

**THE**  
**KERN RIVER**  
**PURCHASE**  
CITY OF  
**BAKERSFIELD**  
**CALIFORNIA**

# CITY OF BAKERSFIELD

IN RECOGNITION OF THOSE INDIVIDUALS  
WITH THE WISDOM AND FORESIGHT TO PURSUE AND  
ACQUIRE **KERN RIVER** WATER RIGHTS FOR THE  
PRESENT AND FUTURE GENERATIONS OF **BAKERSFIELD**.  
THEIR LEADERSHIP RESULTED IN THE ACQUISITION OF THESE  
WATER RIGHTS ON **DECEMBER 22, 1976**.

## WATER AND CITY GROWTH COMMITTEE

COUNCILMAN WALTER F. HEISEY  
COUNCILMAN DONALD A. ROGERS  
COUNCILMAN ROBERT N. WHITTEMORE

## CITY ADMINISTRATION

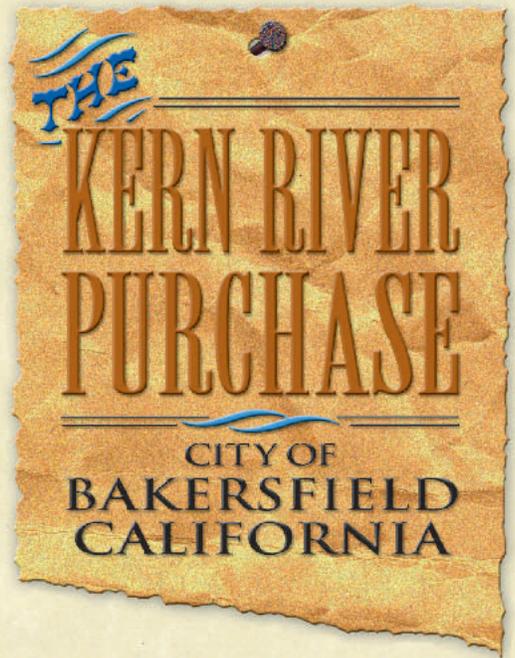
HAROLD E. BERGEN, CITY MANAGER  
KENNETH W. HOAGLAND, CITY ATTORNEY  
THOMAS M. STETSON, CONSULTING ENGINEER

*It is not very often we see the ownership of a river change hands. The City of Bakersfield's purchase of Kern River water rights and facilities in 1976 resulted in a major shift from private to public control of this tremendous local resource.*

*This document provides some insights to the colorful history of the Kern River (Chapter One); the events leading up to the election and purchase of the Kern River (Chapter Two); and finally, describes the water rights, facilities and properties that were acquired with the Kern River Purchase (Chapter Three).*

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Compiled by the staff of the  
City of Bakersfield Water Resources Department  
December 2003



Chapter **1** *The Kern River:  
A Legend in Compromise*

Chapter **2** *Changing the Course  
of Kern River*

Chapter **3** *The Purchase:  
What Bakersfield Bought*

## Chapter One

# The Kern River: A Legend in Compromise

Water Association  
of Kern County  
July 1988



South Fork Kern River

The Kern River is the most southern of the great streams that flow westward from the crest of California's Sierra Nevada Mountains.

The head waters of the Kern are located near the base of Mount Whitney in one of the highest, most rugged regions in the United States. The river's main fork is joined by its major tributary, the South Fork, near Lake Isabella.

Below Isabella, and before reaching Bakersfield, the Kern River drops over 2,000 feet in elevation through the treacherous Kern River Canyon, and over the years has taken hundreds of lives, and is considered one of the most dangerous stretches of river in the United States.

Today, the waters of the Kern River are utilized and distributed in harmony. Each day of the year cooperative decisions are made on matters of mutual concern such as flood control, drought, water use and water exchange. But, this was not always the case...

### The Legend

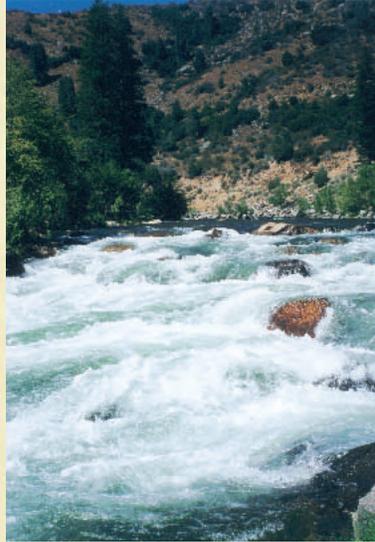
In April of 1776, as a new nation was being born on the East Coast, a Franciscan Priest, Father Francisco Garces, was exploring the untamed and un-chartered West in a quest to establish missions to provide comfort and spiritual guidance to the native inhabitants, comprised locally of the Yokut Indian Tribe.

It was on this journey, after passing through what we know now as the City of Arvin, that he came upon the Kern River.

His impressions of the crossing were so vivid that he immediately named the river Rio De San Felipe.

The Rio De San Felipe, later known as Rio Bravo, became a recognized landmark crossed by explorers and fur trappers who were blazing new trails through the mountains and valleys of the west.

One such explorer was a young lieutenant in the United States Topographical Corps, a mapmaking group at the service of the U.S. Cavalry, by the name of John C. Fremont.



Kern River North Fork

On his third expedition to the west coast, Fremont had with him sixty experienced, dedicated mountain men including Joseph Walker, Alexis Godey, Kit Carson and a young Philadelphian by the name of Edward Kern. Kern was only 23 years old but exhibited an uncanny sense of direction. Although not schooled in the art of topography, he quickly learned and became a favorite of Fremont and his men.

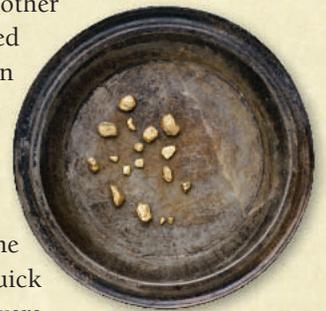
In fact, Fremont was so taken with the young man that the river which they had just

crossed would be named in his honor...thus the river would from that time until now be known as Kern River.

In 1855, a prospector named Richard Keys discovered gold on the Kern River and established a mining town that bore his name – Keysville. In only four short months, 6,000 miners from the mother lode country poured into the upper Kern River Valley to stake their claim on this new found bonanza.

But, not everyone who thirsted for quick fame and fortune were successful and soon turned to other endeavors such as supplying food for the gold camps. There were those who could envision a larger and more stable enterprise than the fickle prospects of gold.

They could see the potential of clearing the fertile land to allow for the raising of agricultural crops to supply the demands of the fledgling state of California. A bigger bonanza was yet to come.



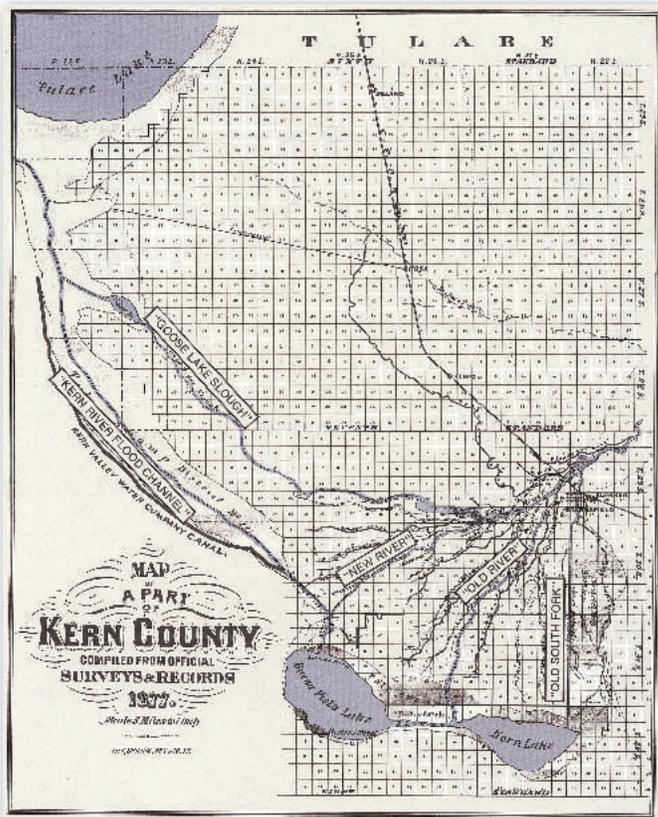


Downtown Bakersfield Flood, 1893

The first known settler in the area of what is now Bakersfield was Christian Bohna. The large Bohna family arrived in February 1860 and set up a farm on what is commonly known, even to this day, as Kern Island.

They occupied an abandoned hut built by a fur trapper, Thomas Fitzgerald. The hut was located near 21st and M Streets, not far from the present site of the telephone company. The family adapted well and soon the hut became a log cabin. Other settlers soon joined the Bohna family.

Although this new land held promise, Mother Nature was to deal them a heavy blow. In December of 1861 rains began falling until the banks of the Kern River were spilling over onto the new settlement. Disgusted with the ever present threat of floods and malaria, Bohna left the valley and eventually settled in the Glennville-Woody area.



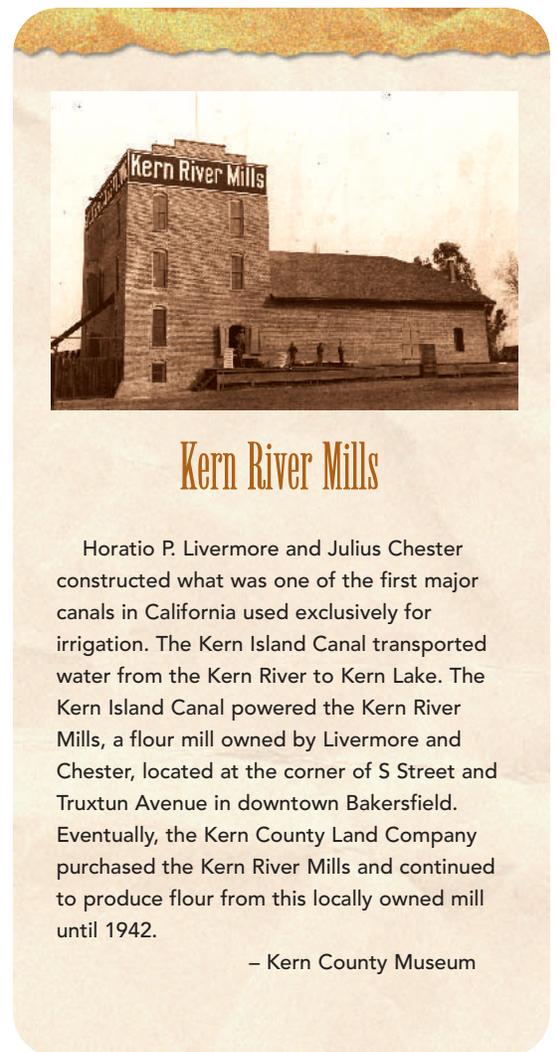
On September 10, 1863, Colonel Thomas Baker and his young family moved into the former Bohna home, which Baker had

purchased for \$200. Included in the sale were 160 acres of prime farmland on Kern Island. Colonel Baker's background as a lawyer, state assemblyman and a surveyor made him ideal as the founder of this fledgling community.

In 1867, a flood diverted the Kern River north away from the Kern Island settlement, and Colonel Baker set about to clear and sell property and would soon be asked to set up a town site which would become known as Baker's Field. The name was suggested by Philo Jewett as a tribute to Baker's generosity and his common practice of allowing travelers to graze their livestock on the lush grasses and alfalfa in the field owned by Baker.

Colonel Baker, being a man of great enterprise, opened a land office and began selling the reclaimed swamp land to anyone willing to settle in this new city. Roads were being carved through the foothills, and the Butterfield Stage carried travelers from north to south near the growing town site.

Gordon's Ferry, on the Kern River, was established as a stage stop at the base of what is now known as the Panorama Bluffs, near Bakersfield College.



## Kern River Mills

Horatio P. Livermore and Julius Chester constructed what was one of the first major canals in California used exclusively for irrigation. The Kern Island Canal transported water from the Kern River to Kern Lake. The Kern Island Canal powered the Kern River Mills, a flour mill owned by Livermore and Chester, located at the corner of S Street and Truxtun Avenue in downtown Bakersfield. Eventually, the Kern County Land Company purchased the Kern River Mills and continued to produce flour from this locally owned mill until 1942.

– Kern County Museum

While the miners continued to harvest the precious metal from the upper Kern, progress was at a fever pitch in the valley below. New settlers were moving in each day such as Julius

Chester, Horatio Livermore and Richard Hudnut. The fertility of the area and the hard work of its citizens were starting to pay off. Sheep men, such as Solomon Jewett and General Edward F. Beale, and others would begin raising great flocks to supply the miners. Cattle ranchers, such as Ferdinand Tracy, Wellington Canfield and George Young, would also make a contribution to this growing community known as Bakersfield.

As the swampland was drained and cleared, canals were dug and levees built. Soon Colonel Baker had the claim to over 89,000 acres of reclaimed swamp and marsh land. By 1869 the demand for Kern County land was increasing.

In 1871, the permanent population was over 600 and the small city was boasting of a bustling business district, a school and other development brought on by civilization. Even with the apparent success of these pioneers, hardship and danger were always close at hand.

The Kern River continued to flood periodically and Colonel Baker, after falling victim to typhoid fever, died of pneumonia in November of 1872. But his hard work to establish a place for others to live and raise families would never be forgotten.

To provide water for the growing agricultural community, canals were being dug to divert Kern River water to those areas in need of irrigation. One such canal was the Kern Island Canal constructed by Horatio P. Livermore.

After construction began, two wealthy men, James B. Haggin and Lloyd Tevis, along with a powerful overseer, Billy "Boss" Carr, would purchase 59,000 acres of rich Kern Delta land, including Livermore's canal and the Kern Valley Water Company on the west side.



## Julius Chester 1831 - 1890

Julius Chester was born in 1831, a Connecticut Yankee who came to

California in 1854. Julius and his brother George arrived in Bakersfield about the time Colonel Thomas Baker was laying out the future city of Bakersfield. Julius was the owner of a large mercantile and livery business and the town's leading citizen. A man of many endeavors, Julius Chester ran a saw mill, herded sheep and founded the newspaper "Southern Californian" in Bakersfield. The first Wells Fargo agent, Julius operated a freight business and the Overland Stage Coach in which he laid out a new route to Visalia by bypassing the Sierra foothills. In 1860, the California State Legislature approved of a Tulare-region land sale of \$1.00 per acre. Julius bought land and petitioned the state legislature for the right to irrigate the farmland. In 1871, Julius Chester and H.P. Livermore dug the Kern Island Canal from the foot of the Panorama Bluffs to the flour mill owned by Livermore. It is believed that the digging of the Kern Island Canal was to bring a reliable source of water to Julius' farmland and Livermore's flour mill. Because Julius now had a reliable water source, he brought cotton farming to Bakersfield to help out the Civil War effort with a supply of cotton fabric. In 1871, Julius was one of the founding members of the California Cotton Growers and Manufacturers Association. Julius Chester died in San Francisco on May 3, 1890, at the age of 59. In recognition of their contributions to the community, several Bakersfield streets, namely Chester Avenue, Chester Place and Chester Lane, were named in honor of Julius and George Chester.



Prompted by the Haggin-Tevis-Carr organization, which now owned their own canal and water system, other farmers began to dig their own canals, purchasing their water from the Haggin-Tevis-Carr group and bringing irrigation water to every farm in the region.

Henry Miller and Charles Lux, wholesale meat producers and retailers, also owned and were developing most of the swamp lands between Buena Vista and Tulare Lakes. They also owned thousands of acres of range land that extended as far as San Francisco.

Because there was no recognized system governing the use of the waters of the Kern River, each user took what he needed and a water rights controversy began to erupt.

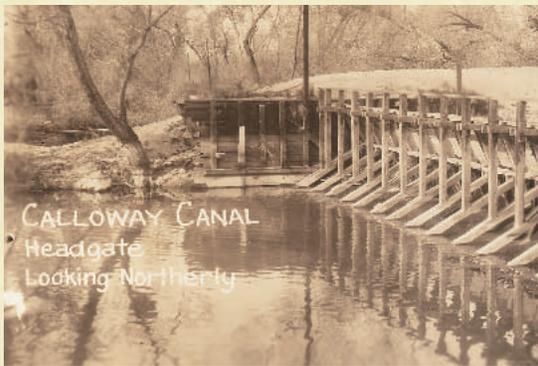
## Souther Ditch Plow

The Souther Ditch Plow was named for William Henry Souther, superintendent of the Horatio P. Livermore land holdings in Kern County from 1874 to 1878. W.H. Souther had his enormous plow constructed near Hollister, California and transported on the Southern Pacific Railroad to Bakersfield. The plow was constructed to build the Kern Island Canal in 1874. The Kern Island runs from the foot of Panorama Bluffs through Central Park in downtown Bakersfield past the Beale Library and on south to water the fertile fields of the Kern Lake bottom. The plow reportedly could cut a furrow five feet wide and three feet deep. Weighing 1,800 pounds and requiring forty yoke of oxen to pull this massive piece of machinery, the Souther Ditch Plow proved an inefficient tool for excavating a canal. The plow was abandoned on H.P. Livermore's Greenfield Ranch (located south of Bakersfield) in 1875.

- Kern County Museum

## The Compromise

In 1875, Oliver P. Calloway started to build a canal on the previously undeveloped north side of the Kern River that would be used to irrigate 35,000 acres. Due to the lack of financing, however, Calloway could not complete the project. Meanwhile Haggin, Tevis and Carr aided by passage of landmark legislation in Washington called the Desert Land Act, laid claim to the large portion of the Calloway land. With purchases of additional railroad property, Haggin, Tevis and Carr soon became the largest land owners in the area. They continued where Calloway left off completing the Calloway Canal.



Calloway Canal, circa 1915

By 1879 the completed canal worked so well that it diverted the remaining flow of the Kern River north through the Calloway Canal. Downstream, the farms and sloughs were left high and dry. Cowboys and farmers alike retaliated by sabotaging the new Calloway weirs. Tempers ran high and a lengthy court battle began that would establish water rights law for the State of California. This battle would rage for the next nine years both in and out of court. The lawsuit was known as LUX vs. HAGGIN.

Miller and Lux claimed title to the water, asserting they owned the land on the natural course of the river, commonly known as a Riparian Right. Their land was located along the west side of the valley between Buena Vista and Tulare Lakes.

Haggin, Tevis and Carr claimed the water along the east side of the valley on grounds of prior appropriation, and that their endeavors were to go for a greater common good. The court battle waged on with volumes of testimony being accumulated. The trial court ruled in favor of Haggin, Tevis and Carr.

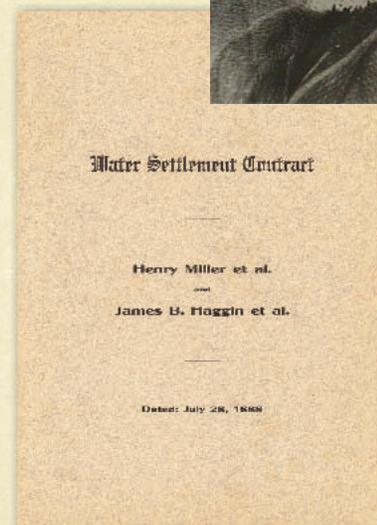
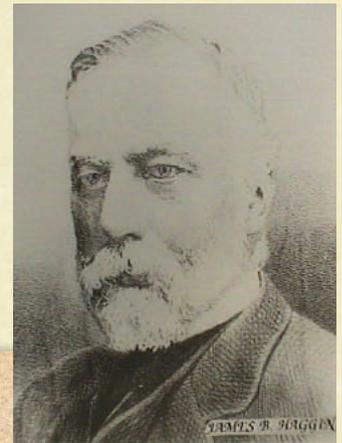
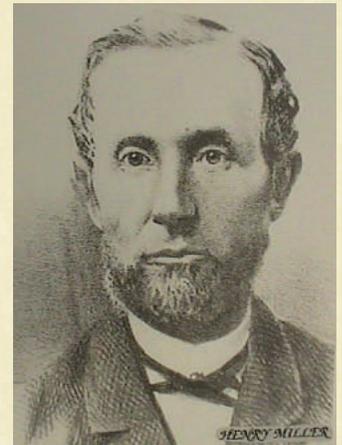


Bakersfield Courthouse, circa 1888

After Miller and Lux appealed the trial court decision, the Supreme Court rendered a landmark decision which established water rights law for California and other western states, and directed that the case be reviewed on certain issues. Rather than pursue further litigation, Henry Miller proposed a **compromise**. This compromise brought about a settlement of the water dispute that had taken so much time, energy and resources to fight.

According to the agreement, Kern River water would be jointly measured above Gordon's Ferry at a site to be known as First Point of Measurement. One third of the water, during the six spring and summer months, would belong to downstream lands owned by Miller and Lux. The one third water allocation would be delivered to the west side in undiminished quantities to a site known as Second Point of Measurement. Haggin and Tevis and the upstream canal companies would get the rest. In addition to the other concessions, they would assist in constructing a reservoir out of Buena Vista Lake for Miller and Lux, that would be used to store high flows not utilized by the upstream group.

The agreement was signed on **July 28, 1888**, and ratified by 30 corporations and 77 individuals. Little did they know that this historic Kern County Water Agreement would go on to constitute the basis for water rights on the Kern River for generations to come.





## A Boom Town Emerges

The townspeople of Bakersfield were ecstatic about the Miller-Haggin agreement as the uncertainty of the water supply for their lands was finally settled. But their joy was to be short lived because on July 7, 1889, the entire business district of Bakersfield burned to the ground.

However, Bakersfield's community spirit could not be destroyed, and out of the ashes a newer and bigger downtown Bakersfield arose.

From this point forward Bakersfield continued to grow. A few years later, just before the turn of the century, oil was discovered and with this discovery a boom town would emerge.

Even with the new found wealth, the area continued to be at the mercy of Mother Nature experiencing both floods and droughts that through the years caused millions of dollars of damage.

In 1944 Congress passed the flood control act which authorized the construction of Isabella Dam. Although flood control was its main purpose, other benefits accrued from its construction such as recreation, fish and wildlife, electrical power generation, and improved water supply for irrigation. The project was completed in 1953 and Kern River water was first stored behind the new dam beginning in April of 1954.

## Isabella Project Authorization

The Isabella Project, Kern River, California was authorized by the Flood Control Act of 1944, approved December 22, 1944, the pertinent portion of which follows:

*"The project for the Isabella Reservoir on the Kern River for flood control and other purposes in the San Joaquin Valley, California, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in his report dated 26 January 1944, contained in House Document Numbered 513, Seventy-eighth Congress, Second Session,..."*

The modern era has greatly impacted the Kern River and its daily operation. Major weirs, which allow for canals to carry water away from the river, originally constructed of wood have been replaced with soundly engineered concrete and steel structures. Engineers, realizing that floods of great magnitude will occur on the Kern River in the future, as they have historically, have developed a maintenance program that will help to ensure safe passage of water in the Kern River Channel through Bakersfield.

## Kern River Valley Connection

During the early 1900s, the Kern River was harnessed for hydroelectric power which the growing cities of California needed. The towns of Kern Valley were hopping as power company workers swarmed. A good road from the Kern Valley to Bakersfield along the Kern River connecting the power projects was clearly needed and was built in portions for several

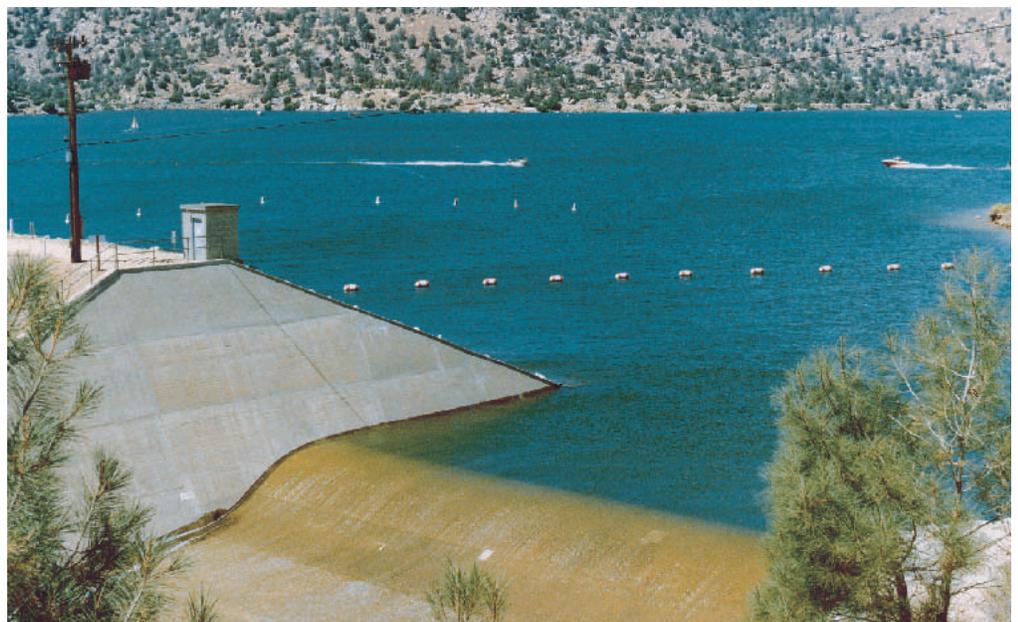
years. It was finally completed in 1926. At the time, Western movies were all the rage and movie companies began to come to the Kern Valley to film. Soon there was so much filming activity in Kernville



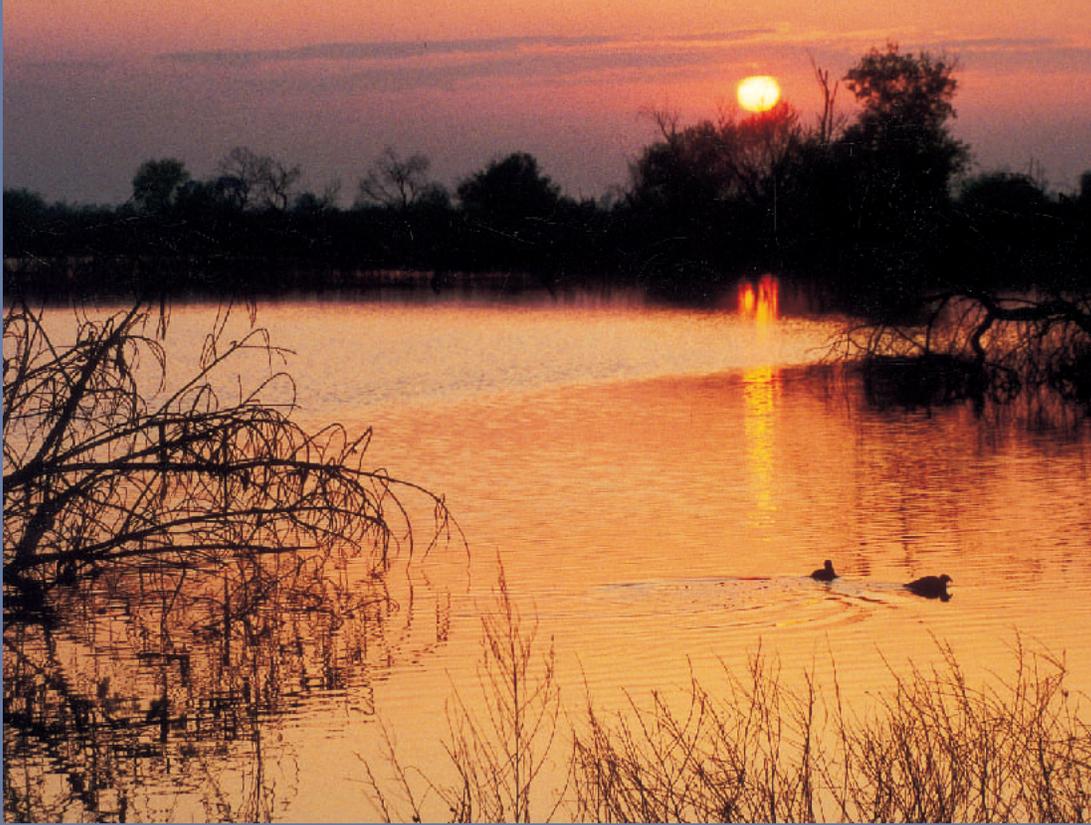
Democrat Dam

that the town built a special street of false fronts which they named Movie Street. Some of the actors who were seen in the Kern Valley during those years were Hopalong Cassidy, Roy Rogers, Tom Mix, Yvonne DeCarlo, Hoot Gibson and Gene Autry.

A dam on the Kern River in the Kern Valley was being considered as early as 1913 but was finally authorized by the United States Congress in 1944. Many of the residents of the Kern Valley were in shock when they were told their homes were in the way of the new lake. The entire towns of Kernville and Isabella were to be under water when the dam was completed. The work consisting of two side-by-side dams was started in 1948 and completed in 1953.



Isabella Spillway



Large areas of land have been developed for the purpose of conserving Kern River and other water supplies not needed for crop irrigation, allowing for underground storage of this water for future use. One early example of this water conservation practice is the storage of surplus water in the City of Bakersfield-owned 2,800 Acre Water Bank.

The story of the Kern River is really a story of people. Men like Christian Bohna, Colonel Thomas Baker, Horatio Livermore, Henry Miller, Charles Lux, Lloyd Tevis, James B. Haggin, Julius Chester, and countless unnamed others, all learned how to cooperate and compromise, and have left a great legacy for others to follow.

From humble beginnings to its present day development, our community has received enormous benefits from the water resources of the majestic Kern River...and with continued cooperation and understanding will continue to do so for many years to come.



Another current community development is the Kern River Parkway, a program which includes streamside restoration and beautification of the Kern River Channel and its banks, and will allow all citizens of Bakersfield to further enjoy our precious local resource.



## Chapter Two

# Changing the Course of Kern River

by Walter F. Heisey and Harold Bergen  
January 1989

The City of Bakersfield was officially established in 1869 with 250 residents. Swamp lands were being drained and the Kern River flood plain was rapidly being developed by agriculture. The City was slowly beginning to grow into the dominant trading center of the southern San Joaquin Valley.

The City had no reason to foresee a day when its residents would be confronted with a concern for water. The Kern River was at its doorstep and the water table was so high that green fence posts frequently took root and became trees. The future growth of our community and its great need for a secure and expanding source of good water for municipal and industrial users would remain a remote problem for future generations to deal with.

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*In 1888, Henry Miller and James B. Haggin...were dividing up the waters of the Kern River by solemn contract and agreement; the City was not even represented...*

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Men of agriculture showed great acumen and foresight in vigorously acquiring water rights, building canals and expanding agriculture. In 1888, Henry Miller and James B. Haggin, along with many others, were dividing up the waters of the Kern River by solemn contract and agreement; the City was not even represented. No voice spoke out on behalf of the people of Bakersfield or their heirs. The water went to ever-expanding thirsty lands. Weirs were built above the City, siphoning off water that had previously fed the great underground water table of the City.

In 1900, Judge Lucien Shaw issued his historic findings and decree ordering in detail the division of the Kern River water among the various right holders, detailing the areas the canal companies served and the priority of flows of water to which each was entitled. This decision went a long way towards bringing peace on the river as between agricultural interests, but did nothing to protect the interests of urban Bakersfield.

## Shaw Decree

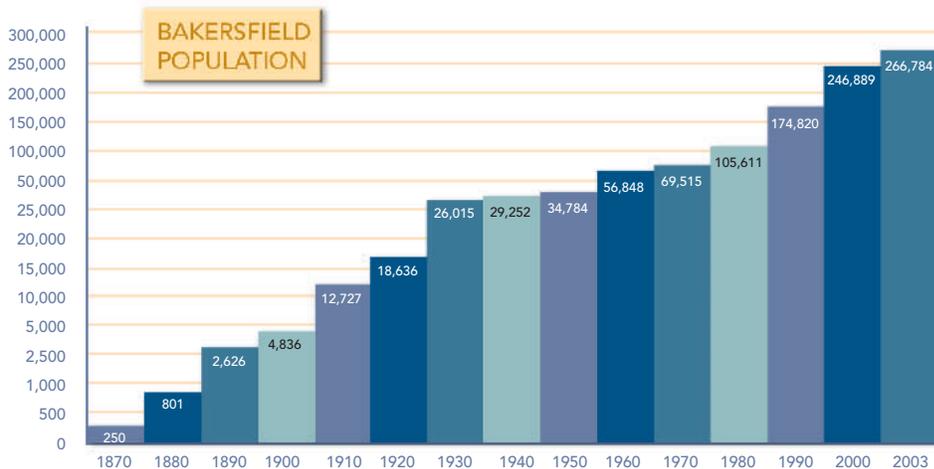
DIVERSION RIGHT		
RIVER STAGE	AMT.	NAME OF CANAL
		K. C. L. CO ENT'L AT 2ND PT
300.0	300	KERN ISLAND (1st)
		EASTSIDE
		KERN RIVER CONDUIT
		CASTRO
320.0	20	KCC & W Co.
330.5	10.5	SOUTH FORK
410.5	80	BUENA VISTA (1st)
530.5	120	JAMES (1st)
550.5	20	ANDERSON (1st)
700.5	150	STINE
730.5	30	MEACHAM
880.5	150	FARMERS
920.5	40	PLUNKET
960.5	40	JOYCE
1000.5	40	JOHNSON
1130.5	130	PIONEER (1st)
1190.5	60	BEARDSLEY (1st)
		LERDO (NKWSD)
1200.5	10	ANDERSON (2nd)
1240.5	40	JAMES & DIXON
1250.5	10	WILSON
		KCC & W Co.
1276.5	26	McCAFFREY
1376.5	100	McCORD
		LERDO 30%
		BEARDSLEY 70%
2226.5	850	CALLOWAY
		CENTRAL 20%
		NKWSD 80%
2426.5	200	RAILROAD
		KCC & W Co. 20%
		NKWSD 80%
2516.5	90	BUENA VISTA (2nd)
2696.5	180	JAMES (2nd)
2866.5	170	PIONEER (2nd)
3106.5	240	BEARDSLEY (3rd)
3162.5	56	KERN ISLAND (2nd)

By 1900, the City of Bakersfield had a population of over 4,000 inhabitants. However, with stagnant sloughs and excess ground water in wet years, no one seemed to notice that an ever tightening grip was being taken on Kern River waters which were being diverted away from Bakersfield for the near exclusive use of agriculture.

Since the turn of the century, we saw the great Kern County Land Company move to consolidate its ownership of the major canal companies and water rights. In more recent years, we have seen its successor, Tenneco West, embark upon a progressive program of liquidating much of its agricultural land and vigorously proceeding with the industrial and urban development of other large parcels adjacent to the City of Bakersfield.

The City first became actively aware of its water needs and shortages with the advent of the State Water Bond election to build the vast State Water Project. The State project became a reality through the affirmative vote of the people of Bakersfield. The City didn't question how it got into a water deficit position, but it expressed its wholehearted support of agriculture at the polls and the urban area agreed to take 77,000 acre-feet of State project water when available and the Kern County Water Agency was formed to administer the State project water.

The Kern County Water Agency attempted in 1967 to form a Municipal Water District and build a cross valley canal. This maneuver was soundly beaten at the polls and the City council formed a "Water and City Growth Committee" as a standing counsel committee with Mr. William Parks, Chairman, and Dr. Richard Stiern and Mr. Richard Hoskings, members. They were instrumental in obtaining Mr. Thomas M. Stetson, well-known water engineer, as consultant for the City of Bakersfield. The objective was to study the City's current and long term water needs and to recommend an alternative program of action.



Through changes in the City Council body in the spring of 1967, the Water and City Growth Committee was placed under the chairmanship of Walter F. Heisey, where it remained for the next eight years. The other members of this three man committee varied through the years and consisted of Dr. Richard Stiern, Mr. Keith Bleeker, Mr. Robert Whittemore, Mr. Don Thomas and Mr. Don Rodgers. The latter succeeded to chairmanship in May, 1975.



Walter F. Heisey, Chairman  
Bakersfield Water and  
City Growth Committee  
1967 - 1975

The study by Mr. Stetson of the City's water needs revealed that we were in a deficit water position. Our major water purveyor, the California Water Service Company, was regularly finding it necessary to deepen its wells and occasionally to abandon wells due to poor quality or due to uneconomic output.



The Acquisition Team  
Left to right: Harold Bergen, Thomas M. Stetson, and Ken Hoagland



The question that naturally followed was:  
**Where has our water gone?**

We found that several things had happened. First, our population was growing and we were using more water. This by itself shouldn't have made any appreciable difference. Since both urban land and farm land use roughly three acre-feet of water per acre of land per year, the transition from farm land to urban land did not increase use.

Wherein, then, did the real problem lie? Agricultural pumping for the development of new lands was drawing the water table out from under the urban area. Further, weirs had been built north of Bakersfield diverting water from the Kern River Channel, thus depriving the urban area of its historic annual river percolation.

In addition, several canals that transverse the urban area were lined with concrete, depriving the public of even this percolation. Lastly, as the City had grown and agricultural land had become urbanized, the river water had been arbitrarily taken from these urban lands to develop other agricultural lands at great distances from Bakersfield.

The fact that the City was not a participant in 1888 or in the deliberations of 1900 whereby the waters of the Kern were divided up did not imply that the City had no water rights but simply that the City had not been invited to participate in the decisions and its water rights had not been considered.

We gradually came to the only conclusion possible that the citizens of the City of Bakersfield and their heirs were in fact being deprived of their legitimate historic water rights. At first we tried to bargain with "Tenneco West" in hopes of acquiring once again for urban use those waters that had been diverted for other purposes. Our case was so clear cut that we hoped they would return these waters to the City for some modest payment. We never received a realistic offer from Tenneco and negotiations broke down.

About this same time we began to hear rumors that certain commercial groups were interested in purchasing Tenneco's water rights and that they might even be sold to Southern California. The Kern County Land Company's operation had changed rapidly under Tenneco and it appeared to some of us that the cash flow that would come from a quick sale of their water rights would have a strong appeal to both management and stockholders.

After a great deal of research and study and in conjunction with the California Water Service Company, the Bakersfield City Council in Executive Session on Monday evening, September 28, 1970, acted to protect the rights of its citizens to the use of such amounts of Kern River water as the court determines to be valid.

The California Water Service Company, in order to protect fully the interest of its customers, joined with the City in filing eight causes of action. Together, they requested a court decree determining ownership of Kern River water; a declaration of the water rights of the City of Bakersfield and property within the City; an injunction to prevent the defendants from taking water in excess of their rights; and an award of damages to the plaintiffs. The City filed a ninth cause of action on its own condemning the first 77,000 acre-feet of Kern River water annually all at First Point of Measurement. These actions were filed against all known claimants of water rights on the River.

The shock was great to many, but from that day forward we had their attention and cooperation towards an equitable and reasonable settlement that would prove to be in the best interest of both the City of Bakersfield and Tenneco, as well as of the entire urban area, all accomplished out of court.

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*...the citizens  
of the City of  
Bakersfield...  
were in fact  
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The City had previously spent five years in study and negotiations searching for an alternative to their participation in the Cross Valley Canal, a proposed eighteen-mile long canal that would be used to convey state water from the California Aqueduct to the Bakersfield area. The conclusion was finally reached that to ensure our community's future we needed both the state project entitlement water transported to urban Bakersfield as well as a re-establishment of our Kern River water rights.

The 77,000 acre-feet of State Project Water would take care of our needs for the next thirty years; beyond that date we needed our own firm supply of Kern River water. The Kern County Water Agency had levied a substantial tax on the urban area to pay for the state entitlement. This state water tax had to be paid whether or not we received any of the state water.

Having set our course, the City Council appointed a "Citizens Advisory Water Committee," under the chairmanship of Mr. Francis A. Moore Jr. to ensure passage of the local bond issue to build the Improvement District No. 4 Treatment Plant and its share of the Cross Valley Canal. The election was to be held on September 12, 1972.

This council committee was subsequently consolidated with the Chamber of Commerce sponsored "Citizens for Water Committee" into one unified group with Mr. Fred Morris, General Chairman; Mr. Ralph Zellers, Publicity Chairman; and Mrs. Francis Moore Jr., Finance Chairman.

As chairman of the Water and City Growth Committee, Mr. Heisey personally addressed a great number of community organizations encouraging support of the bond issue. At a time when most bond issues were failing statewide, the election to bring state water into Bakersfield and build a water treatment plant passed with an overwhelming 73.5 percent vote of approval.

In recognition of the hard-fought election, Mr. Heisey received a personal letter from the Kern County Water Agency signed by W.C. Bryant, Engineer-Manager, thanking him for his efforts, support and assistance in passage of the bond issue.

It was during this same period of campaigning on the bond issue in the summer of 1972 that the City Manager was approached by a representative of Tenneco asking if the City would be interested in buying all of the Tenneco rights on the Kern River in settlement of our lawsuits.

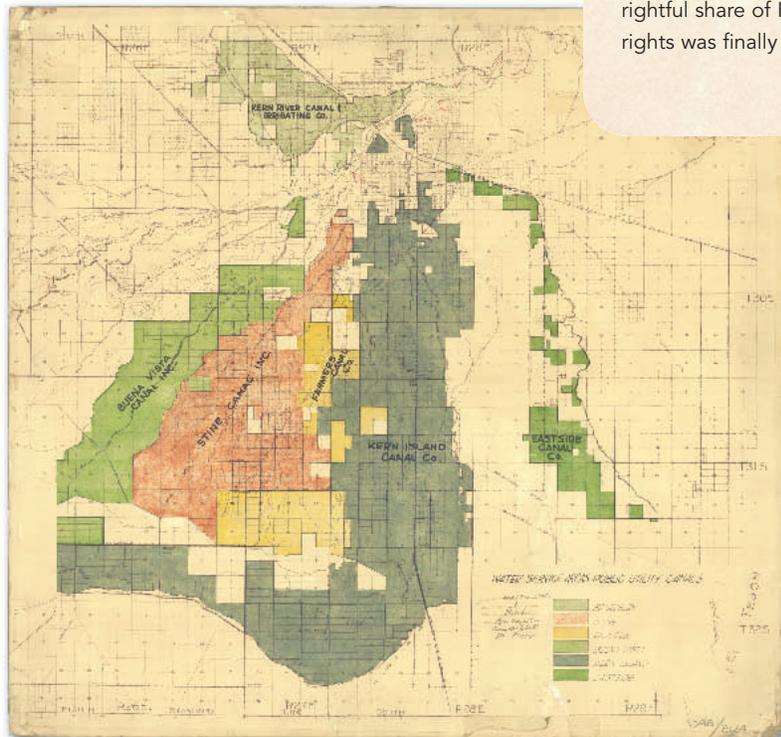
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*We worked with one  
overriding principle in mind...  
the acquisition was not to be a  
burden on the taxpayers...*

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Certainly we were interested but with an election pending it was not the time to make such an offer public. However, with the election out of the way in September, we authorized our staff and consultants to seriously negotiate with Tenneco toward acquiring all of their interests in the Kern River in settlement of our lawsuits and also to exploring methods of financing the acquisition.

We worked with one overriding principle in mind – that the acquisition was not to be a burden on the taxpayers but pay for itself over a reasonable period of time. It followed that we could then afford to pay for the system whatever sum we could finance out of water revenues.



## Harold E. Bergen

Bakersfield City Manager  
April 5, 1966 to December 26, 1980

Harold Bergen was born October 30, 1928. After graduation from high school, Harold served three years in the United States Coast Guard and was honorably discharged in 1949. In 1951, he received his AA degree from Reedley College. Three years later he obtained a BS degree in Civil Engineering from the University of California in Berkeley. After graduation from Berkeley, Mr. Bergen worked a short time for the City of Sacramento before hiring on with the City of Bakersfield as an Engineer II in 1955. In 1958, Harold was promoted to City Engineer and then in 1962 to Director of Public Works. In 1980, after serving as Bakersfield City Manager for 14 years, Mr. Bergen retired and went into private business.

A tireless and devoted public servant, Harold Bergen led the City team in pursuit of the Kern River Purchase from Tenneco West, Inc. With the acquisition of the Kern River on December 22, 1976, the City of Bakersfield's claim to its rightful share of Kern River water rights was finally realized.

# The Bakersfield Californian

VOL. 88 -- 4 SECTIONS BAKERSFIELD, CALIFORNIA, MONDAY, APRIL 15, 1974 36 PAGES No. 105

## Report supports city water buy

When the Bakersfield city council held session in July 1973, they agreed to a water rights purchase plan that City Manager Harold Bergen later called the "...most important council action in 50 years... and maybe for the next 50."

## Purchase part of lawsuit compromise

The water rights of Tenneco, the operation of the canal companies, the revenues and expenses, the handling of flows in years of flood and drought - all these questions and many more required answers. There was only one person in Kern County who really had the answers and that was Mr. William Balch of Tenneco, who was also the Kern River Watermaster.

He was the same one we were bargaining with for the settlement. Tenneco was fortunate to have a man of his caliber and character. It has also proved fortunate for the City of Bakersfield. The City was always able to rely on his word and advice in simple as well as complex matters. Facts and figures that had been sealed away for nearly a hundred years were turned over to our consulting engineer and our consulting attorney in order that the City could have a complete and understandable profile of the river as to its flows, uses, commitments, contracts, and future expectations.

Following on July 30, 1973, City Council unanimously took the following action:

1. Approval of lawsuit settlement by acquisition of water rights of Tenneco West, Incorporated, for \$17.9 million.
2. Authorized staff and committee to work out details of financing and payment.
3. Authorized employment of special bond counsel and financial consultant.

Present: City Council  
City Staff: City Manager  
City Attorney  
Consulting Attorney, Ralph Helm  
Consulting Engineer, Thomas Stetson  
Harry Kerr, Co-plaintiff,  
California Water Service Company

*"We achieved far more for the citizens of Bakersfield than we had dared dream."*

- Walter F. Heisey -

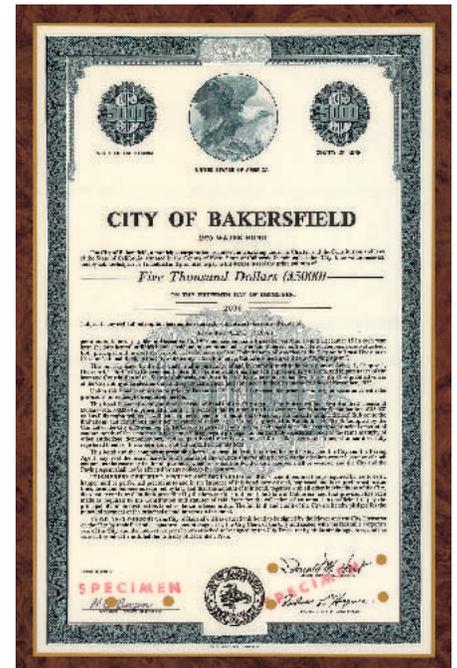
*"On June 1973, a luncheon meeting was held at the Hilton Hotel in a private dining room with Mr. William Balch and Mr. Jack Fox of Tenneco West. The City staff and consultants were present as well as our City Council Water Committee.*

*Mr. Jephtha A. Wade Jr., Vice-President/Chief Engineer and Mr. Harry Kerr, Vice-President of California Water Service Company, were also present. I explained to the representatives of Tenneco that I was speaking as the Chairman of the City Water and Growth Committee with the full concurrence of the full City Council to make binding agreement.*

*Their asking price at this point in time was \$20 million. We on this occasion made our first official offer of \$17 million. Their reaction seemed to be one of sincere interest and they agreed to present it to Mr. Askin, Executive Vice-President of Tenneco, who was to be in Bakersfield from Houston later in the week.*

*On Friday, June 22, 1973, at a second luncheon meeting at the Bakersfield Country Club together with some subsequent telephone conversations held that afternoon the purchase was completed for a total of \$17,900,000 subject to ratification by the Council and in consideration of settlement of all lawsuits pending. There were many details to work out; however, I never doubted for a moment the sincerity of Tenneco. We achieved far more for the citizens of Bakersfield than we had dared dream."*

Walter F. Heisey



1976 Water Bond

While the foundation for purchase of Tenneco's assets had been established, dancing in the streets would have to wait until a myriad of details could be worked out. Specifically, the City acquired all of Tenneco's water rights, rights-of-way, canals, head gates, and operating equipment and rolling stock plus their storage capacity at Lake Isabella, together with 2,800 acres of land in the Kern River floodplain west of Bakersfield.

From this point on, our acquisition was primarily one of resolving the financing and fighting off the slings and arrows of those who would have liked to see our program fail.

## Watermaster

During the 1954 contract negotiations between the United States of America and North Kern Water Storage District (representing the First Point water interests), Buena Vista Water Storage District, Tulare Lake Basin Water Storage District and Hacienda Water District (collectively "water districts") to provide for the operation and maintenance of the conservation storage space of the Isabella Reservoir, it was determined that a single voice, or *Watermaster*, would speak for the various water districts on matters pertaining

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*"The role of any single individual cannot outweigh the significance of the City's acquisition. (Private) companies come and go, but the bond between the City of Bakersfield and the Kern River will last a long, long time."*

- William T. Balch -  
former Kern River  
Watermaster and General  
Manager of Kern County  
Canal and Water Company

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to operation of Isabella Dam. The Army Corps of Engineers, acting for the United States, was to store and regulate the Kern River water to which the districts were entitled under the direction of the Watermaster.

According to the 1962 Kern River Water Rights and Storage Agreement by and among the water districts, the Watermaster shall "prepare and keep complete records on a daily basis of the flow of the waters of Kern River and the storage thereof in and release thereof from Isabella Reservoir and shall prepare and deliver to each district reports summarizing such records...". In addition to maintaining daily contact with the Corps on Lake Isabella operations, the Watermaster coordinates the diversion of imported

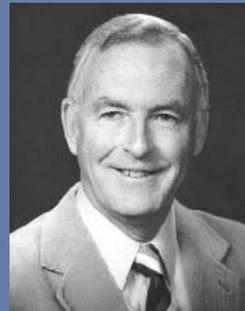
water supplies into the Kern River Service Area on behalf of the water districts he represents and routinely monitors development and environmental activities in the Kern River watershed, Kern River Valley and Kern River below Isabella as to how they may impact the current and future operation of Kern River. The Watermaster has even been known to mediate disputes among the various Kern River water right holders.

The Watermaster utilizes Central Records staff to perform the actual daily measurements of Kern River flow and diversion. Based upon the results of these measurements, releases from Isabella Dam are made in accordance with all prior existing agreements on Kern River, beginning with the Miller-Haggin Agreement of 1888. Since 1977, the Central Records function has been fulfilled by the City of Bakersfield Water Resources Department.



**William T. "Bill" Balch**  
Kern River Watermaster 1955-1975

William T. Balch, born in 1925, was a graduate of the University of California, Berkeley with a degree in engineering. After a brief stint with the Fresno Irrigation District, Bill went to work for the Kern County Land Company in 1951. Rising quickly through the ranks of the land company's water division, Mr. Balch was named General Manager of Kern County Canal and Water Company in 1955. With this position came the duty of Kern River Watermaster. Bill presided over the records transformation that came with the conversion of Kern River from a natural stream to a regulated stream upon completion of Isabella Dam and Reservoir. His tenure saw the first amendment to the original Miller-Haggin Agreement in 1955, completion of the Kern River Conduit in 1962, the second amendment to the Miller-Haggin Agreement in 1964, the great flood of December 6, 1966 and the first occasion water poured over the Isabella Dam spillway in July of 1969. During the years leading up to the City's Kern River Purchase in December of 1976, William T. Balch was invaluable in furnishing his extensive knowledge of Kern River operations to City leaders. A brilliant and humble man, Bill Balch noted during a recent interview, "The role of any single individual cannot outweigh the significance of the City's acquisition. (Private) companies come and go, but the bond between the City of Bakersfield and the Kern River will last a long, long time."



**Charles H. "Chuck" Williams**  
Kern River Watermaster  
1976-present

C. H. Williams was born in Istanbul, Turkey on December 23, 1928. The son of a National Geographic photographer, Chuck received his degree in civil engineering from Stanford University before hiring on as an engineer with Kern County Land Company in 1956. Widely regarded for his work on the Kern River Conduit, Chuck spearheaded a long-term engineering study that in effect, numerically replicated the flow and seepage conditions of Kern River as if Isabella Dam were not in operation. The study, initiated by the construction of the Kern River Canal and requirement of First Point water interests to meet delivery obligations to Second Point under terms of the 1888 Miller-Haggin contract, would define the entitlement of the Kern River Conduit which the City later purchased from Tenneco West, Inc. in 1976. Acutely aware of Kern River Service Area hydraulics, Chuck was named head of the Land Company's Water Division in 1964, overseeing much of the engineering work devoted to the company's irrigation system within the North Kern Water Storage District. In 1976, Chuck became Engineer-Manager for the North Kern Water Storage District, a position he held until August of 1999. On December 29, 1976, C.H. Williams was appointed Kern River Watermaster by the Kern River Interests. Chuck recalls the conversion of Kern River Watermaster records from hand-written to computer generated reports in 1985. This major change in record production passed by a narrow 3 to 2 vote of the water districts, causing him to quip, "Change comes grudgingly to Kern River." The Chuck Williams era as Kern River Watermaster has seen flood years requiring use of the Kern River Intertie with the California Aqueduct (1978, 1980, 1983, 1986 and 1998) and an unprecedented period of drought between 1987 and 1992. The challenges of development along the river and environmental issues related to operation of Isabella Reservoir have been difficult, yet C.H. Williams has continued to steward the Kern River with consistency, accuracy and determination.

## 2,800 ACRE WATER BANK



The properties acquired from Tenneco West, Inc. by the City of Bakersfield included approximately 2,800 acres of land situated along the Kern River between the extension of Renfro Road and Interstate Highway 5. The site was approximately six miles long and included old river channels and overflow lands, part of the natural recharge area that existed prior to operation of Isabella Dam. The sandy soil was ideal for percolation of water into the underground aquifer, so the City set out to create the first municipal water bank in Kern County. In so doing, the 2,800-acre spreading area has far outgrown its original contemplated uses and, in fact, has become the prototype for the water banking industry not only in Kern County but throughout the State of California. However, according to the memoirs of Walter F. Heisey, this piece of the Kern River Purchase almost didn't happen:

*"For the 2,800 acres, which we bargained for and received almost as an afterthought, we are indebted to Mr. Alan Watts, a former Kern County Land Company man. He came by my office one day to point out the necessity of having this flood plain land to assist with water management in wet years. After passing this information on to the City Manager it was quickly incorporated into our agreement. If the suggestion had come much later, we might well have missed out on this valuable asset." - Walter F. Heisey*

Since the date of acquisition of the 2,800-acre property, the City has invested over \$2 million in infrastructure on the land, including major weirs, levee construction, man-made off channel spreading basins and inter-basin head gates and measuring devices. In addition, 25 production wells dot the property, providing for recovery of previously banked groundwater in dry years. Since the first drop of water was spread in the 2,800-acre recharge area in February of 1978, water spreading operations by the City and its 2,800-acre contractors have totaled over 1,300,000 acre-feet.

We found that we could finance the entire purchase through the sale of water for a limited period to various agricultural interests. We also learned through Mr. Stetson that the power consortium headed by the Los Angeles Department of Water and Power was interested in possible stand-by water as coolant for a proposed nuclear power plant to be built near Wasco. An E.I.R. was initially prepared on this project which ran into considerable opposition from both environmental groups and the agricultural community. Kern Delta Water District had also filed an action against Tenneco and the City, and the County of Kern also entered this action as an interested party.

In order to bring harmony on the water front, the City in the fall of 1974 abandoned the proposed agreement with the power consortium and proceeded to finance the Kern River acquisition through contracts with five local irrigation districts for the sale of water over the next thirty-five years.

Further, the City reached a settlement of Kern Delta Water District's suit by agreeing to sell the Kern Island Water Company canals and water rights to the district for \$3,500,000. Having accomplished this, a new Environmental Impact Statement was prepared and a hearing was held on August 18, 1975. Opposition at this point turned to support. The final Environmental Impact Report and Hearing was held September 29, 1975, clearing the way for a complete settlement and general obligation bond election.



The "original" Second Point of Measurement



## ERA OF RECONSTRUCTION

The post-acquisition years have resulted in an era of reconstruction unparalleled in Kern River history. Since the City acquisition, all major river weirs and measuring points located between the mouth of the Kern River Canyon and Interstate Highway 5 have been rebuilt. At the time of acquisition, major river structures inherited by the City from Tenneco West, Inc. were in poor shape from years of flood control operations and neglect or nearing the end of their useful life. First Point of Measurement was

nothing more than a point on the river with a cableway across the streambed from which measurements of flow could be taken. The original structure had been washed away during the flood of December 6, 1966 and never replaced. At the Beardsley and Rocky Point weirs, portions of the wooden weir structures were buckled or nearing collapse, making them largely ineffective for efficient water diversion. Downstream, diversions into the Kern River Conduit were only possible by use of a sand plug in the river bottom. At the Bellevue weir site, large boulders were used to maneuver the river flow into the Rosedale and Pioneer Canals. At Second Point of Measurement near Enos Lane, only a single two-by-four remained of the original measuring structure.



*"Old" Rocky Point Weir*

The City of Bakersfield, in participation with other major Kern River interests, began the task of rebuilding the river structures that are the backbone of the Kern River distribution system. The following major structures (with date of completion) have been reconstructed since the date of the City's Kern River Purchase:

- First Point of Measurement - 1981**
- Beardsley River Weir - 1982**
- Rocky Point Weir - 1982**
- Calloway River Weir - 1984**
- River Canal Weir - 1979**
- Bellevue River Weir - 2002**
- Second Point of Measurement - 1985**

In addition to the above major Kern River structures, numerous other water diversion structures have been built, both new and reconstructed. Most prominent of these include Four Weirs on the Carrier Canal, including the Kern Island and Eastside canal head gates, the Calloway Canal head gate, the Calloway Culverts connecting the river with the Carrier Canal, and the 2,800 Acre Water Bank weirs, basin head gates and inter-basin levee system completed in 1983.

In November 1976, the City of Bakersfield submitted Water Measure "B" to the voters to secure the financing and to obtain the best possible interest rate. Over two-thirds of the electorate voted in favor of the general obligation bond, as follows:

**SPECIAL MUNICIPAL ELECTION**  
 November 2, 1976  
**CONSOLIDATED WITH STATE**  
**GENERAL ELECTION**  
**GENERAL OBLIGATION BOND**

**BOND PROPOSITION**

"Shall the City of Bakersfield incur a bonded indebtedness in the principal sum of \$15,500,000 for the acquisition of all Kern River water, water rights, waterworks and water facilities of Tenneco West, Inc., Kern Island Water Company and Kern River Canal and Irrigating Company described in the Acquisition Agreement entered into by the City as of April 12, 1976, and all expenses incidental to or connected with the authorization, issuance and sale of the bonds?"

**YES - 19,738**  
**NO - 8,914**

The City of Bakersfield, almost ninety years after the original Miller-Haggin Agreement, was finally assured the City's right to water in the Kern River. Our requirements are met for the next century and a valuable natural resource has passed from the whim of private ownership to the custody of a responsible government body that is close and directly responsible to the will of the public.

It would now be the obligation of the City of Bakersfield to protect this invaluable local resource for our future generations.

## Chapter Three

# The Purchase: What Bakersfield Bought

Statement of  
Thomas M. Stetson  
February 1981

Early in 1966 I was retained by the City of Bakersfield to prepare a study and report on alternative sources of water supply for the Bakersfield urban area. There were four principal sources of water supply then considered available to the Bakersfield area. These were: (1) local ground water; (2) Kern River water; (3) Central Valley Project water through the proposed East Side Division; and (4) the State Water Project through a contract with the Kern County Water Agency.

The continued reliance on the ground water basin as a sole source of supply, although an economical source, was fraught with uncertainties as to its dependability and future quality due to the large overdraft on the ground water basin. A dependable supply of water was not available from the Central Valley Project. The proposed East Side Division had not been authorized. Its timing of construction was very uncertain, and now it appears that the East Side Division may never be constructed.

Kern River water was recognized as a source that may be available and could possibly be obtained through exchanges for State Project water. State Project water was available and was considered to be of suitable quality and dependability but it was the most expensive source of supply. It was considered that obtaining a supply of State water and then exchanging that supply with Kern River interests for their Kern River water would be a feasible method of obtaining a long-term water supply for the Bakersfield area.

City representatives then attempted to negotiate various means of acquiring Kern River water for use in the urban Bakersfield area, mainly through exchanges for State Project water. These efforts did not succeed. After a number of years of such negotiations the City decided to institute legal proceedings to acquire Kern River water for the long-term needs of the Bakersfield area.

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*...the irrigation system of the  
Kern County Land Company  
was described as the greatest  
irrigated farm in the world...*

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The Kern County Land Company, formed by James B. Haggin, W.B. Carr and Lloyd Tevis in 1890, was acquired by Tenneco in 1967. On September 29, 1970, the City of Bakersfield and California Water Service Company jointly initiated litigation claiming an interest in Kern River water against various subsidiaries of Tenneco West, Inc., and other parties with interests in the Kern River. Also, on the same date the City of Bakersfield initiated an action to condemn various subsidiaries of Tenneco and other Kern River interests seeking to obtain the first 77,000 acre-feet per year of water and water rights of the Kern River. *(The quantity of 77,000 acre-feet is the amount of water projected by the Kern County Water Agency to be required to meet the future water needs of the urban Bakersfield area through the year 2000.)*

## FUNDAMENTALS OF CALIFORNIA WATER RIGHTS

In California, we have what is commonly known as a dual-system of water rights. It is based upon two legal doctrines – riparian and appropriative. When California was admitted to the Union in 1850, the legislature adopted the common law of England which includes the doctrine of riparian ownership. Lands which abut upon a water course have the right in common with other riparians to use water on that land so long as it has never been severed legally and physically from the water source and is located within the watershed.

The appropriative doctrine came to California with the early miners. They needed water for their mining operations, but they usually did not own the land. Most of the mining in those days was on government land. Also, much of the land in California is arid and the stream flow decreases appreciably in the summer months. Therefore the doctrine of prior appropriation was recognized by the courts. The doctrine of prior appropriation is based on the concept of "first in time is first in right." In other words, those who used the water first retained a priority over those who came later. Also, this is very important, under the doctrine of prior appropriation the land on which the water is used need not be riparian to the water source. This doctrine was formally recognized by the Legislature in 1872 when it incorporated into the Civil Code the procedure of posting and recording notices of appropriation.

The history of water rights on the Kern River is long and complicated. In some ways it is unique because the great bulk of the waters of the Kern River were being utilized before California adopted the Water Commission Act in 1913 to regulate appropriations of surface water through a State agency. Prior to that time appropriations of water were made by posting a notice at the point of diversion, recording a copy of the notice at the County Courthouse, constructing the diversion and conveyance works and putting the water to beneficial use.

Thomas M. Stetson

## Law of the River

Significant irrigation with Kern River water began in the 1860s. By 1873, six canals furnished water to about 7,000 acres of irrigated land. By 1880, the irrigated land area had increased to about 40,000 acres.

By 1874, the Southern Pacific Railroad had reached Bakersfield. James B. Haggin purchased many of the odd-numbered sections of land which had been granted to the railroad by the United States government. The Desert Land Act of 1877 made the even-numbered sections available to entry. Entrymen under that act bought water from Haggin's canals in order to prove that water supplies were available to their lands so that they could perfect their entries.

An article in the publication "Irrigation Age" in the 1890s described the irrigation system of the Kern County Land Company, started by Haggin, as the greatest irrigated farm in the world. The company owned 400,000 acres and had 125,000 acres developed to alfalfa.

In the early 1880s there were two large land interests competing for the waters of the Kern River. The Miller and Lux interests had acquired large areas of overflow lands along the channels of the lower river through which waters of the Kern River flowed into Buena Vista and Tulare Lakes. Upstream on the Kern River the Haggin interests (later the Kern County Land Company), controlled large areas of land in the area north, south and west of Bakersfield, constructed canals and used Kern River water on lands which were not riparian to the river. Such water was acquired by the Haggin interests under the appropriative rights doctrine. A significant conflict developed after the drought of 1877 when there was not sufficient water in the Kern River to supply irrigation water to both of these areas.

The Miller and Lux interests, holders of the riparian lands in the lower portion of the river, brought suit against the Haggin interests in an attempt to enjoin the diversions under the appropriative rights doctrine. This was essentially the first large-scale legal test of the system of water rights which should prevail in California – whether or not the riparian doctrine would take precedence over the later appropriative rights doctrine in California.

There was a lengthy trial in the Kern County Superior Court in 1881 and it was decided in that court in favor of the defendants, the Haggin interests, upholding the rights of the upper appropriator against the lower riparian owner. But the case was appealed and argued twice before the State Supreme Court. A final decision rendered by the court in 1886 reversed the lower court and upheld the doctrine of riparian rights as the governing rule of water law in California. The case was sent back for retrial, but this retrial never occurred because the parties entered into an agreement in 1888, commonly known as the Miller-Haggin agreement. The agreement was later given judicial standing when it became a part of the so-called Shaw decree of 1900, adjudicating the rights on the Kern River. It is the Miller-Haggin agreement and the Shaw decree which essentially formed "the law of the river" on the Kern River.

## BY THE numbers

- 5** Kern County irrigation districts (North Kern WSD, Cawelo WD, Kern-Tulare WD, Rag Gulch WD and Rosedale-Rio Bravo WSD) that entered into long-term water supply contracts with the City in 1976
- 20** Diversion amount in cubic feet per second of the City's Castro water right
- 22** Day of December 1976, that the City acquired the Kern River assets of Tenneco West, Inc.
- 34** Percentage of Isabella Reservoir conservation storage space owned by the City
- 35** The term in years of the Basic Contracts
- 300** Established right in cubic feet per second of the Kern Island Canal
- 1,008** Average daily discharge of Kern River in cubic feet per second
- 2,800** Acres of land along the Kern River between Renfro Road and Interstate 5 acquired by the City of Bakersfield as part of the Kern River Purchase
- 14,494** Elevation in feet of Mount Whitney located in the Kern River Basin, the highest point in the continental United States
- 70,000** Acre-feet of Basic Contract water deliverable by City during each year of the long-term agricultural water contracts
- 80,029** Mean flow of Kern River in cubic feet per second on December 6, 1966, maximum of record
- 466,634** Acre-foot average Kern River April through July snow melt runoff
- 570,000** Acre-foot capacity of Isabella Reservoir
- 2,520,149** Annual runoff of Kern River in acre-feet during 1916, the highest yearly flow ever recorded
- 17,900,000** Amount in dollars of the City of Bakersfield acquisition from Tenneco West, Inc.



## City of Bakersfield Acquisition

In 1973, as a result of extensive negotiations with Tenneco, the City agreed to a settlement of this matter whereby the City would acquire all of Tenneco's water rights and water properties at a cost of \$17.9 million. As a result of this the City now owns an average annual entitlement of more than 125,000 acre-feet of Kern River water plus two utilities which were subsidiaries of Tenneco West. One of these utilities is the Kern River Canal and Irrigating Company on the northerly side of the river immediately north of the City of Bakersfield. This irrigation water utility still serves irrigation water and owns a right to more than 10,000 acre-feet per year on the average from the Kern River.

The City also acquired the Kern Island Water Company, another water utility, which included both a domestic water system and a large irrigation utility system. The irrigation utility system of Kern Island Water Company was sold by the City to the Kern Delta Water District at a price of \$3.5 million. However, the City retained the Ashe Water system, which was the domestic water utility of the Kern Island Water Company, and continues to own that system which is now operated under a management agreement by the California Water Service Company.

## Kern River Canal & Irrigating Company

The Kern River Canal & Irrigating Company was incorporated in 1892 as a successor to Kern River Water and Irrigating Company. The company is under the jurisdiction of the California Public Utilities Commission. Kern River Canal & Irrigating Company (KRC&I Co.), also known as the Beardsley Laterals, comprises some 6,000 acres of rich southern San Joaquin Valley farmland. The area is situated north of Kern River between the Beardsley and Calloway Canals, bordered by Seventh Standard Road to the north and Rosedale Highway to the south. Lands within the service area boundaries are entitled to receive water from the Kern River based on the rights of the Beardsley, Lerdo and McCord Canals. The diversion rights of these canals are based on priority appropriation in accordance with the Shaw Decree of 1900, establishing the priority and amounts of Kern River water diversion in cubic feet per second as follows:

Canal Company	River Stage	Total Diversion Right	KRC&I Co. Portion
Beardsley and Lerdo	1190.5	60	42
McCord, Lerdo & Beardsley	1376.5	70	49
Beardsley	3106.5	240	168

Water is conveyed through the Beardsley Canal to the company's service area and distributed to farmlands via smaller canals, laterals and ditches. Growers within the service area produce a wide variety of crops such as cotton, alfalfa, almonds, potatoes, wheat, melons and grapes. Average annual diversions by KRC&I Co. for the period 1962-1974 were 15,700 acre-feet. The company maintains a storage account in Isabella Reservoir providing for conservation storage of high flow Kern River water entitlement. The North Kern Water Storage District, as a consumer of the KRC&I Co., has the right to purchase 30 percent of the Kern River entitlement accruing to the company.

## Ashe Water Service

The Ashe Water Service which served primarily groundwater for domestic, municipal and industrial purposes was operated as a public utility. At the time of acquisition, the service area, known as the Ashe Water Service Area, was relatively small providing water to about 2,200 connections. The original service area was situated generally west of Stine Road, bounded by Panama Lane to the south, Gosford Road to the west and Stockdale Highway to the north. Water service was first provided by the Kern County Land Company in 1961 to the newly constructed residential area known as Del Webb's Kern City. In 1973, total groundwater production from the then existing seven service area wells was approximately 2,500 acre-feet annually. Additional wells were soon constructed by the City shortly after the date of acquisition to accommodate the rapid growth and development occurring in the southwest part of Bakersfield. With the acquisition of the Fairhaven water system and development of the River Lakes/Laborde water systems during the 1990s, the City's water purvey boundaries were expanded to provide domestic water service to areas located northwest of the Kern River. Operated by California Water Service Company under contract with the City of Bakersfield, the City of Bakersfield's Domestic Water Service Area, including the original Ashe Water Service Area, currently has over 30,000 service connections and fifty groundwater production wells in operation.

All in all, the City acquired approximately one-third of the water rights of the First Point interest of the Kern River and all of Tenneco's water transmission facilities and storage rights in Lake Isabella at a net cost of about \$14.25 million.

The properties acquired from Tenneco by the City of Bakersfield included the following:

1. Kern Island Canal Company including the Ashe Domestic Water System
2. Kern River Canal and Irrigating Company
3. Kern River Conduit, which is a concrete-lined canal extending from Bakersfield downstream on the southerly side of the Kern River to the vicinity of Interstate Highway 5
4. Water rights of the utility canal companies listed as items 1 and 2 above, water rights of the Kern River Conduit, and other water rights owned by Tenneco identified as Castro, Wilson, Calloway and Railroad
5. Storage rights in Lake Isabella to the extent of 34% of all conservation storage space in that reservoir
6. 2,800 acres of land astride the Kern River between the extension of Renfro Road and Interstate Highway 5 and most of the riverbed from Allen Road upstream to approximately Manor Street in Bakersfield.



*Typical City of Bakersfield domestic water pump station*

## MILLER-HAGGIN SNOW SURVEYS

The City of Bakersfield Water Resources Department, as successor in interest to the Kern County Land Company and Tenneco West, Inc., is a vital player in the State of California Snow Surveys program, along with fellow Miller-Haggin interests North Kern Water Storage District, Kern Delta Water District and Buena Vista Water Storage District.

### SNOW SURVEYING

*Snow surveying was begun in the United States in the early 1900's by Dr. James E. Church, Jr., a professor at the University of Nevada in Reno. Dr. Church developed*

*measuring equipment and sampling techniques that led to the first water supply forecasts on Sierra Nevada streams. Realizing the importance of this information, several agencies started independent snow survey programs. These agencies and the State of California soon recognized the need for a centralized coordination of a snow survey program, so the California State Legislature in 1929 established a statewide program that has continued to this day. The Legislature, with the input of major water interests, determined that the State Department of Water Resources would be the coordinator of what would be known as the "California Cooperative Snow Surveys Program."*

*Cooperators include State, Federal, local, and private entities. The Kern River Group was an original charter member of the state-wide program. Today in California more than 50 state, national, and private agencies pool their efforts in collecting snow data from over 300 snow courses each winter.*

*Through the years, the art of snow surveying has gradually evolved. Recent advances in technology have provided sophisticated new measuring devices called snow sensors or "pillows," remote units capable of withstanding harsh winter conditions. This has resulted in an increased number of snow stations being monitored automatically. However, the foundation of the snow surveys program is still the human part of the equation – **the snow surveyor**. Surveyors from cooperating agencies venture into the mountain regions of California beginning in January of each year to check each of the State's 300-plus snow courses. Every snow course is inspected at least once a year by a snow surveyor for data gathering or verification of automated snow sensor sites. An average snow course is 1,000 feet long. Most courses consist of about ten sample points to ensure sound statistical data. From two to six courses are measured in a day, depending upon how severe the weather is and whether the snow surveyor travels on foot, by helicopter, or by an over-snow vehicle, such as a "snow cat" or snowmobile.*



Utilizing the snow course and snow sensor data collected by City, State and Federal personnel from locations high up in the Kern River Basin, the Water Resources Department produces long-range operations forecasts for Isabella Dam & Reservoir based on historic records of Kern River water use coupled with snow pack information. These long-range forecasts are then coordinated through the Kern River Watermaster, U.S. Army Corps of Engineers and local water districts, helping to ensure the orderly and efficient scheduling of Kern River water through the Bakersfield area. In addition, information is provided to the City's water contractors and customers as to water availability well in advance of the peak water use season, helping these districts to achieve maximum productivity.

As previously mentioned, the City sold to the Kern Delta Water District the Kern Island Water Company irrigation utilities, including their water rights, and retained only the Ashe Domestic System of that company. This was the result of a lawsuit filed by the Kern Delta Water District which, unless settled, would have probably prevented the acquisition of the Tenneco properties by the City of Bakersfield. The City also quitclaimed the ownership of the Beardsley Canal and Calloway Canal, acquired from Tenneco, to the North Kern Water Storage District at a price of \$150,000. The City retained its rights to use both of those canals to the extent of the same capacities that it owned prior to the quitclaim to North Kern. The rights to use of capacities of those canals were the subject of previous agreements between the Tenneco interests and North Kern and the change of ownership simply meant that as properties owned by North Kern they would not be subject to future property tax assessments.

Representatives of the City of Bakersfield have long recognized the importance of such major activities as the agricultural and petroleum industries to the economy of Kern County and the City of Bakersfield. Irrigated agriculture, of course, had been the dominate user of water in the San Joaquin Valley portion of Kern County for more than 100 years and even today represents about 95% of the use of water annually in this area. The future economy of the Bakersfield urban area would

## Kern River Weather Modification

The Kern River watershed comprises approximately 2,200 square miles of area upstream from Lake Isabella. The region is characterized by rugged mountain terrain with several granite spires reaching above 14,000 feet. Mount Whitney, the highest mountain in the continental United States, is located in the northeast corner of the Kern River "cloud seeding" target area near the head waters of the Kern River. The main objective of the Kern River Basin "cloud seeding" effort is to increase the overall water yield of the Kern River by "targeting" precipitation to occur in the snow shed above Lake Isabella (The City of Bakersfield and its predecessors have participated in the program for nearly forty years). To accomplish this objective, the Kern River weather modification program, operated by Atmospherics Incorporated under direction of Thomas J. Henderson, president, includes both airborne and ground-based applications. First, suitable clouds and storm systems over the Kern River watershed must be present for seeding to occur. Once the developing clouds and storm systems have been correctly identified, then it is necessary to deliver the required amount of nuclei ("seed", usually in the form of silver iodide) to the cloud systems. Of primary importance within the airborne operation is to disperse the nuclei at the right time and place within the clouds and storm system. The tools required to accomplish this task are a satellite weather data acquisition system, a well organized weather forecast method, a complete weather surveillance radar system, proper aircraft for delivering the seeding material, a network of silver iodide ground generators, and a team of dedicated people to implement the program's 24-hour-per-day, 7-day-per-week operation. Whenever the National Weather Service issues a local storm flood advisory warning, all cloud seeding operations over the Kern River Basin are suspended.

require adequate, dependable and good quality water for not only the future of the urban area but the future economy of this portion of Kern County. Acquisition of the water properties and water rights of Tenneco by the City of Bakersfield now assures a good water supply for the foreseeable future of the urban area. Bakersfield is one of the few cities in California and, indeed, in the United States, that can make this claim. Until this water is needed for urban purposes it can continue to supply the needs of irrigated agriculture and other purposes which benefit the economy of the entire county.



## The History of Cloud Seeding

The potential for beneficial weather modification by cloud seeding was discovered by Dr. Vincent J. Schaefer in 1948 while working at the General Electric Research Laboratory in Schenectady, New York. He noted quite by accident that dry ice pellets introduced into a cloud formed in a freezer chest produced tiny ice crystals (snowflakes). Dr. Bernard Vonnegut, also a member of the General Electric Research Team, soon discovered that silver iodide smoke particles produced the same effect. Hence, the beginning stage of a new science and technology was born.

Since 1948, the technology of increasing precipitation by artificial means has moved through three presidential investigative committees. Following the early discoveries, basic research programs at the university and government levels now number in the hundreds. Foremost among these field research programs has been the effort supplied by the U.S. Bureau of Reclamation, The Department of Commerce, The National Science Foundation and the National Academy of Sciences. The results from all these fundamental and statistical studies since 1948 strongly indicate that increases in precipitation within the range of 5-15% have been achieved from properly designed and operated cloud seeding programs. Prominent among these studies has been those focused on orographic wintertime clouds, particularly the programs over the Sierra Nevada mountain range in California.

At one time, the environmental community questioned the effects from cloud seeding programs. Several hundred environmental studies followed these concerns. The most comprehensive publication on potential environmental effect is, "Environmental Impacts of Artificial Ice Nucleating Agents," Donald A. Klein, Colorado State University. A total of more than 400 references for various environmental studies are listed in this publication. All have indicated "no significant negative impacts on the environment."

Currently, there are about 37 active cloud seeding programs in the United States. Thirteen of these are in California, including the Kern River Basin, whose participants include the City of Bakersfield, North Kern Water Storage District, Kern Delta Water District and Buena Vista Water Storage District. Worldwide, there are presently 59 countries involved in some type of serious weather modification program. Southern California Edison Company has been sponsoring the cloud seeding program over the San Joaquin River watershed for over 50 years, the longest continuously operated cloud seeding program in the world.

## ISABELLA DAM AND RESERVOIR

Isabella Dam is located at the confluence of the North and South Forks of Kern River in the Kern River Valley, about 40 miles northeast of Bakersfield. The multipurpose Isabella Dam and Reservoir is operated primarily for irrigation water storage, flood control, and power production. In recent years, recreation has become an important function of the reservoir as well.

Isabella Reservoir was created by the construction of a main dam across the Kern River, a rolled earth fill embankment 1,695 feet long with a crest width of 20 feet and a maximum height of 185 feet, and a 100 foot high

Auxiliary Dam across the adjacent valley, which impound the flow of the North and South Forks of the river. A small, uncontrolled spillway is located in the left abutment of the Main Dam. The Main Dam outlet into the river channel has a capacity of 10,000 cubic feet per second at full reservoir pool. The Borel Canal, with a capacity of 605 cubic feet per second,

has an intake four miles upstream on the North Fork and flows through the reservoir through a controlled outlet at the Auxiliary Dam.

The reservoir has a capacity of 570,000 acre-feet, relatively large compared to the annual Kern River flow of about 700,000 acre-feet. Between November 1 and January 31 of each winter season, the Corps of Engineers reserves a flood control space of 400,000 acre-feet in the reservoir designed to reduce downstream flood damage.

The City of Bakersfield, as part of the Kern River Purchase from Tenneco West, Inc., owns 34% of the Isabella Reservoir storage space allocated by the United States of America to downstream water districts. Pursuant to the 1962 Water Rights and Storage Agreement, Hacienda Water District has the right to rent 10% in whole or in part of the City's storage space. This storage rental arrangement usually occurs only in very wet years on Kern River when Hacienda Water District has Kern River entitlement, or in the years immediately following very wet years.

Isabella Reservoir has proven its effectiveness for flood control on several occasions since reservoir operations began in April of 1954. Since the date of Isabella Dam construction, a number of great floods on Kern River have been wholly contained within the reservoir, protecting urban Bakersfield and approximately 150,000 acres of rich agricultural land from Kern River flood flows. The greatest of these floods occurred on December 6, 1966, when the Kern River reached an instantaneous flood peak of approximately 120,000 cubic feet per second.



An important point to keep in mind is that Improvement District No. 4 of the Kern County Water Agency, which is essentially the urban Bakersfield area, has its own allocation of imported State Project water, which will build up to a supply of 77,000 acre-feet per year in 1990 and annually thereafter. This water is now served through the Treatment Plant to California Water Service Company, North of the River Municipal Water District and East Niles Community Services District in the amount of about 25,000 acre-feet per year. The quantities of imported water in excess of 25,000 acre-feet per year are percolated underground in I.D. 4 to replenish the underlying ground water supplies. The I.D. 4 water is, of course, in addition to the natural ground water supplies underlying I.D. 4 and in addition to the City's Kern River supplies.

### *City's Use of Kern River Water*

To pay the cost of this acquisition the City entered into long term irrigation water service agreements with five public irrigation districts. These agreements are for a base period of 35 years, commencing January 1, 1977. The City sells basic quantities of 20,000 acre-feet per year to North Kern Water Storage District, 20,000 acre-feet per year to the Kern-Tulare Water District, 27,000 acre-feet per year to the Cawelo Water District, and 3,000 acre-feet per year to the Rag Gulch Water District. In addition the City sells what is commonly called "winter water" to the Rosedale-Rio Bravo Water Storage District which is supplemental to water delivered under a contract that district had with Tenneco.

The water sales agreements with the irrigation districts require those districts to make fixed annual payments to the City of Bakersfield for the basic quantities of water to be delivered under those contracts, whether or not those quantities are actually delivered. In years of drought there may be shortages in supplying those basic quantities and such shortages would be made up to those districts in subsequent years when there was an ample supply of Kern River water. Nevertheless, the districts will make fixed annual payments based upon the basic quantity of water in each

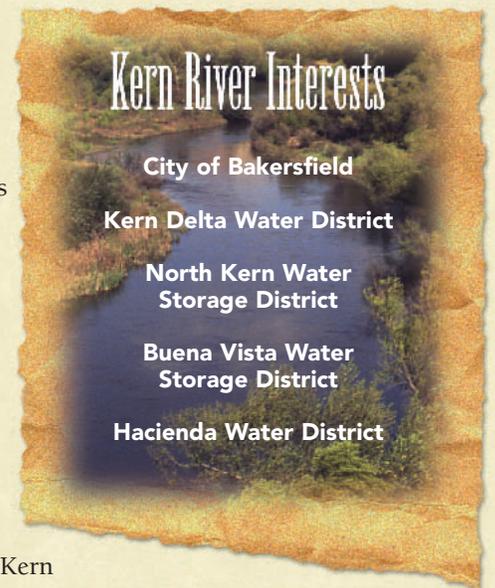
contract and this enables the City to have dependable annual revenue from those four contracts in the amount of \$1,400,000. This arrangement was designed so that the City would always have a fixed annual income from which bond payments could be made.

Under the supplemental contract with the Rosedale-Rio Bravo Water Storage District a portion of the City's so-called miscellaneous quantity water is sold to that district. The term miscellaneous quantity water means the amount of non-utility Kern River water which the City may have available from time to time above and beyond the water necessary to meet the City's other water commitments, including its long term agricultural delivery contracts and all other contracts and agreements which predate the supplemental agreement, and beyond the quantities needed for use on City-owned property or within the boundaries of the City of Bakersfield. Such water is delivered essentially during the non-irrigation season, so-called winter water, at a basic rate of \$6 per

acre-foot with such rate escalating each year in accordance with the All Commodities Classification of the Wholesale Price Index. If such water is requested to be delivered during the months of March through September, that price is increased by multiplying it by 3.5, or the basic price of \$6 increases to \$21 per acre-foot, plus the escalator.

The City also has numerous agreements with local water districts permitting those districts to spread and recover water at the City's 2,800-acre spreading facility located along the river between Renfro Road and Interstate Highway 5. These Districts can recapture their water and by exchange or otherwise use it to supply the needs within its boundaries and in the Rio Bravo annexation area in the easterly part of the City of Bakersfield as it is needed in that area. When not needed in that area, under certain arrangements, such water can be sold for use in other places in Kern County.

There are many agreements among the Kern River interests relating to water rights, use of water, storage rights in Lake Isabella and other matters. The Kern River Watermaster prepares and maintains records on a daily basis or river flows, Lake Isabella storage and diversions from the river. The staff of the City's Water Department maintains these records for the Watermaster. The main division of the water and water rights of the Kern River is between the First Point interests (City of Bakersfield, North Kern Water Storage District and Kern Delta Water District), and the Second Point interests (Buena Vista Water Storage District), with a third group involved, Downstream Group (Tulare Lake Basin Water Storage District, Hacienda Water District, and most recently, Olcese Water District), that receive Kern River entitlement during high-flow years on the Kern River.



## Kern River Natural Flow at First Point of Measurement Bakersfield, California

**MEAN DISCHARGE IN CUBIC FEET PER SECOND**  
Period of Record: 1893 - 2002

Date	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1	462	739	867	1307	2138	2711	1700	724	368	301	291	356
2	512	704	900	1313	2164	2680	1680	701	364	298	289	358
3	605	661	978	1330	2203	2662	1655	684	361	295	286	374
4	509	615	955	1324	2264	2654	1627	668	352	292	283	396
5	500	616	984	1355	2308	2662	1570	642	366	285	285	502
6	477	675	946	1382	2348	2669	1524	627	370	292	285	1099
7	469	804	904	1401	2377	2668	1478	611	346	293	288	524
8	474	750	920	1427	2420	2643	1432	597	334	289	363	432
9	457	792	1005	1454	2457	2593	1390	582	323	289	383	438
10	470	762	1047	1482	2483	2572	1350	572	313	285	322	447
11	491	695	1051	1581	2487	2534	1301	563	308	282	323	459
12	550	710	1003	1598	2488	2514	1265	550	312	279	319	442
13	569	820	1008	1591	2513	2496	1235	525	302	279	312	419
14	668	811	1018	1608	2538	2461	1212	506	292	275	315	393
15	589	805	988	1630	2556	2427	1174	499	291	275	310	390
16	601	781	1021	1672	2575	2377	1148	495	286	276	311	386
17	589	803	1049	1692	2603	2344	1116	483	284	282	320	389
18	658	903	1111	1722	2636	2303	1087	481	281	279	335	379
19	629	903	1102	1764	2672	2266	1054	478	275	278	465	372
20	590	893	1095	1814	2672	2231	1027	465	275	280	415	370
21	598	838	1132	1859	2673	2196	992	446	276	278	370	377
22	691	840	1120	1897	2682	2161	962	428	276	275	380	406
23	710	863	1125	1911	2674	2114	947	419	274	276	366	536
24	717	836	1137	1929	2683	2052	947	405	273	275	387	486
25	954	837	1185	1949	2704	1999	905	395	290	273	389	484
26	929	830	1209	1984	2748	1936	876	382	331	280	366	461
27	772	834	1243	2009	2754	1892	855	381	306	284	380	495
28	723	821	1249	2054	2757	1842	826	383	289	286	374	471
29	641	869	1248	2071	2773	1793	793	383	293	287	364	459
30	619		1248	2105	2766	1740	770	378	289	293	394	503
31	678		1284		2757		738	372		298		453

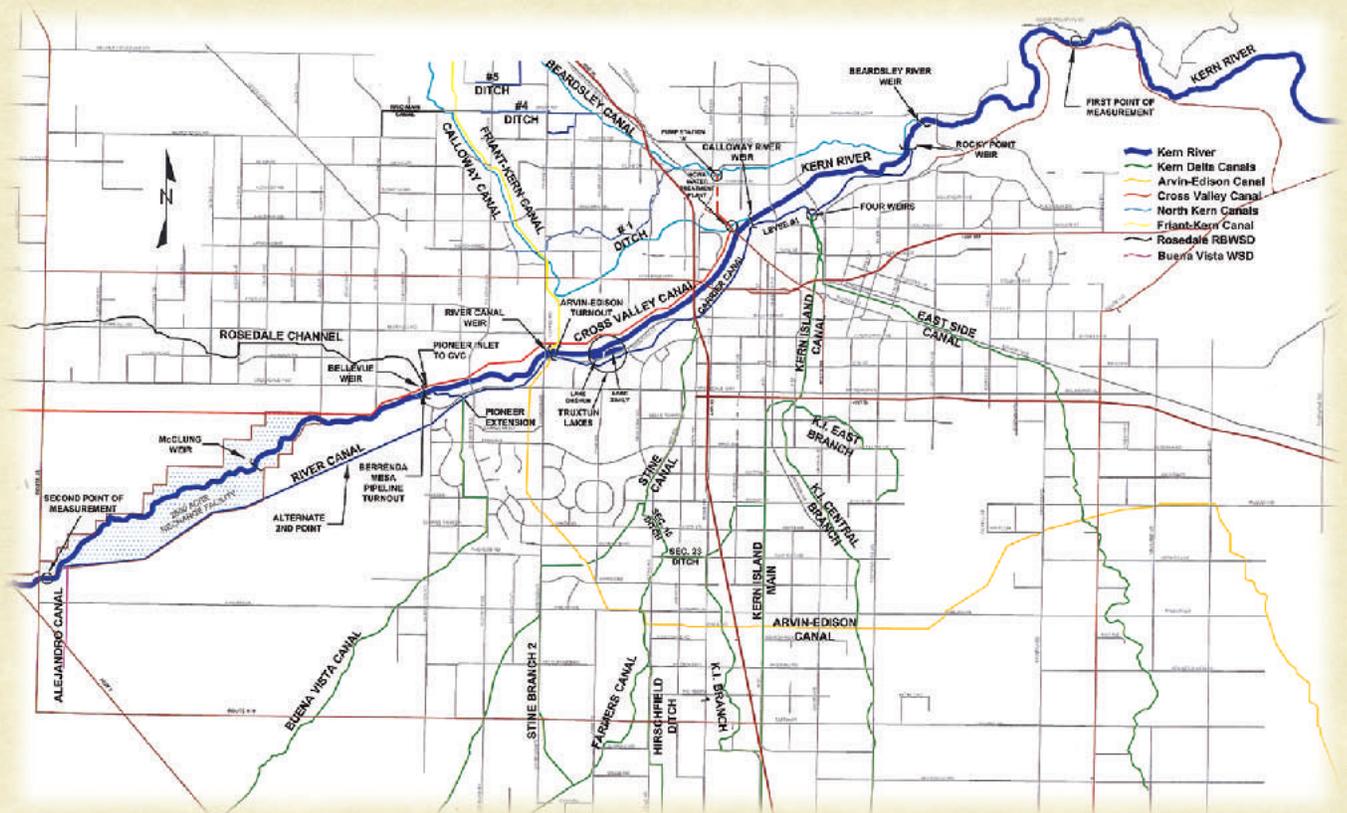


From this unique arrangement you can see that it is very important to have open communications and cooperative efforts among the Kern River interests. Most disputes or differences in views on the Kern River have historically been resolved by agreements among the parties rather than Court decisions. This is not to say that lawsuits have not been filed in the past to get the other fellow's attention. But they have almost invariably been resolved through negotiations and agreement.

In conclusion, the City of Bakersfield purchased a large long-term water supply, actually rights in perpetuity to Kern River water, at a very reasonable cost. Based on this background, the Kern River Purchase was an extremely wise and far-sighted decision for the City of Bakersfield.

- Thomas M. Stetson -

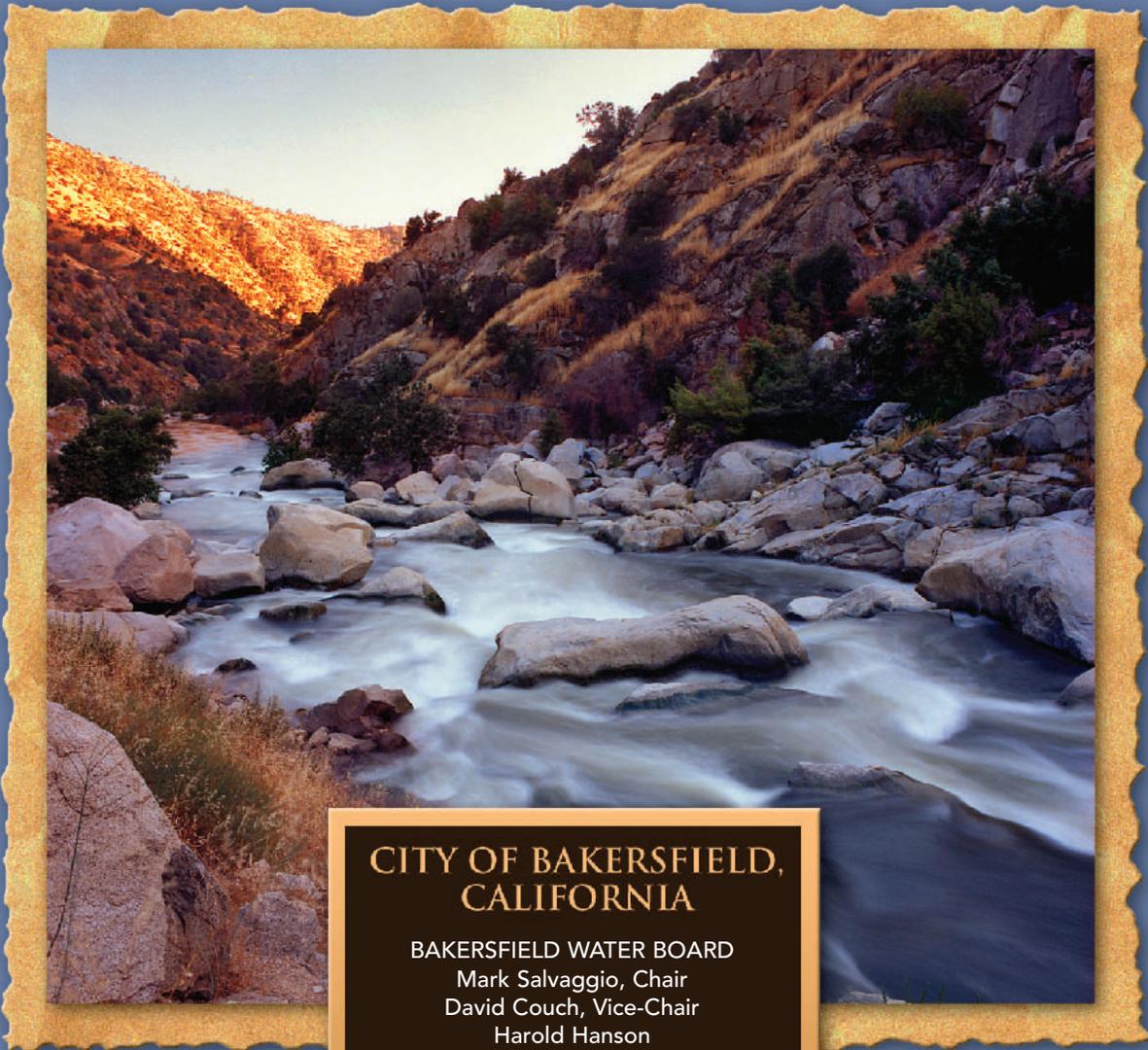
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# KERN RIVER CHRONOLOGY

## *Major Events in Urban Bakersfield Water*

- 1877 Original Kern River canal system completed.
- 1888 Miller-Haggin Agreement signed July 28, 1888.
- 1928 Kern River Levee District formed June 4, 1928.
- 1952 Friant-Kern Canal (C.V.P.) completed into Kern County.
- 1953 Isabella Reservoir completed March 18, 1953.
- 1962 Kern River Canal completed/Carrier Canal enlarged.
- 1968 First California aqueduct water to Kern County  
January 13, 1968.
- 1970 City of Bakersfield/California Water Service Co. initiated  
litigation against Tenneco West, Inc. – September 29, 1970.
- 1975 California Aqueduct/Cross Valley Canal completed to  
Bakersfield area.
- 1976 Henry Garnett Water Treatment Plant completed.
- 1976 Kern River Water Bond (Measure “B”) passed by Bakersfield  
City voters on November 2, 1976. \$15,500,000 financed  
through 35-year contracts with four agricultural water  
districts (2012).
- 1977 Kern River Intertie completed.
- 1977-1985 Major Kern River diversions weirs and canal headgates  
reconstructed; 2,800 Acre Water Bank completed.
- 1985 Kern River Plan adopted July 1985.
- 1988 Kern River Parkway Project adopted November, 1988.
- 1999 Kern County Water Agency/City of Bakersfield Kern River  
Parkway Water Management Agreement adopted  
November 17, 1999.
- 2000 Proposition 12 and 13 passed by voters in March - includes  
\$5 million for Kern River Parkway and \$23 million for  
Governor’s water project.
- 2003 First delivery of City of Bakersfield Kern River water to the  
new \$50 million California Water Service Co. northeast  
Bakersfield Treatment Plant - June 2, 2003.



**CITY OF BAKERSFIELD,  
CALIFORNIA**

**BAKERSFIELD WATER BOARD**

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David Couch, Vice-Chair  
Harold Hanson

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