THE COSTILLA CREEK COMPACT

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I. GEOGRAPHY AND HISTORY

The Costilla Creek watershed is located in the southeastern portion of the San Luis Valley in southern Colorado and northern New Mexico. The headwaters of Costilla Creek originate high in the Culebra Range of the Sangre de Cristo Mountains in southern Colorado at an elevation of 11,770 feet above sea level. The east and west forks of Costilla Creek flow approximately two miles in a southern direction before they converge near the Colorado/New Mexico state line. The creek then meanders thirty-three miles in a generally western semi-circle before turning north to Colorado in the San Luis Valley near the community of Garcia, Colorado. Continuing on its western path for another thirteen miles, Costilla Creek crosses the Colorado/New Mexico border for the third and final time before reaching the Rio Grande River in Taos County, New Mexico. Over its course of approximately fifty-one miles, the environment of Costilla Creek changes dramatically from an alpine forest of spruce and aspen, to vibrant agrarian lands in the valley, and eventually, to desert lands at its confluence with the Rio Grande River after a decline in elevation of 4400 feet.

Spanish military expeditions traversed the San Luis Valley in the eighteenth century, but the opening of the Santa Fe Trail in 1821 provided the impetus for migration into the area by "trappers, hunters, 'mountain men,' traders, and merchants . . . ."[1] One of the early

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settlers in the region was a French Canadian named Charles Beaubien who arrived in Taos in 1823 and subsequently became a prominent "merchant, [trader], landholder, and politician."[2] In 1841, Beaubien and Guadalupe Miranda petitioned the governor of the northern Mexican province for a grant of land east of Taos. The practice of granting large tracts of land by Spain and Mexico in the mid-nineteenth century was intended to promote settlement and to provide protection from raiding Apache, Navajo, Comanche, Ute, and other indigenous tribes in the northern provinces of Mexico at that time.

"[T]he Beaubien-Miranda Grant, subsequently known as the Maxwell Land Grant, was approved in 1841."[3] Beaubien became anxious to expand his landholding, but was legally precluded from applying for a second land grant. However, the provincial law did not preclude ownership by another family member, so on December 27, 1843, Beaubien's twelve-year-old son Narciso and a young American named Stephen Louis Lee who Charles Beaubien employed submitted a petition for an adjacent land grant to the north to the Mexican government.[4] Fifteen days later, on January 12, 1844, Governor Manuel Armijo approved the Sangre de Cristo Grant that encompassed over a million acres of land within the Trinchera and Costilla Creek watersheds in present day Costilla County in southern Colorado and Taos County, in northern New Mexico.[5] The elder Beaubien immediately began to administer the vast estate and prompted settlement by small groups along Costilla Creek that were quickly abandoned due to the constant threat of Indian attack.

Tragedy befell the Beaubien family early in the morning of January 19, 1847 when young Narciso, Stephen Lee, and others were killed in the governor's home in the Taos Rebellion.[6] Since Narciso was unmarried, Charles Beaubien inherited his share of the grant and purchased Lee's half-interest for one hundred dollars and became the sole owner of the grant on May 4, 1848.[7] Coincident with settlement activities on the Sangre de Cristo Grant, war broke out between the Mexican Republic and the United States in May 1846. Wishing to "put an end to the calamities of war" that existed, representatives of the two

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1. 1 HERBERT O. BRAYER, A CASE STUDY IN THE ECONOMIC DEVELOPMENT OF THE WEST, WILLIAM BLACKMORE: THE SPANISH-MEXICAN LAND GRANTS OF NEW MEXICO AND COLORADO, 1863-1878, at 59 (1949).
2. *Id.* at 60.
3. *Id.*
4. *Id.* at 60-61.
5. *Id.* at 61.
6. 1 BRAYER, *supra* note 1, at 62.
7. *Id.* at 63.

Republics constructed an accord of peace known as the Treaty of Guadalupe Hidalgo on May 30, 1848.[8] Article VIII of the Treaty provided for formal recognition and full protection of the private rights and titles of land grants ceded by Mexico to owners in the United States.[9] Seeking confirmation of his interests by the new government, Charles Beaubien filed a petition to the Surveyor General of New Mexico. On June 21, 1860, Congress accepted the Surveyor General's recommendation and confirmed ownership of the Sangre de Cristo grant to Beaubien.[10]

Promotion of settlement in the Sangre de Cristo Grant continued, and a small group of settlers on Costilla Creek in New Mexico established the first successful colony on the land grant in 1848.[11] It was located approximately one-half mile south of the Colorado-New Mexico state line near the present-day community of Garcia, Colorado. Settlement expansion soon spread to the northern portion of the grant. The San Luis colony, a product of this settlement, was established in 1851 on the Culebra River, located approximately sixteen miles to the north. It retains the distinction of being the oldest continuously inhabited town in Colorado.[12] Although development was slowly progressing in the Sangre de Cristo land grant, its ownership soon appeared to become a significant financial liability to Charles Beaubien because there was minimal discernable income from the land and the United States made overtures to impose a tax assessment on land grants.[13] Seeking to limit his exposure and capitalize upon his holdings, Beaubien segmented the grant into one-sixth interests and conveyed three of those interests to three of his associates in 1853.[14] Upon learning that William Gilpin, the first Territorial Governor of Colorado, had purchased one of the one-sixth land interests in 1862, Beaubien quickly arranged to meet him and offered to sell his remaining one-half interest in the land grant. By September 1864, Gilpin completed the purchase of five-sixths of the land grant for a total of $41,000, or approximately four cents per acre.[15]

Gilpin shared the same fear of a potential land tax burden and was determined to sell his interests for a handsome profit. On January 10, 1865 Gilpin conveyed a "[9/24ths] interest in the land grant for $162,000" to an easterner who had recently settled in the Southwest named Morton Coates Fisher.[16] Four months later Fisher bought

8. Treaty of Guadalupe Hidalgo, May 30, 1848, U.S.-Mex., 9 Stat. 922.
9. *Id.* art. VII.
10. 1 BRAYER, *supra* note 1, at 63 & n.12.
11. *Id.* at 64.
12. Martha Quillen, *Mexican Land Grants in Colorado,* COLO. CENT. MAG., Dec. 2001, at 19.
13. 1 BRAYER, *supra* note 1, at 64.
14. *Id.* at 64-65.
15. *Id.* at 65.
16. *Id.* at 68.

another 5/24ths interest for $90,000.[17] In June 1868, Fisher and his associates incorporated the Colorado Freehold Land Association and published a pamphlet designed to attract foreign investment.[18]

To assist them in their promotion of the Sangre de Cristo land grant, one of Fisher's associates enlisted the expertise of an English solicitor, capitalist, and speculator named William Blackmore. Late in 1868, Blackmore befriended the noted explorer and government geologist Dr. Ferdinand V. Hayden and arranged for Hayden to accompany him in an investigation of the Sangre de Cristo grant in order to conduct a geological survey of its lands and resources.[19] Hayden was recognized in Europe and America for the quality and integrity of his surveys in the West and Blackmore realized the valuable contribution a positive assessment by Hayden would have in promotion of the grant. Upon investigation and survey of the land and its waters, on December 5, 1868 Professor Hayden reported:

> The land embraced in the Sangre de Cristo Grant forms the eastern and southern portions of [the San Luis] valley, and is by far the finest agricultural district I have seen west of the Missouri River.
>
> The water is very fine, and quite equally distributed over the surface of the grant, so that it might all be divided into arable and pastoral land.[20]

After his exploratory investigation of the grant, Blackmore advised the principals of the Colorado Freehold Land Association it was necessary to offer high dividends in a capitalized land company promoting land emigration and stock raising in order to attract foreign investments to the American frontier.[21] The owners of the land grant agreed with Blackmore and subsequently partitioned the grant into two land areas that corresponded to the natural watershed and formed a separate land company for each under Colorado territorial law.[22] The northern portion became the Trinchera Estate and the southern was called the Costilla Estate.[23] Foreign bankers remained hesitant to invest in the land company due to a concern that a federal act by Congress might nullify Colorado territorial law.[24] To alleviate the concerns of foreign investors, principals of the land companies successfully lobbied Congress to pass an act incorporating the United States Freehold Land and Emigration Company ("U.S.

17. *Id.*
18. 1 BRAYER, *supra* note 1, at 76.
19. *Id.* at 72-73.
20. WILLIAM BLACKMORE, COLORADO: ITS RESOURCES, PARKS, AND PROSPECTS AS A NEW FIELD FOR EMIGRATION; WITH AN ACCOUNT OF THE TRENCHERA AND COSTILLA ESTATES, IN THE SAN LUIS PARK 197, 199 (1869).
21. 1 BRAYER, *supra* note 1, at 76.
22. *Id.* at 76.
23. *Id.*
24. *Id.* at 82.

Freehold") on July 8, 1870.[25] Six days later, on July 14, the owners deeded Costilla Estate from Colorado Freehold Land Association to the U.S. Freehold.[26] Soon thereafter, the tenuous negotiations with foreign investors bore success and the Dutch investment banking house of Wertheim and Gompertz of Amsterdam purchased the Costilla Estate for $1,000,000 in company bonds for $500,000, with company stock divided among those assisting in the promotion.[27]

Secure with the safe deposit of Dutch investment money, Blackmore and Fisher turned their attention toward organizing settlement and development of the Costilla Estate.[28] However, local residents dissented and vocally opposed the development plans for the Costilla Estate by Gilpin, Fisher, and the other shareholders of U.S. Freehold.[29] In the intervening years between settlement of the original colonies and consummation of foreign investments, a considerable number of migrants settled on the best agricultural lands adjacent to Costilla Creek.[30] The local residents constructed ditches to convey precious water supplies and used the bounty of forest and other natural resources with no interference from Gilpin or other U.S. Freehold investors.[31] After two decades of almost undisputed use of the Sangre de Cristo Grant, the settlers claimed ownership of the land and water supplies based upon a promise by Charles Beaubien to deed them the small tracts of land they had settled.[32] The foremost obstacle facing the land grant residents was an inability to legally prove their ownership or dispute the land company's title, which had a chain of title dating to the 1860 congressional confirmation act.[33]

Led by a fellow settler named Ferdinand Meyer, residents of the Costilla Creek Valley challenged U.S. Freehold's development plans.[34] Despite operating under a perceived fear of ejection from the land as illegal squatters, the united opposition of Meyer and the other settlers achieved a measure of success by dampening the attractiveness for investment by new settlers in the land development and colonization program.[35] As a conciliatory compromise, Blackmore and Gilpin met with the local citizens' committee on October 4, 1871 and offered to give quit claims to the small home tracts of the original settlers, but refused to recognize the right of the settlers to cut wood or allow their

25. Act of July 8, 1870, ch. 224, 16 Stat. 192 (incorporating U.S. Freehold Land & Emigration Company); 1 BRAYER, *supra* note 1, at 82-83, 85.

26. 1 BRAYER, *supra* note 1, at 87.

27. *Id.* at 91; *See also* 2 HERBERT O. BRAYER, A CASE STUDY IN THE ECONOMIC DEVELOPMENT OF THE WEST, WILLIAM BLACKMORE: EARLY FINANCING OF THE DENVER & RIO GRANDE RAILWAY AND ANCILLARY LAND COMPANIES, 1871-1878, at 41 (1949).

28. 1 BRAYER, *supra* note 1, at 95-96.

29. *Id.* at 107.

30. *Id.* at 107-08.

31. *Id.*

32. *Id.* at 107.

33. 1 BRAYER, *supra* note 1, at 108-09.

34. *Id.* at 108.

35. *Id.* at 109.

livestock to graze on the grant.[36] An impasse ensued for a number of years until U.S. Freehold took a different tact to remove the troublesome settlers by seeking judicial relief through the courts to dry up their irrigation water supplies.[37]

On June 10, 1890, U.S. Freehold filed a bill of complaint against Ferdinand Meyer seeking to enjoin him and others from diverting water from Costilla Creek in the Acequia Madre Ditch for irrigation of farmlands.[38] In their petition to the court, U.S. Freehold argued "that said defendant and his confederates are not entitled to any water from said stream for said purposes."[39] The Circuit Court for the District of Colorado heard the complaint in May 1897.[40] It found in favor of defendant Meyer and sustained the demurrer to the bill of complaint in addition to dismissing the bill at the plaintiff's cost.[41] U.S. Freehold immediately appealed to the United States Circuit Court of Appeals for the Eighth Circuit in St. Louis, Missouri.[42] The court of appeals reversed the finding of the lower court, and enjoined Meyer from diverting any portion of Costilla Creek through the Acequia Madre Ditch or any other means for irrigation in the State of Colorado.[43]

However, the court victory for U.S. Freehold was hollow and short-lived due to the impending twin pillars of economic collapse to the company: negligible revenue and increasing tax delinquency.[44] Unable to meet its property tax burdens, U.S. Freehold sold its interests in 1902 to the Costilla Land and Investment Company.[45] Approximately six years later in 1908, the Costilla Estate Development Company ("Development Company") bought the 500,000 acre Costilla Estate, who transferred its water rights to the San Luis Power and Water Company ("Water Company") in 1909.[46] Franklin E. Brooks was president of both the Development Company and the Water Company in 1908, and orchestrated a plan to promote colonization through the sale of land from the Development Company and contract for water from the Water Company.[47]

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36. *Id.* at 109-10.

37. *See* Plaintiff Complaint at 1, 6, U.S. Freehold Land & Emigration Co. v. Meyer (C.C.D. Colo. filed in 1890).

38. *Id.* The Acequia Madre Ditch is recognized as the first water conveyance structure built in the Costilla Creek watershed. In the original water court adjudication for Costilla Creek in Colorado on June 14, 1889, the Acequia Madre was granted 22.5 cubic feet per second to irrigate 900 acres of land in Colorado and retains an April 1, 1853 appropriation date.

39. *Id.* at 6.

40. U.S. Freehold Land & Emigration Co. v. Meyer, No. 2551 (C.C.D. Colo. 1897).

41. *Id.*

42. *See* Stipulation, U.S. Freehold Land & Emigration Co. v. Meyer, No. 2551, (C.C.D. Colo. 1899) (referring case to the U.S. Circuit Court of Appeals for the Eighth District in St. Louis, MO.).

43. *See* U.S. Freehold Land & Emigration Co. v. Meyer, No. 2547, at 1-2 (C.C.D. Colo. June 9, 1899).

44. 1 BRAYER, *supra* note 1, at 123.

45. *Id.*

46. DUANE D. HELTON, GARCIA WATER PROBLEMS 5 (1974).

47. *Id.* at 5.

In contrast to the land developers' frustrations, independent settlement and farming activities continued to progress in the southeastern portion of the San Luis Valley. In addition to the Acequia Madre Ditch, Manzanares, Acequiacita, Madrilles, Chalifu, Trujillo, and Garcia Ditches were constructed to divert and apply Costilla Creek water for irrigation of lands in Colorado and New Mexico from 1854 through 1873.[48] A short distance to the north, similar irrigation development occurred as evidenced by the 1852 construction of the San Luis Peoples Ditch that diverted water from the Culebra River.[49]

Mormon pioneers were the first to initiate reservoir construction in the area beginning in 1890.[50] They constructed Eastdale Reservoir No. 1 in the valley floor approximately seven miles northwest of present-day Garcia, Colorado and Eastdale Reservoir No. 2 a few miles upgradient on the same ephemeral draw.[51] The Mormons built the reservoirs with the intent to capture the temporal abundance of spring runoff for subsequent irrigation of farmlands later in the summer months. The source of water supply to both off-channel reservoirs was streamflow conveyed from either the Culebra River or Costilla Creek through filler ditches.[52] Discouraged by the short water supply, the Mormon pioneers moved east to Manassa, Colorado and sold their interest in the Eastdale Reservoir system.[53]

Coincident with the acquisition of the water rights from the Development Company in 1909, the Water Company also acquired the Eastdale Reservoir system, the Sanchez Reservoir project located on the Culebra River, and the Acequia Madre, Manzanares, and Madriles Ditch direct flow water rights.[54] The owners of the Development Company and Water Company could now promote development of their land holdings and also sell irrigation water from both the Culebra and Costilla watersheds to their anticipated clients.[55]

In approximately 1914, land reclamation in the Jaroso area in southern Colorado began to expand and the market for water supply contracts increased. Unfortunately, the limited amount of water available in the Water Company's direct flow water rights portfolio,

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48. *Id.* at attachment 2. Notice the original direct flows decrees in the Costilla Garcia Area as adjudicated in Colorado on June 14, 1889, and New Mexico on December 2, 1911. *Id.*

49. *See* COLO. WATER DIV. III, WATER RIGHTS REPORT 130 (2002).

50. Andrew Jenson, *The Founding of Mormon Settlements in the San Luis Valley, Colorado*, 17 THE COLO. MAG. 174, 179 (1940).

51. *See* COLO. WATER DIV. III, *supra* note 49, at 61. Through subsequent enlargements in 1908 and supplemental decreed priorities of February 11, 1935, Eastdale Reservoir No. 1 had an aggregate storage of 3468 acre-feet and Eastdale Reservoir No. 2 had 3041 acre-feet of capacity. *Id.* An acre-foot of water is equal to the volume of water covering one acre, or 43,560 square feet, to a depth of one foot.

52. *Id.*; R.J. TIPTON, COSTILLA RESERVOIR INVESTIGATION 2 (1941) (unpublished report prepared for the Colorado Water Conservation Board, on file with author).

53. HELTON, *supra* note 46, at 5.

54. *Id.*

55. *Id.*

and the excessive conveyance losses to water delivered through the Eastdale Reservoir system, created a supply deficit that could not satisfy the promising new demands. To supplement their water supplies, the Water Company sought to construct a new storage vessel high in the mountains on Costilla Creek.[56] On August 29, 1911, the Water Company filed an application with the New Mexico Territory Engineer to build Costilla Reservoir approximately ten miles above the community of Costilla.[57] The Territory Engineer of New Mexico approved the permit on April 8, 1912 with the following language:

> This is to certify that I have examined the within application for a permit to appropriate the public waters of the Territory of New Mexico, and hereby approve the same. This application is approved subject to all prior valid rights to the use of water of this steam system including those acquired by beneficial use on the Costilla and tributaries as set forth in decisions of the courts; also, provided the total amount that can be appropriated through this permit shall not be in excess of 20,750 acre-feet per annum, applicant, however, may appropriate in addition not to exceed 10,000 acre-feet per annum of water, which may be conserved by a proper distribution and beneficial use of the quantity being diverted by those specified in the court decrees above mentioned.[58]

Costilla Reservoir is located high in a canyon approximately sixteen miles southeast of the community of Costilla at an elevation of 9300 feet above mean sea level in Taos County, New Mexico.[59] The Water Company completed construction of the reservoir in 1920 and the structure stored 15,000 acre-feet from a drainage basin of 54.6 square miles.[60] The new storage vessel provided the means to capture temporal snowmelt in the spring months and also afforded a mechanism to control releases from the reservoir into Costilla Creek. As a result, the principals of the Water Company turned their attention to building a conveyance structure to deliver water to the increasing irrigation demand in the Jaroso area in Colorado.[61] On January 30, 1920, the Water Company filed an application with the State Engineer of New Mexico for permission to construct a water conveyance structure referred to as the Cerro Ditch.[62] The New

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56. *See* TERRITORY OF NEW MEXICO, APPLICATION FOR PERMIT, NO. 599 (1911) [hereinafter APPLICATION NO. 599]; TIPTON, *supra* note 52, at 2.

57. APPLICATION NO. 599, *supra* note 56.

58. *Id.* at 2. The application claimed the project would have an estimated cost of $280,000 and provided domestic and irrigation water to 27,430 acres. *Id.* at 1.

59. U.S. GEOLOGICAL SURVEY, WATER RESOURCES DATA: NEW MEXICO: WATER YEAR 2000, at 71 (2000) [hereinafter USGS].

60. *Id.*; *See* TIPTON, *supra* note 52, at 2.

61. APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEW MEXICO, No. 1360 (1920).

62. *Id.* New Mexico subsequently consolidated permit nos. 599 and 1360 and referred to them as the Costilla Reservoir Project with intent to provide adequate water supplies to irrigate 24,335 acres of land. The terms Cerro Ditch and Cerro Canal are interchangeable and refer to the same water conveyance structure.

Mexico State Engineer approved the permit on January 19, 1921 and it contained the standard caveat protecting the rights of prior appropriations, but also included the restrictive proviso that said:

> [W]aters herein above approved for the use of irrigation of the land under this project shall be used only on lands situated within the boundaries of the State of New Mexico as per the filing map attached to application for Permit No. 1360 and on file in this office, and shall include the waters covered by Permit No. 599, and Permit and this application being considered jointly herein.[63]

The Water Company completed the Cerro Ditch in 1922, with the headgate located on Costilla Creek less than one mile upstream of the community of Costilla. It flows in a general northwesterly direction to deliver irrigation water to the Association Ditch and others that serve lands in New Mexico, and to the Jaroso area in Colorado. Subsequent to completion of Costilla Reservoir and Cerro Ditch, the Water Company employed the practice of ascribing the initial storage of water in Costilla Reservoir under the senior priorities of the Eastdale Reservoirs, and holding that water high in the system until the irrigation demand prompted a controlled release from Costilla Reservoir. The reservoir releases flowed downstream and were diverted at the Cerro Ditch for delivery to the Eastdale Reservoirs. This continued practice made effective use of the proximity and additional storage capacity of Costilla Reservoir while using the Eastdale Reservoirs as regulating structures to prudently conserve and manage available Costilla Creek water supplies.

The diversion and application of Costilla Creek waters that began in the spring of 1853 continued until the limited and fleeting waters had been fully appropriated by 1873.[64] Seeking to confirm their water rights, water users in Colorado received court adjudications for a total of 70.50 cubic feet per second in seven ditches to irrigate 2767 acres.[65] Similarly, New Mexico courts awarded 28.475 cubic feet per second in nine ditches to irrigate 2278 acres.[66] The combined direct flow decreed amount for the Costilla Creek system under the early decrees was 98.975 cubic feet per second to irrigate 5045 acres below the mouth of Costilla Canyon.[67]

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63. Lindsey v. McClure, 136 F.2d 65, 67 (10th Cir. 1943). The Cerro Ditch capacity requested in the application for Permit No. 1360 was for 277.9 cubic feet per second. According to Steven E. Vandiver, Division III Engineer, the current sustainable operating capacity is approximately 120 cubic feet per second.

64. J.H. BLISS & T.G. SPANNAGEL, INVESTIGATIONS OF COSTILLA RIVER INCLUDING IN APPENDIX EARLY IRRIGATION DEVELOPMENT OF COSTILLA RIVER AND ITS EFFECT ON THE COSTILLA RESERVOIR PROJECT 1 (1941) (unpublished report prepared for the State of New Mexico, on file with author).

65. *Id.*

66. *Id.*

67. *Id.* at 11. The Colorado ditches include: Acequia Madre, Manzanares, Acequiacita, Madrilles, Chalifu, Trujillo, and Garcia Ditches. HELTON, *supra* note 46, at attachment 2. The New Mexico Ditches include: Acequia Madre, Cerrito, Manzanares, Plaza de Arriba, Plaza del Medio, A.J. Arellano & Sons, M.E. Trujillo,

Settlement activities and associated agricultural development continued to progress in the Costilla Creek watershed, particularly in the Jaroso community in Colorado. By the advent of World War II, approximately 5126 acres were being irrigated in Colorado and another 4978 acres in New Mexico for a total of 10,104 acres by direct streamflow decrees and reservoir storage.[68] According to a statement made by receiver Malcolm Lindsey for the Water Company, in the two decades after construction of Costilla Creek Reservoir, the Water Company had expanded its service area and was providing water under contract to 135 of the 4978 acres of irrigated land in New Mexico.[69] In Colorado, the Water Company exercised its full range of water delivery options and provided irrigation water under contract to 440 acres through its direct flow decrees, 1032 acres under the Eastdale Reservoir system, and another 2654 acres in the Jaroso community.[70]

II. GENESIS OF THE COSTILLA CREEK COMPACT

With intent to continue expanding its water service contracts and revenue, the Water Company made periodic applications to the New Mexico State Engineer seeking extensions of time to fully develop its allocation under Permits 599 and 1360 for the Costilla Reservoir Project.[71] Beginning in 1924, statements and affidavits from representatives of the Water Company were included with these applications that proposed the temporary use of water from the Costilla Reservoir Project on lands other than those specified in the original Permits 599 and 1360.[72] On April 27, 1937, New Mexico State Engineer Thomas McClure expressed concern in a letter to the Water Company that the permits only authorized use of Costilla Reservoir Project water upon New Mexico lands only, and New Mexico considered use of the water in Colorado only temporary.[73] In the period from 1918 to 1935, the New Mexico State Engineer's Office imposed no restrictive conditions on the approved extensions of time to limit water deliveries to New Mexico lands.[74]

Penasquito, and J.M. Alires Ditches. *Id.* The Acequia Madre and Manzanares Ditches divert water from Costilla Creek in New Mexico, but serve irrigated lands in both states and were awarded decrees in both states. *Id.*

68. TIPTON, *supra* note 52, at 2. In 1941, Costilla Creek Reservoir had 15,000 acre-feet of storage capacity and Eastdale Reservoir No. 1 had a usable capacity of 2000 acre-feet. Eastdale Reservoir No. 2 leaked and was considered inoperable because it was unable to retain water within the storage vessel.

69. BLISS & SPANNAGEL, *supra* note 64, at 11.

70. *Id.* at 9.

71. Lindsey v. McClure, 136 F.2d 65, 68, n.2 (10th Cir. 1943). Requests for extensions of time for Permit No. 599 to the New Mexico State Engineer were dated: January 16, 1918, March 12, 1919, January 25, 1924, March 19, 1926, January 28, 1929, April 7, 1931, April 20, 1933, April 6, 1935, May 6, 1937, July 7, 1938, November 13, 1940; and under Permit No. 1360 were dated: January 25, 1924, January 28, 1929, April 7, 1931, April 20, 1933, April 6, 1935, May 6, 1937, July 7, 1938, and November 13, 1940.

72. *Id.* at 68.

73. *Id.*

74. *Id.*

The Water Company filed applications for extensions to the permits on May 6, 1937, however the engineer's office did not act promptly acted upon then and the Water Company refiled on July 7, 1938.[75] For the first time, the New Mexico State Engineer conditioned his approval of the 1938 applications to use water from Costilla Creek on New Mexico lands only.[76] On August 31, 1940, he issued the following order:

> That the San Luis Water and Power Company cease storing in the Costilla Reservoir in the state of New Mexico all Eastdale Reservoir No. 1 and Eastdale Reservoir No. 2 water, storage for which is in the State of Colorado.
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> That water for the Eastdale Reservoir No. 1 and the Eastdale Reservoir No. 2 shall not be diverted through any canals with headgates in New Mexico.
>
> That stored water in the Costilla Reservoir released shall be used only on lands in the State of New Mexico, and under no conditions shall be delivered to lands in the State of Colorado.[77]

On behalf of the Water Company, Malcolm Lindsey filed an action with the Federal District Court in New Mexico seeking to enjoin the State Engineer of New Mexico from enforcing his order.[78] The Federal District Court of New Mexico sustained State Engineer McClure in his motion to dismiss the suit.[79] Lindsey appealed the case to the United States Tenth Circuit Court of Appeals.[80] Impressed by the complexity of the issues in the case, the court suggested the parties attempt to negotiate a compact to resolve the matter. Representatives for the State of Colorado, State of New Mexico, and the Water Company were receptive to counsel offered by the court, and the court granted a petition for a stay in the proceedings to give time to construct an interstate compact to allocate and administer the waters of Costilla Creek.[81]

The States held the first meeting of the Costilla Creek Compact Committee was held in September 1941 in Santa Fe, New Mexico[82] with intent to construct an interstate compact to equitably allocate and administer the limited water supplies of Costilla Creek.[83]

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75. *Id.*
76. *Lindsey*, 136 F.2d at 68.
77. *Id.* at 69.
78. *Id.* at 66.
79. *Id.*
80. *Id.*
81. N.M. OFFICE OF THE STATE ENG'R, COSTILLA CREEK COMPACT, ROUGH DRAFT REPORT ON NEGOTIATIONS, PURPOSES, AND INTENT OF THE COMPACT 4 (1944).
82. *Id.*
83. *See generally* U.S. CONST. art. I, § 10, cl. 3; Felix Frankfurter & James M. Landis, *The Compact Clause of the Constitution – A Study in Interstate Adjustments*, 34 YALE L.J. 685 (1925).

Representatives for Colorado included: Judge Clifford H. Stone, Director of the Colorado Water Conservation Board; Royce J. Tipton, Consulting Engineer; and L.H. Larwill and T.C. McPherson, Attorney and Manager respectively for the Water Company.[84] New Mexico was represented by: State Engineer, Thomas M. McClure; Attorney, A. T. Hannet; and staff engineers for the New Mexico State Engineer's Office, John H. Bliss and T. G. Spannagel.[85] Mr. Tipton and Mr. Bliss, as designated Engineer Advisers for their respective states, provided a general briefing of the water rights, reservoir storage, and irrigation practices in existence at that time.[86] Tipton provided a statement of five conditions he regarded to be a fair basis to construct the compact upon:

1. Recognize direct flow rights on a parity basis.
2. Consider the balance of the system as a unit without regard to states.
3. Recognize present irrigation development in Colorado and New Mexico.
4. Consider an additional acreage in New Mexico (which he found to be about 2000 acres based upon the available water supply) as subject to receiving a firm water supply from Costilla Reservoir.
5. Consider an additional 2000 to 3000 acres as irrigable in years of high flows after all above lands had been supplied with water.[87]

After further discussion, members of the committee determined that additional studies were warranted to determine the probable acreage that could be irrigated in New Mexico under Permit Numbers 599 and 1360 after fully meeting the demands of all prior water rights on Costilla Creek in both states.[88]

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84. Minutes, Record of the First Meeting of Costilla Creek Compact Commission, Santa Fe, N.M. 1 (Sept. 22-23, 1941).

85. *Id.* Clifford Stone and Thomas McClure were designated as Compact Commissioners for Colorado and New Mexico, respectively.

86. *Id.*

87. *Id.* at 3. In the water right adjudications in Colorado, the court based the flow amount on a duty of water of one cubic feet per second to irrigate forty acres, except for ditches serving small acreages that were granted a minimum of one cubic feet per second to provide adequate flow/hydraulic energy for reasonably efficient irrigation. The New Mexico courts based their adjudication on a duty of water of one cubic feet per second to irrigate eighty acres of land. The Costilla Creek Compact Committee adjusted the Colorado water rights to the one cubic feet per second per eighty acres standard (except for those small ditches that retained their minimum one cubic feet per second allocation) for an equitable allocation of water to all lands in the Costilla Creek watershed.

88. *Id* at 3-4. The Commission directed the Engineer Advisers to base the studies assuming:

> that storage of water in the Eastdale reservoir to supply the Eastdale lands be limited to 3468 acre-feet; (2) that of this 3468 acre-feet of available storage 1000 acre-feet be assumed as being supplied from Culebra through the Culebra-Eastdale canal; (3) that the remaining 2468 acre-feet of storage in Eastdale reservoir be supplied from Costilla Creek, if and when available; (4) that the direct flow rights on the Costilla Creek be operated as decreed; (5)

Coincident with the compact negotiations, the Tenth Circuit Court of Appeals heard *Lindsey v. McClure*, and on May 24, 1943, rendered its decision on the appeal brought by the Water Company.[89] The court premised its opinion upon two legal interpretations. First, it reiterated that a "water right is a property right and inherent therein is the right to change the place of diversion, storage, or use of the water if" the interests of other water right owners are not injured.[90] Second, the water statutes of Colorado and New Mexico carry no extraterritorial effect or jurisdiction over the other in terms of judicial or administrative authority.[91] In its decision, the court recognized that Colorado adjudicated Eastdale Reservoir water rights, but also that the Water Company had indeed changed the points of diversion, storage, and use of water to Costilla Reservoir in order to better apply the water available under those priorities to beneficial use.[92] The court found it permissible to divert the water from Costilla Creek and convey it to irrigate lands through the Cerro Ditch, so long as the diversion did not adversely impact the rights of other water users.[93] In support of its finding, the court acknowledged that both Colorado and New Mexico apply the doctrine of prior appropriation as a basic premise of water law to administer and distribute tributary water supplies.[94] As to the administration of water right priorities in different states that share the same stream, the court "upheld the cardinal rule of the doctrine – that the priority of appropriation, [not location,] gives superiority of right."[95] The Tenth Circuit Court of Appeals held that the Water Company was entitled to change the place of diversion and storage regarding water rights adjudicated to the Eastdale Reservoirs to points within New Mexico, so long as the change would not be injurious to the rights of other water users in the Costilla Creek system.[96] Thus, the case was remanded back to the lower court for a new trial.[97]

Subsequent Costilla Creek Compact Committee meetings and progressive hydrologic investigations by the Engineer Advisers continued until the fifth and final meeting in Santa Fe on February 7, 1944.[98] The Chairman of the meeting, Judge Fred E. Wilson, commenced the meeting with a summary of the events and litany of actions that preceded the pending lawsuit by the Water Company,

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> that the irrigation season be considered as extending from May 15th to September 30th of each year; [and] (6) that the Jaroso area be omitted in the determination of the total acreage irrigable under the above permits.

Id. at 4.

89. Lindsey v. McClure, 136 F.2d 65 (10th Cir. 1943).
90. *Id.* at 70.
91. *Id.*
92. *Id.*
93. *Id.* at 71.
94. *Lindsey*, 136 F.2d at 69.
95. *Id.*
96. *Id.* at 70.
97. *Id.* at 65.
98. Minutes, Record of the Fifth Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 1 (Feb. 7-8, 1944).

which sought to enjoin the order by the New Mexico State Engineer.[99] Judge Wilson provided incentive to the gathering by reminding those in attendance that the case on remand to the New Mexico Federal District Court was set for hearing the next day, February 8th, unless the Costilla Creek Compact Commission could demonstrate definite progress toward agreement.[100]

Judge Wilson then called upon Royce Tipton to review the engineering features and substantial points of agreement reached to that point by the Commissioners contained within a proposed compact draft.[101] The meeting then focused on a set of seven different conditions or assumed methods of operation that were prepared by the Engineer Advisers that were to form the basis for operating the compact.[102] After prolonged and lively debate, Engineer Adviser Tipton explained "Condition F" required all lands under the Costilla Reservoir system to be operated on a parity basis, which provided the best and most economical alternative.[103] Commissioners and representatives from both states consulted with their respective constituents and adopted the recommendation of the Engineer Advisers, and as a result, Condition F became the operational basis for the compact. Upon adjournment of the meeting, representative attorneys were instructed to draft a petition to the court asking the case on remand be held in abeyance until a compact could be completed and approved by the legislative bodies of both states and the United States and to draft a compact that was based upon the studies and terms agreed upon by the compact committee.[104] Seven months and several draft iterations later, Commissioners Stone and McClure signed the Costilla Creek Compact on September 30, 1944 in Santa Fe, New Mexico.[105] Both states subsequently ratified the compact and Congress approved it in 1946.[106]

Courts have often prompted adjacent states in dispute over a shared river to pursue a mutually acceptable resolution that would equitably allocate and administer the precious water resources through a negotiated compact, as opposed to contentious litigation that concludes in a judicial decision by an individual who typically has

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99. *Id.* at 2.
100. *Id.*
101. *Id.* at 1.
102. *Id.* at 7.
103. Minutes, Record of the Fifth Meeting, *supra* note 98, at 11. The basic data on Costilla Reservoir Operations in 1943 for Conditions A-G was: Costilla Reservoir permanent capacity 11,000 acre-feet; 2600 acres of Jaroso colony lands in Colorado; 5000 acres Costilla Reservoir lands in New Mexico. Condition F operations are: 37 second feet (cubic feet per second) remaining private direct-flow rights operating in order of priority; 1000 acre-feet to Eastdale Reservoir; 27 second feet company-owned rights in Colorado and New Mexico in order of their priority turned back to the stream for use on Costilla Reservoir lands. All Costilla Reservoir System lands and Jaroso lands operated on a parity basis.
104. *Id.* at 18.
105. Costilla Creek Compact, Pub. L. No. 408, 60 Stat. 246 (June 11, 1946).
106. *Id.*

little personal familiarity with the river or its use. The Costilla Creek Compact serves as a unique genesis of an administrative action by a state government official and a privately held water development company.

III. WATER ALLOCATION SYSTEM

The foundation for administering water rights under the Costilla Creek Compact was application of the doctrine of prior appropriation. In designing an instrument to equitably distribute water supplies from an interstate river, the negotiating parties to the compact were fully aware of the guidance provided by the United States Supreme Court's seminal decision in *Wyoming v. Colorado*.[107] In that landmark case, the Court held that when neighboring states share an interstate river, and both employ the prior appropriation doctrine within their respective boundaries to administer water rights, the principle is no less applicable to interstate streams and controversies.[108]

Pursuant to Article IV of the Compact:

> [t]he apportionment and allocation of the use of Costilla Creek water shall be as follows:
>
> (a) There is allocated for diversion from the natural flow of Costilla Creek and its tributaries sufficient water for beneficial use on meadow and pasture lands above Costilla Reservoir in New Mexico to the extent and in the manner now prevailing in that area.
>
> (b) There is allocated for diversion from the natural flow of Costilla Creek and its tributaries thirteen and forty-two hundredths (13.42) cubic feet of water per second of time for beneficial use on lands in the Amalia Area in New Mexico.
>
> (c) In addition to allocations made in subsections (e), (f) and (g) of this Article, there is allocated for diversion from the natural flow of Costilla Creek fifty and sixty-two hundredths (50.62) cubic feet of water per second of time for Colorado and eighty-nine and eight hundredths (89.08) cubic feet of water per second of time for New Mexico, subject to adjustment as provided in Article V (e), and such water shall be delivered for beneficial use in the two states in accordance with the schedules and under the conditions set forth in Article V.
>
> (d) There is allocated for diversion from the natural flow of Costilla Creek sufficient water to provide each year one thousand (1,000) acre-feet of stored water in Eastdale Reservoir No. 1, such water to be delivered as provided in Article V.
>
> (e) There is allocated for diversion to Colorado thirty-six and five-tenths per cent (36.5%) and to New Mexico sixty-three and five-tenths per cent (63.5%) of the water stored by Costilla Reservoir for

107. 259 U.S. 419 (1922).
108. *Id.* at 465.

> release therefrom for irrigation purposes each year, subject to adjustment as provided in Article V (e) and such water shall be delivered for beneficial use in the two states on a parity basis in accordance with the provisions of Article V. By "parity basis" is meant that neither state shall enjoy a priority of right of use.
>
> (f) There is allocated for beneficial use in each of the states of Colorado and New Mexico one-half of the surplus water, as defined in Article II (p), to be delivered as provided in Article V.
>
> (g) There is allocated for beneficial use in each of the states of Colorado and New Mexico one-half of any water made available and usable by additional storage facilities which may be constructed in the future.[109]

Article V of the Compact entails "the operation of the facilities of Costilla Creek and [water delivery] for the irrigation of land in Colorado and New Mexico" in accord with the preceding Article IV.[110] Contained within the Article is a tabulation entitled *Deliveries of Direct Flow Water to Colorado During Irrigation Season* that provides a definitive allocation of the amount of Costilla Creek streamflow measured at the canyon mouth that shall be delivered by New Mexico to Colorado.[111] Subsequent narrative in the Article provides additional instruction for water delivery, with particular emphasis on the amount delivered and the schedule for storage releases within the Costilla Reservoir System.[112]

Article VIII of the Amended Costilla Creek Compact vested the two State Engineers with the authority for administration of the waters in Costilla Creek.[113] To properly distribute the natural streamflows and releases from reservoir storage to water users in accord with the priority system, it was necessary to have an accurate daily measurement of water throughout the Costilla Creek watershed. Cognizant of that need, the authors of the Compact included within Article VIII the provision for the United States Geological Survey ("USGS") to collaborate with the Costilla Creek Compact Commission ("Commission") to conduct streamflow measurements, provide daily flow information at eight locations in the Costilla Creek Basin, and publish annual water reports necessary for the proper administration

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109. Amended Costilla Creek Compact, COLO. REV. STAT. art. IV, § 37-68-101 (2002), Act of Dec. 12, 1963, Pub. L. No. 88-198, 77 Stat. 350. The amended Costilla Creek Compact reflected a transfer of 5.08 cubic feet per second of water from the Colorado allocation of the Acequia Madre Ditch to the Cerro Canal by resolution of the Costilla Creek Compact Commission on May 2, 1962. Commissioner J.E. Whitten for Colorado and Commissioner S.E. Reynolds for New Mexico signed the Amended Costilla Creek Compact in Santa Fe, New Mexico on February 7, 1963.

110. *Id.* art. V, 77 Stat. at 354.

111. *Id.*

112. *Id.* art. V(b), 77 Stat. at 354-55.

113. *Id.* art. VIII, 77 Stat. at 358. The officials from Colorado and New Mexico who are charged with the duty of administering the public water supplies are designated as "Commissioners" for their respective states. Together, they constitute the Costilla Creek Compact Commission.

of the Compact.[114] In addition to securing assistance with streamflow measurement and recording, the Commission retained the ability to employ engineering and other administrative assistance necessary to properly administer the Compact.[115]

At the Second Annual Meeting of the Costilla Creek Compact Commission, the Commissioners agreed that during the ensuing year, New Mexico officials would administer water rights in the Costilla Creek watershed below the canyon mouth to assure proper delivery of water in accordance with the Compact.[116] Through a cooperative agreement subsequent to that directive by the Commission, the State of New Mexico and the USGS employed Max Contreras as the first Watermaster to provide daily water administration and oversight in the Costilla Creek system from April 15, 1947 through September 30, 1947.[117] Henceforth, Colorado and New Mexico have recognized the value and importance of daily water administration, and continue the seasonal employment of a Costilla Creek Watermaster to date. Both states share equal supervision authority for the Costilla Creek Watermaster and the Watermaster's appointed assistant, as well as funding responsibility for their salaries and operating costs.

In recognition that administration and distribution of Costilla Creek water in accordance with the complex system prescribed by the Amended Costilla Creek Compact is difficult, the Commissioners adopted a resolution that directed the Engineer Advisers to develop a written set of operational standards that would serve all water users.[118] Adhering to the direction of the Commission, the Engineer Advisers conducted formal inspections of all pertinent facilities and water conveyance structures in the Costilla Creek system with the Watermaster, and submitted a draft Operations Manual to the Commission, local water users, and citizen groups for review and comment.

At the Fifty-fifth Annual Meeting of the Costilla Creek Compact Commission, the Commissioners adopted the Costilla Creek Operations Manual with five basic principles: (1) to efficiently and

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114. Amended Costilla Creek Compact, COLO. REV. STAT. art. VIII, § 37-68-101, 77 Stat. 350, 358. In collaboration with the USGS, the Commission maintains streamflow gauging stations and equipment at the following locations: on Costilla Creek immediately below Costilla Reservoir; on Costilla Creek near the canyon mouth above the headgate of the Cerro Canal and below the Amalia Area; on Costilla Creek at the Colorado-New Mexico state line; on the Cerro Canal immediately below its headgate; on the Cerro Canal at the Colorado-New Mexico state line; on the intake from the Costilla Creek to Eastdale Reservoir No. 1; on the Acequia Madre immediately below its headgate; and on the Acequia Madre at the Colorado-New Mexico state line.

115. *Id.*

116. Minutes, Record of the Second Annual Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 4 (Feb. 24 & 26, 1947).

117. Minutes, Record of the Third Meeting of the Costilla Creek Compact Commission, El Paso, Tex. 3 (Feb. 24 & 25, 1948).

118. Resolution of the Costilla Creek Compact Commission, *Direction of the Colorado and New Mexico Engineer Advisers to Take Specific Actions to aid in the Administration of the Amended Costilla Creek Compact* (May 8, 1998).

effectively serve the direct streamflow water users in strict accordance with the 1963 Amended Compact and allocation table; (2) to efficiently distribute Costilla Reservoir water as allocated between the two states; (3) to properly account for the different water types (streamflow, reservoir storage) and uses of water in the system; (4) to provide information to water users and state water officials in Colorado and New Mexico through a daily report during the irrigation season and an annual report; and (5) to diligently work with the owners of diversion structures within the Costilla Creek system to ensure reliable control and accurate measurement of water.[119]

IV. COMPACT ADMINISTRATION ISSUES

A. WATER ADMINISTRATION AND WATER USERS

The preponderance of irrigated lands served by Costilla Creek is in the southeastern portion of the San Luis Valley, which is a high-altitude desert climate that receives a paltry seven inches of precipitation per year on average. Succinctly, demand for water far exceeds available supply, as evidenced by the early construction of irrigation ditches in the region, which had fully appropriated Costilla Creek waters by 1873. Within the Costilla Creek watershed, the Amalia Area is the irrigated area in New Mexico above the Canyon Mouth and below the Costilla Reservoir. Direct flow water rights serve the Amalia Area.[120] Several smaller direct flow decrees serve the Costilla-Garcia Area, which is downstream and extends from the Canyon Mouth in New Mexico to a point in Colorado about four miles downstream from the state line.[121] The Costilla-Garcia Area is a compact body of irrigated land on either side of Costilla Creek, served by decreed direct flow water rights.[122]

Lands of the former Jaroso Colony are located entirely within Colorado and served by a consortium of direct flow rights carried in the Cerro Canal and reservoir storage in Eastdale Reservoir No. 1. Within the context of an arid region with limited and temporary water supplies, water users compete—sometimes violently—for water. In late

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119. Minutes, Record of the Fifty-Fifth Annual Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 13 (May 10, 2001); COSTILLA CREEK COMPACT COMM'N, THE COSTILLA CREEK OPERATIONS MANUAL 3 (2001). The Operations Manual also cites seven specific functions and duties of the Watermaster:

> distribute direct flow water . . . ; administer Costilla Reservoir storage water . . . ; administer Amalia Area water rights . . . ; account for the different types of water [through measurement and calculations] . . . ; communicate with water users and state officials . . . ; exercise [sound] judgment [to assure the] . . . proper and safe delivery of water; [and] oversee [construction and operation] of headgates and measuring devices.

Id.

120. Amended Costilla Creek Compact, COLO. REV. STAT. art. II(c), § 37-68-101 (2002), 77 Stat. 350, 351.

121. *Id.* art. II(d), 77 Stat. at 351.

122. *Id.*

August 1950, a lack of summer rains threatened irrigated crops in the Jaroso area. Colorado State Engineer Michael Hinderlider and New Mexico State Engineer John Bliss collaboratively agreed to an atypical release of two hundred acre-feet of water from Costilla Reservoir above the amount due to Colorado for the irrigation season to provide relief to the Jaroso farmers.[123] In an ominous and foretelling statement, Mr. Bliss recognized such a nonconforming release would deplete the reservoir to a potentially disastrous level.[124] However, he concurred with Hinderlider's petition for the storage release by stating, "this is a chance which the Commissioners can and should take in this case."[125]

Unfortunately, Bliss' prescient caution was warranted. In a notice to Costilla Creek water users dated April 2, 1951, the Commission advised the water users there would be no water to satisfy direct flow water rights beyond the first two priorities on the stream, and only 9000 acre-feet of storage water from Costilla Reservoir was available.[126] Because of this dire set of hydrologic circumstances, irrigators in the Amalia Area began to take administration of Costilla Creek waters into their own hands. In acts of defiance, the irrigators destroyed or bypassed headgates and control structures in the area.[127] For the first and only time, New Mexico was unable to provide any diversion records for the Amalia Area in 1951.[128] To assist the Costilla Creek Watermaster, the New Mexico State Engineer petitioned the New Mexico Attorney General to file a suit seeking a permanent injunction against the contentious ditch owners in the Amalia Area as a means of enforcing the regulations of the Compact.[129]

Tension between water users grew proportionally with the severity and duration of the drought experienced in the Costilla Creek Basin during the early 1950s. The animosity and dangerousness alarmed the Watermaster and local water users throughout the area. During the two-year period between 1951 and 1953, violence extended beyond destruction of headgates and ditches, to acts of intimidation, death threats, and shootings at the Watermaster and representatives of the Water Company.[130] Due to the dismal water supply forecasts and escalating threats of violence, Colorado Governor, Dan Thornton, collaborated with New Mexico Governor, Edwin Mechem, to resolve the troubles along Costilla Creek in northern New Mexico.[131] The New

123. Letter from John H. Bliss, Comm'r for New Mexico, to M.C. Hinderlider, Comm'r for Colorado (Aug. 29, 1950).

124. *Id.*

125. *Id.*

126. Notice from John H. Bliss, Comm'r for New Mexico, to Costilla Creek Water Users (Apr. 2, 1951).

127. Letter from John H. Bliss, Comm'r for New Mexico, to M.C. Hinderlider, Comm'r for Colorado (Sept. 21, 1951).

128. *Id.*

129. Letter from John R. Erickson, Interstate Stream Eng'r, New Mexico, to M.C. Hinderlider, Comm'r for Colorado (July 2, 1951).

130. Letter from M.C. Hinderlider, Comm'r for Colorado, to Dan Thornton, Governor of Colorado (Mar. 17, 1953).

131. Letter from Dan Thornton, Governor of Colorado, to Edwin L. Mechem,

Mexico Chief of Police restored law and order to the Amalia Area by assigning a state patrolman to provide visible assistance to the Watermaster, and to conduct random patrols in the Amalia Area, which continued for the next several years.[132]

It is important to recognize the efforts of Colorado and New Mexico state water officials to work collaboratively to defend the prescribed and equitable water allocation system provided for in the Costilla Creek Compact against anarchy, even to the extent of securing law enforcement. Due to the lack of water, poor land development sales, threats of violence, or perhaps a combination of all three, the Water Company completely divested its interests by 1956. The Rio Costilla Cooperative Livestock Association took possession of the New Mexico direct flow and storage water rights[133] based in the Amalia Area, and successors to the Jaroso Colony obtained the Water Company's interests in Colorado.[134]

B. EASTDALE RESERVOIR NO. 1 OPERATIONS

As previously indicated, Costilla Reservoir captures water through impoundment of a dam on Costilla Creek high in the mountains at its headwaters, and Eastdale Reservoir No. 1 is an off-channel structure situated on the valley floor at the other end of the system. Codified within the Compact are specific terms that describe the amount, timing, and priority of storage in Eastdale Reservoir No. 1. In practical terms and sequence, Eastdale Reservoir No. 1 is entitled to store 1000 acre-feet from the natural flow yielded by Costilla Creek as early in the irrigation season as possible.[135] Direct flow water rights in both states are then administered in priority. If surplus water is available that is in excess of the aggregate demand of direct flow water rights or cannot

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Governor of New Mexico (Mar. 25, 1953).

132. Letter from John H. Bliss, Comm'r for New Mexico, to M.C. Hinderlider, Comm'r for Colorado (June 4, 1953).

133. Minutes, Record of the Sixth (Fifth Annual) Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 2. (Apr. 7, 1950). The Rio Costilla Livestock Association was issued the tax deed to "Costilla Dam and Irrigation Works," per H.B. Sellers, Chief of the New Mexico Tax Commission to the New Mexico State Engineer.

134. Minutes, Record of the Tenth Annual Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 6 (May 10, 1955). The Jaroso water users formed the Jaroso Mutual Ditch Company and took over the Cerro Canal and Eastdale systems in 1955.

135. Amended Costilla Creek Compact, COLO. REV. STAT. art. IV(d) & V(d), § 37-68-101 (2002), 77 Stat. 350, 354, 356. The point of measurement for the 1000 acre-feet quantity is storage within the reservoir, not the measured diversion at the reservoir intake. Early storage is encouraged to coordinate the timing of spring runoff with diversion of direct flow rights to maximize the beneficial use of water. The initial portion of spring runoff is typically too early in the season for irrigation in the higher elevations of Costilla Creek and this water may be effectively captured and released for late-season irrigation without conflict to direct flow water rights. In the event that Eastdale Reservoir No. 1 does not receive its 1000 acre-feet allocation and natural flow was stored in Costilla Reservoir, Eastdale No. 1 is entitled to that amount stored in Costilla Reservoir during the same irrigation season to fill its 1000 acre-feet entitlement.

be stored in operating reservoirs, each state is entitled to one-half of the surplus.[136] Review of historical compact accounting and reservoir records indicate Eastdale Reservoir No. 1 stored in excess of 1000 acre-feet many times and released these waters to beneficially irrigate lands below the reservoir.[137] According to former New Mexico State Engineer Reynolds, the practice of permitting Eastdale to store surplus waters that could not be stored in other reservoirs and was in excess of the requirements of direct flow rights, satisfied the purposes of the compact and made common sense.[138]

However, storage of surplus waters in Eastdale Reservoir No. 1 continues to be a contentious issue. Offering a contrary and ambiguous interpretation of the compact, the local Amalia organization Rio Costilla Cooperative Livestock Association ("RCCLA") repeatedly challenged the Commission's position to allow the storage of surplus water in Eastdale Reservoir No. 1 and to pass the surplus water through the reservoir to beneficially irrigate crops.[139] The RCCLA protests this sound water management practice and attempts to preclude storage of surplus water in Eastdale that can be applied to beneficial use even though they are located several miles upstream and have no physical ability to use these same waters.[140]

C. THE ENVIRONMENT

Competition for these scarce water supplies includes encroachment by natural factors or phenomena. As an example, creation of ditch and lateral systems for land irrigation allowed for a greatly expanded network of "artificial streams" that conveniently provided habitat for beavers that did not exist in the pre-development natural environment of Costilla Creek. The persistence and ingenuity of beavers to construct impoundments within Costilla Creek and its irrigation ditches has been a source of consternation to farmers and water administration officials for decades. As a testament to their prolific activity, reference to their activities was a constant theme in the annual Watermaster reports that described the construction of beaver

136. *Id.* art. V(c), 77 Stat. at 356.

137. COSTILLA CREEK WATERMASTER, COSTILLA CREEK WATERMASTER'S REPORT FOR 1970 IRRIGATION SEASON 5 (1970). As an example of storage in excess of 1000 acre-feet in Eastdale Reservoir No. 1, Watermaster Charles Miller stated the delivery to Eastdale Reservoir No. 1 started March 1, 1970 and completion of the 1000 acre-feet delivery was accomplished by April 24, 1970. After which, "water was made available to the direct flow users in accordance with the schedule of priorities . . . . The direct flow users did not use all of the water available" so the Watermaster delivered 2070 acre-feet of excess water to Eastdale Reservoir No. 1 by May 15th "and an additional 1680 acre-feet were delivered during the irrigation season." *Id.*

138. Memorandum from S.E. Reynolds, State Eng'r, New Mexico, to file 4 (Apr. 30, 1964) (on file with New Mexico State Engineer Office).

139. Letter from David Arguello, President, Rio Costilla Cooperative Livestock Assoc., to Norman Gaume, New Mexico Interstate Stream Eng'r 3 (Jan. 24, 2000).

140. *Id.*

dams in the Acequia Madre and other irrigation ditches, causing failure of the ditch, erosion of lands, and wasted water.[141]

As is the case with many other rivers and creeks in the western United States, local environmental coalitions are seeking to revert Costilla Creek back to its pre-development conditions through imposition of a minimum bypass through Costilla Reservoir.[142] As previously mentioned, Costilla Reservoir is located high in the basin with a limited drainage basin that effectively serves its intended purpose and captures ephemeral snowmelt for deferred release to irrigated farmlands later in the summer months.[143] Representatives for the environmental coalitions have petitioned the Commission for imposition of 3.6 to 7.25 cubic feet per second continual release through Costilla Reservoir and to forego storage of this amount during the winter months.[144] Unfortunately, the environmental coalition fails to recognize the total inflow to the reservoir during the winter months is an estimated two to four cubic feet per second and the water rights are owned by farmers and ranchers dependent upon capture of these waters for irrigation and their livelihood.[145] Nevertheless, the willingness of the environmental constituents and their representative legal counsel to meet with local farmers and water administration officials in pursuit of mutual understanding and collaboration is a positive action toward maintaining the vibrancy of the Costilla Creek watershed.

D. OPERATIONS, MEASUREMENT, AND COST

Maintaining diversion structures, dams, and ditches in a mountainous climate is always a difficult endeavor. Sediment carried by rushing spring snowmelt settles in the calmer flow of downstream ditches and must be removed on a perpetual basis to retain the ditches' carrying capacity.[146] Sluicing operations that temporarily flush the sediment from the Acequia Madre, Cerro, and other ditches often

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141. JOHN H. YAPLE, WATERMASTER, REPORT BY WATERMASTER OF COSTILLA RESERVOIR SYSTEM FOR 1962 IRRIGATION SEASON 10 (1962). Watermaster John Yaple described the repeated construction of beaver dams in the Acequia Madre and other irrigation ditches. The dams preclude division of water among different ditches and caused the waste of water through overflow that evaporated or percolated into the ground without returning to the stream. Although the dams were repeatedly removed from the ditches, the New Mexico Department of Game and Fish did not respond to the request to remove the beaver. *Id.*

142. Minutes, Record of the Fifty-Second Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 10 (May 8-9, 1988).

143. USGS, *supra* note 59, at 71.

144. Letter from Ernest Atencio, Projects Director, Amigos Bravos, to Costilla Creek Compact Comm'n (May 8, 1998) (on file with the Costilla Creek Compact Commission).

145. Interview with Steven E. Vandiver, Colo. Div. III Eng'r, Alamosa, Colo. (Feb. 21, 2003). USGS streamflow records are not available for the winter months at these high elevation stations. *Id.*

146. COSTILLA CREEK WATERMASTER, WATERMASTER REPORT 4 (1980).

must occur on a weekly basis throughout the season to minimize sediment deposition.[147]

Control and measurement of water through adequate structures is critical to accurate water administration and compliance with the Costilla Creek Compact. In an attempt to quantify the amount of diversions, the New Mexico State Engineer issued a formal order to install adequate headgates and measuring devices in the Amalia Area in 1948.[148] Unfortunately, four years later the New Mexico State Engineer had to reissue the orders to replace headgates damaged or destroyed by the acts of defiance in 1951.[149] Although acts of vandalism to streamflow gauging stations and unauthorized adjustments to diversion headgates continue today, the water officials from both states mutually recognize the value and need for adequate water control and measuring devices.[150] Each year a few additional structures are rehabilitated or installed in the Costilla Creek system and help the Watermaster in administering water in accord with the compact.

Consistent with other forms of public service, the demand for accurate and responsive water administration by state officials continues to escalate. Unfortunately, water administration funding has remained essentially stagnant while the cost of "doing business" has risen dramatically. The increasing costs for Costilla Creek Compact administration are especially acute. After hiring the first Watermaster and setting the initial budget in 1947, Colorado and New Mexico were each assessed $2,000 for administrative and operating costs.[151] The assessments have steadily increased for each state to $45,384 in the current 2003 budget.[152]

The Commission simultaneously pursued two parallel paths to reduce expenses in order to maintain a high quality water administration and pay the bills. First, the Watermaster was instructed to operate, service, maintain, and develop water flow records at several locations that were formerly under contract to the USGS.[153] Second, the Commission seized upon the use of advanced technology by installing remote-access equipment on several streamflow gauging

147. *Id.* In 2001, the New Mexico State Legislature appropriated $50,000 for use in removing sediment and beaver dams in the lower Amalia area and below the Cerro Diversion Dam.

148. Minutes, Record of the Third Annual Meeting, *supra* note 117, at 3-4.

149. Minutes of the Tenth (Seventh Annual) Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. (Apr. 4, 1952).

150. Minutes, Record of the Seventeenth Annual (Twenty-Second) Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 3 (May 2, 1962); Minutes of the Forty-Fifth Annual (Fiftieth) Costilla Creek Compact Commission 5 (May 9, 1991).

151. Minutes, Record of the Second Annual Meeting, *supra* note 116.

152. COSTILLA CREEK COMPACT COMM'N TREASURER'S REP. JULY 1, 2001 TO JUNE 30, 2002. The expenditures represent the administrative costs for personnel salaries and benefits, office supplies and communication expenses, vehicle operating expenses, and joint funding with the USGS for streamflow gage operations.

153. Minutes, Record of the Forty-Fourth Annual (Forty-Ninth) Meeting of the Costilla Creek Compact Commission, San Luis, Colo. 7 (May 4, 1990).

stations that provide near-instantaneous flow reports without the need for the Watermaster to incur the daily cost of driving to the stations.[154] The Commission has been applauded for its initiative. However, with inadequate funding, the effort to provide high quality service in the Costilla Creek basin will continue to be a struggle.

V. CONCLUSION

The pristine waters of Costilla Creek are laced with history, controversy, and fulfillment. Early explorers and settlers recognized the potential of the land, but also knew they must harness the water and apply it to beneficial use before they could realize any measure of success or permanence. In contrast, a litany of promoters, investment bankers, and land developers who actively sought to exploit the natural resources that were once so evident in the Sangre de Cristo Grant came and went – some garnered wealth, others lost vast fortunes. Only those individuals and communities that worked with the creek to marshal its limited and temporal waters persevered and passed their inheritance to successive generations.

Administration of an interstate river compact is often difficult and always complex. Administration of the Costilla Creek Compact has also proven to be fraught with peril. To retain order and distribute water in strict accord with the prescribed terms of the compact requires a vigilant presence.[155] The compact provides for an equitable apportionment of water, but it is the Watermaster that must provide daily oversight to assure the direct flow rights and recipients of reservoir water receive the water to which they are entitled, in time and amount. Although streamflow gauging stations equipped with remote access instrumentation and the Operating Manual with an electronic accounting spreadsheet are available to assist in daily water administration, the communication and collaboration efforts among the water users and state administration officials are the keys to successful water allocation.

The Compact Commissioners are vested with the responsibility and authority to assure the intent of the compact authors is achieved – the equitable division and apportionment of water, to promote interstate comity, resolve current and future controversies, and to assure the most efficient utilization of Costilla Creek waters through integrated operation of existing and future irrigation facilities.[156] The application of a fundamental priority system across state lines requires both State

154. Minutes, Record of the Forty-Ninth Annual (Fifty-fourth) Meeting of the Costilla Creek Compact Commission, Santa Fe, N.M. 3 (May 12, 1995). Colorado State Engineer Hal D. Simpson implored the use of technology to administer the compact more efficiently. *Id.* The administrative cost of $9.50 per irrigated acre for the Costilla Creek Compact far exceeds the administrative cost per acre of other compacts by a factor of two or three. *Id.* Interview with Steven E. Vandiver, Colo. Div. III Eng'r, *supra* note 145.

155. Interview with Steven E. Vandiver, Colo. Div. III Eng'r, *supra* note 145.

156. Amended Costilla Creek Compact, COLO. REV. STAT. art. I, § 37-68-101 (2002), 77 Stat. 350, 350-351.

Engineers to consider the rights and interests of out-of-state water users. Such a system also calls upon State Engineers to enforce the provisions of the compact to the detriment of water users in their own respective state. As a testament to the present and former State Engineers, the Costilla Creek Compact has not yet been subject to interstate litigation since its inception almost sixty years ago. The water users will only continue to receive their equitable apportionment of the elusive Costilla Creek waters in a very challenging environment through mutual respect and adherence to the provisions contained within the Costilla Creek Compact.

VI. APPENDIX
COSTILLA CREEK COMPACT

The general assembly hereby ratifies the amended compact between the state of Colorado and the state of New Mexico, designated as the "Amended Costilla Creek Compact", signed in the city of Santa Fe, state of New Mexico, on the seventh day of February, A. D. 1963, by J. E. Whitten, commissioner for the state of Colorado, and S. E. Reynolds, commissioner for the state of New Mexico, which said amended compact is as follows:

Amended Costilla Creek Compact

The state of Colorado and the state of New Mexico, parties signatory to this compact (hereinafter referred to as "Colorado" and "New Mexico," respectively, or individually as a "state," or collectively as the "states"), having on September 30, 1944 concluded, through their duly authorized commissioners, to- wit: Clifford H. Stone for Colorado and Thomas M. McClure for New Mexico, a compact with respect to the water of Costilla Creek, an interstate stream, which compact was ratified by the states in 1945 and was approved by the congress of the United States in 1946; and

The states, having resolved to conclude an amended compact with respect to the waters of Costilla Creek, have designated, pursuant to the acts of their respective legislatures and through their appropriate executive agencies, as their commissioners:

J. E. Whitten, for Colorado

S. E. Reynolds, for New Mexico

Who, after negotiations, have agreed upon these articles:

ARTICLE I

The major purposes of this compact are to provide for the equitable division and apportionment of the use of the waters of Costilla Creek; to promote interstate comity; to remove causes of present and future interstate controversies; to assure the most efficient utilization of the waters of Costilla Creek; to provide for the integrated operation of existing and prospective irrigation facilities on the stream in the two states; to adjust the conflicting jurisdictions of the two states over irrigation works and facilities diverting and storing waters in one

state for use in both states; to equalize the benefits of water from Costilla Creek, used for the irrigation of contiguous lands lying on either side of the Boundary, between the citizens and water users of one state and those of the other; and to place the beneficial application of water diverted from Costilla Creek for irrigation by the water users of the two states on a common basis.

The physical and other conditions peculiar to the Costilla Creek and its basin, and the nature and location of the irrigation development and the facilities in connection therewith, constitute the basis for this compact; and neither of the States hereby, nor the Congress of the United States by its consent, concedes that this compact establishes any general principle or precedent with respect to any other interstate stream.

ARTICLE II

As used in this compact, the following names, terms and expressions are described, defined, applied and taken to mean as in this article set forth:

(a) "Costilla Creek" is a tributary of the Rio Grande which rises on the west slope of the Sangre de Cristo range in the extreme southeastern corner of Costilla County in Colorado and flows in a general westerly direction crossing the boundary three times above its confluence with the Rio Grande in New Mexico.

(b) The "Canyon Mouth" is that point on Costilla Creek in New Mexico where the stream leaves the mountains and emerges into the San Luis Valley.

(c) The "Amalia Area" is that irrigated area in New Mexico above the Canyon Mouth and below the Costilla Reservoir which is served by decreed direct flow water rights.

(d) The "Costilla-Garcia Area" is that area extending from the Canyon Mouth in New Mexico to a point in Colorado about four miles downstream from the boundary, being a compact body of irrigated land on either side of Costilla Creek served by decreed direct flow water rights.

(e) The "Eastdale Reservoir No. 1" is that off-channel reservoir located in Colorado in sections 7, 8 and 18, township 1 north, range 73 west, and sections 12 and 13, township 1 north, range 74 west, of the Costilla Estates survey, with a nominal capacity of three thousand four hundred sixty-eight (3,468) acre-feet and a present usable capacity of two thousand (2,000) acre-feet.

(f) The "Eastdale Reservoir No. 2" is that off-channel reservoir located in Colorado in sections 3, 4, 9 and 10, township 1 north, range 73 west, of the Costilla Estates survey, with nominal capacity of three thousand forty-one (3,041) acre-feet.

(g) The "Costilla Reservoir" is that channel reservoir, having a nominal capacity of fifteen thousand seven hundred (15,700) acre-feet, located in New Mexico near the headwaters of Costilla Creek. The present usable capacity of the reservoir is eleven thousand

(11,000) acre-feet, subject to future adjustment by the state engineer of New Mexico. The condition of Costilla Dam may be such that the state engineer of New Mexico will not permit storage above a determined stage except for short periods of time.

(h) The "Cerro Canal" is that irrigation canal which diverts water from the left bank of Costilla Creek in New Mexico near the southwest corner of section 12, township 1 south, range 73 west, of the Costilla Estates survey, and runs in a northwesterly direction to the boundary near Boundary Monument No. 140.

(i) The "boundary" is the term used herein to describe the common boundary line between Colorado and New Mexico.

(j) The term "Costilla Reservoir System" means and includes the Costilla Reservoir and the Cerro Canal, the permits for the storage of water in Costilla Reservoir, the twenty-four and fifty-two hundredths (24.52) cubic feet per second of time of direct flow water rights transferred to the Cerro Canal, and the permits for the diversion of direct flow water by the Cerro Canal as adjusted herein to seventy-five and forty-eight hundredths (75.48) cubic feet per second of time.

(k) The term "Costilla Reservoir System Safe Yield" means that quantity of usable water made available each year by the Costilla Reservoir System. The safe yield represents the most beneficial operation of the Costilla Reservoir System through the use, first, of the total usable portion of the yield of the twenty-four and fifty-two hundredths (24.52) cubic feet per second of time of direct flow rights transferred to the Cerro Canal, second, of the total usable portion of the yield of the direct flow Cerro Canal permits, and third, of that portion of the water stored in Costilla Reservoir required to complete such safe yield.

(l) The term "usable capacity" is defined and means that capacity of Costilla Reservoir at the stage above which the state engineer of New Mexico will not permit storage except for short periods of time.

(m) The term "temporary storage" is defined and means the water permitted by the state engineer of New Mexico to be stored in Costilla Reservoir for short periods of time above the usable capacity of that reservoir.

(n) The term "additional storage facilities" is defined and means storage capacity which may be provided in either state to impound waters of Costilla Creek and its tributaries in addition to the nominal capacity of Costilla Reservoir and the Costilla Creek complement of the Eastdale Reservoir No. 1 capacity.

(o) The term "duty of water" is defined as the rate in cubic feet per second of time at which water may be diverted at the headgate to irrigate a specified acreage of land during the period of maximum requirement.

(p) The term "surplus water" is defined and means water which cannot be stored in operating reservoirs during the storage season or water during the irrigation season which cannot be stored in operating

reservoirs and which is in excess of the aggregate direct flow rights and permits recognized by this compact.

(q) The term "irrigation season" is defined and means that period of each calendar year from May 16 to September 30, inclusive.

(r) The term "storage season" is defined and means that period of time extending from October 1 of one year to May 15 of the succeeding year, inclusive.

(s) The term "points of interstate delivery" means and includes (1) the Acequia Madre where it crosses the boundary; (2) the Costilla Creek where it crosses the boundary; (3) the Cerro Canal where it reaches the boundary; and (4) any other interstate canals which might be constructed with the approval of the commission at the point or points where they cross the boundary.

(t) The term "water company" means The San Luis Power and Water Company, a Colorado corporation, or its successor.

(u) The word "commission" means the Costilla Creek Compact commission created by Article VIII of this compact for the administration thereof.

ARTICLE III

1. To accomplish the purposes of this compact, as set forth in Article I, the following adjustments in the operation of irrigation facilities on Costilla Creek, and in the use of water diverted, stored and regulated thereby, are made:

(a) The quantity of water delivered for use in the two states by direct flow ditches in the Costilla-Garcia Area and by the Cerro Canal is based on a duty of water of one cubic foot per second of time for each eighty (80) acres, to be applied in the order of priority; provided, however, that this adjustment in each instance is based on the acreage as determined by the court in decreeing the water rights for the Costilla-Garcia Area, and in the case of the Cerro Canal such basis shall apply to eight thousand (8,000) acres of land. In order to better maintain a usable head for the diversion of water for beneficial consumptive use the adjusted maximum diversion rate under the water right of each of the ditches supplying water for the Costilla-Garcia Area in Colorado is not less than one cubic foot per second of time.

(b) There is transferred from certain ditches in the Costilla-Garcia Area twenty-four and fifty-two hundredths (24.52) cubic feet per second of time of direct flow water rights, which rights of use are held by the water company or its successors in title, to the headgate of the Cerro Canal. The twenty-four and fifty-two hundredths (24.52) cubic feet of water per second of time hereby transferred represents an evaluation of these rights after adjustment in the duty of water, pursuant to subsection (a) of this Article, and includes a reduction thereof to compensate for increased use of direct flow water which otherwise would have been possible under these rights by this transfer.

(c) Except for the rights to store water from Costilla Creek in

Eastdale Reservoir No. 1 as hereinafter provided, all diversion and storage rights from Costilla Creek for Eastdale Reservoirs No. 1 and No. 2 are relinquished and the water decreed thereunder is returned to the creek for use in accordance with the plan of integrated operation effectuated by this compact.

(d) The Cerro Canal direct flow permit shall be seventy-five and forty-eight hundredths (75.48) cubic feet per second of time.

(e) There is transferred to and made available for the irrigation of lands in Colorado a portion of the Costilla Reservoir complement of the Costilla Reservoir System Safe Yield in order that the storage of water in that reservoir may be made for the benefit of water users in both Colorado and New Mexico under the provisions of this compact for the allocations of water and the operation of facilities.

2. Each state grants for the benefit of the other and its water users the rights to change the points of diversion of water from Costilla Creek, to divert water from the stream in one state for use in the other and to store water in one state for the irrigation of lands in the other, insofar as the exercise of such rights may be necessary to effectuate the provisions of this Article and to comply with the terms of this compact.

3. The water company has consented to and approved the adjustments contained in this Article; and such consent and approval shall be evidenced in writing and filed with the commission.

ARTICLE IV

The apportionment and allocation of the use of Costilla Creek water shall be as follows:

(a) There is allocated for diversion from the natural flow of Costilla Creek and its tributaries sufficient water for beneficial use on meadow and pasture lands above Costilla Reservoir in New Mexico to the extent and in the manner now prevailing in that area.

(b) There is allocated for diversion from the natural flow of Costilla Creek and its tributaries thirteen and forty-two hundredths (13.42) cubic feet of water per second of time for beneficial use on lands in the Amalia Area in New Mexico.

(c) In addition to allocations made in subsections (e), (f) and (g) of this Article, there is allocated for diversion from the natural flow of Costilla Creek fifty and sixty-two hundredths (50.62) cubic feet of water per second of time for Colorado and eighty-nine and eight hundredths (89.08) cubic feet of water per second of time for New Mexico, subject to adjustment as provided in Article V(e), and such water shall be delivered for beneficial use in the two states in accordance with the schedules and under the conditions set forth in Article V.

(d) There is allocated for diversion from the natural flow of Costilla Creek sufficient water to provide each year one thousand (1,000) acre-feet of stored water in Eastdale Reservoir No. 1, such water to be delivered as provided in Article V.

(e) There is allocated for diversion to Colorado thirty-six and five-

tenths per cent (36.5%) and to New Mexico sixty-three and five-tenths per cent (63.5%) of the water stored by Costilla Reservoir for release therefrom for irrigation purposes each year, subject to adjustment as provided in Article V(e) and such water shall be delivered for beneficial use in the two states on a parity basis in accordance with the provisions of Article V. By "parity basis" is meant that neither state shall enjoy a priority of right of use.

(f) There is allocated for beneficial use in each of the states of Colorado and New Mexico one-half of the surplus water, as defined in Article II(p), to be delivered as provided in Article V.

(g) There is allocated for beneficial use in each of the states of Colorado and New Mexico one-half of any water made available and usable by additional storage facilities which may be constructed in the future.

ARTICLE V

The operation of the facilities of Costilla Creek and the delivery of water for the irrigation of land in Colorado and New Mexico, in accordance with the allocations made in Article IV, shall be as follows:

(a) Diversions of water for use on lands in the Amalia Area shall be made as set forth in Article IV(b) in the order of decreed priorities in New Mexico and of relative priority dates in the two states, subject to the right of New Mexico to change the points of diversion and places of use of any of such water to other points of diversion and places of use; provided, however, that the rights so transferred shall be limited in each instance to the quantity of water actually consumed on the lands from which the right is transferred.

(b) Deliveries to Colorado of direct flow water below the Canyon Mouth shall be made by New Mexico in accordance with the following schedule:

Deliveries of Direct Flow Water to Colorado During Irrigation Season

Useable Discharge of Creek at Canyon Mouth Gauging Station (C.F.S.)	**Incremental Allocations to Colorado (C.F.S.)**		**Point of Interstate Delivery**	**Cumulative Allocations to Colorado (C.F.S.)**	**Remarks**
(1)	(2A)	(2B)	(3)	(4)	(5)
25.00	1.05		Acequia Madre		Incremental allocation is 4.2% of the usable discharge when usable discharge is less than 25.00 C.F.S.

Useable Discharge of Creek at Canyon Mouth Gauging Station (C.F.S.)	Incremental Allocations to Colorado (C.F.S.)		Point of Interstate Delivery	Cumulative Allocations to Colorado (C.F.S.)	Remarks
	2.53		Cerro Canal		Incremental allocation is 10.13% of the usable discharge when usable discharge is less than 25.00 C.F.S.
	4.70		Cerro Canal	8.28	This 4.70 C.F.S. is not a part of the Colorado allocation of the direct flow water of the Costilla Reservoir System and is not subject to adjustment in the event of a change in the usable capacity of Costilla Reservoir. Incremental allocation is 18.8% of the usable discharge when usable discharge is less than 25.00 C.F.S. This 4.70 C.F.S. allocated to Colorado for delivery through the Cerro Canal is 5.50 C.F.S. of the original 6.55 C.F.S. allocated to Colorado for delivery through the Acequia Madre less 0.8 C.F.S. correction for losses.

Useable Discharge of Creek at Canyon Mouth Gauging Station (C.F.S.)	Incremental Allocations to Colorado (C.F.S.)		Point of Interstate Delivery	Cumulative Allocations to Colorado (C.F.S.)	Remarks
36.88	.38		Cerro Canal		This 0.38 C.F.S. is not a part of the Colorado allocation of the direct flow water of the Costilla Reservoir System and is not subject to adjustment in the event of a change in the usable capacity of Costilla Reservoir. Incremental allocation is 3.26% of the usable discharge in excess of 25.38 C.F.S. and less than 36.88 C.F.S.
	4.04		Cerro Canal	12.70	Incremental allocation is 35.11% of the usable discharge in excess of 25.38 C.F.S. and less than 36.88 C.F.S.
38.62		1.00	Creek	13.70	Incremental allocation is 100% of the usable discharge in excess of 37.62 C.F.S. and less than 38.62 C.F.S.
44.76	2.24		Cerro Canal	15.94	Incremental allocation is 36.5% of the usable discharge in excess of 38.62 C.F.S. and less than 44.76 C.F.S.
50.91		6.00	Creek	21.94	Incremental allocation is 100% of the usable discharge in excess of 44.91 C.F.S. and less than 50.91 C.F.S.
56.48	.13		Cerro Canal	22.07	Incremental allocation is 11.18% of the usable discharge in excess of 55.35 C.F.S. and less than 56.48 C.F.S.

Useable Discharge of Creek at Canyon Mouth Gauging Station (C.F.S.)	Incremental Allocations to Colorado (C.F.S.)		Point of Interstate Delivery	Cumulative Allocations to Colorado (C.F.S.)	Remarks
61.48		1.00	Creek	23.07	Incremental allocation is 100% of the usable discharge in excess of 60.48 C.F.S. and less than 61.48 C.F.S.
64.22					At usable creek discharge of 64.22 C.F.S. the Cerro Canal direct flow permit becomes operative after 1,000 acre-feet has been stored in Eastdale Reservoir No. 1.
139.70	27.55		Cerro Canal	50.62	Incremental allocation is 36.5% of the usable discharge in excess of 64.22 C.F.S. and less than 139.70 C.F.S.

The actual discharges of Costilla Creek at the Canyon Mouth Gauging Station at which the various blocks of direct flow water become effective shall equal the flows set forth in column (1) increased by the transmission losses necessary to deliver those flows to the headgates of the respective direct flow ditches diverting in New Mexico.

The delivery of ditch water at the boundary shall equal the allocation set forth in columns (2a) and (2b) reduced by the transmission losses between the headgate of the ditch and the point where the ditch crosses the boundary. The allocations to be delivered to Colorado through the Cerro Canal represent, except as otherwise indicated in column (5) of the table above, 36.5 percent of those blocks of direct flow water of the Costilla Reservoir System which are subject to adjustment as provided in subsection (e) of this article.

The provisions of article III(1)(a) shall not be applicable to the Colorado allocation of 5.08 C.F.S. which is transferred from the Acequia Madre to the Cerro Canal by this amendment to the Costilla Creek compact and shall not be applicable to the 0.8 C.F.S. which is transferred from Colorado to New Mexico by this amendment to the Costilla Creek compact.

The above table is compiled on the basis of the delivery to Colorado at the boundary of thirty-six and five-tenths percent (36.5%)

of all direct flow water of the Costilla Reservoir System diverted by the Cerro Canal and the delivery at the boundary of all other direct flow water allocated to Colorado, in the order of priority, all such deliveries to be adjusted for transmission losses. In the event of change in the usable capacity of the Costilla Reservoir, Colorado's share of all direct flow water of the Costilla Reservoir System diverted by the Cerro Canal, to be delivered at the boundary and adjusted for transmission losses, shall be determined by the percentages set forth in column (4) of the table which appears in subsection (e) of this article.

(c) During the storage season, no water shall be diverted under direct flow rights unless there is water in excess of the demand of all operating reservoirs for water from Costilla Creek for storage.

(d) In order to assure the most efficient utilization of the available water supply, the filling of Eastdale Reservoir No. 1 from Costilla Creek shall be commenced as early in the spring as possible and shall be completed as soon thereafter as possible. The Cerro Canal or any other ditch which may be provided for that purpose shall be used, insofar as practicable, to convey the water from the Canyon Mouth to Eastdale Reservoir No. 1. During any season when the commission determines that there will be no surplus water, any diversions, waste or spill from any canal or canals supplying Eastdale Reservoir No. 1 will be charged to the quantity of water diverted for delivery to said reservoir.

(e) The commission shall estimate each year the safe yield of Costilla Reservoir System and its component parts as far in advance of the irrigation season as possible, and shall review and revise such estimates from time to time as may be necessary.

In the event the usable capacity of the Costilla Reservoir changes, the average safe yield and the equitable division thereof between the states shall be determined in accordance with the following table:

Useable Capacity of Costilla Reservoir	Annual Average Safe Yield (acre-feet)	Division of Safe Yield			
		Colorado		New Mexico	
		Acre-feet	Percent	Acre-feet	Percent
0	1800	1510	83.9	290	16.1
1000	3400	2000	58.8	1400	41.2
2000	4900	2450	50.0	2450	50.0
3000	6400	2910	45.5	3490	54.5
4000	7900	3370	42.7	4530	57.3
5000	9300	3800	40.9	5500	59.1
6000	10700	4220	39.4	6480	60.6
7000	12000	4650	38.5	7380	61.5
8000	13200	4990	37.8	8210	62.2
9000	14300	5320	37.2	8980	62.8
10000	15200	5600	36.8	9600	63.2
11000	16000	5840	36.5	10160	63.5
12000	16600	6020	36.3	10580	63.7
13000	17000	6140	36.1	10860	63.9
14000	17400	6270	36.0	11130	64.0
15000	17700	6360	35.9	11340	64.1
15700	17900	6420	35.9	11480	64.1

Intermediate quantities shall be computed by proportionate parts.

In the event of change in the usable capacity of the Costilla Reservoir, the Costilla Reservoir complement of the Costilla Reservoir System Safe Yield shall be divided between Colorado and New Mexico in accordance with the percentages given in columns 4 and 6, respectively, of the above table.

Each state may draw from the reservoir in accordance with the allocations made herein, up to its proportion of the Costilla Reservoir complement of the Costilla Reservoir System Safe Yield and its proportion of temporary storage and no more. Colorado may call for the delivery of its share thereof at any of the specified points of interstate delivery.

Deliveries of water from Costilla Reservoir to the Canyon Mouth shall be adjusted for transmission losses, if any, between the two points. Deliveries to Colorado at the boundary shall be further adjusted for transmission losses from the Canyon Mouth to the respective points of interstate delivery.

Water stored in Costilla Reservoir and not released during the current season shall not be held over to the credit of either state but shall be apportioned when the safe yield is subsequently determined.

(f) The Colorado apportionment of surplus water, as allocated in Article IV(f), shall be delivered by New Mexico at such points of interstate delivery and in the respective quantities, subject to

transmission losses, requested by the Colorado member of the commission.

(g) In the event that additional water becomes usable by the construction of additional storage facilities, such water shall be made available to each state in accordance with rules and regulations to be prescribed by the commission.

(h) When it appears to the commission that any part of the water allocated to one state for use in a particular year will not be used by that state, the commission may permit its use by the other state during that year, provided that a permanent right to the use of such water shall not thereby be established.

ARTICLE VI

The desirability of consolidating various of the direct flow ditches serving the Costilla-Garcia Area, which are now or which would become interstate in character by consolidation, and diverting the water available to such ditches through a common headgate is recognized. Should the owners of any of such ditches, or a combination of them, desire to effectuate a consolidation and provide for a common headgate diversion, application therefore shall be made to the commission which, after review of the plans submitted, may grant permission to make such consolidation.

ARTICLE VII

The commission shall cause to be maintained and operated a streamgaging-station, equipped with an automatic water-stage recorder, at each of the following points, to-wit:

(a) On Costilla Creek immediately below Costilla Reservoir.

(b) On Costilla Creek at or near the Canyon Mouth above the headgate of Cerro Canal and below the Amalia Area.

(c) On Costilla Creek at or near the boundary.

(d) On the Cerro Canal immediately below its headgate.

(e) On the Cerro Canal at or near the boundary.

(f) On the intake from Costilla Creek to the Eastdale Reservoir No. 1, immediately above the point where the intake discharges into the reservoir.

(g) On the Acequia Madre immediately below its headgate.

(h) On the Acequia Madre at the boundary.

(i) Similar gauging stations shall be maintained and operated at such other points as may be necessary in the discretion of the commission for the securing of records required for the carrying out of the provisions of the compact.

Such gauging stations shall be equipped, maintained, and operated by the commission directly or in cooperation with an appropriate federal or state agency, and the equipment, method, and frequency of measurement at such stations shall be such as to produce reliable records at all times.

ARTICLE VIII

The two states shall administer this compact through the official in each state who is now or may hereafter be charged with the duty of administering the public water supplies, and such officials shall constitute the Costilla Creek Compact Commission. In addition to the powers and duties hereinbefore specifically conferred upon such commission, the commission shall collect and correlate factual data and maintain records having a bearing upon the administration of this compact. In connection therewith, the commission may employ such engineering and other assistance as may be reasonably necessary within the limits of funds provided for that purpose by the states. The commission may, by unanimous action, adopt rules and regulations consistent with the provisions of this compact to govern its proceedings. The salaries and expenses of the members of the commission shall be paid by their respective states. Other expenses incident to the administration of the compact, including the employment of engineering or other assistance and the establishment and maintenance of compact gaging stations, not borne by the United States shall be assumed equally by the two states and paid directly to the commission upon vouchers submitted for that purpose.

The United States geological survey, or whatever federal agency may succeed to the functions and duties of that agency, shall collaborate with the commission in the correlation and publication of water facts necessary for the proper administration of this compact.

ARTICLE IX

This amended compact shall become operative when ratified by the legislatures of the signatory states and consented to by the Congress of the United States; provided, that, except as changed herein, the provisions, terms, conditions and obligations of the Costilla Creek Compact executed on September 30, 1944, continue in full force and effect.

IN WITNESS WHEREOF, the commissioners have signed this compact in triplicate original, one copy of which shall be deposited in the archives of the department of state of the United States of America, and one copy of which shall be forwarded to the governor of each of the signatory states.

Done in the city of Santa Fe, New Mexico, on the 7th day of February, in the year of our Lord, one thousand nine hundred and sixty-three.

(Signed) J. E. Whitten,
Commissioner for Colorado.
(Signed) S. E. Reynolds,
Commissioner for New Mexico.