Implementing a 1948 Compact in the 21st Century

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As a headwaters state, precipitation that falls from our skies in Colorado is a major source of water for eighteen states, and parts of Mexico. This water is fundamental to the existence of life for each of these places and has therefore been written into many agreements to provide its users with some level of certainty that they will receive their agreed upon portion. When these agreements are between states they are called compacts and Colorado is a signatory to nine of them. Each compact is custom-made and negotiated for the specifics of its respective river and users. The Arkansas River Compact was signed in 1948 by Colorado and Kansas in an attempt to settle their ongoing legal disputes and equitably divide the over-appropriated and frequently insufficient waters of the Arkansas River. It is especially unique relative to Colorado's other compacts because it does not apportion a set amount of water or percentage of river flows to each state. Instead, it provides language intended to allow for future water uses in the basin within both Colorado and Kansas while protecting the usable flows of the river as they were in 1948. Article IV-D of the compact reads:

> *This Compact is not intended to impede or prevent future beneficial development of the Arkansas River basin in Colorado and Kansas by Federal or State agencies, by private enterprise, or by combinations thereof, which may involve construction of dams, reservoirs, and other works for the purpose of water utilization and control, as well as the improved or prolonged functioning of existing works: Provided, that the waters of the Arkansas River, as defined in Article III, shall not be materially depleted in usable quantity or availability to the water users in Colorado and Kansas under this Compact by such future development or construction.*

Also written into the compact was the use of the John Martin Reservoir project, which was completed in 1949 to provide flood control and conservation storage. This provided a means for Colorado and Kansas to equitably divide the flows of the Arkansas River. The Compact was approved by Congress in 1949 and settled the states' disputes for some time.

Development continued in both states over the next several decades, including the installation of hundreds of high-capacity irrigation wells within Colorado. Kansas became concerned that these wells were facilitating additional depletions to river flows to which they were entitled. They filed suit in 1985 claiming that Colorado had violated the compact. After a decade-long battle over several core issues, in 1995 the Supreme Court ruled that Colorado well pumping had indeed materially depleted river flows to Kansas.

As a result, the Colorado State Engineer instituted well use rules in 1996 to ensure that depletions to river flows would be augmented. Three well augmentation groups were soon formed to comply with these rules. They developed plans to secure other sources of surface water to ensure Colorado farmers could continue to pump their wells. All three are still in operation today and provide augmentation water for close to two thousand irrigation wells. In a river basin that is very much over-appropriated, these wells provide farmers with a timely supplemental source of water for their crops when their surface water rights don't suffice.

Over the next two decades Colorado farmers continued to look for ways to become more efficient and make their limited water go farther. This was done by installing various types of surface water irrigation improvements, including such advances as center pivot sprinklers and drip irrigation. These methods allow irrigation water to be applied more evenly and efficiently to fields and reduce labor costs.

As the number of sprinkler installations started to grow, so did Kansas' concern that the potential for increased crop consumption allowed by the sprinklers would materially deplete river flows. The increase in efficiency provided by sprinkler and drip irrigation virtually eliminates surface water return flows to the river. Beginning in 2006, Kansas officials notified Colorado's State Engineer of this concern. In response, the State Engineer and other Division of Water Resources (DWR) officials from his staff reviewed the extent of sprinkler installations in Divisions 2 and conducted a series of model runs to determine the potential impact of these and other surface water improvements to state-line flows. He and his staff concluded that these improvements had the potential to violate Article IV-D of the Arkansas River Compact.

Soon after, the DWR began an outreach effort to establish new rules to ensure Colorado maintained compact compliance. After dozens of public meetings and other forms of outreach with local governments, ditch companies, farmers, engineers, attorneys and various other stakeholders, the State Engineer filed the new Irrigation Improvement Rules with the Division 2 Water Court in September of 2009. They went into effect in January of 2011. Although frustrated with these new rules, it provided an avenue for farmers to continue to install sprinklers and other surface water irrigation improvements without violating the compact.

With initial financial assistance provided by the CWCB, the Lower Arkansas Valley Water Conservancy District (Lower Ark District) established the first group compact compliance plan (Rule 10 Plan). This saved farmers the cost of hiring their own engineers and attorneys to develop and submit a plan to the DWR for approval on their own. The Lower Ark District's 2012 Rule 10 Plan had 13,500 sprinkler acres and their current Plan has 28,100 sprinkler acres and 630 acres of drip irrigation.

The people who originally crafted the Arkansas River Compact in 1948 could never have imagined its applicability as science and engineering advanced into the 21st century. It doesn't provide for specific deliveries, and rather references flows that existed in the time of its drafting. While sometimes this complicates its application, over the years it has provided enough flexibility to resolve challenges that arose from better science and advancements in irrigation. Like the original crafters of the Compact, we can't know what changes and improvements lie just over the horizon, but with collaborative efforts between the parties to the Compact and their representatives, equitable solutions can be found to help solve the problem of too much demand for not enough water well in to the future.