be implemented until the funds were available. [[391]](#footnote-392)391Because the effect of the objectors' argument would have required the court to assume that the legislature had mandated the impossible, the court concluded that the decision to delay implementation of the plan was within the sound discretion of the water court, and the water court had not abused its discretion. [[392]](#footnote-393)392

An important component of the Amended Plan is the computation of injurious depletions resulting from net groundwater depletion by Subdistrict 1 wells. This calculation uses surface water diverted from the Rio Grande and brought in to Subdistrict 1 under the recharge decrees of surface water ditches as a direct offset to pumping and thereby reduce net groundwater consumption. [[393]](#footnote-394)393The objectors argued that the Amended Plan violated the terms of various recharge decrees. [[394]](#footnote-395)394The court rejected this argument as well, pointing out that the recharge decrees are binding and no change of water right has occurred in the Amended Plan that would alter the terms of the recharge decrees. [[395]](#footnote-396)395The court went on to point out that if Amended Plan were to ignore the recharge decrees, Subdistrict 1 members would have to replace more water than they deplete from the aquifer out-of-priority; this would effectively deprive them of their rights to use the recharge decree water. [[396]](#footnote-397)396

The Amended Plan allows Subdistrict 1, after the adoption of rules and regulations, to contract with wells located outside of Subdistrict 1 to replace injurious stream depletions by such wells. [[397]](#footnote-398)397The objectors asserted that this deferred contracting meant that the Plan failed to meet the requirement of section **[\*315]**37-48-126(1) that the Plan be comprehensive and detailed. [[398]](#footnote-399)398The court rejected this argument as well, reasoning that it would have been impossible for Subdistrict 1 to "cover" wells by contract at the outset because Subdistrict 1 first had to be organized itself before it could exercise its contract power. [[399]](#footnote-400)399The court concluded that the legislature did not intend that a subdistrict make contracts based on a groundwater management plan that was not yet operative. [[400]](#footnote-401)400Thus, the court held:

To give effect to each word of the statute, and avoid absurdities, we conclude that subdistricts are authorized to contract with non-subdistrict well owners for replacement of depletions in stream flows resulting from groundwater use, even though those wells are not individually included initially in the ground water management plan. We further conclude, in construing statutory provisions harmoniously, that deferring the inclusion of these contract wells does not prevent the official plan of a subdistrict from being "comprehensive" and "detailed." *See* § 37-48-126(1). [[401]](#footnote-402)401

The objectors' final argument was that the manner in which the Amended Plan calculated injurious stream depletions had the effect of giving Subdistrict 1 wells credit for water salvaged from phreatophytes, which the objectors asserted was barred by section 37-92-501(4)(b)(III) and [*Southeastern* ***Colo.*** *Water Conservancy Dist. v. Shelton Farms, Inc., 529 P.2d 1321 (****Colo.*** *1974)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1N70-003D-93WB-00000-00&context=1516831). [[402]](#footnote-403)402Section 37-92-501(4)(b)(III) states, in part, that a plan of water management cannot "recognize the reduction of water consumption by phreatophytes as a source of replacement water for new water uses or to replace existing depletions, or as a means to prevent injury from new water sources." [[403]](#footnote-404)403The water court interpreted the phrase "replace existing depletions" as referring to the replacement of actual injurious depletions to surface streams in order to protect senior surface water rights. [[404]](#footnote-405)404It held that the statute prohibited the destruction of phreatophytes to create a replacement water supply, but that that was not what Subdistrict 1 was doing. [[405]](#footnote-406)405Instead, Subdistrict 1 was simply making modeling calculations that take into account reduced evapotranspiration caused by fluctuations in the water table, and this was not prohibited by the statute. [[406]](#footnote-407)406

The court agreed with the water court, holding:

Construing the section in light of the entire statutory scheme, consistent with legislative intent, we determine that the trial court's interpretation is correct. Section 37-92-501(4)(a)(II) allows the unconfined aquifer to "serve as a valuable underground storage reservoir[ ] with water levels that fluctuate in response to climatic conditions, water supply, and water demands." The legislature did **[\*316]**not intend that groundwater levels should never decline. They were to fluctuate within a historical range. *See* § 37-92-501(4)(a)(III). Such fluctuations in water level necessarily entail fluctuations in phreatophyte evapotranspiration and the General Assembly did not act to prohibit use of a groundwater model that takes these factors into account. [[407]](#footnote-408)407

The approval of Subdistrict 1's Amended Plan was an important first step in the management of the aquifer systems in the San Luis Valley. However, the court's decision upholding the Amended Plan was announced in December 2011, which left Subdistrict 1 only until April 2012 in which to prepare its first Annual Replacement Plan ("ARP") and begin replacing injurious stream depletions. [[408]](#footnote-409)408

D. Challenges to the First Annual Replacement Plan

Subdistrict 1's first ARP was submitted to the state engineer in April 2012 and was approved by the state engineer. [[409]](#footnote-410)409In accordance with the procedures established by the water court in its approval of the Amended Plan, all interested parties were provided notice and an opportunity to object to the ARP. [[410]](#footnote-411)410The first ARP was opposed by many of the same parties that had opposed the Plan and the Amended Plan. By this time, Judge Kuenhold, who had presided over the trials on the original Plan and Amended Plan, had retired and was succeeded by the Honorable Pattie P. Swift as the water judge for Water Division No. 3. [[411]](#footnote-412)411

The 2012 ARP was a comprehensive statement of how Subdistrict 1 would operate for the following 12 months. It contained, among other things, a comprehensive list of subdistrict wells included in the 2012 ARP. [[412]](#footnote-413)412It estimated projected pumping from Subdistrict 1 wells, considering the projected hydrologic conditions for the irrigation season and the projected reduction in irrigated acres due to Subdistrict 1's fallowing program. [[413]](#footnote-414)413The projected pumping from Subdistrict wells for 2012 was 308,761 acre-feet. [[414]](#footnote-415)414The ARP then estimated the amount of recharge credit under the four recharge decrees for 2012 as 113,002.75 acre-feet and used that information to estimate net consumptive use of groundwater by subdistrict wells. [[415]](#footnote-416)415It used those estimates as inputs into response functions to provide the estimated and historical and projected stream **[\*317]**depletions from groundwater pumping in Subdistrict 1. [[416]](#footnote-417)416The anticipated "net groundwater consumptive use for 2012 was 143,269 acre-feet, resulting in a predicted total stream depletion for 2012, from both historical and projected pumping, of 4,706 acre-feet." [[417]](#footnote-418)417"That total amount is then broken down monthly by stream reach to establish the replacement required" from Subdistrict 1. [[418]](#footnote-419)418

The 2012 ARP also addressed the "amounts and sources of replacement water and other actions available to Subdistrict 1 to remedy injurious stream depletions to senior surface water rights." [[419]](#footnote-420)419It identified the sources and amount of replacement water available to remedy stream depletions and the forbearance contract allowing it to remedy injury by means other than providing water. [[420]](#footnote-421)420The 2012 ARP also contains a summary of the farm unit data collected for the irrigated parcels within Subdistrict 1 that Subdistrict 1 used to determine the irrigated acres, cropping patterns, and irrigation methods on parcels. [[421]](#footnote-422)421It also summarized Subdistrict 1's "fallowing program and the number and location of acres to be fallowed under that program." [[422]](#footnote-423)422

Opposition to the ARP largely relied on the same arguments presented in opposition to the Amended Plan. [[423]](#footnote-424)423The water court dismissed the majority of the protests based on the law of the case doctrine or on motions by Subdistrict 1 and its supporters. [[424]](#footnote-425)424Thus, by the time the case went to trial, there were only two remaining grounds for opposition: the ARP's use of water from the Closed Basin Project to replace stream depletions and the ARP's inclusion of wells that were also included in augmentation plans. [[425]](#footnote-426)425The water court held a two-day trial on the remaining issues in October 2012, and issued its Findings of Fact, Conclusions of law, Judgment and Decree approving the ARP on April 10, 2013. [[426]](#footnote-427)426

The water court rejected each of the opposers' arguments against Subdistrict 1's use of Closed Basin Project water and ruled that the 2012 ARP's inclusion of Closed Basin Project water as a source of replacement water for injurious depletions caused by Subdistrict 1 well-pumping is adequate and suitable to prevent injury to senior water rights. [[427]](#footnote-428)427

The water Ccurt likewise rejected the opposers' request that the 2012 ARP be disapproved because of its inclusion of about twenty wells out of some 3,000 wells that were included in separately decreed augmentation plans. [[428]](#footnote-429)428While this was a factual complex inquiry, the court concluded that the inclusion of certain **[\*318]**augmentation plan wells in the 2012 ARP did not invalidate the ARP. [[429]](#footnote-430)429The water court explained that

There are some Subdistrict Wells that withdraw water under their underlying well permits and decrees and withdraw additional water pursuant to a plan for augmentation. PP 141-43 above *.*Under the Amended Plan, the Subdistrict remedies any injurious stream depletions that would result from the portion of the pumping from these wells authorized by the original decrees for the wells that the augmentation plan does not cover. The language from the 2012 ARP and the State Engineer's approval letter quoted above simply acknowledges the fact that a portion of the pumping by these wells is lawful under a well permit or decree, and the 2012 ARP is remedying any injurious stream depletions from that use. [[430]](#footnote-431)430

The water court upheld the 2012 ARP and the opposers appealed the decision to the ***Colorado*** Supreme Court.

E. Appeal of Approval of 2012 ARP: Concerning the Office of the State Engineer's Approval of the Plan of Water Management for the Special Improvement [*District No. 1, 351 P.3d 1112 (****Colo.*** *2015)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831)

On appeal, a unanimous ***Colorado*** Supreme Court upheld the decisions of the water court. [[431]](#footnote-432)431The court began its analysis of the opposers' claims by pointing out that they did not assert or establish injury to water rights from the operation of the 2012 ARP, but instead raised legal challenges to the terms of the 2012 ARP. [[432]](#footnote-433)432The court then turned to the opposers' legal arguments challenging the water court's pretrial rulings that: (1) the holding in [*San Antonio, Los Pinos and Conejos* ***River*** *Acequia Preservation Ass'n v. Special Improvement District No. 1, 270 P.3d 927 (2011)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831) precluded many of their challenges to the ARP, and (2) that an ARP can become effective before all challenges have been resolved by the water court. [[433]](#footnote-434)433

In support of their first argument, the opposers asserted was that numerous aspects of the Amended Plan were not before the water court in 2010, so the Plan's actual operation was not known until Subdistrict 1 submitted its 2012 ARP, and therefore the ARP should be treated like groundwater regulations. [[434]](#footnote-435)434The court disagreed, holding that to the extent the opponents' challenges sought to resurrect issues concerning the Amended Plan addressed in *San Antonio*, that opinion was binding law of the case. [[435]](#footnote-436)435It explained that the law of the case established by an appellate court must be followed on remand in subsequent proceedings before a trial court. [[436]](#footnote-437)436It then concluded that the water court's ruling **[\*319]**on the issues the opposers could not re-litigate was correct. [[437]](#footnote-438)437

The court then addressed the opposers claim that the ARP could not become effective until their challenges were resolved. [[438]](#footnote-439)438The opposers argued, based on [*Simpson v. Bijou Irrigation* ***Co****., 69 P.3d 50 (****Colo.*** *2003)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:48GW-CRR0-0039-44HJ-00000-00&context=1516831), that the 2012 ARP was the equivalent of water rules that could not go into effect until approved by the water court, and therefore all groundwater pumping in Subdistrict 1 had to be immediately curtailed by the state engineer. [[439]](#footnote-440)439The court rejected the premise of the opposers' argument that the ARP is an extension or completion of the Amended Plan. [[440]](#footnote-441)440Instead, it agreed with the water court's observation that if the water court had believed the Amended Plan to be incomplete without an ARP, the Amended Plan would not have been upheld. [[441]](#footnote-442)441The court noted its statement in *San Antonio* that "the General Assembly did not intend that subdistricts would have to identify in detail their future sources of replacement water (and timings and amounts) upon adoption of [a] plan." [[442]](#footnote-443)442The court agreed with the water court that an ARP is not a part, extension, or completion of the Amended Plan but, rather, is a separate tool to predict annual stream depletions and provide the method by which Subdistrict 1 will replace those depletions in a given plan year. [[443]](#footnote-444)443

The court went on to explain that the water court's retained jurisdiction under section 501(4)(c) is to review the ARP's conformity to the terms of the Amended Plan and its ability to prevent injury to senior water rights. [[444]](#footnote-445)444Thus, it concluded that water court review of an ARP is not analogous to the water court's review of a proposed water rule or regulation, and there was no requirement for the water court to stay operation of the 2012 ARP pending resolution of the opponents' challenges. [[445]](#footnote-446)445

Finally, the court distinguished *Simpson v. Bijou Irrigation* ***Co****.* by explaining that under the procedure in *Bijou*, the water court hearings were the "only meaningful opportunity for interested parties to protest potential infringements on their water rights." [[446]](#footnote-447)446It explained that review of an ARP does not implicate the same due process concerns because the opponents had a full and fair opportunity to be heard and present their objections to the Amended Plan in the 2010 trial. [[447]](#footnote-448)447

The court next addressed the opposers' challenge to the inclusion of Closed Basin Project water as a replacement water supply in the 2012 ARP. [[448]](#footnote-449)448The opposers argued that Closed Basin Project water could not be used as a source of replacement water in the 2012 ARP because: "(1) Project water is tributary groundwater, and, therefore, pumping such water is presumed to cause **[\*320]**injury to surface rights; (2) it is not decreed for use as a replacement supply; and (3) use of the water as part of an ARP unreasonably interferes with the State's ability to fulfill its Compact obligations." [[449]](#footnote-450)449

The court began its discussion of this argument with the Closed Basin Project's decree, pointing out that the decree makes clear that water produced by the Project would not otherwise have made its way to the Rio Grande. [[450]](#footnote-451)450Thus, it held that the water court could not presume that pumping Project wells cause injury to senior surface rights, and further, that the opposers had presented no evidence that Project water would in fact reach the Rio Grande without the Project's operations. [[451]](#footnote-452)451It went on to point out that in [*Closed Basin Landowners Ass'n. v. Rio Grande Water Cons. Dist., 734 P.2d 627, 636-37 (****Colo.*** *1987)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1170-003D-9531-00000-00&context=1516831), it had rejected a similar challenge as an impermissible collateral attack on the Closed Basin Project's decree. [[452]](#footnote-453)452

The court also observed that the Closed Basin Project water is decreed for irrigation, domestic, industrial, recreational, fish culture, and wildlife uses by exchange and sale, regulation and maintenance of minimum stream flows, and to provide supplemental water to meet ***Colorado***'s obligation under the Rio Grande Compact and accomplish maximum utilization of ***Colorado***'s share of the flows of the Rio Grande under the Compact. [[453]](#footnote-454)453It then explained that delivery of Closed Basin Project water into the Rio Grande reduces Compact curtailment on senior surface water rights, and therefore it serves the dual purposes of replacing injurious depletions and meeting Compact delivery obligations. [[454]](#footnote-455)454Thus, it held that the delivery of Project water to the Rio Grande prevents injury to senior water rights, assists in meeting Compact obligations, and is consistent with the maximum utilization of ***Colorado***'s share of the flows of the Rio Grande under the Closed Basin Project's decree. [[455]](#footnote-456)455Therefore, it concluded that the 2012 ARP's inclusion of Closed Basin Project water as a source of replacement supply was a suitable use of that water under the terms of the Closed Basin Project's decree. [[456]](#footnote-457)456

The court then turned to the mind-numbing details of augmentation plans for some twenty augmented wells included in the 2012 ARP. [[457]](#footnote-458)457The court agreed with the water court's decision that the manner in which augmentation plan wells were included in the 2012 ARP was an appropriate resolution of an issue not previously encountered, and that doing so resulted in slightly greater replacement of stream depletions than was necessary to prevent injury. [[458]](#footnote-459)458

Finally, the court addressed the 2012 ARP's failure to include certain information identifying about augmentation plan wells required by the decree approving the Amended Plan. [[459]](#footnote-460)459It explained that this was only a minor omission **[\*321]**and applied to a very small fraction of the 3,000 wells included in the 2012 ARP. [[460]](#footnote-461)460It concluded that, given the minor nature of the omission and the absence of any harm, the failure to include the separate list of augmentation plan wells did not render the 2012 ARP invalid. [[461]](#footnote-462)461

Subdistrict No. 1 has submitted an ARP and received state engineer approval thereof every year since 2012; none of which have been opposed.

XV. The (New) Rules Governing the Withdrawal of Groundwater in Water Division No. 3 (the Rio Grande Basin) and Establishing Criteria for the Beginning and End of the Irrigation Season in Water Division No. 3 for all Irrigation Water Rights [[462]](#footnote-463)462

A. Framework of New Rules

In late 2009, the state engineer established a committee of citizens from the Valley to assist in formulating groundwater regulations for existing uses of groundwater. [[463]](#footnote-464)463The purpose of the regulations was to integrate surface and groundwater administration under the 1969 Act, as amended by SB 04-222. [[464]](#footnote-465)464That committee met thirty times between January 2010 and May 2015 to discuss groundwater regulation and to draft and review the proposed regulations for the existing uses of groundwater in the Valley. [[465]](#footnote-466)465

In September 2015, the final proposed groundwater regulations for existing groundwater uses were promulgated ("Existing Use Rules") by the state engineer. [[466]](#footnote-467)466They consist of twenty-four separate rules, most of which have numerous subparts. The goal of the Existing Use Rules is to further implement SB 04-222 by requiring all existing large-capacity wells to replace injurious stream depletions and to achieve a sustainable level of use of the Valley's aquifer systems. [[467]](#footnote-468)467The Existing Use Rules apply to all withdrawals of groundwater except small capacity "exempt" wells, wells determined to be diverting nontributary groundwater, groundwater rights decreed as alternate points of diversion to surface water rights (when the surface water right is in priority), and wells that already have decreed augmentation plans. [[468]](#footnote-469)468

Rules 1 through 3 set forth the title, authority, and scope and purpose of the rules. Rule 4 contains the definitions applicable to the rules, and Rule 5 **[\*322]**contains principles and findings that underlie the rules. [[469]](#footnote-470)469Rule 6 defines the wells covered by the rules, and Rule 7 sets forth the criteria for determining stream depletions caused by groundwater use. [[470]](#footnote-471)470Rule 8 contains the standards for achieving and maintaining a sustainable water supply in the aquifer systems. [[471]](#footnote-472)471Rules 6 through 8 are the central provisions of the Existing Use Rules.

Rules 9 and 10 set forth the criteria for plans of water management and augmentation plans. [[472]](#footnote-473)472Rule 11 contains the requirements for the annual replacement plans ("ARPs") that are used to implement plans of water management, and Rule 12 contains the procedure and requirements for annual review of the preceding year's ARP to ensure the ARP fulfilled the requirements of its approval. [[473]](#footnote-474)473Rules 9 through 12 are largely based upon the procedures developed for the Amended Plan and ARP for Subdistrict 1 prior to promulgation of the Existing Use Rules. [[474]](#footnote-475)474

Rule 13 contains the geographic scope of the rules and is notable for its temporary exclusion of parts of southern Costilla County and eastern Conejos County, an area referred to as the Costilla Plain. [[475]](#footnote-476)475The Costilla Plain was excluded due to its complex geology, composed of highly faulted, fractured, and irregular volcanic formations. [[476]](#footnote-477)476The state engineer concluded that there was insufficient information to establish that existing lawful groundwater withdrawals are causing Injurious Stream Depletions (as defined by rule 4). [[477]](#footnote-478)477Therefore, Rules 6 through 12 currently do not apply to existing lawful groundwater withdrawals in the Costilla Plain. Notwithstanding this exclusion, Rule 13 provides that there is no unappropriated groundwater available for new groundwater withdrawals in the Costilla Plain. [[478]](#footnote-479)478If the state engineer subsequently obtains sufficient information to determine that groundwater withdrawals from wells in that area are causing Injurious Stream Depletions, then the state engineer may amend the Existing Use Rules to include the Costilla Plain and further regulate existing groundwater uses. [[479]](#footnote-480)479

Rule 14 is the irrigation season rule. It establishes a presumptive irrigation season of April 1 through November 1, to mirror the season when water users plant and then irrigate growing crops. [[480]](#footnote-481)480For purposes of Rule 14, irrigated "crops" include wetlands vegetation, and "irrigation" includes such lawful historical practices such as flushing ditches with water, initiating diversions, germinating volunteer seed, and building soil moisture prior to planting and after harvest. [[481]](#footnote-482)481The division engineer retains the discretion to modify the presumptive **[\*323]**irrigation season and to grant variances from Rule 14. [[482]](#footnote-483)482

Rule 15 contains the procedure for seeking and issuance of variances from specific provisions of the rules. [[483]](#footnote-484)483Rule 16 addresses the period over which average annual withdrawals under well permits will be computed. [[484]](#footnote-485)484Rules 17, 18, and 19, respectively, address the effect of the rules, orders, costs and fees for enforcement of the rules, and severability of the rules. [[485]](#footnote-486)485

Rule 20 sets forth an administrative process for appealing decisions made by the state or eivision engineer in their implementation of the Existing Use Rules. [[486]](#footnote-487)486Rule 21 contains the timeline for phasing in of the rules. [[487]](#footnote-488)487Rule 22 is the notice procedure for actions under the rules, and Rule 23 is the effective date of the rules. [[488]](#footnote-489)488Finally, rule 24 addresses the lower limits of reliability of the RGDSS Groundwater Model and the response functions derived from the RGDSS Groundwater Model that are used to determine stream depletions from groundwater use. [[489]](#footnote-490)489

B. Rule 6: Requirements for Withdrawals of Groundwater in Water Division 3

Rule 6 goes to the heart of the matter: it provides that groundwater withdrawals may only occur if they are made pursuant to:

A Groundwater Management Plan for a Subdistrict approved under [***Colo.*** *Rev. Stat. section 37-92-501(4)(c)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831).

A Plan for Augmentation decreed after the effective date of the Existing Use Rules that meets the applicable requirements of the rules and the Confined Aquifer New Use Rules. Any such decree must contain a term and condition that subjects it to future reopening and amendment to comply with changes to the rules, including further proceedings related to confined aquifer management under rule 8.

A Substitute Water Supply Plan authorized by ***Colo.*** Rev. Stat. section 3792308, that meets the applicable requirements of the Existing Use Rules and the New Use Rules.

A Plan for Augmentation decreed prior to the effective date of the Existing Use Rules (except as limited by Rule 10.1) that meets the requirements of Rule 8. Any well used as a source of replacement water in a plan for augmentation is also subject to the Existing Use Rules. [[490]](#footnote-491)490

Under the Existing Use Rules, wells must replace Injurious Stream Depletions, which under Rule 4.13 includes ongoing depletions from pumping that **[\*324]**occurred *prior to the effective date of the rules*. [[491]](#footnote-492)491"Injurious Stream Depletions" is defined in rule 4.13 to mean stream depletions that deprive senior surface water rights of water that would have been physically and legally available for diversion in the absence of the stream depletions and that must be replaced or remedied to prevent material injury to senior surface water rights. [[492]](#footnote-493)492Injurious Stream Depletions also include stream depletions that unreasonably interfere with ***Colorado***'s ability to fulfill its obligations under the Rio Grande Compact. [[493]](#footnote-494)493

Importantly, replacement of stream depletions is not the sole means of remedying Injurious Stream Depletions under the rules. The rules also recognize that such injury can be remedied through a contractual agreement or other arrangement pursuant to which injury to senior surface water rights resulting from the use of groundwater is remedied by means other than providing water. [[494]](#footnote-495)494This has been implemented successfully by Subdistrict 1 through forbearance contracts under which injury to surface water rights in the Valley is remedied with money rather than water. [[495]](#footnote-496)495Subdistrict 1 has entered into forbearance agreements with various ditches pursuant to which the ditch, when it is the calling water right, is paid a certain amount per acre-foot of depletions rather than requiring Subdistrict 1 to deliver replacement water. Most forbearance contracts provide an upper limit on their amount of depletion for which forbearance payments will be accepted. [[496]](#footnote-497)496Forbearance contracts introduce a certain measure of economic efficiency into the implementation of multiple plans of water management and allows water users to "exchange money" rather than each buying replacement water for delivery among their respective ditches as they come in and out of priority. [[497]](#footnote-498)497

C. Rule 7: Standards for Determinations of Stream Depletions

Rule 7 contains the standards for determining stream depletions. [[498]](#footnote-499)498Except as allowed by rule 7.5, the RGDSS Groundwater Model must be used as the basis for predicting changes in the rate and direction of flow of groundwater and for determining stream depletions resulting from groundwater withdrawals within the RGDSS Groundwater Model domain. [[499]](#footnote-500)499Due to the limitations inherent in a basin-scale groundwater model, the model results must be used with some engineering judgment. Accordingly, rule 7.2 provides that the *lower limit of reliability* of the RGDSS Groundwater Model reflects the level below which **[\*325]**the state engineer does not have confidence that stream depletions predicted by the RGDSS Groundwater Model on a given stream actually occur. [[500]](#footnote-501)500This lower limit of reliability of the RGDSS Groundwater Model applies to the net depletions to the stream reaches actually used in RGDSS Groundwater Model calibration, regardless of how the stream is divided for purposes of administration of replacements of depletions or other remedies for Injurious Stream Depletions. [[501]](#footnote-502)501Rule 24 contains the procedure for the state engineer to determine the lower limit of reliability of the RGDSS Groundwater Model and rule 24.5 requires that the limit be updated every five years. [[502]](#footnote-503)502

For purposes of determining stream depletions, the state engineer divided the San Luis Valley into eight "Response Areas" depicted on Exhibits A, B1-B4, D, E, F and G to the New Use Rules. [[503]](#footnote-504)503A Response Area is a specific geographic area and vertical interval within the RGDSS Groundwater Model domain where "Response Functions" are used for purposes of determining stream depletions from groundwater withdrawals. [[504]](#footnote-505)504Response Functions are a simplified representation of the relationship between groundwater withdrawal and net depletions to surface streams for the Response Area. [[505]](#footnote-506)505

Response Areas are used for purposes of determining stream depletions due to the nonlinear flow system in the Valley. [[506]](#footnote-507)506The flow system is non-linear due to changes in evapotranspiration with groundwater depth and the nature of the aquifers. Given the nonlinearity of the flow system, the RGDSS Groundwater Model cannot reliably predict depletions by individual wells. [[507]](#footnote-508)507Rather, Response Areas are necessary to group a large number of hydrogeologically similar groundwater withdrawals for purposes of reliably calculating stream depletions. [[508]](#footnote-509)508The Response Functions derived from the RGDSS Groundwater Model are used to quantify the amount, timing, and location of stream depletions caused by groundwater withdrawals within a Response Area. [[509]](#footnote-510)509Response Functions have been prepared for seven of the eight Response Areas. [[510]](#footnote-511)510There is currently no response function for the Costilla Plain. [[511]](#footnote-512)511

Under rule 7.3, the state engineer is required to develop and make available to well users the Response Functions for the seven Response Areas. [[512]](#footnote-513)512Except as provided in rule 7.5, the Response Functions for a Response Area must be used to determine the amount and timing of stream depletions to specific streams caused by diversions of groundwater by wells in the Response Area. [[513]](#footnote-514)513 **[\*326]**The effect of this rule is to require all wells in the Response Area to use the same basis for quantification of stream depletions.

Rule 7.5 allows well users to use an alternative to the RGDSS Groundwater Model to determine stream depletions for a specific well or wells within the RGDSS Groundwater Model domain if the well user can demonstrate that the proposed alternative to the RGDSS Groundwater Model determines stream depletions resulting from groundwater withdrawals within the RGDSS Groundwater Model domain at least as reliably as the RGDSS Groundwater Model. [[514]](#footnote-515)514Because there are areas in the Rio Grande drainage in ***Colorado*** that are outside of the RGDSS Groundwater Model domain, Rule 7.6 provides that in those areas the best practical and reliable methodology for determining stream depletions must be used. [[515]](#footnote-516)515This rule establishes a rebuttable presumption that the aquifers outside of the RGDSS Groundwater Model domain act as alluvial aquifers. [[516]](#footnote-517)516

The area on the Rio Grande upstream of Del Norte to the South Fork has an alluvial aquifer that is outside of the RGDSS Model domain. The state engineer is working with local water users to develop a groundwater model of this area to be used to determine stream depletions caused by groundwater pumping in this area.

D. Rule 8: Standards and Monitoring Methods for Achieving and Maintaining a Sustainable Water Supply

1. General Requirements

The requirement for achieving and maintaining a sustainable water supply varies depending upon the characteristics of the aquifer involved. The requirements for achieving and maintaining a sustainable water supply in Subdistrict 1, which overlies the unconfined aquifer in the closed basin, is to restore groundwater levels in the unconfined aquifer to a specified range within a fixed time period in accordance with its Amended Plan of Water Management. [[517]](#footnote-518)517

In the case of the Rio Grande Alluvium Response Area (parts of which are included in Subdistrict No. 2), the rules conclude that the alluvial aquifer is directly drained by the Rio Grande and therefore retains insufficient storage from season to season to sustain large groundwater production. [[518]](#footnote-519)518Thus, there is no sustainable water supply requirement for the wells in this Response Area that withdraw water from the Rio Grande alluvium, but the wells still must replace Injurious Stream Depletions. Wells in this geographic area that withdraw from the confined aquifer are included in the separate Alamosa-La Jara confined aquifer Response Area, which does have a sustainability requirement. [[519]](#footnote-520)519

Similarly, the Trinchera Response Area does not have a specific standard for a sustainable water supply. Rather, under Rule 8.3, wells located in the Trinchera Response Area "must achieve and maintain a Sustainable Water **[\*327]**Supply" and each plan of water management or augmentation plan must contain terms that provide for achieving and maintaining a sustainable water supply within 20 years of its effective date. [[520]](#footnote-521)520

2. Sustainable Water Supply Requirement for the Confined Aquifer

*i. Data Collection to Implement Statutory Standard*

The most complex and controversial piece of achieving and maintaining a sustainable water supply involves the confined aquifer. [*Section 37-92-501(4)(a)(III) of the* ***Colorado*** *Revised Statutes*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) requires maintenance of artesian pressure while allowing pressure fluctuations within the ranges that occurred during the period of 1978 through 2000. [[521]](#footnote-522)521The artesian pressure is "allowed" to increase in periods of greater water supply and allowed to decline in periods of lower water supply, in much the same manner and magnitude of the fluctuation that occurred between 1978 and 2000, while maintaining average levels similar to the average of the range of fluctuation during that time period. [[522]](#footnote-523)522

The initial difficulty in implementing this standard is the lack of comprehensive confined aquifer pressure data throughout the San Luis Valley for the 1978 through 2000 time period. This makes it very difficult to reliably estimate the range of fluctuations that occurred in that time period throughout the confined aquifer and thus to determine whether and how this standard can be met. To address this lack of comprehensive data, rule 8.1.1 proposes a network of monitoring wells shown in Exhibits C-1 through C-4 to the Existing Use Rules. [[523]](#footnote-524)523The state engineer must coordinate with well users to implement a measuring program to collect water levels at the wells included in the monitoring network on at least an annual basis. [[524]](#footnote-525)524

A second difficulty in defining a standard for determining when the confined aquifer has achieved a sustainable water supply is the lack of comprehensive data on the relationships between basin scale hydrologic conditions and the resulting artesian pressure in the confined aquifer. To address these issues, under rule 8.1.2, the state engineer, in coordination with the Rio Grande Water Conservation District, water conservancy districts, subdistricts, and water users, intends to collect additional data and investigate inflows and outflows from the confined aquifer system and the relationship between climatic conditions, hydrologic and geologic conditions, unconfined aquifer and confined aquifer system groundwater withdrawals, and the water levels and artesian pressures of the confined aquifer system. [[525]](#footnote-526)525

The purpose of this additional data collection and investigation is to provide the state engineer with the information needed to better understand and model the confined aquifer system, to more reliably estimate the 1978 through 2000 water levels and artesian pressures, and to better understand the relationship between groundwater withdrawals, climatic conditions, movement of water **[\*328]**through the hydrologic system, and the water levels and artesian pressures in the confined aquifer system.

Basically, rule 8.1.2 is an effort to try to get enough data to determine if and how the statutory standard for maintenance of artesian pressures can be implemented. Rule 8.1.3 requires the State Engineer to prepare a report concerning the results of these investigations within ten years from the effective date of the Existing Use Rules. [[526]](#footnote-527)526Based upon the results of the investigations, the state engineer must determine the preferred means to maintain a sustainable water supply in the confined aquifer system and manage its artesian pressures, after which the state engineer may propose amendments to the Existing Use Rules if needed to further implement section 37-92-501(4)(a)(III). [[527]](#footnote-528)527

*ii. Interim Well Regulation: Rules 8.1.5, 8.1.6, 8.1.7*

During the ten-year data collection program contemplated by rule 8.1, groundwater withdrawals from the confined aquifer will, nevertheless, be subject to all of the other provisions of the Existing Use Rules, including the obligation to replace all Injurious Stream Depletions caused by the groundwater withdrawals. [[528]](#footnote-529)528In addition, during this ten-year data collection period, groundwater withdrawals from each Response Area must be reduced, or aquifer recharge increased, so that the five-year running average of withdrawals does not exceed the average annual groundwater withdrawals for the period 1978 through 2000, as determined from the most current version of the RGDSS Groundwater Model and any other pertinent information. [[529]](#footnote-530)529The plans for water management and augmentation plans for wells in the confined aquifer Response Areas must contain provisions for meeting this requirement. [[530]](#footnote-531)530The calculation of these limitations has been modified by stipulation with certain protestors to these rules to ensure the twenty-three year average can be attained.

Because not all confined aquifer wells in a Response Area have to be included in the same subdistrict or the same augmentation plan, the obligation to meet this standard must be allocated among the various subdistrict plans of water management and augmentation plans. [[531]](#footnote-532)531Thus, each such plan must include terms addressing how the plan will meet its proportional responsibility for ensuring that the five-year running average withdrawal limit for the Response Area is not exceeded. [[532]](#footnote-533)532Rule 8.6 provides that the proportional allocation of the responsibility for achieving and maintaining a sustainable water supply will be based upon each well's past, present, and future groundwater withdrawals, unless the plans participants agree on another method of allocating responsibility. [[533]](#footnote-534)533

*iii. Alternative Methods for Achieving and Maintaining a Sustainable Water Supply in the Confined Aquifer*

**[\*329]**Rule 8.6 allows well users or subdistricts to propose an alternate method or standard for determining, achieving, and maintaining a sustainable water supply ("Alternate Plan"). [[534]](#footnote-535)534The proponent of any Alternate Plan must demonstrate that it reliably determines the sustainable water supply and is sufficient to achieve and maintain a sustainable water supply. [[535]](#footnote-536)535If the Alternate Plan relies on replacement of groundwater withdrawals by recharge or injection such that the groundwater withdrawals do not have a net effect on the sustainable water supply, the Alternate Plan must account for the effect of groundwater withdrawals that occurred before the effective date of the Alternate Plan on the ability to achieve and maintain a sustainable water supply. [[536]](#footnote-537)536If an Alternate Plan is used, but its requirements to achieve and maintain a sustainable water supply are not met, the wells included in the Alternate Plan will be shut off. [[537]](#footnote-538)537

XVI. Judicial Review of the Proposed Existing Use Rules

The Existing Use Rules were filed with the Division No. 3 Water Court in September 2015 and assigned Case No. 2015CW3024. [[538]](#footnote-539)538A total of thirty protests were filed, about half of which were "protests in support" or largely in support of the rules. [[539]](#footnote-540)539Of the remainder, about half were *pro se* objections, and all of the remaining protests raised substantive challenges to all or parts of the rules. [[540]](#footnote-541)540The challenges to the rules were heard by Judge Pattie Swift in a trial held from January 29 to February 15, 2018. [[541]](#footnote-542)541

The principal substantive challenges to the Existing Use Rules raised in statements of opposition fell into three general categories. The first was the irrigation season rule. [[542]](#footnote-543)542The challenge to that rule and its presumptive beginning and ending dates was largely driven by concerns that in some areas of the San Luis Valley where run-off comes in March, water could not be lawfully diverted when available, and therefore, the water rights that historically diverted the water would be deprived of that water. All of the challenges to the irrigation season rule were resolved by stipulation prior to trial. [[543]](#footnote-544)543

The second type of substantive challenge was to the adequacy of the RGDSS Groundwater Model to accurately predict Injurious Stream Depletions on smaller streams. [[544]](#footnote-545)544The main protestors making this challenge alleged that groundwater withdrawals from the confined aquifer had reduced the flow of Diamond Springs (a.k.a. Arroyo Springs), which was claimed to be the historical and substantial source of the water supply to these protestors' surface water **[\*330]**rights from La Jara Arroyo Creek. [[545]](#footnote-546)545The RGDSS Groundwater Model did not predict depletions to that particular spring for a number of reasons, including that the period when the greatest decline to the spring's flow are claimed to have occurred are well before the calibration period for the RGDSS Groundwater Model. [[546]](#footnote-547)546In addition, there was considerable dispute over whether there was a reliable historical record of the flow of the spring. [[547]](#footnote-548)547Thus, the state engineer and other proponents of the rules argued that there is a lack of a data with which to calibrate the RGDSS Groundwater Model to correctly replicate historical flow from the spring - even if it were possible to calibrate to the time period when the depletions are claimed to have occurred. [[548]](#footnote-549)548Finally, there were substantial factual disputes over: (1) the source of water to the spring; (2) whether and to what extent the spring's declines were related to changing surface irrigation practices up-gradient from the spring as opposed to groundwater use; and (3) whether curtailing well pumping would restore the spring's flow. [[549]](#footnote-550)549

The third type of substantive challenge was directed to the sustainability requirement for the confined aquifer under Rule 8. [[550]](#footnote-551)550The challenges broadly attacked all aspects of Rule 8 and were as much economic challenges as technical challenges. The majority of the challenges were resolved by stipulations prior to trial. In the stipulations, [[551]](#footnote-552)551the state engineer agreed, among many other things, to do the following:

To include certain additional data concerning historical groundwater withdrawals from the confined aquifer in the Conejos and Alamosa-La Jara response areas, the principal effect of which will be to increase the estimated historical groundwater withdrawals in the Conejos Response Area.

Based upon a mathematical analysis by certain protestors, the State Engineer agreed that imposing a 5-year running average limitation using an annual average that is based on a 23-year period has the effect of limiting future groundwater withdrawals to approximately 10% less than the average annual numbers from 1978 through 2000. This mathematical analysis constitutes "pertinent information" under Rule 8.1.6 that the State Engineer may use to update the average annual withdrawals for Response Areas for the period 1978 through 2000 that are used for purposes of Rule 8.1.7. In order to allow actual groundwater withdrawals in the affected Response Areas to equal the estimated average annual numbers from 1978 through 2000, the State Engineer agreed that, for purposes of proposed Rules 8.1.6 and 8.1.7, the estimated average annual groundwater withdrawals from 1978 through 2000 for each affected Response Area will be adjusted upward by 10%. The 10% upward adjustment will be used so long as the 23-year average is applied to a 5-year running average limitation. **[\*331]**Notwithstanding, the maximum groundwater withdrawals in the affected Response Areas over any consecutive twenty-three year period shall not exceed 23 times the average annual groundwater withdrawals from 1978-2000 for such Response Area.

If the State Engineer, after completing the studies contemplated by rule 8.1.3, chooses to continue to regulate the Confined Aquifer System in the affected Response Areas based on a running-average approach, the State Engineer will seek to amend the rules with respect to the five-year running average contemplated by rules 8.1.6 and 8.1.7. After the State Engineer studies this issue as part of the study contemplated by rules 8.1.1 through 8.1.3, and no later than ten years after the effective date of the rules, the State Engineer will seek to amend the rules to modify rule 8.1.7 in three ways: (1) determine the most appropriate period of time to use for the running average, which could be five years or another number of years, and seek to amend rule 8.1.7 accordingly; (2) seek to amend the rules to utilize consecutive multi-year running average groundwater withdrawal limitations for the affected Response Areas based upon the maximum groundwater withdrawals over a similar period of consecutive years occurring between 1978 and 2000; and 3) seek to amend the rules so that maximum groundwater withdrawals in the affected Response Areas over any consecutive 23-year period do not exceed 23 times the average annual groundwater withdrawals from 1978 to 2000 for such Response Areas. [[552]](#footnote-553)552

All of the challenges to the proposed rules were settled prior to trial, except (1) the challenge to the adequacy of the RGDSS Groundwater Model to accurately predict Injurious Stream Depletions on smaller streams, including La Jara Arroyo Creek and Diamond Springs, (2) the claim that the State Engineer should curtail all confined aquifer wells that impact the flow of Diamond Springs until its flow recovers to the levels existing between 1978 and 2000, and (3) the claim that there should be no well regulation until the RGDSS Groundwater Model is further refined. The latter two claims were presented by *pro se* protestors. [[553]](#footnote-554)553

At the conclusion of the trial, the water judge took the case under advisement, and on March 15, 2019, entered her comprehensive Findings of Fact, Conclusions of Law, Judgment and Decree approving the Existing Use Rules. The 150-page decree is a full exposition of the history of the litigation, the proposed Existing Use Rules, the disputed legal and factual issues, the RGDSS and the RGDSS Groundwater Model, the challenges to the rules at trial and the evidence presented on the contested issues, the factual and legal basis for the court' rulings the disputed issues and the court's legal conclusions and decree. It contains a detailed and comprehensive discussion of the highly technical evidence presented by the parties and demonstrates the water court's thorough understanding of the issues and the evidence.

With respect to the challenges to the adequacy of the RGDSS Groundwater Model to accurately predict Injurious Stream Depletions on smaller streams, including La Jara Arroyo Creek and Diamond Springs, the water court concluded that was insufficient scientifically reliable data for the state engineer to conclude that in the absence of historical well pumping Arroya/Diamond Springs would flow, and if so, to determine the amount of annual depletion to **[\*332]**the springs' flow such pumping causes. [[554]](#footnote-555)554On this basis the water court concluded that the state engineer was justified in not attempting to determine well depletions to Diamond Springs and the rules were not invalid for his failure to do so. The water court also rejected the Opposers' related challenges to the validity of the RGDSS Groundwater Model. [[555]](#footnote-556)555

The water court also rejected the pro se challenges to the manner of implementation of Rule 8. The court found that Rule 8 and its provisions for collection of additional data to determine whether and how to make future changes in the methodology to maintain Confined Aquifer pressures pursuant to statute had a rational factual basis and was lawful. [[556]](#footnote-557)556

With respect to the two the remaining pro se opposers who appeared at trial, the water court found that their testimony did not challenge any particular rule and were not entitled to any specific relief. [[557]](#footnote-558)557

The water court's decree approving the Existing Use Rules represents the most recent and a highly significant step toward achieving the integrated administration of surface water and groundwater in Water Division No. 3. Pursuant to those rules, there is now a comprehensive roadmap for completing this goal of the 1969 Act.

XVII. Formation of Additional Groundwater Management Subdistricts

Regardless of whether the Existing Use Rules are approved, the Rio Grande Water Conservation District has moved forward with the formation of additional groundwater management subdistricts and development of Plans of Water Management for lands in the Conejos, Alamosa-La Jara, Rio Grande, San Luis, and Saguache Creek Response Areas. Water users in the Trinchera Creek drainage in Costilla County have established a groundwater management subdistrict under the Trinchera Water Conservancy District and are in the process of formulating its Plan for Water Management. Thus, groundwater management subdistricts have been established for each of the seven Response Area identified in the Existing Use Rules and for which Response Functions have been established.

The Rio Grande Water Conservation District approached the formation of the new subdistricts somewhat differently than the formation of Subdistrict 1. The goal of Subdistrict 1 was to collectively manage the major groundwater users from the unconfined aquifer in the southern portion of the closed basin, which, for all practical purposes, meant all irrigation groundwater users needed to be included. [[558]](#footnote-559)558Thus, Subdistrict 1 encompasses all such users within its boundaries.

**[\*333]**The new subdistricts are based on an "opt-in" approach where irrigation groundwater users within a response area elect to be included in the subdistrict. [[559]](#footnote-560)559This results in a "checker board" subdistrict that includes parcels of land that may not all be contiguous. This process simplifies administration and leaves to their own devices irrigation well owners who do not want to be in a subdistrict. The irrigation well owners who do not join the subdistrict will be required to adjudicate individual augmentation plans to comply with the Existing Use Rules. [[560]](#footnote-561)560

The status of the existing and new subdistricts is as follows:

Subdistrict 1 - Response Area No. 1: The Board of Managers of Subdistrict No. 1 have adopted amendments to its Plan of Water Management. The State Engineer has approved the Amended Plan of Water Management. This approval covers administrative revisions and addresses improving the efficiency of administering the Plan and changes to the budget-based variable fee structure. The revisions are available on the Rio Grande Water Conservation District's website, [*http://www.rgwcd.org*](http://www.rgwcd.org). Approval of the amendments is pending before the water court.

Subdistrict No. 2 - Rio Grande Alluvium Response Area: The subdistrict has been created and its Plan of Water Management was approved by both the State Engineer and the Rio Grande Water Conservation District. Notice of the approval was published in the August 2018 water court resume for Water Division No. 3, and no protests were filed against that plan. Therefore, it will commence operation in 2019.

Subdistrict No. 3 - Conejos Response Area: The subdistrict has been created and its Plan of Water Management has been approved by both the State Engineer and the Rio Grande Water Conservation District. A Notice of Approval of the Plan of Water Management was published in the water court resume for Water Division 3 in September 2018, and there were no protests filed against that plan. Therefore, it will commence operation in 2019.

Subdistrict No. 4 - San Luis Creek Response Area: The subdistrict has been created and the Board of Managers is in the process of preparing a Plan of Water Management.

Subdistrict No. 5 - Saguache Creek Response Area: Subdistrict No. 5 has been created and the Board of Managers is in the process of preparing the Plan of Water Management.

Subdistrict No. 6 - Alamosa-La Jara Response Area: Subdistrict No. 6 has been created and the Board of Managers has been appointed and has begun work on a Plan of Water Management.

Trinchera Groundwater Management Subdistrict of the Trinchera Water Conservancy District - Trinchera Response Area: The subdistrict has been created and it is in the process of preparing its Plan of Water Management. [[561]](#footnote-562)561

**[\*334]**

XVIII. Groundwater Management Issues that Remain Unresolved and Must be Addressed in the Near Future

A. Preparing and Implementing Plans of Water Management for the New Groundwater Management Subdistricts

To effectuate the goals of SB 04-222, it is necessary for each of the groundwater management subdistricts to develop and implement plans of water management to replace Injurious Stream Depletions and achieve the required level of sustainability of the aquifer systems included within each subdistrict. The subdistricts formed under the Rio Grande Water Conservation District are moving ahead with this process. The plans of water management for Subdistricts 2 and 3 are designed to meet the requirements of the proposed Existing Use Rules but can operate independently if those rules are not approved. Subdistricts 4, 5, and 6 of the Rio Grande Water Conservation District will pursue the same path and will be in a position to comply with the Existing Use Rules if and when they go into effect.

B. Adjudication of Augmentation Plans/Contract Replacement Agreements with Subdistrict

Not all groundwater users in Water Division No. 3 are included within the existing subdistricts. In addition, the RGDSS Groundwater Model and its Response Functions do not cover areas outside the Valley floor, such as the Rio Grande above Del Norte or Saguache Creek upstream some distance from the Town of Saguache. Well users in those areas will have to develop and implement plans for augmentation to replace their well depletions. Because they are outside of the RGDSS Groundwater Model domain, they are presumed to be in the alluvial aquifer for purposes of developing their plans for augmentation.

Similarly, there are a number of municipalities and federal wildlife facilities that are not included within any of the subdistricts. These entities will need to either adjudicate individual augmentation plans or enter into contracts with subdistricts pursuant to which the subdistricts replace all or a portion of the depletions caused by their groundwater use. Several augmentation plans have been filed by existing municipalities, and a number of exchange applications have been filed by municipalities and well owner groups in an effort to move augmentation water to places where it can be used by groundwater management subdistricts or in augmentation plans. These are technically complex applications that will require detailed engineering evaluation in order to ensure that they can operate consistent with Compact administration and the implementation of the plans of water management of the various subdistricts.

C. Updating the RGDSS Groundwater Model

The RGDSS Groundwater Model forms the basis for the determination of stream depletions and compliance with the sustainability metrics under the proposed Existing Use Rules. The RGDSS Groundwater Model is a very complex and sophisticated computer based mathematical groundwater model. Because of its complexity and the need to assure high quality data is put into the Model, it is a difficult and time-consuming process to update the Model regularly. However, because of its importance to the proposed Existing Use Rules and the **[\*335]**regulation of groundwater in Water Division No. 3, it is essential for the Model to be regularly and continuously updated with new reliable information concerning groundwater use, geology, and hydrology in the San Luis Valley. If that does not occur, the Model will cease to be reliable and can no longer serve as a reasonable basis for groundwater administration in the San Luis Valley.

D. Sustainability Standard for the Confined Aquifer

When SB 04-222 was enacted, the time period 1978 through 2000 was chosen for the desired groundwater levels in the confined aquifer because it was believed to represent the full range of historical fluctuations in the aquifer system that reflected the existing levels of groundwater development. The State Engineer's Office also believed that there was sufficient reliable information available to determine the average historical fluctuations in groundwater levels in the confined aquifer throughout Water Division No. 3 during that period. Subsequently, during the development of the RGDSS and review of the available data, the State Engineer's Office learned that there was not sufficient complete and reliable data on groundwater levels throughout the San Luis Valley to provide a sufficient basis for modeling of the historical groundwater levels and fluctuations for purposes of establishing standards throughout the confined aquifer. While there is data on confined aquifer levels at many locations, there are very few wells with complete data sets for the entire time period. Thus, the proposed Existing Use Rules require the state engineer to collect additional data from the confined aquifer well networks identified in the Rules and, after ten years, decide how best to implement the statutory standards for sustainability of the confined aquifer. [[562]](#footnote-563)562

Perhaps the most significant underlying question is whether maintenance of pressure levels in the confined aquifer similar to those that occurred in the 1978 through 2000 period can be maintained without surface water hydrology equivalent to that which occurred in the 1978 through 2000 time period. That time period included the very dry year of 1978, the very wet years in the mid-1980s, and the average to above-average water years in the 1990s. At the time SB 04-222 was enacted, the state engineer thought this time period largely encompassed the full range of hydrologic conditions for the San Luis Valley. However, the drought that commenced in about 2000, and that has continued through 2018, has resulted in lower inflows to the San Luis Valley and lower aquifer levels throughout the Valley. Thus, the question that the state engineer will need to address is whether the sustainability standard for the confined aquifer system based on conditions existing from 1978 through 2000 can be achieved under these drier hydrologic conditions. If not, then the state engineer and the general assembly will need to revisit this standard.

XIX. Looking Forward - Sustainability and the Limitations of the 1969 Act

In 1969 ***Colorado***'s population was some 2,1666,000 [[563]](#footnote-564)563people, while in **[\*336]**2018 its population is some 5,695,000 [[564]](#footnote-565)564people - 2.5 times larger than in 1969. Climate trends over the same period show that the average temperature in the Rio Grande Basin has increased by 2.5 [degrees] F, and it is projected to increase by an additional 4 [degrees] -6 [degrees] F by the end of the 21st century. [[565]](#footnote-566)565Over that time, flows of the Rio Grande are projected to decline by one-third and peak run-off will occur earlier. [[566]](#footnote-567)566

***Colorado***'s population is increasing, and its water supply appears to be decreasing. In light of this, the citizens of the State of ***Colorado*** will face increasingly difficult questions about how to allocate a diminishing water supply among increasing and competing water demands, while retaining a resilient and sustainable water supply, preserving the natural environment, and complying with interstate compact obligations. Thus, the 1969 Act must continue to evolve to address how to maintain sustainable water supplies for future generations given the ever-changing needs and water supply conditions in our state.

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**End of Document**

1. 1

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   [↑](#footnote-ref-2)
2. 2

   *See, e.g.,* [*Cache La Poudre Water Users Ass'n v. Glacier View Meadows, 550 P.2d 288 (****Colo.*** *1976)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1KB0-003D-93BD-00000-00&context=1516831).

   [↑](#footnote-ref-3)
3. 3

   *See* Final Settlement Stipulation, *Kansas v. Nebraska and* ***Colorado***, Original No.126 (U.S. Supreme Court, December 15, 2002).

   [↑](#footnote-ref-4)
4. 4

   Natural Resources Committee, Regional Planning, Part IV - The Rio Grande Joint Investigation in the Upper Rio Grande Basin in ***Colorado***, New Mexico and Texas, 1936-1937 at 19 (1938) [hereinafter Joint Investigation].

   [↑](#footnote-ref-5)
5. 5

   *Id.*

   [↑](#footnote-ref-6)
6. 6

   *Id.*

   [↑](#footnote-ref-7)
7. 7

   *Id.*

   [↑](#footnote-ref-8)
8. 8

   *Id.*; United States Dep't of the Interior, ***Colorado*** Water Resources Circular 18, Plate 1.

   [↑](#footnote-ref-9)
9. 9

   Joint Investigation 19 (1938).

   [↑](#footnote-ref-10)
10. 10

    *Id.*

    [↑](#footnote-ref-11)
11. 11

    *Id.*at 19-20.

    [↑](#footnote-ref-12)
12. 12

    *Id.* at 20.

    [↑](#footnote-ref-13)
13. 13

    *Id.*

    [↑](#footnote-ref-14)
14. 14

    *Id*.

    [↑](#footnote-ref-15)
15. 15

    [***Colo.*** *Rev. Stat. § 37-62-101*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J33Y-00000-00&context=1516831) (2019).

    [↑](#footnote-ref-16)
16. 16

    Joint Investigation 19 (1938).

    [↑](#footnote-ref-17)
17. 17

    *Id*at  *23* *.*

    [↑](#footnote-ref-18)
18. 18

    *Id* at 20-21 *.*

    [↑](#footnote-ref-19)
19. 19

    *Id* at 21, 23.

    [↑](#footnote-ref-20)
20. 20

    *Id.*

    [↑](#footnote-ref-21)
21. 21

    *See generally,* William A. Paddock, *The Rio Grande Convention of 1906: A Brief History of an*  *International and Interstate Apportionment of the Rio Grande*, 77 U. Den. L. Rev. 287, 305 (1999).

    [↑](#footnote-ref-22)
22. 22

    Ogden Tweto, *The Rio Grande Rift System in* ***Colorado****. in Riecker*, *in* Rio Grande Rift: Tectonics and Magmatism 33-56 (Robert E. Riecker, ed., 1979).

    [↑](#footnote-ref-23)
23. 23

    The description of the hydrogeology of the basin is drawn from *Proponents' Ex. 12*, HRS Consultants, Inc., *Summary of Hydrogeology of the San Luis Valley,* ***Colorado***, Case No. 2004CW24, (***Colo.*** 2005).

    [↑](#footnote-ref-24)
24. 24

    S. Doc. No. 55-229 at 54 (1898).

    [↑](#footnote-ref-25)
25. 25

    *Id.* at 99.

    [↑](#footnote-ref-26)
26. 26

    Norris Hundley, Jr., Dividing the Waters - A Century of Controversy Between the United States and Mexico, 19 (1966); Douglas Robert Littlefield, Interstate Water Conflicts, Compromises, and Compacts: The Rio Grande, 1880-1938, 43 (1987) (unpublished Ph.D. dissertation, University of California, Los Angeles) (on file with the Denver Public Library).

    [↑](#footnote-ref-27)
27. 27

    S. Doc. No. 55-229 at 55 (1898).

    [↑](#footnote-ref-28)
28. 28

    Joint Investigation, *supra* note 9, at 69.

    [↑](#footnote-ref-29)
29. 29

    ***Colorado*** became a state in 1876 and, in 1879 adopted its first irrigation laws and adjudication statutes.

    [↑](#footnote-ref-30)
30. 30

    Joint Investigation, *supra* note 9, at 13.

    [↑](#footnote-ref-31)
31. 31

    RGDSS Memorandum: Phase 6 Enhancement of Irrigated Parcel Datasets, at 4 (Dec. 16, 2015).

    [↑](#footnote-ref-32)
32. 32

    S. Doc. No. 55-229, 18 (1898). The suspension was effective December 5, 1896.

    [↑](#footnote-ref-33)
33. 33

    *See*Joint Investigation, *supra* note 9, at 8.

    [↑](#footnote-ref-34)
34. 34

    C.E. Siebenthal, *Geology and Water Resources of the San Luis Valley,* ***Colorado***, USGS Water-Supply Paper 240 (1910) at 27.

    [↑](#footnote-ref-35)
35. 35

    Joint Investigation, *supra* note 9, at 67.

    [↑](#footnote-ref-36)
36. 36

    *See id.*

    [↑](#footnote-ref-37)
37. 37

    *See* Convention Between the United States and Mexico Providing for the Equitable Distribution of the Waters of the Rio Grande for Irrigation Purposes, May 21, 1906, U.S.; *see also*William A. Paddock, *The Rio Grande Convention of 1906: A Brief History of an International and Interstate Apportionment of the Rio*Grande, Denv. L. Rev. 287 (1999).

    [↑](#footnote-ref-38)
38. 38

    Joint Investigation, *supra* note 9, at 67.

    [↑](#footnote-ref-39)
39. 39

    *Id*.

    [↑](#footnote-ref-40)
40. 40

    *Id*. at 67-68.

    [↑](#footnote-ref-41)
41. 41

    *Id*. at 553, 561.

    [↑](#footnote-ref-42)
42. 42

    *See* *id.* at 537-553.

    [↑](#footnote-ref-43)
43. 43

    Joint Investigation, *supra* note 9, at 8; Douglas R. Littlefield, Conflict on the Rio Grande, Water and the Law, 1879-1939 177-78 (2008).

    [↑](#footnote-ref-44)
44. 44

    Littlefield, *supra* note 26, at 177-83.

    [↑](#footnote-ref-45)
45. 45

    Letter from Arthur B. Davis, Dir. of U.S. Bureau of Reclamation to Albert B. Fall, Secretary of Interior (March 23, 1923).

    [↑](#footnote-ref-46)
46. 46

    *See* R. I. Meeker, Water Supply, Irrigation, and Drainage, Present and Future Conditions, San Louis Valley, State of ***Colorado*** 19 (May. 1924); R. J. Tipton, Soil Conditions and Drainage in the San Luis Valley, ***Colorado*** (Sept. 1924) (on file with author).

    [↑](#footnote-ref-47)
47. 47

    The complete history of this dispute is beyond the scope of this article, but the full controversy is described in Littlefield, *supra* note 26, at 183-188.

    [↑](#footnote-ref-48)
48. 48

    The 1929 temporary Compact also stated that the cost of the Closed Basin Drain should be paid by the United States. Temporary Rio Grande Compact of 1929, 1929 ***Colo.*** Sess. Laws 548, art. II.

    [↑](#footnote-ref-49)
49. 49

    Temporary Rio Grande Compact of 1929, 1929 ***Colo.*** Sess. Laws 548, arts. V, VII.

    [↑](#footnote-ref-50)
50. 50

    *See* Joint Investigation, *supra* note 9, at 10.

    [↑](#footnote-ref-51)
51. 51

    *Id.*

    [↑](#footnote-ref-52)
52. 52

    *Id.*

    [↑](#footnote-ref-53)
53. 53

    *Id.*

    [↑](#footnote-ref-54)
54. 54

    *Id.* at 12.

    [↑](#footnote-ref-55)
55. 55

    Rio Grande ***River*** Compact, [***Colo.*** *Rev. Stat. § 37-66-101*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J34F-00000-00&context=1516831) (2019). The Compact's ratification by Texas was not without controversy as described in Littlefield, *supra* note 26, at 206-216.

    [↑](#footnote-ref-56)
56. 56

    H.R. Doc. No. 76-693, at 3 (1940).

    [↑](#footnote-ref-57)
57. 57

    *Id.* at 1.

    [↑](#footnote-ref-58)
58. 58

    *Id.* at 6.

    [↑](#footnote-ref-59)
59. 59

    San Luis Valley Project, [*Pub. L. No. 82-415*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:5CFP-G8P0-01XN-S0DP-00000-00&context=1516831), ***66 Stat. 282*** (1952), (providing that excess-land provisions shall not apply to certain lands that will receive supplemental or regulated water supply from the San Luis Valley project, ***Colorado***).

    [↑](#footnote-ref-60)
60. 60

    Chief of Engineers, Dep't of the Army, Rio Grande Above Elephant Butte Dam, New Mexico 43-44 (1960).

    [↑](#footnote-ref-61)
61. 61

    Rio Grande Compact Art. I(c).

    [↑](#footnote-ref-62)
62. 62

    Rio Grande Compact Art. I(d).

    [↑](#footnote-ref-63)
63. 63

    William A. Paddock, *The Rio Grande Compact of 1938*, [*5 U. Denver Water L. Rev. 32-33, 36-37, 48-51 (2001)*](https://advance.lexis.com/api/document?collection=analytical-materials&id=urn:contentItem:459P-SCT0-00SW-5050-00000-00&context=1516831) (containing a more complete discussion of the Rio Grande Compact).

    [↑](#footnote-ref-64)
64. 64

    *See* [*674 P.2d 914, 925 (****Colo.*** *1984)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

    [↑](#footnote-ref-65)
65. 65

    [*Id. at 923-25*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

    [↑](#footnote-ref-66)
66. 66

    *See*  [*id. at 925-27*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

    [↑](#footnote-ref-67)
67. 67

    *See* Joint Investigation, *supra* note 9, at 49-53.

    [↑](#footnote-ref-68)
68. 68

    Rio Grande Compact, [*N.M. Stat. Ann. § 72-15-23*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:5BXH-GJT1-64V8-10NX-00000-00&context=1516831) (1938).

    [↑](#footnote-ref-69)
69. 69

    *Id*.

    [↑](#footnote-ref-70)
70. 70

    *Id*.

    [↑](#footnote-ref-71)
71. 71

    *Id*.

    [↑](#footnote-ref-72)
72. 72

    *Id*.

    [↑](#footnote-ref-73)
73. 73

    Rio Grande Compact Commission, Fourth Annual Report of the Rio Grande Compact Commission 1942 1, 2, 4 (1942) (in Commission's Report to Governors of ***Colorado***, New Mexico, and Texas).

    [↑](#footnote-ref-74)
74. 74

    Rio Grande Compact Commission, Eleventh Annual Report of the Rio Grande Compact Commission 1949 26, 27, 36 (1949).

    [↑](#footnote-ref-75)
75. 75

    *Id.* at 28.

    [↑](#footnote-ref-76)
76. 76

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1952-1958 27-29 (1958); Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1951 27-29 (1951); Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1950 27-29 (1950).

    [↑](#footnote-ref-77)
77. 77

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1952-1958 27 (1958).

    [↑](#footnote-ref-78)
78. 78

    Annual stream flow records of the Rio Grande at the gauging station near Del Norte are maintained by the U.S. Geological Survey. A compilation of these records are on file with the author.

    [↑](#footnote-ref-79)
79. 79

    *See* Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1952-1958 72 (1958).

    [↑](#footnote-ref-80)
80. 80

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1966, at 27 (1966).

    [↑](#footnote-ref-81)
81. 81

    Texas v. ***Colorado*** ***,389 U.S. 1000, 1000 (1967)***.

    [↑](#footnote-ref-82)
82. 82

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1967, at 27 (1967).

    [↑](#footnote-ref-83)
83. 83

    *See* [*Alamosa-La Jara, 674 P.2d at 919*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831) *.*

    [↑](#footnote-ref-84)
84. 84

    *See* [*id. at 921*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

    [↑](#footnote-ref-85)
85. 85

    Confined Aquifer New Use Rules for Div. 3 at 30, No. 2004CW24 (Dist. Ct. Water Div. 3, Dec. 29, 2006) (hereinafter Decree, Case No. 04CW24).

    [↑](#footnote-ref-86)
86. 86

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1975 27 (1975).

    [↑](#footnote-ref-87)
87. 87

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1980 27 (1980).

    [↑](#footnote-ref-88)
88. 88

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1984 27 (1985).

    [↑](#footnote-ref-89)
89. 89

    Rio Grande Compact Commission, Report of the Rio Grande Compact Commission 1985 27 (1985).

    [↑](#footnote-ref-90)
90. 90

    ***Texas v. Colorado, 474 U.S. 1017 (1985)***.

    [↑](#footnote-ref-91)
91. 91

    William J. Powell, Ground-Water Resources of the San Luis Valley, ***Colorado***: Geological Water Supply Paper 1379, 26 (1958) (citing L.G. Carpenter, *Artesian Wells of* ***Colorado*** *and their Relation to Irrigation*, *in* State Agric. Coll. Experiment Station Bulletin No. 16, 17 (1891)).

    [↑](#footnote-ref-92)
92. 92

    *Id.*

    [↑](#footnote-ref-93)
93. 93

    C.E. Siebenthal, Geology and Water Resources of the San Luis Valley, U.S.G.S. Water Supply Paper 240 (1910).

    [↑](#footnote-ref-94)
94. 94

    *Id.* at 56.

    [↑](#footnote-ref-95)
95. 95

    Powell, *supra* note 91, at 26.

    [↑](#footnote-ref-96)
96. 96

    Joint Investigation, *supra* note 9 at 266.

    [↑](#footnote-ref-97)
97. 97

    Powell, *supra* note 91, at 27.

    [↑](#footnote-ref-98)
98. 98

    Philip A. Emery, Robert J. Snipes, John M. Dumeyer & John M. Klein, *Water in the San Luis Valley, South-Central* ***Colorado***, 18 ***Colorado*** Water Resources Circular 20 (1973).

    [↑](#footnote-ref-99)
99. 99

    Powell, *supra* note 91, at 57.

    [↑](#footnote-ref-100)
100. 100

     Powell, *supra* note 91, at 57.

     [↑](#footnote-ref-101)
101. 101

     Emery, Snipes, & Dumeyer, *supra* note 98, at 14.

     [↑](#footnote-ref-102)
102. 102

     Emery, Snipes, & Dumeyer, *supra* note 98, at 5.

     [↑](#footnote-ref-103)
103. 103

     Decree, Case No. 04CW24, *supra* note 85, at 30.

     [↑](#footnote-ref-104)
104. 104

     Decree, Case No. 04CW24, *supra* note 85, at 32.

     [↑](#footnote-ref-105)
105. 105

     RGDSS Valley-Wide Transient Water Budget 1970-2010 (on file with author).

     [↑](#footnote-ref-106)
106. 106

     *Id.*

     [↑](#footnote-ref-107)
107. 107

     *Id.*

     [↑](#footnote-ref-108)
108. 108

     Findings of Fact, Conclusions of Law, Judgment and Decree at 6, Concerning the Application for Change of Water Rights of the Rio Grande Canal Water Users Ass'n, No. W-3979 (Dist. Ct. Water Div. 3 Dec. 27, 1984) [hereinafter Decree W-3979] (emphasis added).

     [↑](#footnote-ref-109)
109. 109

     Joint Investigation, *supra* note 9, at 67 (emphasis added).

     [↑](#footnote-ref-110)
110. 110

     *Id*.

     [↑](#footnote-ref-111)
111. 111

     *Id*.

     [↑](#footnote-ref-112)
112. 112

     Finding of Fact, Conclusions of Law, Judgment and Decree at 7, Concerning the Application for Change of Water Rights of the San Luis Valley Irrigation Dist., No. W-3980 (Dist. Ct. Water Div. 3 Dec, 27, 1984) [hereinafter Decree W-3980].

     [↑](#footnote-ref-113)
113. 113

     Decree, Case No. 04CW24 at 23.

     [↑](#footnote-ref-114)
114. 114

     *Id*. at 24.

     [↑](#footnote-ref-115)
115. 115

     Decree, Case No. W-3979 at 4; Decree, Case No. W-3980 at 4.

     [↑](#footnote-ref-116)
116. 116

     Findings of Fact, Conclusions of Law, Judgment and Decree, Concerning the Application for Water Rights of the Rio Grande Water Users Ass'n, Case No. 79CW91 (Dist. Ct. Div. 3, June 9, 1988).

     [↑](#footnote-ref-117)
117. 117

     Rules and Regulations Governing the Use, Control, and Protection of Water Rights for Both Surface and Underground Water Located in the Rio Grande and Conejos ***River*** § I(C) (1975) (emphasis added) ( *hereinafter* 1975 Rules).

     [↑](#footnote-ref-118)
118. 118

     *Id*. at §§II(A), III(A).

     [↑](#footnote-ref-119)
119. 119

     *Id*. at § II(D).

     [↑](#footnote-ref-120)
120. 120

     *Id*. at 5.

     [↑](#footnote-ref-121)
121. 121

     *Id.*at II(H).

     [↑](#footnote-ref-122)
122. 122

     *Id*. at II(C).

     [↑](#footnote-ref-123)
123. 123

     *See* *id*.

     [↑](#footnote-ref-124)
124. 124

     *Id*. at I(A).

     [↑](#footnote-ref-125)
125. 125

     *Id*.

     [↑](#footnote-ref-126)
126. 126

     *See e.g.* Protest of Conejos Water Conservancy District, In the Matter of the Rules and Regulations etc., No. W-3466 (Dist. Ct. Water Div. 3, Feb. 18, 1976) (hereinafter Case No. W-3466) (on file with author).

     [↑](#footnote-ref-127)
127. 127

     Motion to Determine Jurisdiction, Case No. W-3466 (on file with author).

     [↑](#footnote-ref-128)
128. 128

     Motion for Determination of Jurisdiction and Procedural Objections, Case No. W-3466, Feb. 23, 1976. (on file with author).

     [↑](#footnote-ref-129)
129. 129

     Order at 6-10, Case No. W-3466, June 23, 1976.

     [↑](#footnote-ref-130)
130. 130

     *Id.*

     [↑](#footnote-ref-131)
131. 131

     *Id.* at 11.

     [↑](#footnote-ref-132)
132. 132

     Order, Case No. W-3466, March 10, 1977.

     [↑](#footnote-ref-133)
133. 133

     [*Kuiper v. Gould, 583 P.2d 910, 913 (****Colo.*** *1978)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1G60-003D-92H1-00000-00&context=1516831).

     [↑](#footnote-ref-134)
134. 134

     Stipulation *,* Case No. W-3466, July 17, 1979.

     [↑](#footnote-ref-135)
135. 135

     Judgement at 9-23 *,*Case No. W-3466, January 31, 1980.

     [↑](#footnote-ref-136)
136. 136

     *Id*. at 23.

     [↑](#footnote-ref-137)
137. 137

     *Id*. at 30-31.

     [↑](#footnote-ref-138)
138. 138

     *See* *id*. at 24-25.

     [↑](#footnote-ref-139)
139. 139

     Decree, Case No. 04CW24, [*supra note 85, at 67*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-140)
140. 140

     Judgment at 25, Case No. W-3466.

     [↑](#footnote-ref-141)
141. 141

     *Id.*at 26.

     [↑](#footnote-ref-142)
142. 142

     *Id*. at 26-27.

     [↑](#footnote-ref-143)
143. 143

     458, [*336 P.2d 552 (****Colo.*** *1961)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RRK-N6T0-003C-34DB-00000-00&context=1516831).

     [↑](#footnote-ref-144)
144. 144

     [*447 P.2d 986 (****Colo.*** *1968)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1Y50-003D-90XB-00000-00&context=1516831).

     [↑](#footnote-ref-145)
145. 145

     [*Alamosa-La Jara Water Users Assn. v. Gould, 674 P.2d 914, 935-36 (****Colo.*** *1983)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-146)
146. 146

     [*Id. at 922*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-147)
147. 147

     [*Id. at 924*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-148)
148. 148

     [*Id. at 923*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-149)
149. 149

     *See also*People  [*ex rel.Simpson v. Highland Irrigation* ***Co*** *., 917 P.2d 1242, 1248 (****Colo.*** *1996)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX3-YX20-003D-91KF-00000-00&context=1516831) (applying the Arkansas ***River*** Compact to intrastate administration of water rights).

     [↑](#footnote-ref-150)
150. 150

     [*Alamosa La Jara, 674 P.2d at 927*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-151)
151. 151

     [*Id. at 928*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-152)
152. 152

     *Id.*

     [↑](#footnote-ref-153)
153. 153

     Id.

     [↑](#footnote-ref-154)
154. 154

     *Id.*

     [↑](#footnote-ref-155)
155. 155

     [*Id. at 929-31*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-156)
156. 156

     [*Id. at 931*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-157)
157. 157

     *Id.*

     [↑](#footnote-ref-158)
158. 158

     [*447 P.2d 986 (****Colo.*** *1968)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1Y50-003D-90XB-00000-00&context=1516831).

     [↑](#footnote-ref-159)
159. 159

     Id.

     [↑](#footnote-ref-160)
160. 160

     [*Id. at 932*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-161)
161. 161

     [*490 P.2d 268 (****Colo.*** *1971)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1TG0-003D-953R-00000-00&context=1516831).

     [↑](#footnote-ref-162)
162. 162

     *Id.*

     [↑](#footnote-ref-163)
163. 163

     [*Id. at 934*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-164)
164. 164

     [*Id. at 932*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-165)
165. 165

     [*Alamosa La Jara, 674 P.2d at 933*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831) *.*;  *See also* [***Colorado*** *Springs v. Bender, 366 P.2d 552, 555*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RRM-WWV0-0040-00YJ-00000-00&context=1516831) (citations omitted).

     [↑](#footnote-ref-166)
166. 166

     [*Alamosa La Jara, 674 P.2d at 934*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-167)
167. 167

     [*Id. at 934-35*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-168)
168. 168

     [*Id. at 935*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-169)
169. 169

     *Id.*

     [↑](#footnote-ref-170)
170. 170

     *Id.*

     [↑](#footnote-ref-171)
171. 171

     The Rio Grande Drain, operated by the Rio Grande Drainage Dist., also delivered drainage water from the Closed Basin to the Rio Grande *. See* [*San Luis Valley Irrigation Dist. v. Rio Grande Drainage Dist., 84* ***Colo.*** *99, 268 P. 533 (1928)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RRM-YPM0-0040-03XF-00000-00&context=1516831).

     [↑](#footnote-ref-172)
172. 172

     Ralph Inman Meeker, Modification of Embargo Drainage Data, San Luis Valley, ***Colo.*** Map R.I.M. 3-4 (1923) (manuscript map) (on file with ***Colo.*** St. Univ. Libr.).

     [↑](#footnote-ref-173)
173. 173

     S. Rep. No. 71-581, at 1 (1929).

     [↑](#footnote-ref-174)
174. 174

     Rio Grande ***River*** Compact, [***Colo.*** *Rev. Stat. § 37-66-101*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J34F-00000-00&context=1516831), art. III.

     [↑](#footnote-ref-175)
175. 175

     H.R. Doc. No. 76-693, at III, V (1940).

     [↑](#footnote-ref-176)
176. 176

     *Id.* at 7.

     [↑](#footnote-ref-177)
177. 177

     H.R. Doc. No. 91-369, at 65 (1970).

     [↑](#footnote-ref-178)
178. 178

     [*Id. at 66*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-179)
179. 179

     [*Id. at 70-71*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-180)
180. 180

     [*Id. at 67*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-181)
181. 181

     [*Id. at 67*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-182)
182. 182

     *Id.* at 43.

     [↑](#footnote-ref-183)
183. 183

     *Id.* at 46.

     [↑](#footnote-ref-184)
184. 184

     Reclamation Project Authorization Act of 1972, [*Pub. L. No. 92-514*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:5CD7-HSD0-01XN-S2B2-00000-00&context=1516831), 964 Stat. 86.

     [↑](#footnote-ref-185)
185. 185

     [*Id. at 965*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-186)
186. 186

     *Id.*

     [↑](#footnote-ref-187)
187. 187

     [*Closed Basin Landowners Ass'n v. Rio Grande Water Conservation Dist., 734 P.2d 627, 629 (****Colo.*** *1987)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1170-003D-9531-00000-00&context=1516831) (citations omitted).

     [↑](#footnote-ref-188)
188. 188

     Confined Aquifer New Use Rules for Div. 3, *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 2004 CW 24 at 32 (Dist. Ct. Water Div. 3, 2004); *see also*  [*Closed Basin Landowners, 734 P.2d at 627-37*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1170-003D-9531-00000-00&context=1516831) (containing a more complete description of the Closed Basin Project).

     [↑](#footnote-ref-189)
189. 189

     Confined Aquifer New Use Rules for Div. 3, No. 2004 CW 24 at 33.

     [↑](#footnote-ref-190)
190. 190

     *Id.*at 33-34.

     [↑](#footnote-ref-191)
191. 191

     *Id.* at 34.

     [↑](#footnote-ref-192)
192. 192

     *Id.*

     [↑](#footnote-ref-193)
193. 193

     *Id.*

     [↑](#footnote-ref-194)
194. 194

     Confined Aquifer New Use Rules for Div. 3, No. 2004 CW 24 at 33.

     [↑](#footnote-ref-195)
195. 195

     *Id.*

     [↑](#footnote-ref-196)
196. 196

     *Id.*

     [↑](#footnote-ref-197)
197. 197

     *Id.*

     [↑](#footnote-ref-198)
198. 198

     *Id.*

     [↑](#footnote-ref-199)
199. 199

     *Id.* at 35.

     [↑](#footnote-ref-200)
200. 200

     Confined Aquifer New Use Rules for Div. 3, No. 2004 CW 24 at 35.

     [↑](#footnote-ref-201)
201. 201

     *Id.* at 27.

     [↑](#footnote-ref-202)
202. 202

     [*American Water Dev., Inc. v. City of Alamosa, 874 P.2d 352, 366 (****Colo.*** *1994)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-203)
203. 203

     [*Id. at 358*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-204)
204. 204

     *Id*.

     [↑](#footnote-ref-205)
205. 205

     [*Id. at 358*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-206)
206. 206

     [*Id. at 360*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-207)
207. 207

     [*Id. at 358*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-208)
208. 208

     *Id.*

     [↑](#footnote-ref-209)
209. 209

     [*Id. at 373-74*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-210)
210. 210

     [*Id.at 374*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-211)
211. 211

     *Id.*

     [↑](#footnote-ref-212)
212. 212

     Some of the Closed Basin Project production wells were located on or near the western boundary of the Baca Grant No. 4. *See* [*Alamosa La Jara, 674 P.2d at 918*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1620-003D-90RY-00000-00&context=1516831).

     [↑](#footnote-ref-213)
213. 213

     [*American Water Dev., 874 P.2d at 359*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-214)
214. 214

     *Id.*

     [↑](#footnote-ref-215)
215. 215

     *Id.*

     [↑](#footnote-ref-216)
216. 216

     [*Id. at 367*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-217)
217. 217

     [*Id.at 366*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-218)
218. 218

     [*Id. at 377*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-219)
219. 219

     [*Id. at 390*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-220)
220. 220

     Reclamation Projects Authorization and Adjustments Act of 1992, ***Pub. L. No. 102-575***,§§1501-1504, ***106 Stat. 4600*** (1992) (codified as amended in scattered sections of 43 U.S.C.).

     [↑](#footnote-ref-221)
221. 221

     *Id.* at § 1501.

     [↑](#footnote-ref-222)
222. 222

     Concerning the Application for Water Rts. of: Tres Rios Ranch, *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 91 CW 29 at 2,4 (Dist. Ct. Water Div. 3, 1993).

     [↑](#footnote-ref-223)
223. 223

     *Id.* at 4-5.

     [↑](#footnote-ref-224)
224. 224

     *Id.* at 5-6.

     [↑](#footnote-ref-225)
225. 225

     *Id.* at 33-34.

     [↑](#footnote-ref-226)
226. 226

     *Id*. at 29.

     [↑](#footnote-ref-227)
227. 227

     *Id.*

     [↑](#footnote-ref-228)
228. 228

     *Id.* at 5.

     [↑](#footnote-ref-229)
229. 229

     *Id.* at 28.

     [↑](#footnote-ref-230)
230. 230

     *Id.*

     [↑](#footnote-ref-231)
231. 231

     *See* *id.* at 23-24, 26-27.

     [↑](#footnote-ref-232)
232. 232

     *See* *id.* at 11.

     [↑](#footnote-ref-233)
233. 233

     *Id.* at 32-33.

     [↑](#footnote-ref-234)
234. 234

     *Id.* at 28-29.

     [↑](#footnote-ref-235)
235. 235

     *Id.* at 12-24.

     [↑](#footnote-ref-236)
236. 236

     *Id.* at 24-27.

     [↑](#footnote-ref-237)
237. 237

     *Id.* at 20.

     [↑](#footnote-ref-238)
238. 238

     *Id.* at 23.

     [↑](#footnote-ref-239)
239. 239

     *Id.*

     [↑](#footnote-ref-240)
240. 240

     *Id.*

     [↑](#footnote-ref-241)
241. 241

     *Id.* at 23-24.

     [↑](#footnote-ref-242)
242. 242

     *Id.* at 25.

     [↑](#footnote-ref-243)
243. 243

     *Id.*

     [↑](#footnote-ref-244)
244. 244

     *Id.*

     [↑](#footnote-ref-245)
245. 245

     *Id*. at 25-26.

     [↑](#footnote-ref-246)
246. 246

     *Id.* at 26.

     [↑](#footnote-ref-247)
247. 247

     *Id.*

     [↑](#footnote-ref-248)
248. 248

     *Id.*

     [↑](#footnote-ref-249)
249. 249

     *Id.*

     [↑](#footnote-ref-250)
250. 250

     *Id.* at 27.

     [↑](#footnote-ref-251)
251. 251

     *Id.* at 28.

     [↑](#footnote-ref-252)
252. 252

     *Id*.

     [↑](#footnote-ref-253)
253. 253

     *Id.*

     [↑](#footnote-ref-254)
254. 254

     *Id.* at 28-29.

     [↑](#footnote-ref-255)
255. 255

     *Id.* at 32 (citing [***Colo.*** *Rev. Stat. § 37-92-502(2)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:637R-W883-GXJ9-334R-00000-00&context=1516831) (2019)).

     [↑](#footnote-ref-256)
256. 256

     *Id.* at 33.

     [↑](#footnote-ref-257)
257. 257

     *Id.* at 29.

     [↑](#footnote-ref-258)
258. 258

     *See* P.A. Emery et al., Hydrology of the San Luis Valley, South-Central ***Colo.*** (USGS Open File Report, 1969); P.A. Emery et al., Hydrology of the San Luis Valley, South-Central ***Colo.*** (USGS Hydrologic Atlas Series, HA-381, 1971); P.A. Emery et al., Hydrologic Data for the San Luis Valley, ***Colo.*** (***Colo.*** Water Conservation Board, ***Colo.*** Basic Data Release 22, 1972); P.A. Emery et al., Water in the San Luis Valley, South-Central ***Colo.*** (***Colo.*** Water Conservation Board, ***Colo.*** Water Res. Circular No. 18, 1973).

     [↑](#footnote-ref-259)
259. 259

     Confined Aquifer New Use Rules for Div. 3, No. 2004 CW 24 at 40.

     [↑](#footnote-ref-260)
260. 260

     *Id.* (citing [***Colo.*** *Rev. Stat. § 37-90-137(12)(b)(I)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SN93-GXF6-81VM-00000-00&context=1516831) (2019)).

     [↑](#footnote-ref-261)
261. 261

     Section 37-90-137(12)(b)(I) was later repealed by § 37-90-137(12)(b)(II) on July 1, 2004. That repeal did not affect the validity of the rules promulgated by the St. Eng'r. *Id. (*citing [***Colo.*** *Rev. Stat. § 37-90-137(12)(b)(II)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:689F-SN93-GXF6-81VM-00000-00&context=1516831) (20019)).

     [↑](#footnote-ref-262)
262. 262

     *Id.* at 41.

     [↑](#footnote-ref-263)
263. 263

     *Id.* at 41 (citing [***Colo.*** *Rev. Stat. § 37-92-305(6)(c)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3G3-00000-00&context=1516831) (20019)).

     [↑](#footnote-ref-264)
264. 264

     *Id.*

     [↑](#footnote-ref-265)
265. 265

     *Id.* at 41.

     [↑](#footnote-ref-266)
266. 266

     S.B. 04-222, 64th Gen. Assemb., 2d Reg. Sess. (***Colo.*** 2004).

     [↑](#footnote-ref-267)
267. 267

     *Id.* at 777.

     [↑](#footnote-ref-268)
268. 268

     *Id.* at 777-78

     [↑](#footnote-ref-269)
269. 269

     *Id.* at 778.

     [↑](#footnote-ref-270)
270. 270

     *Id.* at 779.

     [↑](#footnote-ref-271)
271. 271

     *Id.* at 777.

     [↑](#footnote-ref-272)
272. 272

     *Id.* at 778.

     [↑](#footnote-ref-273)
273. 273

     *Id.* at 779.

     [↑](#footnote-ref-274)
274. 274

     *Id*.

     [↑](#footnote-ref-275)
275. 275

     *Id.* at 777-78.

     [↑](#footnote-ref-276)
276. 276

     Confined Aquifer New Use Rules for Div. 3, No. 2004 CW 24 at 43.

     [↑](#footnote-ref-277)
277. 277

     *Id.* at 1.

     [↑](#footnote-ref-278)
278. 278

     Order of the St. Eng'r, Confined Aquifer New Use Rules for Div. 3 (2004).

     [↑](#footnote-ref-279)
279. 279

     *Id.* at R. 4(A)(1).

     [↑](#footnote-ref-280)
280. 280

     *Id.*

     [↑](#footnote-ref-281)
281. 281

     *Id.* at R. 4(A)(2).

     [↑](#footnote-ref-282)
282. 282

     *Id.* at R. 4(A)(8).

     [↑](#footnote-ref-283)
283. 283

     *Id.* at R. 5.

     [↑](#footnote-ref-284)
284. 284

     *Id.* at R. 5(D).

     [↑](#footnote-ref-285)
285. 285

     *Id.* at R. 5(E).

     [↑](#footnote-ref-286)
286. 286

     *Id.* at R. 5(F).

     [↑](#footnote-ref-287)
287. 287

     *Id.* at R. 6(A)(1).

     [↑](#footnote-ref-288)
288. 288

     *Id.* at R. 6(B)(7).

     [↑](#footnote-ref-289)
289. 289

     *Id.* at R. 6(B).

     [↑](#footnote-ref-290)
290. 290

     *Id.* at R. 6(B)(2).

     [↑](#footnote-ref-291)
291. 291

     *Id.* at R. 6(B)(2)(a).

     [↑](#footnote-ref-292)
292. 292

     *Id.* at R. 6(B)(2)(a); *see*Exhibit 1.

     [↑](#footnote-ref-293)
293. 293

     *Id.* at R. 6(B)(4).

     [↑](#footnote-ref-294)
294. 294

     *Id.* at R. 6(B)(5).

     [↑](#footnote-ref-295)
295. 295

     [*American Water Dev., 874 P.2d at 371-72*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-05H0-003D-93NC-00000-00&context=1516831).

     [↑](#footnote-ref-296)
296. 296

     Confined Aquifer New Use Rules for Div. 3, at R. 6(B)(2)(d).

     [↑](#footnote-ref-297)
297. 297

     *Id.* at R. 6(B)(6).

     [↑](#footnote-ref-298)
298. 298

     *Id.*

     [↑](#footnote-ref-299)
299. 299

     Confined Aquifer New Use Rules for Div. 3, No. 2004 CW 24 at 1.

     [↑](#footnote-ref-300)
300. 300

     *Id.* at 1-2.

     [↑](#footnote-ref-301)
301. 301

     *Id.* at 6.

     [↑](#footnote-ref-302)
302. 302

     *Id.*

     [↑](#footnote-ref-303)
303. 303

     *Id.*

     [↑](#footnote-ref-304)
304. 304

     *Id.*

     [↑](#footnote-ref-305)
305. 305

     *Id.*

     [↑](#footnote-ref-306)
306. 306

     *See* *id.* at 7-8.

     [↑](#footnote-ref-307)
307. 307

     [*Simpson v. Cotton Creek Circles, LLC., 181 P.3d 252, 264 (****Colo.*** *2008)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:4S4J-H8P0-TX4N-G1HV-00000-00&context=1516831).

     [↑](#footnote-ref-308)
308. 308

     *See* Order of the St. Eng'r, Rules Governing the Measurement of Ground Water Diversions Located in Water Div. No. 3, The Rio Grande Basin (2005)  *(*available at [*http://water.state.****co****.us/groundwater/GWAdmin/UseAndMeasurement/Pages/RioGrandeRBRules.aspx*](http://water.state.co.us/groundwater/GWAdmin/UseAndMeasurement/Pages/RioGrandeRBRules.aspx)).

     [↑](#footnote-ref-309)
309. 309

     *Id.* at R. 1, R. 3.

     [↑](#footnote-ref-310)
310. 310

     *Id.* at R. 6.1.

     [↑](#footnote-ref-311)
311. 311

     *See* *id.* at R. 3, R. 4.

     [↑](#footnote-ref-312)
312. 312

     *See* *generally* [*16 U.S.C. § 410hhh*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PH-00000-00&context=1516831) (2018).

     [↑](#footnote-ref-313)
313. 313

     [*16 U.S.C. § 410hhh-7(b)(1)(B)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PS-00000-00&context=1516831).

     [↑](#footnote-ref-314)
314. 314

     *Id.* at § 410hhh-7(c)-(d).

     [↑](#footnote-ref-315)
315. 315

     [*16 U.S.C. § 410hhh-5(d)(1)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PP-00000-00&context=1516831)-(2).

     [↑](#footnote-ref-316)
316. 316

     [*16 U.S.C. § 410hhh-7(b)(2)(A)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PS-00000-00&context=1516831)-(B).

     [↑](#footnote-ref-317)
317. 317

     *Id.* at § 410hhh-7(b)(2)(C)(i)-(ii).

     [↑](#footnote-ref-318)
318. 318

     *Id.* at § 410hhh-7(b)(1)(A)-(D).

     [↑](#footnote-ref-319)
319. 319

     In the Matter of the Application for Water Rts. of the U.S.A., *Amended Application for Approval of Absolute Ground Water Rts.*, No. 04 CW 35 at 3 (Dist. Ct. Water Div. 3, 2007).

     [↑](#footnote-ref-320)
320. 320

     *Id.* at 4.

     [↑](#footnote-ref-321)
321. 321

     *Id.* at 2.

     [↑](#footnote-ref-322)
322. 322

     *Id.*

     [↑](#footnote-ref-323)
323. 323

     In the Matter of the Application for Water Rts. of the U.S.A., *Findings of Fact, Conclusions of Law, Judgement and Decree*, No. 2004 CW 35 (Dist. Ct. Water Div. 3, 2008).

     [↑](#footnote-ref-324)
324. 324

     *Amended Application*, No. 04 CW 35 at 3.

     [↑](#footnote-ref-325)
325. 325

     *Findings of Fact*, No. 2004 CW 35 at 1.

     [↑](#footnote-ref-326)
326. 326

     *Id.* at 15.

     [↑](#footnote-ref-327)
327. 327

     *Id.* at 9.

     [↑](#footnote-ref-328)
328. 328

     *Id.* at 10 (citing [*16 U.S.C. § 410hhh(2)(A)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:8S7X-DBF2-D6RV-H0PH-00000-00&context=1516831)).

     [↑](#footnote-ref-329)
329. 329

     *Id.* at 10.

     [↑](#footnote-ref-330)
330. 330

     *Id.*

     [↑](#footnote-ref-331)
331. 331

     *Id.* at 10-11.

     [↑](#footnote-ref-332)
332. 332

     *Id.* at 12.

     [↑](#footnote-ref-333)
333. 333

     *Id.* at 14.

     [↑](#footnote-ref-334)
334. 334

     *Id.*

     [↑](#footnote-ref-335)
335. 335

     *Id.* at 15.

     [↑](#footnote-ref-336)
336. 336

     *Id.*

     [↑](#footnote-ref-337)
337. 337

     *Id.* at 15-16.

     [↑](#footnote-ref-338)
338. 338

     *Id.* at 15.

     [↑](#footnote-ref-339)
339. 339

     *Id.* at 18.

     [↑](#footnote-ref-340)
340. 340

     *Id.*

     [↑](#footnote-ref-341)
341. 341

     *Id.* at 20-21.

     [↑](#footnote-ref-342)
342. 342

     *Findings of Fact*, No. 2004 CW 35 at 19.

     [↑](#footnote-ref-343)
343. 343

     Concerning the Off. of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1of the Rio Grande Water Conservation Dist., and In the Matter of the Rio Grande Water Conservation Dist., in Alamosa Cty., ***Colo.***, *Findings of Fact, Conclusions of Law and Order*, No. 2007 CW 52 and 2006 CV 64 at 13 (Dist. Ct. Water Div. 3, 2009).

     [↑](#footnote-ref-344)
344. 344

     *Id.*

     [↑](#footnote-ref-345)
345. 345

     [***Colo.*** *Rev. Stat. § 37-48-123(2)(f)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J2WB-00000-00&context=1516831) (2019).

     [↑](#footnote-ref-346)
346. 346

     *Findings of Fact*, No. 2007 CW 52 and 2006 CV 64 at 8.

     [↑](#footnote-ref-347)
347. 347

     *Id.*

     [↑](#footnote-ref-348)
348. 348

     *Id.*

     [↑](#footnote-ref-349)
349. 349

     *Id.*

     [↑](#footnote-ref-350)
350. 350

     *Findings of Fact*, No. 2007 CW 52 and 2006 CV 64 at 8-9; [***Colo.*** *Rev. Stat. § 37-92-501(4)(c)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) (2018).

     [↑](#footnote-ref-351)
351. 351

     *Findings of Fact*, No. 2007 CW 52 and 2006 CV 64 at 10.

     [↑](#footnote-ref-352)
352. 352

     *Id.* at 9.

     [↑](#footnote-ref-353)
353. 353

     *Id.* at 14.

     [↑](#footnote-ref-354)
354. 354

     *Id.*

     [↑](#footnote-ref-355)
355. 355

     *Id.*

     [↑](#footnote-ref-356)
356. 356

     *Id.* at 15.

     [↑](#footnote-ref-357)
357. 357

     *Id.* at 7.

     [↑](#footnote-ref-358)
358. 358

     *See* *generally* *id.* at 11-73.

     [↑](#footnote-ref-359)
359. 359

     *Id.* at 3.

     [↑](#footnote-ref-360)
360. 360

     Concerning the Off. of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 06 CV 64 and 07 CW 52 at 2 (Dist. Ct. Water Div. 3, 2013).

     [↑](#footnote-ref-361)
361. 361

     *Id.*

     [↑](#footnote-ref-362)
362. 362

     *Id.*

     [↑](#footnote-ref-363)
363. 363

     Plan of Water Mgmt., Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist. at 2.4.1 (2009).

     [↑](#footnote-ref-364)
364. 364

     *Id.* at 4.5.1.3.

     [↑](#footnote-ref-365)
365. 365

     *Id.* at 4.5.1.1-4.5.1.2.

     [↑](#footnote-ref-366)
366. 366

     *Id.* at 3.4.1.

     [↑](#footnote-ref-367)
367. 367

     *Id.* at 3.4.4.

     [↑](#footnote-ref-368)
368. 368

     *Id.* at 3.4.5.

     [↑](#footnote-ref-369)
369. 369

     *Id.* at 3.4.8.

     [↑](#footnote-ref-370)
370. 370

     *Id.* at 3.4.9.

     [↑](#footnote-ref-371)
371. 371

     *Id.* at 4.7.2.

     [↑](#footnote-ref-372)
372. 372

     In the Matter of the Rio Grande Water Conservation Dist., in Alamosa Cty., ***Colo.*** and Concerning the Off. of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 06 CV 64 and 07 CW 52 at 7, 133-36 (Dist. Ct. Water Div. 3, 2010).

     [↑](#footnote-ref-373)
373. 373

     [*Id. at 133*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-374)
374. 374

     [*Id. at 133-36*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-375)
375. 375

     [*San Antonio v. Special Improv. Dist. No. 1, 270 P.3d 927, 931 (****Colo.*** *2001)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-376)
376. 376

     [*Id. at 945*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-377)
377. 377

     *Id.*

     [↑](#footnote-ref-378)
378. 378

     [*Id. at 946-47*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-379)
379. 379

     [*Id. at 947*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-380)
380. 380

     *Id.*

     [↑](#footnote-ref-381)
381. 381

     [*Id. at 948*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-382)
382. 382

     *Id.*

     [↑](#footnote-ref-383)
383. 383

     *Id.*

     [↑](#footnote-ref-384)
384. 384

     *Id.*

     [↑](#footnote-ref-385)
385. 385

     *Id.*

     [↑](#footnote-ref-386)
386. 386

     *See Findings of Fact,* No. 06 CV 64 and 07 CW 52 at 133-36.

     [↑](#footnote-ref-387)
387. 387

     In the Matter of the Rio Grande Water Conservation Dist., in Alamosa Cty., ***Colo.*** and Concerning the Off. Of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 06 CV 64 and 07 CW 52 at 7, 133-36 (Dist. Ct. Water Div. 3, 2010).

     [↑](#footnote-ref-388)
388. 388

     [*San Antonio, 270 P.3d at 948*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-389)
389. 389

     *Id.*

     [↑](#footnote-ref-390)
390. 390

     [*Id. at 949*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-391)
391. 391

     *Id.*

     [↑](#footnote-ref-392)
392. 392

     *Id.*

     [↑](#footnote-ref-393)
393. 393

     *Id.*

     [↑](#footnote-ref-394)
394. 394

     *Id.*

     [↑](#footnote-ref-395)
395. 395

     *Id.*

     [↑](#footnote-ref-396)
396. 396

     [*Id. at 949-50*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-397)
397. 397

     [*Id. at 950*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-398)
398. 398

     *Id.*

     [↑](#footnote-ref-399)
399. 399

     *Id.*

     [↑](#footnote-ref-400)
400. 400

     *Id.*

     [↑](#footnote-ref-401)
401. 401

     [*Id. at 951*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-402)
402. 402

     *Id.*; *see* [***Colo.*** *Rev. Stat. § 37-92-501(4)(b)(III)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831); [*Se.* ***Colo.*** *Water Conservancy Dist. v. Shelton Farms, Inc., 529 P.2d 1321, 1327 (1974)*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:3RX4-1N70-003D-93WB-00000-00&context=1516831).

     [↑](#footnote-ref-403)
403. 403

     [*San Antonio, 270 P.3d at 951*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831) (citing [***Colo.*** *Rev. Stat. § 37-92-501(4)(b)(III)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831)) (emphasis removed).

     [↑](#footnote-ref-404)
404. 404

     [*Id. at 951*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-405)
405. 405

     *See* *id*.

     [↑](#footnote-ref-406)
406. 406

     *Id.*

     [↑](#footnote-ref-407)
407. 407

     [*Id. at 950-51*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831).

     [↑](#footnote-ref-408)
408. 408

     *See* [*San Antonio, 270 P.3d at 927*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831); *Findings of Fact*, No. 06 CV 64 and 07 CW 52 at 133.

     [↑](#footnote-ref-409)
409. 409

     In the Matter of the Rio Grande Water Conservation Dist. in Alamosa Cty., ***Colo.***, and Concerning the Office of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Order Partially Granting and Partially Denying Supporters' Motion to Dismiss*, No. 06 CV64 and 07 CW 52 at 2 (Dist. Ct. Water Div. 3, 2012).

     [↑](#footnote-ref-410)
410. 410

     *Id.*

     [↑](#footnote-ref-411)
411. 411

     *See id.*

     [↑](#footnote-ref-412)
412. 412

     Concerning the Off. of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 06 CV 64 and 07 CW 52 at 9 (Dist. Ct. Water Div. 3, 2013).

     [↑](#footnote-ref-413)
413. 413

     *Id.*

     [↑](#footnote-ref-414)
414. 414

     *Id.*

     [↑](#footnote-ref-415)
415. 415

     *Id.*

     [↑](#footnote-ref-416)
416. 416

     *Id.*

     [↑](#footnote-ref-417)
417. 417

     *Id.*

     [↑](#footnote-ref-418)
418. 418

     *Id.*

     [↑](#footnote-ref-419)
419. 419

     *Id.* at 9-10.

     [↑](#footnote-ref-420)
420. 420

     *Id.* at 10.

     [↑](#footnote-ref-421)
421. 421

     *Id.* at 9.

     [↑](#footnote-ref-422)
422. 422

     *Id.* at 10.

     [↑](#footnote-ref-423)
423. 423

     *See generally*  *id.* at 3-7.

     [↑](#footnote-ref-424)
424. 424

     *See generally*  *id*. at 3-7.

     [↑](#footnote-ref-425)
425. 425

     *Id.* at 7.

     [↑](#footnote-ref-426)
426. 426

     *Id.* at 2, 42-43.

     [↑](#footnote-ref-427)
427. 427

     *Id.* at 20, 42-43.

     [↑](#footnote-ref-428)
428. 428

     *Id.* at 33, 36, 43.

     [↑](#footnote-ref-429)
429. 429

     *Id.* at 36.

     [↑](#footnote-ref-430)
430. 430

     *Id.* at 38.

     [↑](#footnote-ref-431)
431. 431

     San Antonio, Los Pinos and Conejos ***River*** Acequia Preservation Ass'n v. Special Improvement [*Dist. No. 1 of the Rio Grande Water Conservation Dist., 2015* ***CO*** *52, P 63*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-432)
432. 432

     *Id.* at P 26.

     [↑](#footnote-ref-433)
433. 433

     *Id.*

     [↑](#footnote-ref-434)
434. 434

     *Id.* at P 29.

     [↑](#footnote-ref-435)
435. 435

     *Id.* at PP 29, 31.

     [↑](#footnote-ref-436)
436. 436

     *Id.* at P 31.

     [↑](#footnote-ref-437)
437. 437

     *Id.* at P 31-32.

     [↑](#footnote-ref-438)
438. 438

     *See*  *id.* at P 33.

     [↑](#footnote-ref-439)
439. 439

     *Id.* at P 33.

     [↑](#footnote-ref-440)
440. 440

     *Id.* at P 33-34.

     [↑](#footnote-ref-441)
441. 441

     *Id.* at P 34.

     [↑](#footnote-ref-442)
442. 442

     *Id.* (citing [*San Antonio, 270 P.3d at 946*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:54HF-3T41-F04C-302V-00000-00&context=1516831)).

     [↑](#footnote-ref-443)
443. 443

     *Id.* at P 34.

     [↑](#footnote-ref-444)
444. 444

     *Id.* at P 35.

     [↑](#footnote-ref-445)
445. 445

     *Id.*

     [↑](#footnote-ref-446)
446. 446

     *Id.* at P 36 (quoting [*Simpson v. Bijou Irrigation* ***Co****., 69 P.3d 50, 72 (****Colo.*** *2003))*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:48GW-CRR0-0039-44HJ-00000-00&context=1516831).

     [↑](#footnote-ref-447)
447. 447

     *Id.* at P 36.

     [↑](#footnote-ref-448)
448. 448

     *Id.* at P 39.

     [↑](#footnote-ref-449)
449. 449

     *Id.* at P 44.

     [↑](#footnote-ref-450)
450. 450

     *Id.* at P 46.

     [↑](#footnote-ref-451)
451. 451

     *Id.*

     [↑](#footnote-ref-452)
452. 452

     *Id.*

     [↑](#footnote-ref-453)
453. 453

     *Id.* at P 41.

     [↑](#footnote-ref-454)
454. 454

     *Id.* at P 47.

     [↑](#footnote-ref-455)
455. 455

     *Id.* at P 48.

     [↑](#footnote-ref-456)
456. 456

     *Id.* at P 47.

     [↑](#footnote-ref-457)
457. 457

     *See*  [*id. at P 51*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:48GW-CRR0-0039-44HJ-00000-00&context=1516831).

     [↑](#footnote-ref-458)
458. 458

     [*Id. at PP 56, 58*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-459)
459. 459

     [*Id. at P 59*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-460)
460. 460

     [*Id. at P 60*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-461)
461. 461

     [*Id. at P 62*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-462)
462. 462

     The full text of the Rules is available at the ***Colorado*** Division of Water Resources website at: [*http://water.state.****co****.us/groundwater/GWAdmin/UseAndMeasurement/Pages/RioGrandeRBRules.aspx*](http://water.state.co.us/groundwater/GWAdmin/UseAndMeasurement/Pages/RioGrandeRBRules.aspx).

     [↑](#footnote-ref-463)
463. 463

     *See generally San Luis Valley Rules Advisory Committee Meetings*, ***Colo.*** Div. of Water Res., [*http://water.state.****co****.us/SurfaceWater/RulemakingAndAdvising/SLVAC/Pages/SLVMeetings*](http://water.state.co.us/SurfaceWater/RulemakingAndAdvising/SLVAC/Pages/SLVMeetings) .aspx (last visited Feb. 15, 2019) (for the San Luis Valley Rules Advisory Committee's meeting agendas and minutes).

     [↑](#footnote-ref-464)
464. 464

     *Id.*

     [↑](#footnote-ref-465)
465. 465

     *Id.*

     [↑](#footnote-ref-466)
466. 466

     Rules Governing the Withdrawal of Groundwater in Water Division No. 3 and Establishing Criteria for the Beginning and End of the Irrigation Season in Water Division No. 3 for all Irrigation [hereinafter *Div. No. 3 Groundwater Rules*].

     [↑](#footnote-ref-467)
467. 467

     See *id.*

     [↑](#footnote-ref-468)
468. 468

     *Id.*

     [↑](#footnote-ref-469)
469. 469

     Div. No. 3 Groundwater Rules, Rule 1-5.

     [↑](#footnote-ref-470)
470. 470

     Div. No. 3 Groundwater Rules, Rule 6-7.

     [↑](#footnote-ref-471)
471. 471

     Div. No. 3 Groundwater Rules, Rule 8.

     [↑](#footnote-ref-472)
472. 472

     Div. No. 3 Groundwater Rules, Rule 9-10.

     [↑](#footnote-ref-473)
473. 473

     Div. No. 3 Groundwater Rules, Rule 11-12.

     [↑](#footnote-ref-474)
474. 474

     Div. No. 3 Groundwater Rules, Rule 9-12.

     [↑](#footnote-ref-475)
475. 475

     Div. No. 3 Groundwater Rules, Rule 13.

     [↑](#footnote-ref-476)
476. 476

     *Id.*

     [↑](#footnote-ref-477)
477. 477

     *Id.*

     [↑](#footnote-ref-478)
478. 478

     Div. No. 3 Groundwater Rules, Rule 13.

     [↑](#footnote-ref-479)
479. 479

     *Id.*

     [↑](#footnote-ref-480)
480. 480

     Div. No. 3 Groundwater Rules, Rule 14.

     [↑](#footnote-ref-481)
481. 481

     *Id*.

     [↑](#footnote-ref-482)
482. 482

     Id.

     [↑](#footnote-ref-483)
483. 483

     Div. No. 3 Groundwater Rules, Rule 15.

     [↑](#footnote-ref-484)
484. 484

     Div. No. 3 Groundwater Rules, Rule 16.

     [↑](#footnote-ref-485)
485. 485

     Div. No. 3 Groundwater Rules, Rule 17-19.

     [↑](#footnote-ref-486)
486. 486

     Div. No. 3 Groundwater Rules, Rule 20.

     [↑](#footnote-ref-487)
487. 487

     Div. No. 3 Groundwater Rules, Rule 21.

     [↑](#footnote-ref-488)
488. 488

     Div. No. 3 Groundwater Rules, Rule 22-23.

     [↑](#footnote-ref-489)
489. 489

     Div. No. 3 Groundwater Rules, Rule 24.

     [↑](#footnote-ref-490)
490. 490

     Div. No. 3 Groundwater Rules, Rule 6.

     [↑](#footnote-ref-491)
491. 491

     *Id.*

     [↑](#footnote-ref-492)
492. 492

     Div. No. 3 Groundwater Rules, Rule 6.

     [↑](#footnote-ref-493)
493. 493

     *Id.*

     [↑](#footnote-ref-494)
494. 494

     *Id.*This alternative means of remedying injurious depletions does not apply to ***Colorado***'s commitments under the Compact.

     [↑](#footnote-ref-495)
495. 495

     *See*In the Matter of the Rio Grande Water Conservation Dist., in Alamosa Cty., ***Colo.*** and Concerning the Off. of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 06 CV 64 and 07 CW 52 at 7, 133-36 (Dist. Ct. Water Div. 3, 2010).

     [↑](#footnote-ref-496)
496. 496

     *Id.*

     [↑](#footnote-ref-497)
497. 497

     *Id.*

     [↑](#footnote-ref-498)
498. 498

     Div. No. 3 Groundwater Rules, Rule 7.

     [↑](#footnote-ref-499)
499. 499

     Div. No. 3 Groundwater Rules, Rule 7.

     [↑](#footnote-ref-500)
500. 500

     *Id.*

     [↑](#footnote-ref-501)
501. 501

     *Id.*

     [↑](#footnote-ref-502)
502. 502

     *Id.*

     [↑](#footnote-ref-503)
503. 503

     *Id.*

     [↑](#footnote-ref-504)
504. 504

     *Id.*

     [↑](#footnote-ref-505)
505. 505

     *Id.*

     [↑](#footnote-ref-506)
506. 506

     Decree, Cases No. 06CV64 & 07CW52 *supra* note 353 at 46-53; Statement of Basis and Purposed for Existing Use Rules at 19-24.

     [↑](#footnote-ref-507)
507. 507

     *Id.*

     [↑](#footnote-ref-508)
508. 508

     *Id.*

     [↑](#footnote-ref-509)
509. 509

     *Id.*

     [↑](#footnote-ref-510)
510. 510

     *Id*.

     [↑](#footnote-ref-511)
511. 511

     *See id.*

     [↑](#footnote-ref-512)
512. 512

     Div. No. 3 Groundwater Rules, Rule 7.

     [↑](#footnote-ref-513)
513. 513

     *Id*.

     [↑](#footnote-ref-514)
514. 514

     *Id.*

     [↑](#footnote-ref-515)
515. 515

     *Id.*

     [↑](#footnote-ref-516)
516. 516

     *Id.*

     [↑](#footnote-ref-517)
517. 517

     Div. No. 3 Groundwater Rules, Rule 8.

     [↑](#footnote-ref-518)
518. 518

     *Id.*

     [↑](#footnote-ref-519)
519. 519

     *Id.*

     [↑](#footnote-ref-520)
520. 520

     *Id.*

     [↑](#footnote-ref-521)
521. 521

     [*Colo Rev. Stat. 37-92-501(4)(a)(III)*](https://advance.lexis.com/api/document?collection=statutes-legislation&id=urn:contentItem:61P5-WY01-DYDC-J3GH-00000-00&context=1516831) (2019).

     [↑](#footnote-ref-522)
522. 522

     *Id.*

     [↑](#footnote-ref-523)
523. 523

     Div. No. 3 Groundwater Rules, Rule 8.

     [↑](#footnote-ref-524)
524. 524

     *Id.*

     [↑](#footnote-ref-525)
525. 525

     *Id.*

     [↑](#footnote-ref-526)
526. 526

     *Id.*

     [↑](#footnote-ref-527)
527. 527

     *Id.*

     [↑](#footnote-ref-528)
528. 528

     Div. No. 3 Groundwater Rules, Rule 8.

     [↑](#footnote-ref-529)
529. 529

     *Id.*

     [↑](#footnote-ref-530)
530. 530

     *Id.*

     [↑](#footnote-ref-531)
531. 531

     *Id.*

     [↑](#footnote-ref-532)
532. 532

     *Id.*

     [↑](#footnote-ref-533)
533. 533

     Div. No. 3 Groundwater Rules, Rule 8.

     [↑](#footnote-ref-534)
534. 534

     *Id.*

     [↑](#footnote-ref-535)
535. 535

     *Id.*

     [↑](#footnote-ref-536)
536. 536

     *Id.*

     [↑](#footnote-ref-537)
537. 537

     *Id.*

     [↑](#footnote-ref-538)
538. 538

     *See*Findings of Fact, Conclusions of Law, Judgment and Decree, Case No. 15CW3024, (Dist. Ct. Water Div. 3, March 15, 2019).

     [↑](#footnote-ref-539)
539. 539

     *Id.*

     [↑](#footnote-ref-540)
540. 540

     *Id.*

     [↑](#footnote-ref-541)
541. 541

     *Id.*

     [↑](#footnote-ref-542)
542. 542

     *Id.*

     [↑](#footnote-ref-543)
543. 543

     Findings of Fact, Conclusions of Law, Judgment and Decree, Case No. 15CW3024.

     [↑](#footnote-ref-544)
544. 544

     *Id.*

     [↑](#footnote-ref-545)
545. 545

     *Id.*

     [↑](#footnote-ref-546)
546. 546

     *Id.*

     [↑](#footnote-ref-547)
547. 547

     *Id.*

     [↑](#footnote-ref-548)
548. 548

     Findings of Fact, Conclusions of Law, Judgment and Decree, Case No. 15CW3024.

     [↑](#footnote-ref-549)
549. 549

     *Id.*

     [↑](#footnote-ref-550)
550. 550

     *Id.*

     [↑](#footnote-ref-551)
551. 551

     *Amended Stipulation between the State Engineer and the San Luis Valley Confined Aquifer Sustainability Group*, In Re Rules Governing Withdrawal of Groundwater in Water Div. No. 3 (the Rio Grande Basin) etc., (Dist. Ct. Water Div. 3, Dec. 10, 2016) (hereinafter Case No. 15CW3024); *Stipulation between the State Engineer and the Rio Grande Water Conservation District*, Case No. 15CW3024 (Dec. 14, 2017).

     [↑](#footnote-ref-552)
552. 552

     *Id.*

     [↑](#footnote-ref-553)
553. 553

     I *d.*

     [↑](#footnote-ref-554)
554. 554

     Findings of Fact, Conclusions of Law, Judgment and Decree, Case No. 15CW3024, (Dist. Ct. Water Div. 3, March 15, 2019) at 117-18.

     [↑](#footnote-ref-555)
555. 555

     [*Id. at 76-117*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-556)
556. 556

     [*Id. at 118-124*](https://advance.lexis.com/api/document?collection=cases&id=urn:contentItem:5GB3-MR41-F04C-301Y-00000-00&context=1516831).

     [↑](#footnote-ref-557)
557. 557

     *Id*. at 19.

     [↑](#footnote-ref-558)
558. 558

     In the Matter of the Rio Grande Water Conservation Dist., in Alamosa Cty., ***Colo.*** and Concerning the Off. of the St. Eng'rs Approval of the Plan of Water Mgmt. for Special Improvement Dist. No. 1 of the Rio Grande Water Conservation Dist., *Findings of Fact, Conclusions of Law, Judgment and Decree*, No. 06 CV 64 and 07 CW 52 at 7, 133-36 (Dist. Ct. Water Div. 3, 2010).

     [↑](#footnote-ref-559)
559. 559

     See Div. No. 3 Groundwater Rules.

     [↑](#footnote-ref-560)
560. 560

     *Id.*

     [↑](#footnote-ref-561)
561. 561

     *Id.*

     [↑](#footnote-ref-562)
562. 562

     See Div. No. 3 Groundwater Rules.

     [↑](#footnote-ref-563)
563. 563

     ***Colorado*** Regional Economic Analysis Project, https//***Colorado***.reaproject.org/analysis/comparative-trends-analysis/population/tools/80031/8000#page\_.

     [↑](#footnote-ref-564)
564. 564

     U.S. Census Bureau, Quick Facts, ***Colorado*** , https//:[*www.census.gov/quickfacts/table/****co****/PST045217*](http://www.census.gov/quickfacts/table/co/PST045217).

     [↑](#footnote-ref-565)
565. 565

     U.S. Bureau of Reclamation, West-Wide Climate Risk Assessment: Upper Rio Grande Impact Assessment at 1 (2013).

     [↑](#footnote-ref-566)
566. 566

     *Id*. at S-iv.

     [↑](#footnote-ref-567)