

STATE ENGINEER’S STATEMENT OF BASIS AND PURPOSE FOR 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

This Statement of Basis and Purpose discusses the history of water development in the San Luis Valley, the State Engineer’s authority to enact rules that assist in administering groundwater in Water Division No. 3, the need for the Rules, and the public process by which they were developed. This Statement of Basis and Purpose also summarizes each rule and its purpose, and explains how the State Engineer will implement each rule. Terms used in this Statement of Basis and Purpose that are defined in Rule 4 have the same meaning here.

The State Engineer filed the 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 Water Rights (“Groundwater and Irrigation Season Rules for Division 3” or “Rules”) in the Water Division No. 3 Water Court on September 23, 2015. The State Engineer adopts these Rules in order to “integrate the appropriation, use and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all of the waters.” § 37-92-102(1) (a), C.R.S.¹

This is only the latest chapter in the long process of integrating the administration of surface water and groundwater in Water Division No. 3. The Rules continue a “step-wise process” to “pursue regulation of the confined and unconfined aquifers in order to maintain a sustainable water supply.”² The first attempt in the 1970s to adopt rules and regulations for the administration of existing uses of groundwater were remanded to the State Engineer for further consideration. Later rules and regulations regarding New Appropriations from the Confined Aquifer (2004) and Metering/Measurement of existing groundwater uses (2005) were successful. In addition, previous attempts to increase the water supply in the heavily irrigated San Luis Valley have been only partially successful, as will be discussed below. With this history in mind, the State Engineer puts in place a regulatory framework for the long-term sustainable use of the valuable aquifers in Water Division No. 3 consistent with the protection of senior surface water rights and Colorado’s compliance with the Rio Grande Compact.

I. Water Development in the San Luis Valley

Retired Supreme Court Justice Gregory Hobbs once wrote: “Colorado water law has taken shape in the interaction between the water users, their advocates, the judiciary, the legislature, and the water officials.”³ This holds true in Water Division No. 3, where the State and Division Engineers (“Engineers”) administer the water resources of the Upper Rio Grande basin in Colorado and ensure Colorado’s compliance with the Rio Grande Compact of 1938.

¹ Enacted via the Water Right Determination and Administration Act of 1969 (“1969 Act”).

² *Findings of Fact, Conclusions of Law, Judgment and Decree, In re Rules Governing New Withdrawals of Ground Water in Water Division No. 3 Affecting the Rate or Direction of Movement of Water in the Confined Aquifer System (“Confined Aquifer New Use Rules for Division 3”)*, Case No. 04CW24, ¶ 523, ¶ 533 (Dist. Ct. Colo. Water Div. No. 3, Nov. 9, 2006), *aff’d sub. nom. Simpson v. Cotton Creek Circles, L.L.C.*, 181 P.3d 252 (Colo. 2008).

³ Gregory J. Hobbs, Jr., *Colorado’s 1969 Adjudication and Administration Act: Settling In*, 3 U.Denv. Water L.Rev. 1,11 (1999).

Because the San Luis Valley's limited water supplies have been over-appropriated since 1900,⁴ accomplishing these administrative duties while navigating inevitable water conflicts has been challenging.

Due to conflicts over water, written descriptions of the Rio Grande basin in Colorado court rulings are not difficult to find. The Colorado Supreme Court wrote:

The San Luis Valley in south-central Colorado extends approximately ninety miles from north to south and fifty from east to west at an elevation varying between 7,500 and 8,000 feet above sea level. The major mountain boundaries are the San Juan Mountains to the west and the Sangre de Cristo mountains to the east. The Rio Grande mainstem rises in the San Juan mountains, flows south-easterly through the valley to Alamosa, and then runs south through a break in the San Luis hills, which border the valley on the south, into the state of New Mexico, then along the border between Texas and Mexico, emptying into the Gulf of Mexico. The Conejos River rises in the Conejos Mountains to the south-west and flows north-easterly along the southern edge of the valley, joining the Rio Grande mainstem at Los Sauces. Despite its high altitude, short growing season, and average annual precipitation of only about 7.5 inches, the valley sustains a productive agricultural economy dependent upon irrigation water.⁵

The Supreme Court is often quoted for its apt description of the unique hydrogeology of the San Luis Valley.

The upper 6000 feet of fill below the valley surface consists of unconsolidated clay, silt, sand and gravel, and interbedded lava flows...Some of the underground water is in an unconfined aquifer system at shallow depths. Beneath the unconfined aquifer are relatively impermeable beds of clay and basalt and beneath these confining layers are substantial quantities of water which comprise the confined aquifer. The confining clay layer generally does not exist around the valley's perimeter, and the confined aquifer system is recharged from surface flow to the underground water system at the edges of the valley. Because the recharge areas are higher in elevation than the floor of the valley, the confined aquifer is under artesian pressure, resulting in the free flow of water from some artesian wells and springs at natural breaks in the confining layer. In some places, where the confining layer is less thick and more transmissive, water from the confined aquifer will leak upward through the confining clay layers into the unconfined aquifer. The unconfined aquifer is directly connected with the

⁴ *Alamosa-La Jara Water Users Protection Association*, 674 P.2d 914,918 (Colo.1984).

⁵ *Id.* at 917.

surface streams in some places. To varying degrees, the surface streams, the unconfined aquifer, and the confined aquifer are hydraulically connected.⁶

Another unique feature of the San Luis Valley is the “Closed Basin,” an area north of the Rio Grande in which irrigation return flows and natural stream waters percolate towards a “sump” area, rather than flowing into the Rio Grande.⁷ As such, the surface streams and ditch systems in the Closed Basin have a very limited hydrologic connection to the Rio Grande. The Rio Grande Compact defines the Closed Basin as “that part of the Rio Grande basin in Colorado where the streams drain in to the San Luis Lakes and adjacent territory, and do not normally contribute to the flow of the Rio Grande.”⁸

Despite low annual precipitation and rapid runoff of spring snow melt, the San Luis Valley has a long history of irrigated agriculture. The earliest judicially recognized appropriation date in the San Luis Valley was the San Luis Peoples Ditch on Culebra Creek in 1852. Irrigators made their first appropriations from the Conejos River in the 1850s and from the Rio Grande in 1866.⁹ Most of the development for irrigation occurred very early, between 1880 and 1890. It was a productive period; the Denver and Rio Grande Railroad “reached the San Luis Valley in 1879, prompting a large influx of settlers. Abundant stream flows between 1880 and 1888 fueled the building of large canals.”¹⁰ These canals include the Rio Grande Canal, the Farmers Union Canal, the Monte Vista Canal, the Prairie Ditch, the Valley Canal (also known as the San Luis Valley Canal), and the Costilla Ditch.¹¹ It is notable that “[b]y 1889, 1,200 miles of canals supplied irrigation water to more than 300,000 acres, and by 1894 some 400,000 acres were being irrigated.”¹² As mentioned above, this activity resulted in over-appropriation of the natural flow of the San Luis Valley’s surface streams by 1900. As early as 1896, “the priorities and rates of flow for most existing water rights had been determined.”¹³

These surface water irrigators made their water sources more closely parallel the needs of their crops by employing a practice called “sub-irrigation.”¹⁴ The irrigators diverted surface water into spaced ditches in their fields, raising the water table underneath their crops and sustaining them after peak flows subsided. The effect of this was to temporarily store surface water in Unconfined Aquifers. Some irrigators later sought judicial confirmation of this historical practice of bringing water into their farm fields, and storing it underground. These water rights were recognized in what are popularly known as “recharge decrees.”

The limited water supplies of the Upper Rio Grande Basin led to early and ongoing tensions. These tensions were not just among irrigators living in the San Luis Valley itself; as early as the 1880s, citizens of the Republic of Mexico were also making claims to the flows of

⁶ *Id.* at 917-8; *American Water Development, Inc. v. City of Alamosa*, 874 P.2d 352, 367 (Colo. 1994)

⁷ Decree, Confined Aquifer New Use Rules for Division 3, Case No. 2004CW24, ¶ 56.

⁸ § 37-66-101, C.R.S. (2015).

⁹ *Alamosa v. La Jara Water Users* at 918.

¹⁰ William A. Paddock, *The Rio Grande Compact of 1938*, 5 Univ. Denv. Water L.R. 1, 5

¹¹ Decree, Confined Aquifer New Use Rules for Division 3, Case No. 2004CW24, ¶ 71

¹² Paddock, *supra* at 5.

¹³ *Id.*

¹⁴ Decree, Confined Aquifer New Use Rules for Division 3, Case No. 2004CW24, ¶ 73

the Rio Grande, complaining that its flows were being unfairly reduced by irrigators situated closer to the headwaters.¹⁵ The United States responded to these complaints in 1895 by placing an embargo on Colorado's use of its public lands to build reservoirs for storage of Rio Grande water. This meant that for the "duration of the embargo, water users...could not construct the reservoirs needed to make the water supply parallel to the needs of their crops."¹⁶ As the Rio Grande Compact negotiations progressed, relaxations of the embargo allowed the building of some San Luis Valley reservoirs: Rio Grande, Santa Maria, La Jara, Terrace, and Mountain Home, to name a few. However, after 1928 "intense opposition from Texas and New Mexico thwarted further reservoir construction in Colorado."¹⁷ Eventually, negotiators from the three states signed the Rio Grande Compact of 1938, which obligates Colorado to deliver water at its state line with New Mexico. An earlier treaty also obligates the United States to deliver 60,000 acre-feet of Rio Grande water to Mexico each year,¹⁸ with reduced deliveries in times of extraordinary drought.

Well development further tapped the water resources of the San Luis Valley. As early as 1887, irrigators discovered the Confined Aquifer in the form of flowing artesian wells. "By 1891 there were estimated to be 2,000 flowing artesian wells in the [San Luis] Valley. By 1904 there were 3,234 flowing wells in the Valley; and by 1916 there was estimated to be 5,000 flowing wells in the Valley...That number increased to 6,074 flowing wells by 1936 and increased to an estimated 7,500 flowing wells by 1958."¹⁹

Development of the Unconfined Aquifer of the Closed Basin occurred more slowly, but then burgeoned. "While the first irrigation well in the unconfined aquifer was constructed in 1903, there was little or no further development of the unconfined aquifer for irrigation for the next 25 years... The number of wells withdrawing water from the unconfined aquifer increased from 176 in 1936 to approximately 1,300 wells in 1952...and is several times that number today."²⁰ Today, center pivot sprinklers are common throughout the San Luis Valley.²¹ The center pivot irrigation systems primarily use groundwater, but many also use surface water directly or that has been used to recharge and replenish Unconfined Aquifers. The result is most, but not all, irrigators use a combination of groundwater and surface water in their farming practices. As noted by the Water Division No. 3 Water Court, "[t]hese 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."²²

The Rio Grande Compact continues to limit the use of surface water in the San Luis Valley. While the Compact initially operated closely to the vision of the Compact negotiators, in

¹⁵ *Alamosa-La Jara Water Users* at 918.

¹⁶ Paddock, *supra* at note 10, 2-3.

¹⁷ *Id.* at 14.

¹⁸ *Alamosa-La Jara Water Users* at 915; Paddock, *supra* note 10, at 3; see also Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 81 (quoting from the Joint Investigation in the Upper Rio Grand [sic] Basin in Colorado, New Mexico and Texas 1936-7).

¹⁹ Decree, Confined Aquifer New Use Rules, Case No. 04CW24 ¶ 86.

²⁰ *Id.* at ¶ 87.

²¹ *Id.* at ¶ 78.

²² *Id.* at ¶ 78.

the 1950s Colorado began to fall behind in its scheduled deliveries under the Compact.²³ By the end of 1965, “Colorado’s accrued debit was 939,900 acre-feet,”²⁴ spurring a lawsuit by Texas and New Mexico against Colorado in the United States Supreme Court and culminating in Colorado’s agreeing to use all available legal powers, including curtailment of diversions, to meet its annual scheduled delivery obligations under the Rio Grande Compact. Since 1968, the Engineers have ensured Compact deliveries at the state line by curtailment of surface water diversions. Although Colorado’s pre-1968 Rio Grande Compact debit has been eliminated, the Engineers annually curtail surface water diversions from the Rio Grande and the Conejos River to make sure that Colorado fulfills its Compact obligations.²⁵

In 1972, shortly after the General Assembly passed the 1969 Act that required integration of the administration of surface water and groundwater, the State Engineer imposed a moratorium on new appropriations from the Confined Aquifer, and Unconfined Aquifers outside of the Closed Basin. The State Engineer followed this nine years later with a moratorium on new appropriations from the Unconfined Aquifer in the Closed Basin. Also during the seventies, the Rio Grande Water Conservation District (“RGWCD”) performed an extensive well capping and valving program to enable water users to shut off free-flowing artesian wells that had previously run year-round.²⁶ The RGWCD installed caps with valves to control the free flow and reduce waste, thus conserving water in the Confined Aquifer.

In 1975, State Engineer Kuiper first attempted to adopt groundwater rules and regulations for exiting uses of groundwater in Water Division No. 3.²⁷ These rules were protested and litigated,²⁸ and eventually the Colorado Supreme Court remanded the rules to the State Engineer for reconsideration.²⁹ By that time, however, water users in the San Luis Valley were focused on a federal reclamation project called the Closed Basin Project, which they anticipated would add a new water supply to the Rio Grande, reducing “the curtailment of surface diversions that would otherwise be required by the Rio Grande Compact, while at the same time reducing claims of stream depletion from well pumping.”³⁰

²³ Paddock, supra at note 10, at 42.

²⁴ *Alamosa v. La Jara Water Users* at 919.

²⁵ Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 84.

²⁶ 2008 Transcript, page 1186, lines 6-9 (Kelly Sowards) in Concerning the Office of the State Engineer’s Approval of the Plan of Water Management for Special Improvement District No. 1 of the Rio Grande Water Conservation District (Subdistrict No. 1) (on file with the Office of the State Engineer).

²⁷ Decree, Confined Aquifer New use Rules, Case No. 04CW24, ¶ 535.

²⁸ As explained by Judge Kuenhold in the Decree, Case No. 04CW24, ¶ 535: “[the 1975 Rules] provided for the phasing out of existing underground water diversions from the confined aquifer unless the underground water user submitted proof that the user’s well was operating under a decreed plan for augmentation or had a decree as an alternate point of diversion or that the underground water appropriation could occur without impairing the right of a senior appropriator.” (citing *Alamosa-La Jara Water Users [Protection Association v. Gould]* 674 P. 2d [914] at 919).

²⁹ *Alamosa-La Jara Water Users Protection Association v. Gould*, 674 P.2d 914 (Colo. 1983); Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 535 (“[t]he Colorado Supreme Court upheld the presumption of material injury to senior rights from groundwater withdrawals based on the finding of material injury on a Valley-wide basis...but remanded the rules and regulations for consideration of the policy of ‘maximum-optimum utilization’ and the ‘reasonable-means-of-diversion’ doctrine”).

³⁰ Resolution Regarding the Allocation of the Yield of the Closed Basin Project, at page 2.

Since the early 1900s, San Luis Valley water users had studied and debated draining the waters accumulating in the sump of the Closed Basin, north of the Rio Grande. The idea is specifically contemplated by Article III of the Rio Grande Compact of 1938: “[i]n event any works are constructed after 1937 for the purpose of delivering water into the Rio Grande from the [C]losed [B]asin.” Due to the topography of the Closed Basin, water reaching the sump was lost to evaporation from shallow pools of standing water and evapotranspiration by native vegetation.

The idea of salvaging water from the Closed Basin sump area eventually came to fruition. The U.S. Bureau of Reclamation built a 192-well salvage project to withdraw groundwater from the shallow Unconfined Aquifer. In 1988, the Closed Basin Project began delivering water to the Rio Grande. The project delivers water through a 42-mile open conveyance channel, which discharges water to the Rio Grande approximately seven miles above its confluence with Trinchera Creek.³¹

The RGWCD operates the Closed Basin Project in concert with the Bureau of Reclamation and owns the water rights associated with it. In 1985, the RGWCD negotiated with the other major water user groups in the San Luis Valley and adopted what is now known as “The 60/40 Agreement.”³² This agreement allocates the usable yield of the Closed Basin Project to water users on the Rio Grande and Conejos River for their use:

The usable yield from the Closed Basin Project will be divided, as nearly as possible, on a 60/40 basis with the Rio Grande being entitled to 60% of the useable yield from the project and the Conejos River being entitled to 40% of the useable yield from the project.³³

Each water user association also waived all claims of injury against then-existing wells “for alleged effects on the surface flows” caused by existing levels of well pumping.³⁴ As explained by former Chief District Court Judge and Water Judge for Water Division No. 3, the Honorable O. John Kuenhold:

Thus, water delivered by the Project can physically serve as a substitute supply for water that would otherwise have to be curtailed away from upstream senior water rights to satisfy the Rio Grande’s Compact obligation. The use of the Project water to help meet the Rio Grande’s Compact obligation has the effect of making more water available for diversion by the upstream water users.³⁵

³¹ Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 100.

³² Resolution Regarding the Allocation of the Yield of the Closed Basin Project, at page 2.

³³ *Id.* at page 5.

³⁴ *Id.* at pages 6-8.

³⁵ Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 104.

Unfortunately, the yield of water from the Closed Basin Project has not lived up to the expectations of its planners. “The agreement over-optimistically contemplated that the Project would provide not less than 250,000 acre-feet of additional water over any ten-year period once phase 4 of the Project was in operation.”³⁶ Originally decreed for 106,000 acre-feet per year, at present the RGWCD has made absolute 43,520 acre-feet of water, but has reduced the remaining conditional water right by 32,000 acre-feet.³⁷ The Closed Basin Project delivers approximately 5,300 acre-feet annually to wildlife refuges³⁸ and the balance to the Rio Grande.³⁹

In addition to confronting the limited supply of water in the San Luis Valley, its irrigators also have had to defend against attempts to tap its aquifers for export, potentially for use in the Colorado’s Front Range municipalities,⁴⁰ going so far as holding an election to pass a mill levy to finance the litigation to oppose groundwater exports of water from the Valley. Following a lengthy 1991 trial, the Water Court denied and dismissed American Water Development, Inc.’s (“AWDI”) application to withdraw water under the Baca Grant No. 4 (a tract of land near the Great Sand Dunes National Park and Preserve). The Water Court subsequently issued a judgment against AWDI for just under three million dollars, to compensate the objectors for attorneys’ fees and costs incurred in connection with the claims dismissed on the eve of trial, and costs for the claims that went to trial.⁴¹ The Colorado Supreme Court upheld both judgments.

The period 2002-2005 was the driest consecutive four-year period on record for the Upper Rio Grande.⁴² In 2002, the annual stream flow of the Rio Grande as gauged at Del Norte was 160,000 acre feet, as compared to a long-term average of about 640,000 acre-feet per year. During the drought, many San Luis Valley farmers “relied upon their wells, with a resulting substantial over-draft of the confined and unconfined aquifer systems.”⁴³

Judge Kuenhold noted that after the remand of the 1975 rules and regulations, “the Division Engineer has administered wells from both the confined and unconfined aquifers to ensure that all groundwater users comply with the restrictions of their permits and/or their groundwater rights’ decrees.” Further, “[t]he water users and State Engineer also took many other steps to address the issue of over-appropriation of both aquifers, protection of senior surface rights and the obligation under the Rio Grande Compact.”⁴⁴ Nonetheless, “[i]t is uncontested that pumping from the unconfined aquifer and confined aquifer depletes surface streams.”⁴⁵ The State Engineer adopts the Rules in order to address this reality.

³⁶ *Id.* at ¶ 102.

³⁷ *Id.* at ¶ 100.

³⁸ Steve Vandiver, Gen. Manager, Rio Grande Water Conservation District, SLVRAC meeting April 9, 2009.

³⁹ Ken Beck, Alamosa Field Div. Manager, Federal Bureau of Reclamation, SLVRAC meeting April 9, 2009. The refuges include the Alamosa National Wildlife Refuge and Blanca Wildlife Habitat Area.

⁴⁰ *American Water Development, Inc. v. City of Alamosa*, 874 P.2d 352,358 (Colo. 1994).

⁴² William A. Paddock, *Groundwater Regulation in Water Division No. 3, A Work in Progress*, prepared in conjunction with a presentation given for the Colorado Bar Association, Water Law Section (CLE), September 2010, page 7.

⁴³ *Id.*

⁴⁴ Decree, Confined Aquifer New Use Rules, Case No. 04CW24 , ¶ 99

⁴⁵ *Id.* at ¶ 114.

In 2004, the State Engineer adopted the “Rules Governing New Withdrawals of Groundwater in Water Division No. 3 Affecting the Rate or Direction of Movement of Water in the Confined Aquifer System” (“Confined Aquifer New Use Rules”). The Confined Aquifer New Use Rules recognize that there is no unappropriated water in the Confined Aquifer, so that any new withdrawal essentially requires one-for-one replacement or retiring existing wells to account for the new withdrawal. In upholding the Confined Aquifer New Use Rules in 2008, the Colorado Supreme Court noted that while the “State Engineer had wide discretion to permit the continued use of underground water consistent with preventing material injury to senior surface water rights...nothing in [the Confined Aquifer New Use Rules] precluded further regulation of existing wells.”⁴⁶ Thus, the Confined Aquifer New Use Rules left the regulation of existing uses in the Confined Aquifer to future rules and regulations.

In 2005, the State Engineer adopted the “Rules Governing the Measurement of Groundwater Diversions Located in Water Division No. 3, the Rio Grande Basin” (“Measurement Rules”). The Measurement Rules require all wells with a decreed and/or permitted flow rate of more than 50 gallons per minute to be equipped with totalizing flow meters, and to measure and report groundwater withdrawals. In addition, the rules apply to those wells with a decreed and/or permitted flow rate of less than 50 gallons per minute that are required to be metered by their permit or decree. The information on groundwater use obtained pursuant to these rules is critical for purposes of administration and improving the reliability of the Rio Grande Decision Support System Groundwater Model.

These Rules are the latest step in the on-going process of integrating the use and administration of surface and groundwater rights in Water Division No. 3. The State Engineer developed these Rules with the assistance of an appointed Advisory Committee, and now adopts these Rules for Water Division No. 3. The Rules are designed to allow withdrawals of groundwater while providing for the identification and replacement of injurious stream depletions and the achievement and maintenance of a Sustainable Water Supply in each aquifer system, while not unreasonably interfering with the state’s ability to fulfill its obligations under the Rio Grande Compact. The Rules apply to all withdrawals of groundwater within Water Division No. 3, unless the withdrawal is specifically exempted by the Rules, and the Rules pertaining to the Irrigation Season apply to all irrigation water rights.

II. Authority for the Rules

A. Statutory Authority

The General Assembly has mandated the adoption of both the Groundwater and Irrigation Season Rules for Water Division No. 3 and the Confined Aquifer New Use Rules “in stages.”⁴⁷ As one writer noted:

The first mandate came in House Bill 98-1011 (“HB 98-1011”).
HB 98-1011 recognized the need for more comprehensive
information regarding the hydrologic relationship between the

⁴⁶ *Simpson v. Cotton Creek Circles, L.L.C.*, 181 P.3d 252, 263 (Colo. 2008).

⁴⁷ *Id.* at 257.

confined aquifer and the surface streams within Water Division Three. The Bill stated that the state engineer should promulgate new rules that were “based upon specific study of the confined aquifer system.”⁴⁸

The Colorado Supreme Court wrote in *Simpson* that House Bill 98-1011⁴⁹ (“H.B. 98-1011”) served as a catalyst for “a study of the aquifer systems called the Rio Grande Decision Support System Study (“the RGDSS Study”),” which the Water Division No. 3 Water Court called “one of most comprehensive studies of the Valley’s geology and hydrology that has ever been undertaken.”⁵⁰ The study became the basis for the development of a groundwater model (“RGDSS Model” or “RGDSS Groundwater Model”), which is a computerized mathematical model that was designed to “simulate, among other things, the flow of groundwater,” and it may be revised as new information about the aquifer systems comes to light.⁵¹

The second mandate came when the legislature enacted Senate Bill 04-222 (“S.B. 04-222”), which added paragraphs (4)(a) through (4)(c) to section 37-92-501, C.R.S. to guide the State Engineer’s regulation of groundwater use in Water Division No. 3.

Before the passage of S.B. 04-222, pursuant to section 37-92-501(1), C.R.S., the Engineers already possessed the authority to “administer, distribute and regulate the waters of the state,” and that included the State Engineer’s authority to adopt rules and regulations to further the performance of his duties.⁵² This is also known as the State Engineer’s water rule power.⁵³ Regarding the adoption of rules and regulations, section 37-92-501(2), C.R.S. requires the State Engineer to be guided by section 37-92-502(2), C.R.S., as well as by the following:

(a) Recognition that each water basin is a separate entity, that aquifers are geologic entities and different aquifers possess different hydraulic characteristics even though such aquifers be on the same river in the same division, and that rules applicable to one type of aquifer need not apply to another type. All other factors being the same, aquifers of the same type in the same water division shall be governed by the same rules regardless of where situate.

(b) Consideration of all the particular qualities and conditions of the aquifer;

⁴⁸ Peter C. Johnson, *The “Third Act” in Colorado Water Law: The Colorado Supreme Court Affirms the Concept of Sustainable Optimum Use in Simpson v. Cotton Creek Circles, LLC*, 12 U. DENV. WATER L.REV. 241, 246.

⁴⁹ H.B. 98-1011 was codified at § 37-90-137(12), C.R.S. (2003), amended in 2001, and then subsection (12)(b)(I) was repealed on July 1, 2004, which did not affect the validity of the Rules, see Decree, Case no. 04 CW 24, ¶ 119-120.

⁵⁰ *Simpson* at 257.

⁵¹ *Simpson* at 258, Confined Aquifer New Use Rule 4.A.7.

⁵² § 37-92-501 (1), C.R.S. (2015).

⁵³ *Simpson* at 258.

(c) Consideration of the relative priorities and quantities of all water rights and the anticipated times of year when demands will be made by the owners of such rights for waters to supply the same;

(d) Recognition that one owner may own both surface and subsurface water rights;

(e) That all rules and regulations shall have as their objective the optimum use of water consistent with preservation of the priority system of water rights;

(f) That rules and regulations may be amended or changed from time to time within the same aquifer dependent upon the then existing and forecast conditions, facts and conditions as then known, and as knowledge of the aquifer is enlarged by operating experience;

(g) That time being of the essence, rules and regulations and changes thereof proposed for an aquifer shall be published once in the county or counties where such aquifer exists not less than sixty days prior to the proposed adoption of such rules and regulations, and copies shall be mailed by the water clerk of the division to all persons who are on the mailing list of such division. Copies of such proposed regulations shall be available without charge to any owner of a water right at the office of the water clerk.

Section 37-92-501(3) (a), C.R.S. states that any person who wants to protest a proposed rule and regulation may do so in the same way as the protest of a water referee's ruling, section 37-92-304, C.R.S. Section 37-92-501(3) (b), C.R.S. allows protests until the end of the month following the month in which rules and regulations are published.

In S.B. 04-222 (now codified as section 37-92-501(4)), C.R.S.) the General Assembly added substantially to the direction set forth in the statutes above. The new provisions enumerated a number of principles to guide the State Engineer in the Water Division No. 3 rulemaking, directed the maintenance of a Sustainable Water Supply in each aquifer, and encouraged the use of groundwater management subdistricts:

(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. Any reduction in underground water usage required by such rules shall

be the minimum necessary to meet the standards of this subsection (4). 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;

(II) Unconfined aquifers serve as valuable underground water storage reservoirs with water levels that fluctuate in response to climatic conditions, water supply, and water demands, and such fluctuations shall be allowed to continue;

(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 within 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.

(IV) Nothing in subparagraph (I) or (II) of this paragraph (a) shall be construed either to relieve wells from the obligation to replace injurious stream depletions in accordance with the rules adopted by the state engineer or to permit the expanded use of underground water; and

(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.

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

(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

(B) Subject to subparagraphs (I), (II), and (III) of paragraph (a) of this subsection (4), injury to senior surface water rights resulting from the use of underground water is remedied by means other than providing water to replace stream depletions;

(II) Establish criteria for the beginning and end of the division 3 Irrigation Season for all irrigation water rights;

(III) Not 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 uses; and

(IV) Not require senior surface water right holders with reasonable means of surface diversions to rely on underground water to satisfy their appropriative water right.

(c) The state engineer shall not curtail underground water withdrawals from aquifers in division 3 that are included in a groundwater management subdistrict created pursuant to section 37-45-120 or section 37-48-108 if the withdrawals are made pursuant to a Groundwater Management Plan adopted by the subdistrict that meets the requirements of paragraphs (a) and (b) of this subsection (4). The state engineer shall publish notice of the approval of any Groundwater Management Plan in the same manner as provided for rules under paragraph (g) of subsection (2) of this section, and judicial review of such approval shall be pursuant to paragraph (a) of subsection (3) of this section. The water judge shall retain jurisdiction over the water management plan for the purpose of ensuring the plan is operated, and injury is prevented, in conformity with the terms of the court's decree approving the water management plan.

The State Engineer has followed the General Assembly's mandates in the development and adoption of Groundwater and Irrigation Season Rules for Water Division No. 3.

In addition to H.B. 98-1011 and S.B. 04-222, to the extent groundwater withdrawals could impact Colorado's ability to meet its obligations under the Rio Grande Compact, the State Engineer adopts the Rules pursuant to section 37-80-104, C.R.S.

B. Simpson v. Cotton Creek Circles

The State Engineer adopted the Confined Aquifer New Use Rules pursuant to S.B. 04-222 and his water rule power. The Confined Aquifer New Use Rules apply only to proposed new uses of the Confined Aquifer.⁵⁴ Rule 5.D “affirms the general need for a groundwater model to understand the Confined Aquifer System and for the specific evaluation of any new withdrawal that is proposed.”⁵⁵ Rule 5.F states “the undisputed fact that the unconfined and Confined Aquifer System are over-appropriated...and that any new withdrawal from the Confined Aquifer System will cause changes in the artesian pressure.”⁵⁶ In light of that, the Confined Aquifer New Use Rules require an applicant for a new water right from the Confined Aquifer to “essentially...make a one-for-one replacement of the proposed new withdrawal.”⁵⁷ The applicant can accomplish this by retiring an existing Confined Aquifer water right, or by changing its point of diversion.⁵⁸ Alternatively, the applicant could demonstrate that injury can be prevented through “recharge or injection of water into the Confined Aquifer System.”

The Confined Aquifer New Use Rules implemented S.B. 04-222 by providing that no new water is made available and injury is not prevented by the reduction of water consumption by non-irrigated native vegetation.⁵⁹ Finally, the State Engineer followed S.B. 04-222 in establishing a sustainability requirement for the Confined Aquifer that requires any water user making a new withdrawal to ensure that the withdrawal does not cause fluctuations in artesian pressure to fall outside of the ranges that occurred during the period of 1978-2000.

The Water Court for Water Division No. 3 heard the protests against the Confined Aquifer New Use Rules in a 26-day trial in early 2006, and issued Findings of Fact, Conclusions of Law, Judgment and Decree on November 9, 2006.⁶⁰ As the Supreme Court stated in *Simpson*,

The Water Court denied the protests and approved the rules as promulgated in what may well be the most comprehensive decision ever issued by a Colorado water court. The 191-page judgment includes extensive background information and discussion of the hydrogeology in the [San Luis] Valley, as well as substantive analyses of Opponent’s various arguments against the rules.”⁶¹

Because the Supreme Court in *Simpson* upheld the Water Court’s findings approving the Confined Aquifer New Use Rules as adopted, it is instructive to review the Supreme Court’s summary of parts of the Water Court’s decision.

The water court also found that replacement water required by the rules is necessary to prevent injury to senior water rights, to

⁵⁴ Confined Aquifer New Use Rule 4.A.1.

⁵⁵ Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 134.

⁵⁶ *Id.* at ¶ 136.

⁵⁷ *Simpson* at 258.

⁵⁸ Confined Aquifer New Use Rule 6. B.2.

⁵⁹ Confined Aquifer New Use Rule 6. A.2.and Rule 6.B.7.

⁶⁰ Decree, Confined Aquifer New Use Rules, Case No. 04CW24, ¶ 12.

⁶¹ *Simpson* at 259.

comply with standards and principles in section 37-92-501(4)(including the maintenance of a sustainable water supply), and to avoid interfering with Colorado's ability to meet its Rio Grande Compact obligations. In addition, it found the RGDSS model to be reasonably accurate and reliable, and sufficient for its intended uses under the rules.

The water court also made findings as to the validity of the rules and statutes at issue. It held that the provisions of SB 04-222 that mandate sustainability of the aquifers, and provide for a baseline period to measure artesian pressure as a means of measuring sustainability, are supported by the evidence. It upheld the legislative mandate that reduced water consumption by phreatophytes may not be recognized as a source of replacement water for new water uses, or to replace existing depletions, or as a means to prevent injury for new uses. It also upheld SB 04-222's "guiding principle that an optimum or maximum use must be sustainable." It additionally found the RGDSS model to be properly subject to a rebuttable presumption as to its accuracy under the specific circumstances at hand.

The Supreme Court in *Simpson* agreed and stated "[c]onsistent with these principles is the legislative mandate of SB 04-222 that the state engineer should regulate the confined and unconfined aquifers...so as to 'maintain a sustainable water supply.'"⁶² The Supreme Court upheld the artesian pressure requirements,⁶³ as well as the requirement for one-for-one replacement because there are "currently no unappropriated waters in the confined aquifer."⁶⁴ The Supreme Court found that there was a rational basis for S.B. 04-222's limitation on claiming water "salvaged" from non-irrigated native vegetation. It concluded that the provisions may represent an attempt by the General Assembly to "balance the potential environmental consequences of encouraging eradication of phreatophytes against the potential benefits of salvaging water that would have been used by them."⁶⁵

Opponents of the Confined Aquifer New Use Rules had objected to the finding that new withdrawals of water from the Confined Aquifer will necessarily cause material injury and therefore must be augmented. They asserted this created "an irrebuttable finding of injury in every instance of a new withdrawal."⁶⁶ The Supreme Court rejected that argument, writing that, "[b]ecause the confined aquifer is over-appropriated all the time, the only way to prevent injury to senior rights would be to require full replacement."⁶⁷ Lastly, the Supreme Court rejected Opposers' contentions that the Confined Aquifer New Use Rules violated the Equal Protection Clauses of the Colorado and United States Constitutions.

⁶² *Id.* at 260.

⁶³ *Id.* at 261.

⁶⁴ *Id.* at 262.

⁶⁵ *Id.* at 262.

⁶⁶ *Simpson* at 262-3.

⁶⁷ *Simpson* at 263.

Like the Confined Aquifer New Use Rules, these Groundwater and Irrigation Season Rules for Water Division No. 3 also rely on the RGDSS Model for the calculation of depletions to surface streams resulting from groundwater withdrawals, and the timing and location of those stream depletions. These Rules have as their goal the sustainable use of groundwater.⁶⁸ The Rules address the artesian pressure fluctuations for the Confined Aquifer System set forth in section 37-92-501(4) (a) (III), C.R.S., and create sustainability standards for Unconfined Aquifers. They also set forth requirements for the replacement of or otherwise remedying Injurious Stream Depletions, in order to protect senior surface water rights.

In conclusion, these Groundwater and Irrigation Season Rules for Water Division No. 3 are a timely and logical extension of the State Engineer's step-wise approach to integrated administration of surface and groundwater in the San Luis Valley, they are mandated by S.B. 98-1011 and H.B. 04-222, and they are supported by the decisions of the Water Division No. 3 Water Court and the Colorado Supreme Court.

III. The Public Process for Developing the Rules

On December 31, 2008, the State Engineer issued an Order Establishing an Advisory Committee for Rules and Regulations Governing the Diversion and Use of Underground Waters in Water Division No. 3 ("Advisory Committee"). To ensure that the Advisory Committee included a wide representation of interests and expertise, the State Engineer invited a broad stakeholder group to take part in the development of the Rules. From 37 different categories of entities, he invited nominations of individuals interested in serving on the Advisory Committee. The invitations were sent to irrigation districts, water conservancy districts, the RGWCD, water user associations, municipalities, counties, and state and federal agencies. The State Engineer sought representatives who were water users, engineers and attorneys familiar with Water Division No. 3. There are a total of 56 members on the Advisory Committee, as well as 15 alternates. As attendance at the meetings was not limited to the members of the Advisory Committee, at least 100 people attended the first meeting and most of the following meetings. *See Exhibit A* (membership list). As spelled out in the Order, responsibilities of the Advisory Committee were:

- I. To provide advice and recommendations to the State Engineer on rules and regulations to comply with the terms of Senate bill 04-222, including the following:
 1. To protect senior water rights;
 2. To prevent unreasonable underground water level declines;
 3. To maintain sustainable underground water supplies;
 4. To encourage the use of groundwater management subdistricts, including the development of presumptive reporting requirements and other guidelines;

⁶⁸ Johnson, *supra* at note 53.

5. To assure that the use of underground water shall not unreasonably interfere with the State of Colorado's ability to fulfill its obligations under the Rio Grande Compact; and

6. To establish criteria for the beginning and end of the Water Division 3 Irrigation Season for all irrigation water rights.

The Advisory Committee met nine times in 2009 (March 12, April 9, May 13, June 11, August 4, September 3, October 19, November 19, and December 15), five times in 2010 (January 1, March 8, April 28, June 15, and August 5), once in 2011 (May 13), twice in 2013 (October 24 and December 12), 5 times in 2014 (January 23, March 12, May 6, July 1, and August 14), and 3 times in 2015 (March 11, April 7, and May 12). All meetings have been open to the public, noticed on the State Engineer's website, and written notice was sent to each committee member and to all others who provided contact information at the subsequent meetings. At the first meeting, the State Engineer's team provided members with a binder containing key documents for study and discussion.⁶⁹ As the meetings progressed, the State Engineer also invited experts to give presentations on water law, the history of water development in the San Luis Valley, the unique hydrogeology of the San Luis Valley, groundwater modeling, the peer review team process for updating and improving the RGDSS Model and Response Functions, and on concepts drawn from rulemaking in the Arkansas River Valley. Experts also spoke on the use of water on public lands in the San Luis Valley, as administered by the Colorado Parks and Wildlife, the United States Fish and Wildlife Service, the United States Bureau of Land Management, and the United States Bureau of Reclamation. A webpage devoted to the Advisory Committee was established by the Division of Water Resources. This webpage contains all comments regarding the proposed Rules, minutes of all meetings, and experts' power point presentations.

At all times, a working draft of the Rules has been posted on the Division of Water Resources website. These working drafts include suggestions and comments made at meetings, provided in writing, or made in person. Twenty draft versions of the Rules have been posted on the website since the original April 6, 2009 draft and presented to the Advisory Committee at the public meetings to invite additional review and comment.

At the first meeting on March 9, 2009, the State Engineer laid out the basic structure and purpose of the rulemaking, thanked the Advisory Committee members for their time, and explained their responsibilities. The State Engineer explained these Rules would apply to non-exempt groundwater wells, and not to surface water rights, except for the Irrigation Season rules, which apply to all irrigation water rights. The State Engineer further explained that S.B. 04-222

⁶⁹ The binder included: Senate Bill 04-222, a map of the San Luis Valley, the text of the Rio Grande Compact, the Resolution Regarding the Allocation of the Yield of the Closed Basin Project (60/40 Agreement), the Resolution-Rio Grande Water Conservation District (April 17, 1990); 1991 Memorandum of Understanding (Norton Drain), the Order approving the Confined Aquifer New Use Rules (Case No. 04CW24), the Order Approving the Measurement Rules (Case No. 05CW12), the Feb. 18, 2009 Order Concerning the Office of the State Engineer's Approval of the Plan of Water Management for Special Improvement District No. 1 of the Rio Grande Water Conservation District (1007CW52 and 2006CV64), and the Amended Rules and Regulations governing the Diversion and use of Tributary Ground Water in the Arkansas River Basin, Colorado.

clarified that surface water rights owners are not required to “deepen their headgates,” that is, drill wells in order to access their surface water right. Each committee member had the opportunity to describe what interests they represented, and what they hoped would result from the rulemaking process. In addition, the State Engineer distinguished between his role in developing these Rules and his role as a supporter in the then-ongoing litigation related to RGWCD Special Improvement District No. 1’s adoption of the first Groundwater Management Plan. Most importantly, the State Engineer emphasized that the goal of the Rules was to provide for the continuation of well pumping only if the wells were included in a Plan for Augmentation, an approved substitute water supply plan, or a subdistrict with an approved Groundwater Management Plan.

Some of the more notable changes initiated by the Advisory Committee included listing types of groundwater withdrawals that are exempt from the Rules, adopting a procedure for review of material changes to the RGDSS Groundwater Model, the creation of a notification list of interested water users who want to receive information related to the Rules, and methods to achieve and maintain Sustainable Water Supplies in the aquifers.

In addition, the three subcommittees discussed below accomplished considerable work regarding the establishment of an Irrigation Season, sustainability of the aquifers, and the creation of benchmarks for ensuring that Groundwater Management Plans and Plans for Augmentation accomplish their goals in a timely manner.

A. Irrigation Season Subcommittee

A subcommittee of nearly 20 individuals began working in June, 2009, to address section 37-92-501(4) (b) (II), C.R.S., which requires the Rules to: “[e]stablish criteria for the beginning and end of the Water Division No. 3 Irrigation Season for all irrigation water rights.” On a ditch system, ice in the headgates can prevent the distribution of water through lateral ditches early or late in the year. Wells, however, are not usually limited by the presence of ice; a well user can typically divert water earlier and later in the growing season than can a surface water user. One reason for a defined end to the Irrigation Season is to recognize that part of the year’s water supplies go to irrigation and part of the year’s water supplies go to other decreed uses such as storage or recharge. It became clear, after discussing the many aspects of an Irrigation Season, that the subcommittee members, as well as the Advisory Committee members, preferred that the Engineers have the flexibility to adjust the Irrigation Season in different years and different locations in response to a number of factors.

Over the following ten months, the subcommittee settled on the idea of setting a presumptive Irrigation Season while retaining the flexible criteria historically used by the Division Engineer to determine the exact dates each year for both wells and ditches to begin and end irrigation. As a result of the work of this subcommittee, on April 14, 2010, the State Engineer published Policy 2010-1. The policy was first used to set an end to the 2010 Irrigation Season, and has been used to set the Irrigation Seasons in Division 3 since that time.

B. Sustainability Subcommittee

At the outset, it should be noted that there exists little precedent for managing aquifers in a way that preserves their waters for future use by establishing a particular volume of water, water levels, or Artesian Pressure that must be maintained.⁷⁰ Although some jurisdictions have created a regulatory apparatus with the power to limit groundwater withdrawals, these regimes have not halted long-term mining of aquifers.⁷¹ It is in this unfamiliar territory that the Sustainability Subcommittee and the State Engineer began the task of implementing the requirements of S.B. 04-222.

The 19-member Sustainability Subcommittee was formed on December 15, 2009. At meetings scheduled from January to August 2010, Subcommittee members and the entire Advisory Committee membership discussed the aquifer sustainability requirements of S.B. 04-222, which states that “[u]se of the confined and unconfined aquifers shall be regulated so as to maintain a sustainable water supply in each aquifer system.” The General Assembly provided a more specific sustainability standard for the Confined Aquifer System in section 37-92-501(4) (a) (III), C.R.S. to assure the long term economic viability of groundwater irrigation in the San Luis Valley:

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.

The members discussed this standard and how to ensure sustainability for Unconfined Aquifers, for which the General Assembly did not provide a specific sustainability standard. The members recognized that sustainability requirements will also be established by each subdistrict’s Groundwater Management Plan, and those requirements could be more stringent than the sustainability requirements of the Rules.

C. Benchmark Subcommittee

The State Engineer formed this subcommittee on May 11, 2011 in response to a request by an Advisory Committee member. Eight members of the Committee asked to participate in the Benchmark Subcommittee, including a representative from the RGWCD. Tasks included the creation of a list of all benchmarks required of Groundwater Management Plans and Plans for Augmentation, assignment of a date by which the task should be completed or an amount of time needed to complete the task, and creation of a flowchart displaying the benchmark timeline.

⁷⁰ The State Engineer thanks Lauren Hammond for her assistance in researching efforts to achieve and maintain sustainable groundwater supplies worldwide. Ms. Hammond performed this research as a legal intern in the Colorado Attorney General’s Office as a 2015 J.D. Candidate at the University of Denver Sturm College of Law.

⁷¹ Research identified few such jurisdictions. Mexico and Israel are the only prominent examples.

Staff of DWR and the Attorney General's Office reviewed the relevant statutes and the decree approving Subdistrict No. 1's Groundwater Management Plan in order to identify the many tasks that must be completed before a subdistrict may operate under an Annual Replacement Plan ("ARP"). These tasks include the formation of the subdistrict, drafting and State Engineer review of a Groundwater Management Plan and Annual Replacement Plan, and reports on the performance of Annual Replacement Plans.

The Benchmark Subcommittee met once, on September 8, 2011. DWR staff also held follow-up meetings with RGWCD staff.

D. Stream Depletions

The State Engineer introduced an idea to make it easier for well users to predict their stream depletions in a concept paper sent to the committee members on March 4, 2010. After working with groundwater modelers, the State Engineer proposed using results from the RGDSS Groundwater Model to generate Response Functions. The State Engineer explained that Response Functions are a simplified method that helps predict stream depletions under varying conditions. Using the RGDSS Groundwater Model in this way, well users would be able to more easily and quickly ascertain the Stream Depletions caused by their groundwater withdrawals.

To accomplish this, the State Engineer proposed dividing the San Luis Valley floor into geographic subdivisions which share broad hydrologic commonalities, called Response Areas.⁷² For each Response Area, the groundwater modelers would use the RGDSS Groundwater Model to develop Response Functions for the relationships between groundwater withdrawals and stream depletions. As the State Engineer noted in a letter to the Advisory Committee, "[e]ach well owner would be able to locate his well on the map, and would know exactly what response function would apply to his well pumping in order to determine the amount of stream depletions, by stream." This proposal is implemented in these Rules.

The State Engineer also proposed using the RGDSS Groundwater Model and the existing well monitoring network in the San Luis Valley to monitor groundwater levels in the Unconfined Aquifer.

E. Subdistrict No. 1

Additional background concerning the litigation over Subdistrict No. 1's Groundwater Management Plan and 2012 Annual Replacement Plan is helpful in understanding this rulemaking. The State Engineer supported Subdistrict No. 1's Groundwater Management Plan, the Amended Plan, and the 2012 Annual Replacement Plan. He participated in the litigation concerning these Plans because it implicated his approval of the plans and his standards and processes for reviewing the plans. The State Engineer cannot approve a plan that does not meet the requirements of applicable law, so challenges to the legality of the plans were also challenges to whether the State Engineer correctly applied the law when approving the plans.

⁷² Letter from Dick Wolfe to the San Luis Valley Advisory Committee Members, March 4, 2010.

This rulemaking is a separate matter, and the State Engineer approached it in a non-adversarial administrative capacity. S.B. 04-222 approves the use of Subdistricts in order to allow for localized management of groundwater and section 37-92-501(4), C.R.S. addresses Groundwater Management Plans created by subdistricts and their approval by the State Engineer. Accordingly, the Rules directly address how Subdistricts function and set out the State Engineer's obligations to subdistricts. At this time, Subdistrict No. 1 is the only subdistrict in the San Luis Valley that is operating under an approved Groundwater Management Plan and Annual Replacement Plan and is replacing or otherwise remedying Injurious Stream Depletions. Subdistrict No. 1 has expended considerable resources to obtain the engineering and legal advice and practical experience necessary to bring to fruition the approach to groundwater management envisioned by S.B. 04-222. In many ways, Subdistrict No. 1 has resolved issues and provided an example for future subdistricts.

Subdistrict No. 1, a geographic subunit of the RGWCD, was established on July 19, 2006. It is located north of the Rio Grande, and contains approximately 164,000 irrigated acres. The newly-formed Subdistrict No. 1 elected a Board of Managers, which drafted a Groundwater Management Plan for the Subdistrict (the "Plan") in October, 2007.⁷³ After public meetings and comment, and approval of the Plan by the RGWCD Board of Directors, the State Engineer reviewed and approved the Plan, which was eventually litigated in the Water Division No. 3 Water Court in October 2008, and remanded with instructions for amendment ("February 2009 Order"). The Subdistrict No. 1's Board of Managers amended the Plan in compliance with the February 2009 Order, the State Engineer approved it as amended, and the Amended Plan was litigated for ten days in September and October 2009.⁷⁴ The Water Court issued the Decree in the case on May 27, 2010 upholding Subdistrict No. 1's Plan, with the addition of nineteen terms and conditions for approval, and asking the State Engineer to formally reconsider the Amended Plan as modified by the terms and conditions. The State Engineer re-approved the Amended Plan on June 25, 2010. The Water Court formally approved the Amended Plan with its Terms and Conditions on June 29, 2010.

Some of the parties that objected to the Amended Plan in the Water Court appealed the court's approval of the Amended Plan to the Colorado Supreme Court in Case No. 2010SA224 (consolidated with Case No. 2010CA141). On December 19, 2011, the Colorado Supreme Court issued its opinion upholding the Water Court's approval of the Amended Plan.⁷⁵

When the Colorado Supreme Court upheld the Amended Groundwater Management Plan, Subdistrict No. 1 completed its first ARP and submitted it to the State Engineer in April, 2012. State Engineer Dick Wolfe held a public hearing to receive comments on the 2012 ARP on April 19, 2012 in Alamosa, Colorado, and also accepted written comments. The State Engineer approved the 2012 ARP by letter dated May 1, 2012. This letter conditioned the State Engineer's approval of the 2012 ARP on the Subdistrict's compliance with fifteen additional

⁷³ Order, Subdistrict No. 1 Case Nos. 2007CW52 and 2006CV64 (Feb. 18, 2009) at ¶ 33.

⁷⁴ Findings of Fact, Conclusions of Law, Judgment and Decree in *Concerning the Office of the State Engineer's Approval of the Plan of Water Management for Special Improvement District No. 1 of the Rio Grande Water conservation District*, Case No. 2007CW52 (May 27, 2010).

⁷⁵ *San Antonio, Los Pinos & Conejos River Acequia Assn. v. Special Improvement Dist. No. 1*, 270 P.3d 927 (Colo. 2011).

requirements. After it received this approval, Subdistrict No. 1 began replacing or Remedying Injurious Stream Depletions under the 2012 ARP.

On May 15, 2012, several parties challenged the 2012 ARP in Water Court. A two-day trial was held on October 29 and 30, 2012. On April 10, 2013, the Water Court approved the 2012 ARP and the State Engineer's approval of the ARP.⁷⁶ The parties that challenged the 2012 ARP appealed this ruling to the Colorado Supreme Court in Case No. 13SA135. The Supreme Court upheld the Water Court's approval of the 2012 ARP in full on June 29, 2015. *In re Office of the State Engineer's Approval of the Plan of Water Mgmt. v. Special Improvement Dist. No. 1*, 2015 CO 52, 351 P.3d 1112 (Colo. 2015).

One of the central issues on appeal was whether Subdistrict No. 1 could use part of the production of the Closed Basin Project to replace Injurious Stream Depletions caused by Subdistrict Wells. The Colorado Supreme Court held that the Closed Basin Project provided a suitable source of replacement water in the 2012 ARP because the water could simultaneously meet Compact obligations and replace Injurious Stream Depletions. The Supreme Court also held that use of the Closed Basin Project water rights for replacement falls within its decreed purposes.

F. Progress of Additional Subdistricts

At this time, Subdistrict No. 1 is the only Subdistrict that has been formed in Water Division No. 3. However, several other subdistricts are in various stages of planning, formation, and development of Groundwater Management Plans. Notably, in January, 2015, the RGWCD began circulating a petition to well owners to form what will probably be called Special Improvement District No. 2 of the Rio Grande Water Conservation District ("Subdistrict No. 2"). This subdistrict would consist of lands near and along the Rio Grande that are served by wells that withdraw water from the alluvium of the Rio Grande. When the RGWCD has completed the gathering of signed petitions, it will ask the Alamosa County District Court to approve the establishment of Special Improvement District No. 2. The RGWCD will then be able to appoint a Board of Managers who will develop a Groundwater Management Plan for approval by the RGWCD and for submittal to the State Engineer addressing, among other things, how the Subdistrict will replace or otherwise Remedy Injurious Stream Depletions in time, place and amount.

The RGWCD is also making progress toward establishing other Subdistricts. The working groups will be laying the groundwork for Groundwater Management Plans and the financial planning necessary to ensure that subdistricts have the resources to address their obligation to replace or otherwise Remedy Injurious Stream Depletions and to promote Sustainable Water Supplies for the aquifers relied upon by landowners within or served by the Subdistrict.

⁷⁶ Findings of Fact, Conclusions of Law, Judgment and Decree in *Concerning the Office of the State Engineer's Approval of the Plan of Water Management for Special Improvement District No. 1 of the Rio Grande Water conservation District*, Case No. 2007CW52 (April 10, 2013).

IV. Overview of the Rules

Rules 1 and 2: Title and Authority

These Rules state the title and statutory authority for the Rules, which are discussed above in Section II.

Rule 3: Scope and Purpose

This Rule restates the statutory mandates from section 37-92-501(4), C.R.S. to explain the purposes of the Rules. In addition, this Rule makes it clear that nothing in the Rules is designed to allow an expanded or unauthorized use of water. Rule 3 also lists types of groundwater use that are not subject to the Rules, which include groundwater withdrawals by exempt wells, wells that divert nontributary groundwater, and wells that are decreed as an alternate point of diversion from a surface water right, but only during the time the surface water right is in priority and water is physically available at the original point of diversion.

Rule 4: Definitions

This Rule defines terms used in the Rules. Many of the terms already have established meanings in statutes, court rulings, and the Confined Aquifer New Use Rules. Rule 4 defines these terms in the same manner in which they have been defined in the past in order to ascribe to them their established meaning.

Rule 5: Principles and Findings

This Rule sets forth the principles found in section 37-92-501(4), C.R.S., which include the State Engineer's consideration of the uniqueness of Water Division No. 3's aquifers, hydrology and geology, and of the existing conjunctive use of surface and groundwater. In S.B. 04-222, the General Assembly chose the years between 1978 and 2000 as a period of time during which Artesian Pressures in the Confined Aquifer System fluctuated within a range that represents a Sustainable Water Supply. As a result, S.B. 04-222 requires the State Engineer to manage the Confined Aquifer's artesian pressure in such a way that replicates the fluctuations during that period of time.

Rule 5 also contains the State Engineer's findings. Findings are statements of fact about the hydrogeologic system based on scientific study. For example, in Rule 5.7 the State Engineer finds that the hydrogeologic system is so complex that a groundwater model is necessary to consider all the particular qualities and conditions of the aquifers to determine the impacts of groundwater use.

Rule 6: Requirements for Withdrawals of Groundwater in Water Division No. 3

Rule 6 provides that there are only three ways in which Well Users may make lawful groundwater withdrawals that are subject to the Rules: pursuant to a Groundwater Management Plan for a Subdistrict, a Plan for Augmentation decreed by the Water Court, or a Substitute

Water Supply Plan, all of which must meet the requirements of the Rules. Once the phase-in period has expired, it will be illegal to make any groundwater withdrawal that is subject to the Rules without having obtained one of the three plans described above.

Although a Plan for Augmentation is a different mechanism for complying with the Rules than a Groundwater Management Plan, the State Engineer intends that they have similar flexibility to respond to different hydrologic, climatic, and other conditions from year to year as approved by the Water Court. As detailed in Rule 7, Plans for Augmentation may use Response Functions to determine their Stream Depletions on an annual basis in the same manner as Groundwater Management Plans.

Rule 7: Standards for Determinations of Stream Depletions

This Rule establishes the RGDSS Groundwater Model as the presumptive tool to calculate Stream Depletions within the RGDSS Model Domain. The RGDSS Model is designed to determine Stream Depletions from large groups of wells over large geographic areas. Currently, it cannot be used to determine stream depletions caused by a single well or a small group of wells with reasonable reliability. However, Response Functions, which are derived from the RGDSS Model and based on modeling the effect of groundwater withdrawals from all wells in a Response Area, can be used to determine the proportional Stream Depletions predicted by the Response Function attributable to consumption via a single well or small group of wells in the Response Area. Response Areas are smaller hydrogeologic areas within the larger RGDSS Model Domain.

Rule 7 also requires the State Engineer to establish a lower limit of reliability of the RGDSS Model to ensure that predicted Stream Depletions actually occur on a given stream. Response Functions will not be derived for use on streams on which the RGDSS Model predicts Stream Depletions in volumes that are below this lower limit of reliability.

Finally, Rule 7.6 spells out the procedures for a Well User whose well lies outside of the RGDSS Model Domain. These areas generally lie above the valley floor and do not have aquifers that act as reservoirs for groundwater storage in the way that the Confined Aquifer System and the Unconfined Aquifer of the Closed Basin do.

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

This Rule divides Water Division No. 3 into three main areas: those areas within the RGDSS Model Domain in which groundwater withdrawals are predominantly from the Confined Aquifer System, those areas within the RGDSS Model Domain in which groundwater withdrawals are predominantly from Unconfined Aquifers, and areas outside of the RGDSS Model Domain. Well Users in these different areas are subject to different sustainability requirements.

Rule 8.1 contains a very specific sustainability standard for areas in which groundwater withdrawals are predominantly from the Confined Aquifer System. The General Assembly has

chosen a specific standard: the Artesian Pressures in the Confined Aquifer System must remain within the ranges they occupied between 1978 and 2000. However, due to a lack of data at this time, there is no reasonable and reliable scientific or engineering technique to estimate what the Artesian Pressures actually were throughout the Confined Aquifer System during the statutory time period. As a first step toward meeting this requirement, the Rules will limit future groundwater withdrawals to the level of groundwater withdrawals that are estimated to have occurred during 1978 to 2000, a time period over which the General Assembly presumed that the Confined Aquifer System was in a sustainable condition. This approach uses limitations on groundwater withdrawals as a surrogate for the unknown Artesian Pressures.

The following illustrates the limitations on groundwater withdrawals in the Confined Aquifer Response areas (Rule 8.1.7) in the years following the approval of a Plan for Augmentation or the approval of the first Annual Replacement Plan under a Groundwater Management Plan:

- Years 1-5: begin implementing terms to reduce groundwater withdrawals.
- Years 6-9: years 1-4 of five-year running average of metered total annual withdrawals for Response Area.
- Year 10: year 5 of five-year running average of metered total annual withdrawals for Response Area. Beginning in this year, five-year running average must not exceed the average annual withdrawals in the Response Area for the period 1978 through 2000.
- Years 11 and after: each year, five-year running average must not exceed the average annual withdrawals in the Response Area for the period 1978 through 2000.

The State Engineer will use a monitoring network of wells to gather additional data that will be used to improve the ability of the RGDSS Groundwater Model to estimate the Artesian Pressures in the Confined Aquifer System. No later than 10 years from the Effective Date of these Rules, the State Engineer will prepare a report that documents the findings of further investigations and presents results from the additional groundwater level and Artesian Pressure measurement. This report will define the preferred methods to achieve and maintain a Sustainable Water Supply within the Confined Aquifer System. The State Engineer will propose any reasonable amendments to these Rules and initiate another rule making process, as needed.

Wells in areas within the RGDSS Model Domain and in which groundwater withdrawals are predominantly from Unconfined Aquifers are subject to the Unconfined Aquifer sustainability standards found in Rules 8.2 – 8.4. There are three areas: Response Area No. 1 (Rule 8.2), the Trinchera Response Area (Rule 8.3), and the Rio Grande Alluvium Response Area (Rule 8.4).

Wells in areas not depicted in Exhibits B, D, E, and F, whether within or without the RGDSS Model Domain, must propose an Alternate Plan (Rules 8.5 and 8.6) to achieve a Sustainable Water Supply in the aquifers from which they withdraw groundwater.

Finally, Rule 8.7 recognizes that all Plans with Wells withdrawing groundwater from a common aquifer must share the burden of achieving and maintaining a Sustainable Water Supply in the aquifer. These Plans must provide for the proportional division of this responsibility as between all Well Users in each of the Response Areas in which the Wells included in the Plan are located, unless the Well Users agree otherwise. The Plans themselves will have to spell out the specifics of this division of responsibility for achieving and maintaining a Sustainable Water Supply.

Rule 9: Subdistrict's Proposed Groundwater Management Plan

This Rule sets out the requirements for a Subdistrict's Groundwater Management Plan and lists the information that a proposed Plan must contain. The Plan must provide for replacing or Remedying Injurious Stream Depletions caused by Subdistrict Wells. The Plan must also describe the actions that the Subdistrict will take to achieve and maintain a Sustainable Water Supply in its Response Area or portion thereof within the time allowed by the Rules. If a Subdistrict has not made progress toward achieving and maintaining a Sustainable Water Supply within ten years, then the Subdistrict must take action above and beyond the requirements of its Groundwater Management Plan.

Rules 9, 11, and 12 impose reporting requirements on Groundwater Management Plans and Annual Replacement Plans. Because Groundwater Management Plans and Annual Replacement Plans are submitted to the State Engineer for his approval, the Rules must ensure that the State Engineer has all of the information that he needs to review proposed Plans and evaluate their operation.

Rule 10: Plans for Augmentation

This Rule recognizes that instead of joining a Subdistrict, some Well Users may wish to obtain a Plan for Augmentation in order to satisfy their obligation to address Injurious Stream Depletions caused by their groundwater withdrawals and achieve and maintain a Sustainable Water Supply. Plans for Augmentation are filed in the Water Court. While the State Engineer may be a party in cases concerning Plans for Augmentation, the Water Court ultimately decides whether the Plan is adequate to prevent injury, how it will operate, and whether it complies with the requirements specific to Water Division No. 3 set forth in section 37-92-501(4), C.R.S. and the Rules.

Plans for Augmentation may use Response Functions to determine their Stream Depletions unless the Wells included in the Plan are located outside of the RGDSS Model Domain. Plans for Augmentation within the RGDSS Model Domain may use, and Plans for Augmentation outside the RGDSS Model Domain must use, an alternative method instead of Response Functions to determine Stream Depletions. Rule 10 requires Well Users with Plans for

Augmentation that rely on Response Functions to provide to the State Engineer the information that is required to generate and utilize the Response Functions.

Plans for Augmentation must also meet the sustainability requirements of Rule 8. If the Plan for Augmentation has not made progress toward achieving and maintaining a Sustainable Water Supply within ten years of the effective date of the Plan, then the Water User must reopen the Plan and amend the Plan to include additional terms for achieving and maintaining a Sustainable Water Supply within the period required by the Rules.

Finally, Plans for Augmentation must provide annual accounting that allows for reviewing how the Plan was operated in the previous year. These provisions are aimed at ensuring that a Plan is actually replacing Injurious Stream Depletions in time, place and amount.

Rule 11: Subdistrict's Proposed ARP

This Rule requires a Subdistrict to include in its Annual Replacement Plan all of the information that the State Engineer needs to consider the plan. A few examples are: a list of Subdistrict Wells, calculations of projected Stream Depletions and how they will be replaced, any contractual arrangements the Subdistrict has in place, and a progress report on achieving and maintaining a Sustainable Water Supply.

Rule 11 also describes the process for the State Engineer's review of an ARP. The State Engineer will take public comments on a proposed ARP and will approve the ARP only if it contains sufficient engineering and analysis to ensure that the Subdistrict will replace or Remedy Injurious Stream Depletions to avoid injury to senior surface water rights. The State Engineer may approve or disapprove an ARP, or approve an ARP with terms and conditions.

Rule 12: Subdistrict's Annual Review of its ARP

Annual Replacement Plans are inherently prospective because no one can predict with absolute certainty the hydrologic conditions and groundwater use in a given year. Rule 12 requires Subdistricts to produce annual reports that detail the actual operation of the ARPs that were in effect during the previous Plan year. Subdistricts must also detail their efforts to achieve and maintain a Sustainable Water Supply. Among other things, the information in these annual reports will allow all interested Persons to evaluate the effectiveness of a Subdistrict's ARPs and enable a Subdistrict to assess its replacement of Injurious Stream Depletions.

Rule 13: Geographic Scope

This Rule states that the Rules apply to the entirety of Water Division No. 3, with one exception. Rule 13 excludes from Rules 6-12 the region known as the Costilla Plain in southern Costilla County (Rule 13.2). Because of the complexity of the hydrogeology, the relative lack of data in this region, and the apparent disconnection between the regional aquifer and surface streams, the State Engineer cannot conclude at this time that groundwater withdrawals in this area are causing injury to senior surface water rights.

If in the future the State Engineer is able to conclude that groundwater withdrawals are causing injury to senior surface water rights in the Costilla Plain region, then the State Engineer may amend the Rules or create new rules to regulate groundwater use in this region. As of the adoption of these Rules, the State Engineer anticipates that any amendment or new rules governing groundwater withdrawals in the Costilla Plain region will include a phase-in period similar to that in Rule 21 in order to allow Well Users the time necessary to come into compliance, including establishing the timeframe Well Users will have to achieve a Sustainable Water Supply. Given the presently incomplete analysis of the aquifers and hydrogeology in the Costilla Plain region, the State Engineer cannot presently determine the appropriate lengths of these periods of time.

Rule 14: Irrigation Season

This Rule sets the criteria that the Division Engineer will use to set Irrigation Seasons in Water Division No. 3 each year. Rule 14 sets the presumptive Irrigation Season beginning on April 1 and ending on November 1. However, the Division Engineer has discretion to modify these dates in response to climatic and other conditions which can vary significantly from year to year. In addition, different regions of Water Division No. 3 may have different Irrigation Seasons based upon their local hydrology, weather patterns, cropping types, etc. As is currently the practice, the Division Engineer or members of his staff will meet with water user groups concerning the Irrigation Season and will provide notice to all interested water users. Rule 14 also provides for expedited appeals challenging the Division Engineer's decisions setting dates for the beginning and end of the Irrigation Season. Rule 14 requires the State Engineer to act on an appeal within two days because a longer period of time may make it impossible for the Division Engineer to adjust the beginning or end date of the Irrigation Season based on the appeal.

Rule 15: Variances

This Rule outlines the process by which the State Engineer may grant a variance. An application for a variance must explain the proposed variance in detail, and the Well User must provide public notice to interested Persons. Variances are rare exceptions to the Rules and will not be granted if they would undermine the purposes of the Rules.

Rule 16: Average Annual Volumetric Groundwater Withdrawal Limits of Nonexempt Wells

Many well permits and Water Court decrees in Water Division No. 3 specify an average annual volumetric groundwater withdrawal limit but do not specify the period of time for determining the average annual volumetric groundwater withdrawal limit. For example, a well permit might contain an average annual limit of 200 acre-feet, but a water user could exceed 200 acre-feet every year for the foreseeable future if there is not some period of time that establishes an actual limit. Rule 16 provides that, if the well permit and/or decree do not specify a period of time for the annual limit to be based upon, this length of time is five years, so that an average annual limit of 200 acre-feet is a limit of 1,000 acre-feet every five years.

Rule 17: Effect of Rules

This Rule simply states that these Rules do not exempt groundwater use from any other requirements or rules.

Rule 18: Orders, Costs, and Attorney's Fees

This Rule provides that anyone who withdraws groundwater in violation of the Rules or a plan approved pursuant to the Rules will be subject to an Order (pursuant to section 37-92-502, C.R.S.) and may be subject to court proceedings and costs. After the Rules are effective, any groundwater withdrawals that are not made in accordance with the Rules will be illegal.

Rule 19: Severability

If any Rule, or part of a Rule, is found to be invalid, the remaining Rules still remain in full force and effect.

Rule 20: Process to Appeal a Decision under These Rules

This Rule outlines the process to appeal a decision under the Rules. Appeals will proceed under the State Engineer's procedural regulations (2 CCR 402-5). The intent of Rule 20 is to provide a timely and less expensive alternative to a person adversely affected by a decision of the Division Engineer or State Engineer.

Rule 21: Benchmarks/Phase-in

The State Engineer recognizes that Well Users need time to form Subdistricts and develop Groundwater Management Plans and Plans for Augmentation. Because these plans are subject to litigation, Well Users cannot know for certain how much time they will need to come into compliance with the Rules.

Rule 21 allows Well Users who will operate pursuant to Plans for Augmentation to continue to operate if they have filed an application in Water Court and are operating under approved Substitute Water Supply Plans within two years of the effective date of the Rules, and are diligently prosecuting the Plan for Augmentation. Rule 21 provides that Plans must contain terms sufficient to meet all of the applicable requirements of the Rules.

Rule 21 also sets out a timeline for Subdistricts to form and develop their Groundwater Management Plans. The first benchmark requires Subdistricts to have petitioned for their formation within one year of the effective date of the Rules.

Rule 21.2 contains provisions that apply only to certain entities that are legally precluded from joining a Subdistrict other than by contract. These entities may wish to include their wells in a Subdistrict by contract, but it is unlikely that Subdistricts in areas other than Subdistrict No. 1 will be operating under approved Groundwater Management Plans as of the effective date of

these Rules and therefore will not have the ability to enter into contracts. Rule 21.2 allows these entities additional time to enter into contracts with future Subdistricts.

Finally, Rule 21.3 provides that the State Engineer may extend deadlines for compliance with the Rules upon a showing of good cause. A Well User must demonstrate that it has diligently and in good faith attempted to comply with the Rules but has been unable to do so.

Rule 22: Notice

This Rule sets out the standard notice requirements for actions taken by the State Engineer pursuant to the Rules. The State Engineer must provide notice to interested Persons through an electronic mailing list and the DWR website, and provide documentation if requested. After providing notice the State Engineer must allow 35 days for comments before using or implementing the subject of the notice for purposes of the Rules.

Rule 23: Effective Date

This Rule sets the effective date of the Rules: 60 days after publication per section 37-92-501(10) (g), C.R.S. If protests are filed in the Water Court, the Rules will be stayed until all protests are resolved.

Rule 24: RGDSS Model, Lower Limit of Reliability, and Response Functions

This Rule explains the role of the RGDSS Model for purposes of the Rules. It also requires the State Engineer to notify interested Persons when his office makes significant changes to the RGDSS Model or Response Functions. If, in the future, the State Engineer determines that new technology should substitute the MODFLOW-based RGDSS Groundwater Model entirely, then the State Engineer must initiate an additional rulemaking in order to adopt the new technology.