

ANNUAL REPORT

DIVISION NO. I

1972 IRRIGATION YEAR

NOV. 1, 1971 - OCT. 31, 1972

BY

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## 1972 ANNUAL REPORT

I. INTRODUCTORY STATEMENT

Division I covers an area of some 28,068 square miles or approximately the northeast one-fourth of the State of Colorado. Of this, approximately 19,500 square miles is in the South Platte River Basin, 8,165 square miles in the Republican River Basin, and 403 square miles in the Laramie River Basin.

SOUTH PLATTE RIVER

The South Platte River starts at the Continental Divide, flows through South Park, down mountain canyons, out onto the plains in the Denver area, thence northeasterly and into Nebraska near the northeast corner of Colorado. The flow of the South Platte is augmented by a number of tributaries in the South Park area, the principal ones being the Middle and North Forks of the South Platte and Tarryall Creek. After leaving the mountains the South Platte is further augmented by several major tributaries arising at and east of the Continental Divide and flowing to the South Platte from the north and west. These major tributaries entering the South Platte in the Denver to Greeley area are Bear, Clear, Boulder and St. Vrain Creeks, and the Big Thompson and Cache La Poudre Rivers. Only normally minor and intermittent streams supplement the river flow from the south and east. However some of these, such as Plum, Cherry, Boxelder, Kiowa, Bijou, Badger, Beaver as well as Lone Tree, Coal, Wild Cat and Pawnee Creeks from the north and west are each capable of producing a major flood due to the extent and topography of their individual watersheds when subjected to intense precipitation.

In addition to the obvious tributary streams, the South Platte River is further supplemented very extensively, as are the tributaries themselves, by what is commonly referred to as return flow. This is water from springs, waste ditches, drains, seepage, etc., resulting generally from diversions for various uses, precipitation, and high water tables. These additional sources enter the streams in relatively small amounts at extremely numerous locations along the entire reaches of the streams.

The water supply is further supplemented by a number of diversions from transmountain sources. The water from these transmountain sources is controlled and used by specific ownership entities and, as such, the first use of it is not subject to appropriation as a part of the waters of the South Platte Basin. These transmountain diversions are treated in more detail later in this report.

The elevations in the South Platte Basin vary from 14,000 feet at points along the Continental Divide to 3,400 feet at the Colorado-Nebraska line. The western one-third of the basin is mountainous in character and provides the principal source of water as the result of precipitation.

Of the 12,481,000 acres in the South Platte Basin, 8,694,000 acres are in farms and ranches. The balance of the area is owned by federal and state governments, public agencies, or included within municipalities. Within the farm areas are 852,000 irrigated acres and 7,842,000 acres of dry land according to the 1964 Agricultural Census.

The principal use of water in the mountain valleys is for meadow irrigation. Large volumes of water are released on meadows adjacent to the streams and, of this volume, a major proportion returns to the stream for reuse at lower elevations. The largest area of mountain valley irrigation is in South Park at elevations up to 11,000 feet. Other uses in the mountain areas include those of small municipalities, domestic, stock, power, mining, commercial and recreation needs.

The greatest use of water, by far, in the South Platte Basin is for agricultural purposes in the plains area at elevations between 3,500 and 5,000 feet. The water here supports a well developed, diversified agricultural economy that ranks high nationally in productivity. Much of the demand for water in areas downstream some 40-50 miles from the mountains is supplied from wells and by return flow from uses further upstream.

An interesting combination of circumstances has marked the 1972 irrigation year in the South Platte Basin. To start the year we had a good carryover in our reservoirs. As far as moisture is concerned this fact appears to stand alone since precipitation for the year was well below normal. In fact, in most areas the precipitation was in the 60% normal range. The spring was quite cool as well as dry and crops were slow to start. Stream flows were below normal and wells operated without curtailment or regulation by the State until late August during which time they were curtailed to 3/7 of the time for two weeks. The summer was hot, the weather was dry, water was in shorter supply than in the previous 3 years and the Division produced the best all around crop in years if not in all time. Most of this crop is already harvested although a small percentage (4%) of the beets is still in the ground and about one-fourth of the grain corn is still in the field as of December 1. This is the result of above normal snow and below normal temperatures during the month of November.

Since World War II a tremendous population increase has occurred in the area near the mountains and out as far as Greeley. Greatest growth is centered around Denver and its suburbs, followed by Boulder, Fort Collins, Greeley and the presently smaller municipalities. Consequently, the demand and use of water for municipal supplies is increasing rapidly with the burden being met from transmountain sources and transfers from agricultural uses.

The population forecasts by municipal, federal, and state agencies indicate the Front Range area will suffer a greatly accelerated population growth in the years ahead.

The following tabulation of 1970 and projected 1990 and 2020 population figures for some of the Front Range counties indicate the nature of some of our water supply problems both now and in the future:

<u>POPULATION PROJECTIONS BASED ON 1970 CENSUS</u>					
<u>COUNTY</u>	<u>1970</u>	<u>1990</u>	<u>INCREASE</u>	<u>2020</u>	<u>INCREASE</u>
Adams	185,000	315,000	170%	480,000	259%
Arapahoe	160,291	340,000	222	505,000	315
Boulder	130,002	240,000	185	455,000	350
Denver	512,691	580,000	113	710,000	139
Douglas	8,315	25,000	302	100,000	1,202
Jefferson	252,232	415,000	164	650,000	257
Larimer	88,664	175,000	197	325,000	367
Weld	89,086	175,000	196	325,000	365
Total	1,426,381	2,265,000	159	3,550,000	248

This growth is occasioned by the influx of industry, agreeable climate, scenic beauty and the general prosperity of the area. Much of the industry coming in or originating here is of the, so called, sophisticated type which although attracting people does not tend, in itself, to degrade the environment to the degree experienced in some eastern states.

As the requirements for water to supply the needs of municipal, industrial and commercial uses increase, it is apparent that some change in water use will be necessary. The competition for water creates a market and the above mentioned uses, realizing a higher unit return from their water consumption are looking to agricultural water for their supply. Some of this change of use occurs as a normal function of urban growth when formerly irrigated agricultural lands are developed and annexed to municipalities which require the water rights theretofore used on the land to be transferred to the municipal water system.

The cities of Boulder, Estes Park, Fort Collins, Greeley, Longmont and Loveland have formed a subdistrict under the Northern Colorado Water Conservancy District to develop additional west slope water and import it to the South Platte Basin for their use through the facilities of the Colorado-Big Thompson Project. No construction has been made or approved at this time, however, progress in planning has been reported.

The City of Denver, through the Denver Water Board, is very actively pursuing a program of water acquisition and system improvement and enlargement. Public interest the past year has focused principally upon the proposed Eagle-Piney transmountain project. This development would tap several west slope streams such as the Eagle and Colorado Rivers, Gore and Piney Creeks and through a collection system of reservoirs, conduits, ditches and diversion dams in the Eagle and Colorado River watersheds, gather water for export through a tunnel under the Gore Range and discharge into Dillon Reservoir. The water would then be delivered to Denver through the Roberts Tunnel, down the North Fork of the South Platte River through the proposed Two Forks Reservoir, into the South Platte River and thence into the Denver water treatment and distribution facilities. Denver anticipates that this project would produce some 100,000 acre-feet annually at an initial cost of approximately \$100,000,000.

A bond election was held July 11 at which the Denver voters had the opportunity to vote upon the issuance of \$200 million in bonds to be used by the Water Board within the next few years for system improvements, development and expansion. A great amount of interest, both pro and con, was generated by the election. Basically at issue was the question whether Denver should continue to encourage expansion and growth both in Denver and the State and if such expansion was realized what the ecological and environmental impact would be. Realizing that the supply of water is a limiting factor of growth, the Denver residents were quick to recognize that they had a voice in the cities future. The west slope looked upon the Eagle-Piney Project as further encroachment upon their supplies by the east slope with the loss of water further reducing their potential for future development. Perhaps the most vocal, if not the greatest opposition was voiced by environmental groups statewide, who feared extensive permanent damage to the environment of both slopes in the State if the project were constructed as planned. A group of concerned citizens within the west slope project area filed an application in the Division 5 Water Court for adjudication which would in effect stop further development by decreeing all previously unadjudicated water to be beneficially used within the natural stream channels for recreation, ecological and environmental enhancement.

In the election the water bond issue was defeated by a margin of some 4,000 votes of the 51,000 cast. Although future actions and elections may reverse the July 11 results, the immediate effect is to increase the Denver metropolitan pressure upon east slope water supplies and uses. It may be that the value of South Platte Basin rights will be increased as a result of greater competition for water.

Mutual and private irrigation interests are constantly endeavoring to upgrade their systems by improvement and expansion of their facilities and making better use of water supplies.

The greatest development and expansion of use in the South Platte Basin since the completion of the Colorado-Big Thompson Project has been that of underground water. Not only have wells been used to supplement surface water supplies but also many have been drilled to irrigate what had previously been range land. Through the use of sprinkling systems this formerly dry, rough land has become highly productive.

Under the statutory provisions of 148-21-45 and House Bill 1042, those wells defined as domestic and livestock wells are exempt from the requirements of adjudication and administration. Thousands of acres of land in the Division have gone into subdivisions with the major part held by individual ownerships looking to domestic wells as a source of water. Further legislation relative to wells became effective May 8, 1972 and included House Bill 1042 and Senate Bills 35 and 36.

House Bill 1042 dealt primarily with the granting of well permits and clarified the conditions necessary for the approval of applications by the State Engineer. In general it gave the State Engineer much broader authority in the denial of applications in those instances where other water rights would be affected.

House Bills 35 and 36 were concerned with land use control and provided, among other things, for approval by planning boards and county commissioners of water supply and sewage plans for proposed subdivisions.

These new statutes were directed mainly to a more orderly control of well drilling and water development for domestic purposes.

This year, 1972, has been one of considerable change, confusion, concern, uncertainty and interest. The focus of interest was on the use, effects and regulation of underground water.

The State Engineer, C. J. Kuiper, published proposed rules and regulations on the use of underground water in Division 1 for 1972 on March 1, to become effective May 15, 1972. Pursuant to the law these rules and regulations were filed with the Water Court and were subject to protests and objections for a period of 60 days.

A protest was entered on April 27 by the City of Denver, City of Aurora, Weldon Valley Ditch Company and Sterling Irrigation Company. The protest was set for hearing on August 21. Due to this protest filing, the implementation of rules and regulations was held in abeyance until a court decision was obtained.

The unseasonable dry weather through the summer resulted in increased demands for water and decreasing surface flows. On July 13 the Schneider and Sterling No. 1 Ditches placed a written demand on the river for 1873, 1875 and 1880 water. To fill these demands it was necessary to order diversions suspended into ditches in Water District No. 1 having priorities junior to the above mentioned calls. Among the ditches whose diversions were ordered off was the Weldon Valley with a priority date of 10-26-1881 for 165 cfs. Weldon Valley refused to comply with both an oral and written order contending that they could not be curtailed until all junior rights, particularly wells, were shut off.

The State filed a complaint in Water Court asking that Weldon Valley be ordered to comply with the administrative order and enjoined from future disregard of such orders.

The Water Court heard the case, W-6958, on July 26 with Judge Wolvington presiding. The Cities of Denver and Aurora and the Sterling Irrigation Company asked and were permitted to intervene in behalf of the Defendant, Weldon Valley Ditch Company. In the course of the hearing the testimony relating to the protest to the rules and regulations was heard. At the end of the one day hearing the Court issued a decision from the bench but due to some confusion as to terms and meaning it was not effective until the written order was handed down on August 11. This order permanently enjoined the Weldon Valley Ditch Company from violating the administrative orders of the State. It also directed the state officials to affirmatively administer all water rights including wells in accordance with the Colorado Constitution and statutes and permitted the State Engineer to adopt and use such rules and regulations as necessary to implement the order.

By agreement of all parties the protest to the rules and regulations was withdrawn.

The State Engineer and his staff immediately formulated plans for administering underground water use in compliance with the Court order. An administrative order was drawn and sent to the owners of record of all registered wells within the area of regulation. Under this order those nonexempt wells which had made application to the Water Court for adjudication prior to July 1, 1972 were allowed to divert four days of each week; more specifically, Monday, Tuesday, Wednesday and Thursday unless an alternate plan of operation was approved by the Division Engineer.

Those nonexempt wells which had not applied for adjudication prior to July 1, 1972 were ordered off continuously unless, through an approved plan of operation, they could make full replacement of their depletion to the stream.

This order was to be in effect until October 1, 1972, and in Zones A and B only since the effect of pumping in zones farther from the river would not adversely affect the surface flows prior to such date.

The first day of full curtailment was Friday, August 18. All water commissioners and deputies in the South Platte Basin and the Division Engineer were in the field on that date making contacts with well operators and enforcing the orders of the State Engineer. Needless to say the orders were unpopular and the officials

listened to a great amount of criticism and some abuse. Fortunately, no physical violence was experienced and compliance by those contacted was general, however reluctant, with exception of one owner of four wells near Boxelder Creek, a tributary of the Cache La Poudre, who politely but firmly refused to regulate his wells in any manner other than for crop requirements. He felt that the rules and regulations were unjust and unconstitutional and he appeared to be ready to go to court if necessary.

This violation was first noted on August 26 at which time it was reported to the State Engineer. Information and evidence pertinent to this particular case were collected for court action.

On August 31 the rains started, becoming general over the irrigated areas of the Division, and reduced the demand for irrigation water to the extent that the call was removed from the river. With the call removed, and in view of the anticipation of an adequate stream supply to complete the irrigation season, the administration and requirements of the rules and regulations for the use of underground water were suspended for the 1972 year. Due to these circumstances, under which proof of material injury would be difficult, the State decided to not press any legal action against the above mentioned offender.



## REPUBLICAN RIVER

The Republican River Basin in Eastern Colorado covers 5,226,000 acres. Of this area 4,690,000 acres are in farm and ranch land with 86,000 acres under irrigation and 4,604,000 acres of dry land as reported in the 1964 Agricultural Census.

This area is relatively dry and the surface streams, many of which are intermittent, provide only enough water for some lands adjacent thereto. The normal precipitation in this area is about 17.1 inches of which 13.6 inches or 80 percent falls during the April through September period. This year, November 1971 through October 1972, the precipitation was 90 percent of normal.

During the past two decades many wells have been drilled in the designated ground water basins in the tributary area of the Republican River. Agricultural production has been greatly expanded as a result. Since these wells are in designated ground water basins they are not subject to the regulations applicable to wells drawing their supplies from the tributary alluvium. Several farmers having had wells in the so called tributary alluvium areas have moved to the designated basin areas to escape what they feel are the over restrictive regulation on ground water use. The greatest impact of groundwater development has been in the Burlington area where there is a thriving agricultural economy based mainly on irrigated row crops. The water in this area is being mined from the Ogallala Formation at the rate of 40 percent depletion in twenty-five years. The prospect of recharging this aquifer is in considerable doubt at this time. Consequently, it is unlikely that this high plains area will experience any major industrial or population change such as that in the areas closer to the mountains.

## LARAMIE RIVER

The Laramie River Basin in North Central Colorado contains 258,000 acres of which 4,800 acres are irrigated and 15,000 acres are non-irrigated ranch land according to the 1964 Agricultural Census.

This basin is a mountain valley with the principal water use being for meadow irrigation and livestock purposes. There are no municipalities or villages in this basin so the domestic uses are minimal.

Under a Supreme Court decree the water in the Laramie Basin is allocated volumetrically. The irrigated acreage of each ranch has been determined and 6.0887 day second feet per acre allotted for the season of which only .3715 day second feet may be used after July 31. Further, the above mentioned decree provides for transbasin diversions of up to 19,875 acre feet annually.

The past season started out with a good snow pack and, with fair precipitation during the summer, the stream flows remained adequate to meet the needs. The full 19,875 acre feet were diverted under trans-basin rights, however, the meadowlands diverted only 19,889 of their 29,500 acre feet allocation even though the water was available.

The Laramie River Basin is becoming increasingly popular as a recreation area, particularly as related to fishing. Some changes of ownership to recreation interests have occurred and more are anticipated although the water use is expected to remain quite stable. The changes in ownership appear to be more concerned with control of fishing rights and public access now than in the past. No significant changes in the water use pattern are expected in the next few years.

## II.

## PERSONNEL

A number of changes in the division staff have occurred during the year. In the administrative section Dick Drexel, the water commissioner in Water District 7 or Clear Creek, transferred in April to Division 4 as a Water Commissioner III in Water District 40. He was replaced by Arlyn Davison who had been employed as a Water Commissioner I in Water District 28 of Division 4.

Two new deputies were added at the start of the irrigation to fill vacancies caused by resignations. Eric Wilkinson, a C.S.U. student, replaced Jake Lowery in Water District 3 and Wayne Lee, a retired Nebraska farmer, replaced Dick Robbins in Water District 4.

Two new Water Commissioner I positions were created with the passage of H.B. 1042 which concerned itself with the effect of proposed wells for which permit application had been made and the need for field studies in relation thereto. One of these positions was filled by Donald Brazelton in August and the other by Wes Hayman, the deputy water commissioner in Water District 23 who transferred over at the end of the irrigation year.

Art Wenz, water commissioner in Water District 23 was injured in an auto accident while driving a state vehicle in the performance of his duties on March 20. As a result of these injuries he was hospitalized for three different periods necessitating either sick or injury leave for nearly three months. Fortunately, he has apparently recovered at the end of the year and no major water problems arose in that area during the time of his convalescence.

In the hydrographic section two tragedies were suffered in the family of Darshan Walia, a WRE I headquartered at Greeley. The youngest daughter, Tillie, a delightful 20 year old, was asphyxiated by carbon monoxide on December 6. Some six weeks later on January 20, Darshan was stricken with a brain hemorrhage which took his life on January 22.

The resulting vacancy was filled in June by Ray Liesman who transferred from Division 2 at Pueblo.

Orlyn Bell, WRE I, working out of Denver transferred to Division 7 on July 1 as a WRE II.

Bud Walcher, the supervising hydrographer in the Denver office was promoted from a WRE II to WRE III as the assistant to the state hydrographer, Glenn Brees.

Jay Blum, WRE I, left the employ of the state in the latter part of the irrigation season.

Jay Bishop came to work as an Engineering Technician in the Denver office and remains as a full time employee.

George Sievers working out of Greeley and Doug Walcher working out of Denver both worked as Engineering Technicians during their summer break from university.

The following tabulation gives the roster, classification, time worked and travel of the division staff:

PERSONNEL

NAME	WATER DISTRICT	CLASSIFICATION POSITION Oct. 31, 1972	DATE OF LAST SALARY CHANGE	MONTHS 1971-72		MILEAGE
				WORKED	BUDGETED	
		GRADE STEP				PERSONAL STATE VEH.
<u>ADMINISTRATIVE</u>						
W. G. Wilkinson		WRE IV 53	7 72	12	12	21552
James R. Clark		WRE III 49	10 70	12	12	
Dorothy Wankelman		Sr.Ck.Steno. 15	3 72	12	12	
Robert Samples	1	W.C. II 29	4 1-72	12	12	17833
Paul Meehl	2	W.C. II 29	1 69	12	12	1590
John Neutze	3	W.C. III 33	7 72	12	12	18207
Lloyd Blewitt	4	W.C. II 29	12 68	12	12	13500
Donald Palmer	5	W.C. II 29	12 69	12	12	14412
Thomas Platt	6	W.C. II 29	1 66	12	12	10349
Arlyn Davison	7	W.C. II 29	1 69	6.4	12	15554
			Step 7			7957
Richard Drexel	7	W.C.II(III) 33	5 71	5.6	12	6390
Joe Clayton	8	W.C. II 29	11 71	12	12	15301
Ralph Van Gorden	9	W.C. I 25	7 70	12	12	11394
Arthur Wenz	23	W.C. I 25	8 72	9.0*	7.5	8418
				*Inc. 1.0 Ann., 0.1 Sick, 2.6 Injury		267
William Gleason	48	W.C. I 25	10 64	4.8	5	5100
Theodore Fisher	49-65	W.C. I 25	11 71	1.9	4.5	3366
Robert Littler	64	W.C. II 29	7 70	12	12	17522
Donald Brazelton		W.C. I 25	8 72	3	3	653
Charles W. Hayman		W.C. I 25	11 72	-	3	
Charles W. Hayman	23	D.W.C. 19	5 72	5.6	7.	20052
Quinto Brunelli	1	D.W.C. 19	9 72	7.4	4.5	14395
Antone Heit	2	D.W.C. 19	7 70	6.4	5.5	8046
Eric Wilkinson	3	D.W.C. 19	5 72	5.	7.	9749
Wayne Lee	4	D.W.C. 19	5 72	6.	9.	5054
Lawrence Young	5	D.W.C. 19	8 71	5.	7.	3593
Ernest Ward	6	D.W.C. 19	6 71	7.	7.	10533
John Noonan	8	D.W.C. 19	5 72	5.8	6.	10996
Richard Vannorsdel	48	D.W.C. 19	4 71	2.	3.	1216



### III. WATER SUPPLY

#### A. SNOW PACK

The April 1st snowpack and soil moisture report for 1972 was below normal. This resulted from two months of below average snowfall and above average temperatures. The only happy note in the April 1st report was the excellent carry-over storage in area reservoirs. Forecasts on the South Platte streams varied from 86 percent of normal to a high of 92 percent.

An end of the month storm near Denver brought much needed water to the South Platte Basin and kept the snowpack near normal. This storm also put valley soils in relatively good condition as of May 1st.

The tables below summarize the snow measurements and soil moisture values as they stood on May 1st:

SUMMARY OF SNOW MEASUREMENTS (MAY 1ST)

WATERSHED	NO. OF COURSES AVERAGED	THIS YEAR'S SNOW WATER AS	
		LAST YEAR	PERCENTAGE OF AVERAGE
Big Thompson	5	75	98
Boulder	3	64	83
Cache La Poudre	8	75	118
Clear Creek	6	74	83
Saint Vrain	3	36	81
South Platte	3	89	123

SUMMARY OF SNOW MEASUREMENTS (MAY 1ST)

WATERSHED	NO. OF COURSES AVERAGED		
		LAST YEAR	PERCENTAGE OF AVERAGE
Big Thompson	2	98	98
Boulder	1	113	140
Cache La Poudre	2	89	107
Clear Creek	2	80	110
Saint Vrain	2	109	127
South Platte	2	85	101

### III. WATER SUPPLY

#### B. Precipitation - Summer

There were some long dry spells during the 1972 irrigation season, which caused farmers some concern. May and July were generally poor for most of Division 1. June had generally adequate precipitation with Fort Collins and Fort Morgan being exceptions to the rule. August precipitation was considerably above normal with the bulk of it falling after the 16th of the month.

The total precipitation for the water year (October 1 - September 30) ranged from 63 percent of normal at Fort Collins to 102 percent of normal at Sterling. Stream flow for the year was below average. These conditions required especially good water management by area farmers and resulted in what may prove to be the best crop of record.



III. WATER SUPPLY

B. Precipitation - Summer

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	PRECIP. NORMAL	% OF NORMAL	PRECIP. NORMAL	% OF NORMAL	PRECIP. NORMAL	% OF NORMAL	PRECIP. NORMAL	% OF NORMAL	PRECIP. NORMAL	% OF NORMAL	PRECIP. NORMAL	% OF NORMAL
BOULDER	1.52	84	1.22	39	3.65	181	1.91	96	1.79	138	1.18	77
CHEESMAN	1.17	79	1.09		1.08	82	2.37	89	3.21	134	1.09	81
CHEYENNE WELLS	0.61	57	1.70	62	3.75	179	3.03	98	2.26	101	1.34	92
DENVER WB AP	3.52	229	0.49	18	2.94	175	0.63	29	2.71	228	2.07	166
DENVER WB CITY	1.54	125	0.56	26	1.39	99	0.48	26	1.96	190	1.00	87
FT. COLLINS	1.38	88	0.55	13	1.43	73	0.71	48	1.96	153	0.81	66
FT. MORGAN	1.41	148	0.99	38	1.83	78	1.50	62	2.44	181	1.35	114
GREELEY	0.77	71	1.37	60	3.00	160	0.28	21	2.43	191	1.54	117
KASSLER	1.92	105	1.92	71	1.97	111	1.20	67	1.84	128	1.79	118
LAKEWOOD	2.14	133	0.81	31	1.04		1.50	83	2.62	206	1.34	102
LONGMONT	1.83	141	0.59	23	2.63	162	0.64	47	2.16	216	0.85	71
PARKER	1.59	156	0.23	10	3.68	207	2.25	114	2.45	158	1.00	97
RED FEATHER	1.96	120	1.63	64	0.55	26	1.10	46	2.95	137	0.88	62
STERLING	1.72	167	1.26	43	3.25	116	2.03	64	4.26	316	0.90	87
WRAY	0.17	0	3.52	125	3.92	112	1.27	43	2.24	91	1.37	100

\* Averages are for the 15 year period 1953-1967 and are computed by the Kansas City River Forecast Center

### III. WATER SUPPLY

#### B. HAIL SUPPRESSION\*

The past hail season was the first year of full-scale field operations of the National Hail Research Experiment (NHRE). The field program, which ran from May through July, had two objectives: (1) coordinated research on isolated storms and (2) initiation of the randomized statistical test of the feasibility of suppressing hail.

The research systems were provided by a number of organizations. NCAR scientists participated in the study of cloud dynamics, microphysics, and hailstone analysis. NCAR operated the dual-wavelength radar located at the field headquarters at Grover, operated the Sabreliner, the Buffalo and the Queen Air during the entire field program, and participated in the installation, maintenance and servicing of the 22 stations of the mesoscale meteorological network. Two instrumented sailplanes were available for June only: the NOAA "Explorer" instrumented and operated by NCAR and a second sailplane operated by Dr. Winfried Karl Rudloff.

The South Dakota School of Mines and Technology contributed an armored, storm-penetrating T-28 aircraft. A second Queen Air and two mobile radio-equipped precipitation sampling units from the University of Wyoming also participated in the coordinated NHRE research operations.

The University of Chicago and the Illinois State Water Survey operated a radar at Fort Morgan similar to the NCAR unit at Grover. NOAA, in addition to managing the 450 precipitation network stations, provided a DC-6 and a C-130 aircraft from May 15 to June 24.

The cloud-seeding operation was contracted to Atmospheric, Inc., which based its four cloud-seeding aircraft and crews at Greeley, Colorado. Cloud-seeding was performed by burning 100-gram silver iodide flares below the aircraft fuselage, in the major updraft at cloud base. The flares were provided by the Naval Weapons Center, China Lake.

In support of both research and operations, the USAF Air Weather Service supplied four radiosonde teams based at Grover, Fort Morgan, and Sterling, Colorado, and Kimball, Nebraska. In addition, the Desert Research Institute of the University of Nevada operated an M-33 radar, and the Federal Aviation Administration designated a special use airspace for the NHRE aircraft and contributed the services of three aircraft controllers, one at Grover headquarters and two at the FAA Denver Center for the control of NHRE flight operations.

Several other research programs were carried out in conjunction with NHRE: an ecological study of the fate of silver iodide from cloud-seeding operations by the Department of Watershed Sciences of Colorado State University; a study of downwind effects of cloud-seeding operations by the Department of Atmospheric Science of Colorado State University; studies of lightning and thunder by Rice University, by the Naval Electronics Laboratory and by the Wave Propagation Laboratory of NOAA; and tracer studies of Battelle Northwest.

## III.

## C. FLOODS (CONTINUED)

The following tabulation shows the annual flows at the major control gaging stations in the Division and the highest daily flow during that period. Note that some of the flows are for the Water Year, October 1 - September 30, and others are for the Irrigation Year, November 1 - October 31. Most figures are preliminary reports and subject to revision.

STATION	WATER YEAR		IRRIGATION YEAR	INSTANTANEOUS PEAK FLOWS
	OCT. 1, 1971 to OCT. 1, 1972	NOV. 1, 1971 to NOV. 1, 1972		
South Platte at South Platte	239900			1170
North Fork at South Platte	107600			726
Bear Creek at Morrison	21240			227
Bear Creek at Sheridan	15770			245
South Platte at Denver	133300			3380
Clear Creek at Golden	122500			1910
Clear Creek at Derby	43810			1250
Middle Boulder Creek at Ordell	45330			418
South Boulder Creek at Eldorado	35780			416
Coal Creek at Plainview	994			30
St. Vrain Creek at Lyons	64980		64120	940
St. Vrain Creek at Platteville	122100		117640	1734
Big Thompson at Canyon	49390		49020	492
Big Thompson at La Salle	51420		41500	922
Cache la Poudre at Canyon	177100		178540	3400
Cache la Poudre at Greeley	93520		89510	1510
South Platte at Kersey	465400		443465	6950
South Platte at Balsac	189400		178830	1700
South Platte at Julesburg				

D. GENERAL

A water budget is herewith submitted for the 1972 irrigation year. Due to the number of variables involved and the unavailability of complete and accurate data, the figures herein shown are, in many instances, estimates or approximations at best. Figures are omitted if there is no reasonable basis for making an estimate.

WATER BUDGET

DIST.	INFLOW INTO DISTRICT	YIELD OF DRAINAGE AREA	TOTAL SUPPLY	IRRIGATION DIVERSIONS	ESTIMATED DEPLETION BY IRRIGATION	MUNICIPAL DIVERSIONS	ESTIMATED DEPLETION BY MUNICIPALITIES	OTHER DIVERSIONS	ESTIMATED OTHER DEPLETIONS	RUNOFF @ STATELINE OR MOUTH
1	464,800	238,816	666,031	478,331						187,700
2	581,669	275,824	857,493	324,331	134,105	4,541	2,270	17,960	900	464,800
3	146,546	382,162	533,826	410,478	284,100	30,062	20,744			96,700
4	234,603	179,181	413,784	179,941	121,130	7,000	4,690			221,358
5	97,356	190,712	288,068	140,445	83,436	14,127	8,335			53,785
6	84,186	178,856	263,042	116,364	70,182	83,980	55,485			69,715
7	520	174,465	174,985	87,481	73,575	9,879	7,705	13,000	5,200	43,810
8-80	253,257	199,009	452,266	52,224	26,112	165,400	49,073	1,670	100	133,300
9	0	35,584	35,584	14,903	7,255	2,734	1,310	225	15	15,770
23	16,770	198,147	214,917	78,379	25,650	20,437	20,067			95,675
48	0			40,942	27,900					
49	0			4,594	2,300					
64	293,607	162,249	455,856	254,454	146,804					201,400
65	0			7,523	3,762					

DIVERSIONS USED FOR BUDGET PURPOSES INCLUDE:

- 1) Diversions from Stream Sources
- 2) Diversions from TM Sources
- 3) Diversions from Storage Sources
- 4) Diversions from Project Sources
- 5) Releases from in system facilities

## E. UNDERGROUND WATER

The most significant action affecting underground water during 1972 was the decision entered by Judge Wolvington in the Weldon Valley Case. In this case the Court ordered, "that the State Engineer, the Division Engineer, and all persons acting under their supervision and direction in the administration of the waters of Water Division No. 1 of the State of Colorado, are hereby ordered and directed to affirmatively administer all diversions of water of the South Platte River and its tributaries, including all groundwaters which are part of said river, in accordance with the Colorado Constitution and statutes." In another portion the Court decreed that, "The Water Administration Officials are ordered and directed to administer, regulate and curtail the use of each diversion device, including each well which draws water from the South Platte River, by requiring its use to be administered, curtailed or regulated during any period when such action would provide water to meet the lawful needs and requirements of any senior appropriator." (Emphasis added) This decision makes it necessary for each well to have a replacement plan in order to continue pumping.

A recent decision (March 1973) of the Colorado Supreme Court upheld a decision of the Larimer County District Court in which the State Engineer was found to be correct in denying a well permit 13 miles north of the Cache la Poudre River. This denial was based on interference with the stream system. It now appears that we have a case we can hang our hat on.

A number of groundwater surveys are being conducted at present by the staff of the Groundwater Investigations Section of the State Engineer's Office. Several of these concern portions of Division 1.

One of these surveys recently completed has some preliminary figures available. This is a survey of Water District 6, Boulder Creek Drainage and finds the following amounts of recoverable groundwater in storage:

Alluvium	70,000 A.F.
Sedimentary*	1.196 M-A.F.
Crystalline Rock	350 A.F.

\*Includes Laramie, Laramie-Fox Hills, Dakota, Lyons and Fountain Formations. These vary from 50 ft. - 600 ft. over the area studied.

Similar surveys of Water Districts 5 and 7 will be started soon.

Surveys along the main stem of the South Platte starting with Logan and Sedgwick Counties are being conducted by joint efforts of Surface and Groundwater Investigation Sections.

TRANSMOUNTAIN DIVERSIONS

OCTOBER 1, 1971 - SEPTEMBER 30, 1972

DISTRICT	RECEIVING	CONTROLLING OWNERSHIP	1ST DAY		LAST DAY		NO. OF DAYS		AVG. AMT.		TOTAL	
			WATER DIVERGED	WATER DIVERGED	WATER DIVERGED	WATER DIVERGED	WATER DIVERGED	WATER DIVERGED	C.F.S.	C.F.S.	AMOUNT	AMOUNT
3		Divide Canal & Res. Co.	May 20	July 7	49		24		2370			
3		Divide Canal & Res. Co.	May 18	July 7	51		13		1340			
3		City of Greeley							0			
3		City of Greeley							0			
3		Water Supply & Storage	May 4	Aug. 3	88		93		16190			
3		Water Supply & Storage	May 31	June 30	23		52		2350			
3		Water Supply & Storage	June 6	July 6	28		2.0		111			
3		North Poudre Irr. Co.	May 17	July 21	66		13		1770			
3		Water Supply & Storage	May 5	Sept. 14	133		70		18520			
4		City of Loveland	June 11	Sept. 13	95		0.3		55			
4		U.S.B.R.-N.C.C.D.	Oct. 1	Sept. 30	343		345		235000			
6		City of Denver	Oct. 1	Sept. 30	362		86		61470			
6		City of Denver	Oct. 4	Sept. 30	216		15		6530			
7		Farmers Res. & Highline	June 14	Sept. 30	109		2.2		473			
7		Hebert Young	June 27	July 8	12		2.0		47			
23-8		City of Denver	May 29	Sept. 2	81		212		34140			
23		City of Aurora							0			
23		City of Colo. Springs	Oct. 1	Oct. 28	160		32.8		10410			
			May 10	Sept. 18								
23		City of Aurora	Mar. 7	Apr. 25	105		30.6		6360			
			July 3	Aug. 26								

ANNUAL REPORT  
 COLORADO-BIG THOMPSON PROJECT  
 1972

Water supply outlook was reduced sharply in April due to above normal temperatures and lack of snowfall.

Carry-over reservoir storage was excellent and indicated an adequate water supply, however, early forecasts indicated below normal run-off.

Soil moisture was generally deficient until the later part of May and early June.

Precipitation in August resulted in a reversal of conditions and regulations.

Early snows in the high reaches point toward an adequate supply for the 1973 irrigation season.

STREAM FLOWS  
 (1972 Water Year)

STATION

St. Vrain at Lyons	64,980. acre-ft.
Big Thompson at Canyon	*49,390.
Cache La Poudre at Canyon	177,100.
St. Vrain at Mouth	122,100.
Big Thompson at Mouth	52,040.
South Platte at Kersey	465,400.
South Platte at Balzac	189,400.
South Platte at Julesburg	201,400.

Above figures are preliminary and subject to revision.

\*Big Thompson "Skim" and Dille Tunnel diverted above station and returned to river below station totalled 49,350 acre feet.

ACTIVE PROJECT STORAGE

<u>Western Slope</u>	<u>Nov. 1, 1971</u>	<u>Nov. 1, 1972</u>	<u>Diff.</u>
Willow Creek	7,865.	8,308.	+443.
Granby	<u>428,992.</u>	<u>417,363.</u>	<u>-11,629.</u>
Total Acre Feet	436,857.	425,671.	-11,186.
 <u>Eastern Slope</u>			
Carter	56,416.	48,721.	-7,695.
Horsetooth	57,202.	51,402.	-5,800.
Boulder	<u>7,770.</u>	<u>2,890.</u>	<u>-4,880.</u>
Total Acre Feet	121,388.	103,013.	-18,375.

DISTRIBUTION OF PROJECT WATER

<u>Water District</u>	<u>Carrier</u>	<u>Total Acre Feet</u>
1	Hansen Feeder Canal via Big Thompson	2,524.8
3	Hansen Supply Canal via Cache La Poudre	93,283.2
	Direct Delivery	11,238.0
4	Hansen Feeder Canal via Big Thompson	52,279.5
	St. Vrain Supply Canal via Little Thompson	10,318.3
	Direct Delivery	5,394.7
5	St. Vrain Supply Canal via St. Vrain	22,759.6
	Direct Delivery	12,045.6
6	Boulder Cr. Supply Canal via Boulder Cr.	19,686.8
	Direct Delivery	3,359.4
	Total to all districts, including replacement water.	232,889.9

Quota water declared available - 70% or 217,000 acre feet  
 Quota increased - 10%, August 1972  
 Replacement water - 1,838.6 acre feet

COMPARISON BETWEEN ORDERED AND ACTUAL DELIVERIES

<u>Stream</u>	<u>Ordered</u>	<u>Delivered</u>	<u>Difference</u>
Cache La Poudre	93,283.2	93,584.0	+300.8
Big Thompson	54,804.3	*55,813.0	+1,008.7
Little Thompson	10,318.3	10,411.8	+93.5
St. Vrain Creek	22,759.6	22,842.0	+82.4
Boulder Creek	19,686.8	19,877.0	+190.2
Turnouts	32,037.7	31,928.6	-109.1
Total Acre Feet	232,889.9	234,456.4	+1,566.5

\*Deliveries less Big Thompson "Skim", Dille Tunnel diversions during 1972 irrigation season.

PROJECT GAIN AND LOSSESTES PARK AREA

<u>Inflow</u>	<u>Nov. 1, 1971 - Nov. 1, 1972</u>	<u>Total Acre Feet</u>
Alva B. Adams Tunnel	234,547.	
Wind River	595.	
Big Thompson River	77,279.	
Fish Creek	609.	
Storage Nov. 1, 1971	<u>2,182.</u>	
		315,212.



<u>Outflow</u>	<u>Nov. 1, 1971 - Nov. 1, 1972</u>	<u>Total Acre Feet</u>
Estes Park Water District	194.	
Town of Estes Park	365.	
Estes-Foothills Canal	270,165.	
Big Thompson River	42,330.	
Storage Nov. 1, 1972	<u>2,269.</u>	
		315,323.

Apparent Gain 111. acre feet

CARTER LAKE AREA

<u>Inflow</u>		
Estes-Foothills Canal	270,160.	
Storage Pinewood, Flatiron	2,101.	
Storage Carter Nov. 1, 1971	56,416.	
Dille Tunnel	<u>13,180.</u>	
		341,857.

<u>Outflow</u>		
Hansen Feeder Canal	110,267.	
Big Thompson River	105,417.	
St. Vrain Supply Canal	64,843.	
Little Thompson Water District	2,234.	
Storage Carter Nov. 1, 1972	48,721.	
Storage Pinewood, Flatiron	2,002.	
Measured Seeps	<u>1,909.</u>	
		335,412.

Apparent Loss 6,445. acre feet

HORSETOOTH AREA

<u>Inflow</u>		
Hansen Feeder Canal	105,035.	
Storage Nov. 1, 1971	57,202.	
		162,237.

<u>Outflow</u>		
Hansen Supply Canal	93,584.	
Direct Delivery	11,144.	
Measured Seeps	927.	
Storage Nov. 1, 1972	51,402.	
		157,057.

Apparent Loss 5,180. acre feet

BOULDER AREAInflow

Boulder Feeder Canal	21,822.	
Storage Nov. 1, 1971	<u>*7,770.</u>	29,592.

\*(Includes 290 acre-feet Lefthand Cr. water stored in reservoir.)

Outflow

Boulder Cr. Supply Canal	25,046.	
Dry Cr. Replacement	625.	
Storage Nov. 1, 1972	<u>2,890.</u>	28,561.

Apparent Loss 1,031. acre feet

Summations

Estes Park Area	+111.
Carter Lake Area	-6,445.
Horsetooth Area	-5,180.
Boulder Area	<u>-1,031.</u>

Total Apparent Project Loss 12,545. acre feet

OPERATION "SKIM"

Computations are based on measured sum of Big Thompson River at Estes Park, Fish Creek and Wind River to Bureau system minus Big Thompson near Estes Park.

Big Thompson "Skim" extended from May 9, 1972 until September 27, 1972.

<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>Total CFS</u>	<u>Total Ac. Ft.</u>
4,070.8	9,567.	2,725.	822.	1,181.	18,365.8	26,430.

RIVER OPERATION

Since the 1970 irrigation season, the operating criteria on the Big Thompson River has remained virtually unchanged. This mode of water management is of great benefit to the water users, water administrators and power production. The success of this operation is primarily due to the efforts and cooperation between the bureau personnel and state representatives.

AREA PRECIPITATION

Estes Park	9.66 inches	Ft. Collins	9.00 inches
Loveland S.C.S.	*11.52 inches	Longmont	10.26 inches
Waterdale	12.23 inches	Greeley	11.77 inches

\*Average of several stations in and near Loveland

STREAM FLOW MEASUREMENTS - 1972 WATER YEAR  
 DIVISION OFFICE - GREELEY

<u>Hydrographer</u>	<u>Streams</u>	<u>Canals</u>	<u>Mileage</u>
T. S. Bell	209	9	14,059.
R. S. Liesman	80	19	4,497.
D. E. Thompson	110	74	13,611.
D. S. Walia	<u>73</u>	<u>1</u>	<u>4,452.</u>
Totals	472	103	36,619.

Mr. Darshan Walia, hydrographer, passed away January 22, 1972 after a brief illness. His death was a great shock and loss to the Greeley office. Mr. Ray Liesman transferred in from the Pueblo office June 5, 1972 to bring the hydrographic section up to full strength.

Many of the dtiches in Division One were checked during the past irrigation season. With the ever increasing demands on the hydrographic section, it still remains on a day to day basis to make every effort to oil the wheel that squeaks the most.

Respectfully submitted,

*Dean E. Thompson*

Dean E. Thompson  
 Water Resources Engineer

III.

G.

## RESERVOIR STORAGE DISTRICT NO. 1

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Empire	South Platte	2315	33055	8205
Riverside	South Platte	Dead Storage	58633	25523
Jackson Lake	South Platte	11161	33692	21703
Bijou No. 2	South Platte	4140	560	150
Klug No. 1	Box Elder	0		
Heart	Little Crow	Dead Storage	140	0
Snyder	South Platte	380 E		
	TOTAL	17996	126080	55581

## III.

## G. RESERVOIR STORAGE DISTRICT NO. 2

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Barr - Oasis	South Platte	12440	27597	12004
Behrns	South Platte	35	35	17
Beulah	South Platte	1	0	0
Bowles No. 1	South Platte	30	0	6
Bowles No. 2	South Platte	190	40	25
Brantner No. 2	Brantner Gulch	11	11	11
Carlin	South Platte	0	0	0
Church Lower Lake	Dry Creek	100	120	120
Coal Ridge (Sandhill)	Little Dry Creek	696	416	564
Fulton Waste	South Platte	250	420	420
German No. 2	Big Dry Creek	45	30	46
German No. 3	Big Dry Creek	3	4	1
German No. 4	Big Dry Creek	18	16	18
German No. 6	Big Dry Creek	20	12	21
German No. 8 & 9	Big Dry Creek	40	40	65
German No. 12	Big Dry Creek	90	92	80
Great Western	Clear Creek	2654	2062	2247
H. A. Smith	South Platte	30	15	20
Henry	South Platte	1		
Horse Creek	South Platte	3540	15030	1641
Ireland No. 1	South Platte	40	112	110
Ireland No. 5	South Platte	35	65	51
J. B. Smith	Todd Creek	150	140	100
L. A. Dore	Seepage	388	381	384
Loloff	South Platte	94	125	94
Lord	South Platte	118	180	84
Lower Latham	South Platte	5268	5740	4749
Marshall	Brantner Gulch	30	32	32
Maul	First Creek	33	33	33
Meek No. 1	South Platte	15	15	18
Meek No. 2	South Platte	8	0	10
Milton	South Platte	11575	18122	
Mose Davis Lake No. 2		20	139	110
North Starr	Big Dry Creek	100	55	60
Olds	South Platte	0	0	0
Parson-Holmes	Second Creek	0	0	0
Prospect	South Platte	2030	4230	995
Standley - Kinnear	Clear Creek	20614	31582	16167
Thompson	Big Dry Creek	200	200	200
Karsh	Big Dry Creek	0	10	3
Mathison	Big Dry Creek	15	15	15
	TOTAL	60927	107116	40521

III.

G.

## RESERVOIR STORAGE DISTRICT NO. 3

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Barnes Meadow	Barnes Meadow	906	1034	0
Big Beaver	Big Beaver Creek	0	0	0
Comanche	Big Beaver Creek	366	417	229
Peterson	Unnamed Creek	0	0	0
Portner	Fossil Creek	52	81	74
Seaman	N Fk Cache la Poudre	2412	2185	2460
Twin Lake	Trib of Pennock Ck	0	0	0
North Gray	Boxelder Creek	134	229	132
South Gray	Boxelder Creek	420	694	165
Gray No. 3	Boxelder Creek	0	83	9
Larimer & Weld	Cache la Poudre	4325	5908	4193
Worster	Sheep Creek	88	569	71
Cache la Poudre	Cache la Poudre	7680	8186	5455
Windsor Lake	Cache la Poudre	0	987	900
Seeley		840	1042	611
Clarks Lake	N Fk Cache la Poudre	870	871	690
Fossil Creek	Cache la Poudre	7240	8355	6035
Halligan	N Fk Cache la Poudre	524	3894	1014
Indian Creek	N Fk Cache la Poudre	914	890	1339
Joe Wright	Joe Wright Creek	0	0	0
N. Poudre No. 2	N Fk Cache la Poudre	1696	3026	2286
N. Poudre No. 3	N Fk Cache la Poudre	2374	2261	1403
N. Poudre No. 4	N Fk Cache la Poudre	580	819	322
N. Poudre No. 5	Cache la Poudre	6214	5774	3054
N. Poudre No. 6	Cache la Poudre	6054	6966	6224
N. Poudre No. 15	N Fk Cache la Poudre	4618	5057	4304
Park Creek	N Fk Cache la Poudre	6230	6695	4222
Black Hollow	Cache la Poudre	4000	4716	4171
Chambers	Wright, Trap & Fall Cks	700	2243	2192
Curtis	Cache la Poudre	948	936	838
Kluver	Cache la Poudre	836	844	810
Lindenmeir	Cache la Poudre	456	533	485
Long Draw	Long Draw	210	262	1174
Long Pond	Cache la Poudre	2832	2833	2890
Richards	Cache la Poudre	712	645	698
Rocky Ridge	Cache la Poudre	3322	3423	3243
W S & S No. 3	Cache la Poudre	3920	3802	3821
W S & S No. 4	Cache la Poudre	564	445	610
Cobb	Cache la Poudre	21020	20075	21000
Douglas	Cache la Poudre	6348	6430	7970
Res. No. 8	Cache la Poudre	7136	6875	7582
Res. No. 8 Annex	Cache la Poudre	2468	2375	2658

III.

## G. RESERVOIR STORAGE - DISTRICT NO. 3 (Continued)

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Windsor Reservoir	Cache la Poudre	14150	13652	9805
Claymore	Cache la Poudre	722	843	752
Dowdy	Pine Creek	852	768	784
Warren Lake	Cache la Poudre	1096	922	1084
Woods Lake	Cache la Poudre	2280	2363	1432
Horsetooth	Colo. Big T	65528	142990	59726
	TOTAL	194064	283998	178917

## III.

## G. RESERVOIR STORAGE DISTRICT NO. 4

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Lone Tree	Big Thompson	7996	7996	5994
Lon Hagler	Big Thompson	4550	4420	5109
Mariano	Big Thompson	3803	5182	3907
Lake Loveland	Big Thompson	11820	11772	12058
Boyd Lake	Big Thompson	38741	36498	36351
Horseshoe	Big Thompson	6686	6863	7170
Welsh	Big Thompson	6654	6654	5240
Rist Benson	Big Thompson	372	305	421
Geo. Rist (Buckingham)	Big Thompson	265	210	409
Fairport	Big Thompson	308	257	329
Cemetary	Big Thompson	379	379	308
Boulder-Larimer (Ish)	Little Thompson	2705	2611	2425
Donath	Big Thompson	325	546	437
Oklahoma	Big Thompson	434	409	308
Loveland Lake	Big Thompson	1375	1516	1502
Ryan Gulch	Ryan Gulch	710	680	589
South Side	Big Thompson	500	500	448
Hertha	Dry Creek	1140	1398	663
Lawn Lake	Roaring Fork	817	817	0
Carter	Colo. Big T	59041	110484	51399
	<b>TOTAL</b>	<b>148621</b>	<b>199497</b>	<b>135067</b>



III.

G.

## RESERVOIR STORAGE DISTRICT NO. 5

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Allen Lake	Left Hand	700	700	700
Akers & Tarr	St. Vrain	130	130	143
Arbucle No. 2	M. Fk. N. St. Vrain	966		966
Arbucle No. 4	S. Fk. N. St. Vrain	420		420
Ballinger	St. Vrain	10	10	10
Baxter	St. Vrain	200	200	170
Beaver Park	Beaver Creek	2005	2161	1330
Bellmire	St. Vrain	23	25	27
Calkins Lake	St. Vrain	60	60	125
Clennon	St. Vrain	54	54	80
Clark	St. Vrain	75	75	80
Clover Basin	St. Vrain	570	570	570
Copeland	N. St. Vrain	50	50	70
Crystal	St. Vrain	100	100	110
Culver	St. Vrain	125	125	140
Divide	St. Vrain	280	280	245
Foothills	St. Vrain	2505	2335	2622
Genevieve	St. Vrain	62	62	74
Gold Lake	Left Hand	740	240	320
Hartford	Middle St. Vrain	45	45	47
Green Lake	St. Vrain	120	120	100
Hayden	St. Vrain	40	40	38
Hewitt	St. Vrain	34	34	32
Highland Lake	St. Vrain	280	280	300
Highland No. 1	St. Vrain	588	588	873
Highland No. 2	St. Vrain	2695	2695	2550
Highland No. 3	St. Vrain	1169	1169	1324
Hill	St. Vrain	110	110	115
Holt	St. Vrain	130	130	120
Ide & Starbird No. 1	St. Vrain	90	90	96
Ide & Starbird No. 2	St. Vrain	40	40	38
Independent	St. Vrain	145	162	160
Isabelle	S. Fk. St. Vrain	-	-	-
Kistler & Holliday	St. Vrain	5	5	5
Knouth	St. Vrain	-	-	-
Left Hand	Left Hand	184	184	176
Little Gem	St. Vrain	48	48	54
Logan	St. Vrain	24	24	22
Lagerman	Left Hand	345		345
McCall	St. Vrain	450	450	475
McCaslin	St. Vrain	110	119	114
McIntosh	St. Vrain	1076	2253	1281

III.

## G. RESERVOIR STORAGE DISTRICT NO. 5 (Continued)

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
McKay	St. Vrain	40	40	42
Marie	St. Vrain	120	204	400
Marshall	St. Vrain	20	20	22
Miantenoma	St. Vrain	95	95	110
Minnie	St. Vrain	60	60	58
Moeller	Walker Gulch	50	50	50
Mulligan	St. Vrain	40	40	44
Myron Isabell	St. Vrain	60	60	66
Oligarchy No. 1	St. Vrain	1640	1640	1545
Parmalee	St. Vrain	30	30	40
Pleasant Valley	St. Vrain	2428	2428	2550
Sanborn	St. Vrain	150	150	178
Swede	Left Hand	170	170	136
Supply No. 1	Big Cascade	296	296	296
Thomas	St. Vrain	348	348	545
Union	St. Vrain	11372	12136	10442
Walker	St. Vrain	55	55	52
Zimbeck	St. Vrain	45	45	40
Left Hand Valley	Left Hand	3783	3783	2956
Left Hand Park	Left Hand	1548	1548	925
Button Rock	N. St. Vrain	13756	13856	13998
	TOTAL	52409	52817	50962

III.

G.

## RESERVOIR STORAGE DISTRICT NO. 6

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Albion	Albion Creek	1111	1111	1111
Baseline	S. & M. Boulder Creek	0	0	1583
Barker	M. Boulder Creek	10165	3466	9919
Ballinger Hollow	N O T A C T I V E			
Boulder	Big Thompson Project	9074	9314	3686
Davis No. 1 & 2	Middle Boulder Ck	168	74	74
* Elmwood	South Boulder Ck	85	85	40
Erie	South Boulder Ck	16	16	43
Glacier Summer	North Boulder Ck	189	189	189
Green Lake No. 1	North Boulder Ck	197	197	197
Green Lake No. 2	North Boulder Ck	333	333	333
Green Lake No. 3	North Boulder Ck	285	285	285
Green Lake No. 4	North Boulder Ck	88		NOT IN USE
Green Lake No. 5	North Boulder Ck	70		NOT IN USE
Goose Lake	North Boulder Ck	1036	1036	1036
Great Western	Clear & Coal Cks	2661	2101	2157
Gross	S. Boulder Ck & Moffat	29927	18695	22540
Haden	Middle Boulder Ck	346	452	240
Hillcrest	S Bldr Ck & M Bldr Ck	1909	1871	1846
Island	North Boulder Ck	334	334	334
Jasper	Middle Boulder Ck	0	326	0
Lower Boulder Ext.	Middle Boulder Ck	329	203	308
Louisville	South Boulder Creek	86	109	97
Last Chance No. 1	Coal Creek	0	0	0
Leggett	S & M Boulder Creeks	1378	1350	1331
Mesa Park	Middle Boulder Ck	110	95	95
Mesa	Middle Boulder Ck	225	225	150
* Marfell Lake No. 1	South Boulder Ck	10	0	26
* Marfell Lake No. 2	South Boulder Ck	0	0	19
McKay	South Boulder Ck	181	181	181
Marshall	South Boulder Ck	4054	6725	1649
* Prince No. 1	South Boulder Ck	60	60	60
* Prince No. 2	South Boulder Ck	62	0	61
Panama No. 1	Middle Boulder Creek	3267	3836	3267
Smart	Coal Creek	553	642	589
Sky Scraper	Middle Boulder Creek	146	146	146
Silver Lake	North Boulder Creek	3781	1002	3883
Six Mile	Middle Boulder Creek	745	1088	793
* Teller Lake No. 1	South Boulder Creek	6	12	0
* Teller Lake No. 5	South Boulder Creek	4	0	4
Thomas	South Boulder Creek	11	0	11
Valmont	S & M Boulder Creeks	6743	6655	6597
West Lake	South Boulder Creek	0	0	0
Waneka	South Boulder Creek	355	175	355
	TOTAL	80038	62289	65235

\*DECREED CAPACITY ASSUMED TO BE EQUAL TO ACTUAL CAPACITY

III.

## G. RESERVOIR STORAGE DISTRICT NO. 7

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Adams	Clear Creek	NO RESERVOIR		
Beardsley	" "	3	0	
Blackham Ponds	" "			
Beaver Brook No. 1 & Enl.	N & S Beaver Brook			
Beaver Brook No. 2	N Beaver Brook	NO RESERVOIR		
Beaver Brook No. 3 & 4	N & S Beaver Brook			
Beaver Brook No. 3A	S Beaver Brook & Blue Creek			
Braukman	Fall River	NO RESERVOIR		
Brewer	Clear Creek, Ralston, Van Bibber, Leyden	4		4
Bright View No. 2	Clear Creek	0	0	
Bright View No. 1	" "	1	0	
Broad	" "	60	60	
Broomfield	" "	0		
Brown	" "	0	0	
* Calkins H. D.	" "	540	400	540
Campbell No. 2	Ralston Creek			
Campbell No. 1 (Long Lake)	" "	955	976	879
* Church J.M. No. 1 & 2	Clear Creek	FULL 17	17	17
Church's Lower	" "	200	180	180
Clear Reservoir	Leavenworth Ck			
Clover Knolls	Clear Creek	NO RESERVOIR		
Clover Knolls South	" "	NO RESERVOIR		
Cole	" "	85		
Copeland	" "	130	120	120
* Croke 7	" "	200 E	200	200
Croke 12	" "	500		500
Crosley & Westfield	" "	NO RESERVOIR		
* Crown Hill Cemetary	" "	290	280	280
Currier No. 1	" "			
Currier No. 2	" "			
Davy	" "	2.5	2.5	2.5
Dewey	" "	40		40
Dierks No. 1 & 2	" "	2		2
Downing	" "	FULL 38		38
Dumphy	" "	DRY NOT USED	0	0
East	" "	190	180	175
East Lake No. 1	" "	100	120	87
East Lake No. 2	" "	720	600	0
East Lake No. 3	" "	140	100	0

\* DECREED CAPACITY ASSUMED TO BE EQUAL TO ACTUAL CAPACITY

III.

## G. RESERVOIR STORAGE DISTRICT NO. 7 (Continued)

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Eppinger Reservoir	Clear Ck, Van Bibber, Ralston	NO RESERVOIR		
Erie	Clear Creek	285	270	285
Fall River Group of Reservoirs	Fall River	340	340	340
Fitzgerald	Clear Creek			
Funk	" "	NO RESERVOIR		
Furrer	" "	3	0	3
Gangl	" "			
Georgetown	Leavenworth Ck	NO RECORD		
Ginther Res. No. 1	Clear Creek	10		10
Ginther Res. No. 2	" "	2		
Ginther Res. No. 3,4,5	" "	9		2
Graves No. 1, 2, 3	" "			9
Green Lake	Leavenworth Ck	NO RECORD		
Guthrie No. 1	Clear Creek			
Guthrie No. 2	" "			
Hallack (East, NORTH, South)	" "			
Hansen No. 1 & 2	" "	3		3
Harris	" "	DRY - NOT USED		
Hartley	" "	54	48	54
Home No. 1	" "	10		10
Hyatt	" "	530	700	320
Idaho Springs Res. No. 1, 2 & 3 Enl.	Soda & Chicago Creeks	NO RECORD		
Johnson	Clear Creek	0	0	0
Joint	" "	NO RESERVOIR		
Kalsevic	" "			
Kelley	Little Dry Ck	50		50
Kingsbury	Clear Creek	DRY - NOT USED		
Koleski Helen	" "	37		38
Krosky	" "	0	0	0
Larson	" "	NO RESERVOIR		
Lee (Henry) North & South	" "			
Leyden	" "	700	500	0
Linscott	" "	0	0	0
Little Tynon	" "	19		19
Loch Lomond Group	Fall River			
Main	Clear Creek	360	345	350
Marshall	" "	0	0	0
Mayhem	Clear Ck & Seepage	1288		1288
Maple Grove		587	587	587

## III.

## G. RESERVOIR STORAGE DISTRICT NO. 7 (Continued)

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Moir Res. & Enl.	Clear Creek			
Morgan No. 1	" "	25		25
Morgan No. 2	" "	30		30
Moxley	" "	0		0
* Myers No. 1, 2 & 3	" "	FULL 100	100	100
Nelson	" "			
Newlander	" "	NO RECORD		
Nissen No. 2 & Enl.	" "	160		160
Nissen No. 6	" "	NO RESERVOIR		
* Oberon No. 1 & 2	" "	FULL 69		69
Ohio	" "			
Pavlinic	" "	NO RESERVOIR		
Plaster	" "			
Poitz & 1st Enl.	" "	60	55	60
Pomona No. 1 & 1st Enl.	" "	200	180	180
Pomona No. 2 & 1st Enl.	Dry Creek	0	0	0
Pomona No. 3	Clear Creek	NOT USED	0	0
Ralston	Moffat via Gross	9332	7556	9917
Richards	Clear Creek	10		
Robinson	" "	NO RESERVOIR		
* Savory Ponds	" "	3		8
School	" "	NO RESERVOIR		
Signal No. 1	" "	80 E	90	90
Signal No. 2	" "	90	90	90
Silver Lake	Silver Creek			
Smith J.B. (Horseshoe)	Clear Creek	250		230
Smith Reservoir	" "	150	145	150
Soper No. 1,2,3 & 4	" "	5	4	4
Standley	" "	18601	31818	15232
St. Mary's Lake	Chesapeake		42.20	0
Stonehouse	Clear Creek	NO RESERVOIR		
Storm	Clear Creek	NOT USED		
Talbot	" "	18 E	56	56
Timm	" "	1		1
Tom Frost	" "	NO RECORD		
Tucker	Ralston	333	475	181
Union No. 1 & 2	Clear Creek			
Vogel Ponds	" "	25		25
Wadley No. 1	" "	0		
Wadley No. 2	" "	0		
Wadley No. 3	" "	75		55
* Ward No. 1 & Enl.	" "	FULL 970	970	970
Watts No. 1	" "	1	1	1

\* DECREED CAPACITY ASSUMED TO BE EQUAL TO ACTUAL CAPACITY

III.

G.

## RESERVOIR STORAGE DISTRICT NO. 7 (Continued)

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Watts Reservoir No. 2	Clear Creek	3	2	2
Webster Res. & Enl.	" "	175		175
Wesley Chapel	Clear Ck, Ralstor Van Bibber	NO RESERVOIR		
Westminister Orchards	Clear Creek	NO RESERVOIR		
Wiesel Reservoir	" "	15	10	10
Zang Res. No. 1 & 2	" "	NO RESERVOIR		
	<u>TOTAL</u>	39285	47620	34249

III.

## G. RESERVOIR STORAGE DISTRICT NO. 8

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Allis Reservoir	Carpenter Creek	5	80	50
Aurora Rampart	South Platte	984	1282	1130
Baird	Russellville Gulch	0		
Cherry Creek	Cherry Creek	13404	13396	12788
Derby	No. Colo. Highline (South Platte)			
* Fairview & Enl.	Deer Creek		75	
* Fairview No. 2 Greenwood	Deer Creek No. Colo. Highline (South Platte)		55	
Haystack	W. Branch W. Plum		32	16
Lambert	Willow Creek			
Linhart No. 2	Seep & Palmer Gulch			
Lining	Beaver Creek	673	673	673
Mann	Deer Creek			
Marston	South Platte	17054	15058	13636
McLellen	South Platte	5452	5056	5254
Platte Canon	South Platte	925	925	928
Tinker & Shaffer & Enl.	Gulch	0		
Wakeman & Enl.	Willow Creek	90		
Waucundah	Bear Springs Creek	136	336	274
Mitchell	Mitchell Gulch			

## DISTRICT NO. 23 - 8

Altura R. (Duck)	Geneva	0	564	20
Cheesman	S. FK. South Platte	79257	74685	58734
Wellington	Buffalo Creek	2450	2997	1598
TOTAL		120430	115214	95101

\* DECREED CAPACITY ASSUMED TO BE EQUAL TO ACTUAL CAPACITY





III.

G. RESERVOIR STORAGE DISTRICT NO. 23

NAME	SOURCE	AMOUNT - A.F.		
		11-1-71	5-1-72	10-31-72
Antero	So. Fk. South Platte	15878	15878	15878
Eleven Mile	" " " "	80285	81065	90463
Jefferson	Jefferson Creek	NO STAFF		
Montgomery	Md. Fk. South Platte and Hoosier Tunnel	4777	154	4118
Tarryall	Tarryall Creek	FULL ALL SEASON		
	TOTAL	100940	97097	110459

III.

G.

## RESERVOIR STORAGE DISTRICT NO. 64

NAME	SOURCE	AMOUNT - A.F.			
		11-1-71	5-1-72	10-31-72	
Julesburg R.	South Platte	19794	23700	8167	
North Sterling	" "	33740	62950	11210	
Prewitt	" "	28250	26320	7810	
		<hr/>			
		TOTAL	81784	112970	27187

## IV. AGRICULTURE

## CROP REPORTS

The following crop report statistics are for the 1970 season as published in the 1972 Colorado Agricultural Statistics Bulletin 1-72 by the Colorado Department of Agriculture. These are the latest final statistics available and although not meant to represent the 1972 Crop year they are indicative of the cropping pattern in Division 1. In general the 1972 season produced exceptionally good yields in most crops. Fortunately the marked price for this production was also high with the result being in most cases a record income for agriculture.

CORN FOR GRAIN

1970 FINAL

1971 PRELIMINARY

NON IRRIGATED

IRRIGATED

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000	ACRES	BUSHELLS x 1000	VALUE x \$1000
	ACRES	YIELD bu/acre	VALUE x \$1000	ACRES	YIELD bu/acre	VALUE x \$1000				
Adams	7300	115.0	1116.3	200	24.0	6.7	1123.0	5600	420.0	553.0
Arapahoe	300	96.0	40.0				40.0			
Boulder	3500	107.0	524.0				524.0	3000	240.0	316.0
39.0 Cheyenne	2120	94.0	247.4	39	22.0	1.1	248.5	3320	282.0	372.0
Clear Creek										
Denver				100	20.0	2.6	2.6			
Douglas				485	21.0	13.3	85.0			
69.0 Elbert	550	100.0	71.7							
Gilpin										
Jefferson										
Kit Carson	30500	100.0	3886.5	500	19.0	12.5	3899.0	42000	3414.0	4490.0
Larimer	8500	105.0	1232.0				1232.0	7500	570.0	750.0
26.5 Lincoln	212	90.0	25.8				25.8	186	14.5	19.1
Logan	20000	100.0	2535.0	2500	29.0	96.0	2631.0	26000	2484.5	3275.0
Morgan	46000	115.3	7052.0				7052.0	50000	4827.5	6350.0
87.4 Park										
Phillips	9000	100.0	1151.0	8500	22.2	242.0	1393.0	20000	1423.6	1878.0
Sedgwick	7000	103.0	915.5	2500	29.8	94.5	1010.0	9000	936.0	
47.5 Teller	47.5	75.0	4.6	38	23.0	1.2	5.8	23.8	1.7	2.2
Washington	5500	112.0	790.0	1000	22.0	26.6	816.6	9800	861.3	1130.0
Weld	65000	113.0	9941.0	1000	30.0	39.0	9980.0	69500	5966.0	7860.0
Yuma	37500	110.0	5350.0	7500	23.0	219.0	5569.0	73000	7253.0	9560.0
TOTALS	243029.5	1635.3	34882.8	24362	285.0	754.5	35637.3	318929.8	28694.1	36555.3

## BARLEY

## 1970 FINAL

## 1971 PRELIMINARY

## NON IRRIGATED

## IRRIGATED

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000	ACRES	BUSHELS x 1000	VALUE x \$1000
	ACRES	YIELD bu/acre	VALUE x \$1000	ACRES	YIELD bu/acre	VALUE x \$1000				
Adams	3700	54.9	195.0	32300	34.0	1014.0	1209.0	42500	1590.5	1530.0
Arapahoe	50	55.0	2.6	12450	30.0	343.6	346.2	17000	343.0	329.0
Boulder	5800	58.0	316.2	3800	40.0	142.9	459.1	9600	497.7	478.0
Cheyenne	39	40.0	1.5	585	22.0	11.4	12.9	506	20.3	19.5
Clear Creek										
Denver	50	53.0	2.5	2550	24.0	56.9	59.4	2400	56.0	53.7
Douglas	138	40.0	5.3	3320	26.0	88.2	93.5	3450	104.9	100.9
Elbert										
Gilpin	200	47.0	9.0	700	37.0	22.8	31.8	1200	46.0	44.1
Jefferson	400	52.0	20.0	4000	23.0	82.6	102.6	5500	138.0	132.5
Kit Carson	12000	62.0	705.0	7500	40.0	286.8	991.8	15000	817.0	785.0
Larimer	53	50.0	2.5	555	25.0	13.2	15.7	690	20.2	19.4
Lincoln	1200	65.0	70.9	4600	36.0	150.1	221.0	8000	349.0	335.0
Logan	2700	60.0	152.4	3800	30.0	107.0	259.4	8800	397.0	381.0
Morgan										
Park	100	60.0	5.8	2400	34.0	72.2	78.0	3100	113.4	109.0
Phillips	100	62.0	6.0	600	41.0	21.9	27.9	3900	169.5	163.0
Sedgwick										
Teller	850	50.0	43.5	8650	32.0	282.2	325.7	16000	624.0	599.0
Washington	24000	61.3	1406.0	34000	35.0	1150.0	2556.0	73500	2854.0	2740.0
Weld	200	60.0	11.9	3200	28.0	89.7	101.6	1800	66.8	64.1
Yuma										
TOTALS	51580	930.2	2956.1	125010	537.0	3935.5	6891.6	212946	8207.3	7883.2

WINTER WHEAT

1970 FINAL

1971 PRELIMINARY

NON IRRIGATED

IRRIGATED

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000	ACRES	BUSHELLS x 1000	VALUE x \$1000
	ACRES	YIELD bu/acre	VALUE x \$1000	ACRES	YIELD bu/acre	VALUE x \$1000				
Adams	4000	45.0	220.0	110000	28.0	3660.0	3880.0	120000	3663.0	4310.0
Arapahoe				53000	31.0	1906.0	1906.0	59500	1633.0	1940.0
Boulder	1400	46.0	74.8	4100	32.0	154.0	228.8	7000	289.8	344.0
Cheyenne	273	40.0	13.0	47600	23.0	1338.0	1351.0	56100	1589.0	1890.0
Clear Creek										
Denver	100	48.0	5.9	8900	25.0	260.0	265.9	8500	197.0	234.0
Douglas	483	30.0	17.5	37800	20.0	876.5	894.0	32400	683.0	812.0
Elbert										
Gilpin	600	40.0	26.2	5900	33.0	210.0	236.2	6000	166.4	197.0
Jefferson	3700	57.9	248.0	177300	23.0	4860.0	5108.0	190000	4481.0	5320.0
Kit carson	1400	53.0	89.0	29600	30.0	1172.0	1261.0	30000	923.8	
Larimer	26	48.0	1.5	26700	23.0	712.5	714.0	32300	712.0	846.0
Lincoln	600	53.0	38.0	115400	36.0	4901.0	4939.0	137000	4706.8	5600.0
Logan	6100	59.0	428.0	44900	33.0	1653.0	2081.0	68000	2249.0	2675.0
Morgan										
Park	200	48.0	11.5	125800	38.0	5640.5	5652.0	121000	4238.8	5040.0
Phillips	1100	43.0	56.4	61900	38.5	2809.6	2866.0	80000	3366.0	4000.0
Sedgwick										
Teller	2200	49.0	128.0	222800	30.0	7750.0	7878.0	252000	7321.0	8700.0
Washington	6800	43.9	356.0	170200	29.0	5916.0	6272.0	177000	5252.2	6250.0
Weld	1200	51.0	73.0	132800	33.0	5303.0	5376.0	134000	4166.0	4950.0
Yuma										
TOTALS	30182	754.8	1786.8	1374700	505.5	49122.1	50908.9	1510800	45637.8	53108.0

SPRING WHEAT

1970 FINAL

IRRIGATED NON IRRIGATED

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000
	ACRES	YIELD bu/acre	VALUE x \$1000	ACRES	YIELD bu/acre	VALUE x \$1000	
Adams	300	36.0	12.7	7900	30.0	276.1	288.8
Arapahoe				200	24.0	5.6	5.6
Boulder	130	37.0	5.6	570	27.0	18.0	23.6
Cheyenne				351	24.0	9.9	9.9
Clear Creek							
Denver				100	24.0	2.8	2.8
Douglas				207	17.0	6.0	6.0
Elbert							
Gilpin							
Jefferson							
Kit Carson	250	29.4	8.6	550	22.0	14.2	22.8
Larimer	250	40.0	11.7	50	19.0	1.1	12.8
Lincoln				159	15.0	2.8	2.8
Logan	50	39.0	2.3	150	18.0	3.1	5.4
Morgan	170	42.0	8.6	130	22.0	3.3	11.9
Park							
Phillips				1200	23.0	32.3	32.3
Sedgwick							
Teller							
Washington				200	22.0	5.2	5.2
Weld	400	37.8	17.6	4100	21.5	103.0	120.6
Yuma	400	33.0	15.5	1000	15.0	17.5	33.0
TOTALS	1950	294.2	82.6	16867	323.5	500.9	583.5



DRY BEANS

1970 FINAL

1971 PRELIMINARY

NON IRRIGATED

IRRIGATED

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000	ACRES	PRODUCTION CWT.	VALUE x \$1000
	ACRES	YIELD lbs/acre	VALUE x \$1000	ACRES	YIELD lbs/acre	VALUE x \$1000				
Adams	700	1750	91.0	600	9000	67.5				
Arapahoe										
Boulder	1900	1700	240.6	1500	32800	246.0				
39 Cheyenne	78	1400	8.0	78	1130	10.1				
Clear Creek										
Denver										
Douglas										
69 Elbert	138	1550	15.8	207	3320	23.5				
Gilpin										
Jefferson										
Kit Carson	6000	1553	681.0	5500	81500	691.9				
Larimer	5100	1900	721.9	3800	74100	721.9				
26.5 Lincoln	4900	1720	628.1	26	450	1.6				
Logan	11000	1730	1418.0	4000	78200	631.8				
Morgan				7700	155900	1418.0				
87.4 Park										
Phillips	6000	1800	798.9	6500	109800	809.4				
Sedgwick	6100	1700	771.7	5500	113000	790.7				
47.5 Teller										
Washington	1400	1840	190.9	1000	18500	190.9				
Weld	26000	1803	3493.0	23500	466000	3493.0				
Yuma	2900	1850	397.0	1600	30400	414.4				
TOTALS	72216	22296	9455.9	2629	2915	72.9	61511	1174100	8809.3	

SUGAR BEETS

1970 FINAL

1971 PRELIMINARY

COUNTY	ACRES	YIELD TONS/ACRE	VALUE x \$1000	ACRES	TOTAL TONS x 1000	VALUE x \$1000
Adams	2600	14.4	558.6	2200	36.9	550.0
Arapahoe	100	11.0	16.4			
Boulder	2300	15.1	520.0	2500	42.0	625.0
Cheyenne	290	14.4	62.7	254	4.2	62.5
Clear Creek						
Denver						
Douglas						
Elbert						
Gilpin						
Jefferson						
Kit Carson	22600	15.5	5243.0	19200	327.1	4870.0
Larimer	6900	16.0	1655.0	6750	112.0	1670.0
Lincoln						
Logan	10400	16.1	2493.0	11900	225.3	3355.0
Morgan	14000	16.8	3517.0	13800	259.9	3865.0
Park						
Phillips	7100	14.2	1503.0	4750	63.5	945.0
Sedgwick	3900	16.4	955.0	2950	57.0	850.0
Teller						
Washington	1850	14.4	398.0	1900	35.6	530.0
Weld	43000	17.4	11146.0	45300	847.5	12630.0
Yuma	13200	16.2	3040.0	11000	208.0	3100.0
TOTALS	128240	197.9	31107.7	122504	2219.0	33052.5

1970 FINAL

POTATOES

CORN SILAGE

HAY

COUNTY	POTATOES		CORN SILAGE		HAY				
	ACRES	YIELD cwt/acre	VALUE x \$1000	ACRES	YIELD tons/acre	VALUE x \$1000	ACRES	TONS	VALUE x \$1000
Adams	10	270	5.4	7500	16.0	1056.0	28000	67350	1638.0
Arapahoe				700	15.0	92.4	5600	8390	213.9
Boulder	10	215	4.3	7000	16.0	999.0	26700	69450	1736.0
Cheyenne	35	270	19.0	1480	13.0	169.0	4710	7240	170.0
Clear Creek							100	200	4.8
Denver				1300	13.0	148.7	4050	4340	92.6
Douglas				2140	15.0	282.0	19100	22600	551.0
Elbert							280	360	9.0
Gilpin				500	18.0	80.3	10100	19900	548.0
Jefferson				10500	13.0	1201.0	31700	49910	1248.0
Kit Carson	30	215	12.8	21500	17.0	3260.0	51300	136450	3284.0
Larimer				265	7.0	16.3	5780	6010	141.8
Lincoln	3	270	1.4	14500	16.0	2069.0	62900	129300	3168.0
Logan	160	214	68.5	17000	19.0	2811.0	42300	97600	2391.0
Morgan	5200	214	2225.6				17680	16000	386.0
Park				1800	18.0	285.1	12900	17250	405.4
Phillips	250	270	135.0	400	20.0	713.7	15200	30800	770.0
Sedgwick							1330	1590	41.4
Teller	40	270	21.6	6000	14.0	739.2	37200	48450	1211.0
Washington	6000	214	2562.8	85500	19.3	14804.0	155500	398200	9756.0
Weld	1100	270	594.0	5900	16.4	851.6	42700	78800	1931.0
Yuma									
TOTALS	12838	2692	5650.4	183985	245.7	29578.3	575130	1210190	29696.9

OATS

1970 FINAL

NON IRRIGATED

IRRIGATED

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000
	ACRES	YIELD bu/acre	VALUE x \$1000	ACRES	YIELD bu/acre	VALUE x \$1000	
Adams	2500	50.0	81.5	6000	38.0	148.0	229.5
Arapahoe	50	40.0	1.5	2550	23.0	42.7	44.2
Boulder	1000	64.0	49.8	500	37.0	14.5	64.3
Cheyenne							
Clear Creek							
Denver							
Douglas				800	22.0	11.4	11.4
Elbert	138	40.0	3.7	2690	26.0	45.4	49.1
Gilpin							
Jefferson	100	60.0	4.5	150	38.0	4.2	8.7
Kit Carson	500	44.0	14.8	1900	22.0	28.0	42.8
Larimer	1200	63.0	53.6	700	41.0	20.4	74.0
Lincoln				636	19.0	7.8	7.8
Logan	1850	53.0	71.9	12150	36.0	318.9	390.8
Morgan	2200	77.0	120.1	2150	30.0	45.8	165.9
Park							
Phillips	200	45.0	5.6	9800	37.0	219.2	224.8
Sedgwick	450	66.0	21.1	8050	47.0	268.6	289.7
Teller				24	42.0	0.7	0.7
Washington	800	49.9	26.3	10700	32.0	227.0	253.3
Weld	4200	65.4	190.1	16800	33.6	389.5	579.6
Yuma	1400	45.0		2800	30.0	54.5	95.5
TOTALS	16588	762.3	644.5	78400	553.6	1846.6	2532.1

## SORGHUMS FOR GRAIN

1970 FINAL

IRRIGATED

NON IRRIGATED

1971 PRELIMINARY

COUNTY	IRRIGATED			NON IRRIGATED			TOTAL VALUE x \$1000	ACRES	BUSHELLS x 1000	VALUE x \$1000
	ACRES	YIELD bu/acre	VALUE x \$1000	ACRES	YIELD bu/acre	VALUE x \$1000				
Adams	200	48.0	11.0	600	24.0	16.6	27.6	350	11.8	13.5
Arapahoe	100	48.0	5.8	500	30.0	18.0	23.8	500	11.2	12.8
Boulder	40	45.0	1.1	10	20.0	1.3	2.4	30	1.0	1.1
Cheyenne	117	72.0	9.1	3240	23.0	82.2	91.3	3200	66.0	75.3
Clear Creek										
Denver										
Douglas				100	23.0	2.7	2.7	50	1.0	1.1
Elbert	35	60.0	2.5	345	23.0	9.5	12.0	276	58.6	66.9
Gilpin										
Jefferson										
Kit Carson	1400	60.0	93.5	5600	15.0	93.4	186.9	6100	223.3	254.0
Larimer	100	41.0				5.0	5.0	70	1.8	2.1
Lincoln	66	84.0	6.7	1130	17.2	23.5	30.2	1320	22.4	25.6
Logan	50	40.0	2.4	950	16.0	17.9	20.3	1300	37.3	42.5
Morgan	600	44.0	31.5	1800	16.4	35.1	66.6	1650	36.5	41.6
Park										
Phillips	200	79.0	17.6	4000	24.0	106.6	124.2	5900	211.1	241.0
Sedgwick	160	35.0		540	30.0	19.5	26.2	1800	57.0	65.0
Teller										
Washington	200	70.0	15.8	3600	18.0	73.2	89.0	3300	54.7	62.5
Weld	350	42.0	18.0	700	27.0	23.0	41.0	1150	44.9	51.2
Yuma	1700	57.0	109.0	22800	23.0	589.0	698.0	26000	627.2	715.0
TOTALS	5318	825.0	324.0	45915	329.6	1116.5	1447.2	52966	1465.8	1671.2

## V. COMPACTS AND COURT STIPULATIONS

No serious problems were encountered this year in the administration of the Interstate Compacts.

The South Platte River Compact, Colorado and Nebraska being the signatory states, specifies that the flow of the river at the state line between April 1st and October 15th of each year shall be at least 120 cfs. Otherwise, diversions below the Washington-Morgan County line, junior to June 14, 1897, will be curtailed sufficiently to provide said 120 cfs or such portion thereof as might be produced by suspending those diversions.

The flow at the Julesburg gage fell below the 120 cfs Compact figure for approximately 110 days in the period between April 15 and October 1. The latest diversions from the South Platte River during the sub 120 cfs flows were by the Farmers Ditch with an appropriation date of July 11, 1895.

The Republican River Compact allocates water to the signatory states, Colorado, Kansas and Nebraska, on the basis of beneficial consumptive use. Colorado's total allocation of 54,100 acre-feet is broken down as follows:

North Fork of the Republican River Drainage Basin	10,000 acre-feet
Arikaree River Drainage Basin	15,400 acre-feet
South Fork of the Republican River Drainage Basin	25,000 acre-feet
Beaver Creek Drainage Basin	3,300 acre-feet
and IN addition, for beneficial consumptive use in Colorado, annually, the entire water supply of the Frenchman Creek (River) Drainage Basin in Colorado and the Red Willow Creek Drainage Basin in Colorado.	

The recorded diversions for the 1971 Water Year were as follows:

North Fork of Republican River	10,340 acre-feet
South Fork of Republican River	1,700 acre-feet
Arikaree	0
Beaver Creek	0

The above figures are taken from the Twelfth Annual Report for the Republican River Compact Administration for the Year 1971 as approved June 9, 1972.

The final 1972 flow figures are not available at this time.

The Laramie River did not produce as much water as in 1971. The decree of the United States Supreme Court, in the case of Wyoming vs. Colorado, limits Colorado allocations to 49,375 acre-feet per calendar year. Of this amount 19,879 acre-feet is allocated to the Transmountain Users. The Meadowland Users are entitled to the remaining 29,500 acre-feet, with the restriction that not more than 1,800 acre-feet shall be diverted after July 31 in any calendar year. The Meadowland Users are also entitled to use any non-diverted Transmountain Water. In 1972 the Meadowland Users diverted a total of 19,889 acre feet. The Transmountain Users diverted a total of 19,880 acre feet.

However, due to summer moisture, the requirements of the Meadowland Users were considerably less than the allowable diversions under the agreement.

The state and division engineers were complaintants in three actions brought in the Water Court.

In W-6958 the Weldon Valley Ditch Company was cited for violation of an order to curtail diversion. This case was described in some detail in the introductory statement of this report.

In W-7046 the State brought a complaint against Charles Hall who refused to comply with an order to curtail diversions in the Sterling Seepage Ditch in Water District 1 near Kersey. After issuing the complaint in August the rains increased stream flows enough to satisfy the demand for water so further action was not necessary. However, the complaint is still on file in the Water Court and in the event of future non-compliance with proper orders the defendant will be summoned into court for a hearing.

A third complaint was filed October 2, 1972 as W-7109 against Galen L. Headley for refusal to comply with a written order to reduce the storage of water in Headley Reservoir near Snyder in Water District 1 to a safe level as determined by the State Engineer. This case is still pending and it is expected that Mr. Headley will repair his structure to meet the standards of safety as determined by the State Engineer.

## VI.

## A. DAMS

The field personnel from the Dams and Reservoir Section of the State Office were able to make more dam inspections than at any time in the past. They issued orders and suggestions for repair and maintenance of structures in instances where they found such were necessary. Most of these requirements were relatively minor and are not enumerated herein.

The major activity in the division as related to dams includes repairs, investigation and new construction.

Headley Reservoir in Water District No. 1 was ordered to restrict storage to a maximum of 10 feet below the lowest point in the crest of the dam embankment due to an inadequate spillway and lack of approved construction plans.

The repairs to Standley Reservoir in Water District No. 2 have been completed as designed with the additional construction of a wide berm on the downstream toe of the dam below the 30 foot level as referred to the elevation of the outlet conduit. Toe drains were incorporated in the design.

The construction of Fox Acres Reservoir and Panhandle Dam in Water District No. 3 was completed and approved.

The repairs and enlargement of Peterson Reservoir in Water District No. 3 were completed near the end of the year. This reservoir is owned by the City of Greeley.

A federal loan under the Small Projects Act has been approved for the enlargement of Long Draw Reservoir, owned by the Water Supply and Storage Company in Water District No. 3. The contract has been awarded with construction to start in the spring of 1973.

The City of Longmont was instructed to leave the outlet gate of Sand Beach Reservoir in Water District No. 5 open at all times as a safety precaution due to the deteriorated condition of the structure. It was suggested that the dam be breached if the structure was to be abandoned.

The embankment drains and support berm for Baseline Reservoir in Water District No. 6 were completed and approved at which time the storage restriction was removed.

Major repair work at Cheesman Reservoir which included lining of the outlet conduits and installation of new gate controls were completed and approved in July. This is a channel reservoir on the South Platte River in Water District No. 8 and owned by Denver.

Elk Lake, a small reservoir in Water District No. 23 was completed and approved. This lake supplements the domestic needs of a new development.



## VI

## B. LIVESTOCK WATER TANKS - EROSION CONTROL DAMS

The total number of livestock water tanks and erosion control dams approved between November 1, 1971 and October 31, 1972 are presented below in tabulation form by water district:

DISTRICT	NO. OF LIVESTOCK TANKS	TOTAL CAPACITY (A.F.)	NO. OF EROSION CONTROL DAMS	TOTAL CAPACITY (A.F.)
1	28	107.0	25	115.63
2	1	5.0		
3	6	24.0	1	1.5
4	5	13.45		
5				
6				
7	1	3.0		
8	1	3.0	2	12.4
9	2	9.0		
23	8	38.0	1	3.0
48				
49	9	48.4		
64	1	2.8	4	7.0
65	9	54.3	1	1.0
80				
		307.95		140.53

The number of erosion control dams has increased significantly during the past year, therefore, they are now shown separately.

## VII.

## WATER RIGHTS

## A. TABULATION

Work on the tabulation continues during any spare moments we have. Some requests for corrections continue to trickle in from attorneys. The most common correction they request is for location errors. A tabulation that is correct and complete for everything decreed or initiated before Senate Bill 81 sometimes seems like a far off dream. We vow to pursue that dream until it at last becomes reality!??!

## VII. WATER RIGHTS

## B. Referee's Findings and Decrees

The decrees listed below are for the period of January 1st thru September 15, 1972:

January	21
February	77
March	45
April	130
May	109
June	18
July	22
August	3
September 1-15	<u>8</u>
	433

This number involves 774 claims, of which 688 are wells, 25 springs, 10 ditches, 5 sumps 2 pipelines, 30 storage rights, 5 changes of water right and 9 miscellaneous.

## VII. WATER RIGHTS (continued)

## Water Right Applications

A large number of water right applications were made to the Court this year. From November 1, 1971 to September 15, 1972 there were 5544 applications made. Of this total, 5185 or 94 percent were for underground rights. These are broken down by month as follows:

	<u>WELL APPL.</u>	<u>WELLS</u>	<u>OTHER APPL.</u>	<u>OTHER RIGHTS</u>	<u>TOTAL WATER RIGHTS</u>
Nov. '71	58	107	22	46	153
Dec. '71	96	236	49	113	349
Jan. '72	83	171	5	31	202
Feb. '72	133	314	24	72	386
March '72	227	474	19	56	530
April '72	204	397	19	32	429
May '72	603	1429	60	170	1599
June '72	3633	8299	130	752	9051
July '72	75	123	11	78	201
August '72	50	67	16	28	95
Sept. 1-15 '72	23	33	4	5	38
	5185	11650	359	1383	13033

THIS ILLUSTRATION APPEARED IN THE GREELEY TRIBUNE URGING ADJUDICATION OF WELLS PRIOR TO JULY 1

# DON'T LET THIS HAPPEN TO YOU



FILE YOUR WELL  
APPLICATION  
NOW

THIS ILLUSTRATION IS NO JOKE. THE ONLY DIFFERENCE BETWEEN YOUR PRODUCTIVE FARM AND A STRIP OF DESERT IS YOUR WATER SUPPLY, AND YOUR MOST DEPENDABLE WATER SOURCE IS YOUR WELL. THIS EMERGENCY IS IMMEDIATE AND VITAL TO YOU. MERELY BECAUSE YOU ARE ONE OF MANY IS NO PROTECTION IN THIS INSTANCE.

THE STATE ENGINEER HAS STATED THAT THOSE WELL OWNERS WHO HAVE NOT APPLIED FOR A DECREE BY JULY 1 ARE JUNIOR TO EVERY OTHER WELL AND ARE SUBJECT TO COMPLETE SHUT DOWN WHEN A CALL IS PUT ON THE RIVER.

## VIII.

## A. ORGANIZATIONS

## CONSERVANCY DISTRICTS

Upper South Platte Water Conservancy District	James Settele	Pres.	Fairplay
Central Colorado Water Conservancy District	David J. Miller	Attorney	1004 9th Avenue Greeley
Northern Colorado Water Conservancy District	J. R. Barkley	Manager	P.O. Box 679 Loveland
Lower South Platte Water Conservancy District	Eric Wendt	Secretary- Treasurer	P.O. Box 1725 Sterling
St. Vrain & Left Hand Water Conservancy District	David J. Miller	Attorney	1004 9th Avenue Greeley

## VIII.

## B. ORGANIZATIONS

## WATER DISTRICT NO. I

## DITCH AND RESERVOIR COMPANIES

A. A. Smith Irrigating Canal Reservoir, Milling & Pipeline Company	Dick Mitchell	Pres.	Snyder
Beaver Creek Ditch Company	Robert Hansen	Secy.	Rt. 1 Brush
Beaver Ditch Company	Charles Henry	Pres.	Brush
Bijou Irrigation Company	John Samples	Secy.	104 West Beaver Fort Morgan
Bijou Irrigation District	John Samples	Secy.	104 West Beaver Fort Morgan
Corona Ditch Company	R. L. Twist	Owner	Masters
Duell and Snyder	E. L. Caneva	Pres.	Rt. 1 Fort Morgan
Fort Morgan Canal Company	Edward Heidbrink	Secy.	111 East Railroad Ave. Fort Morgan
Gill & Stevens Ditch Company	Harold Hansen	Pres.	Rt. 1 Brush
Hillrose Irrigation District	F. L. Gill	Secy.	Hillrose
Hoover Ditch Company	Wally Roth	Pres.	Kersey
Iliff Irrigation District	Adam Koelher	Secy.	Sterling
Illinois Ditch Company	George Allard	Pres.	Kersey
Jackson Lake Reservoir Company	Edward Heidbrink	Secy.	111 East Railroad Ave. Fort Morgan
Johnson & Edwards Ditch Company	William Tramp	Pres.	Hillrose
Lower Platte & Beaver Irrigation Company	F. L. Gill	Secy.	Hillrose
Logan Irrigation District	John Elsenach	Pres.	Sterling
Morgan, Prewitt Reservoir Co.	John Samples	Secy.	104 West Beaver Fort Morgan
North Sterling Irrigation District	Alec Michel	Supt.	Foots Building Sterling
Putnam Ditch Company	Harlan Snider	Pres.	Masters
Riverside Irrigation Company	Cecil Osborne	Supt.	Box 455 Fort Morgan
Riverside Irrigation District	Cecil Osborne	Supt.	Box 455 Fort Morgan
Snyder Ditch & Reservoir Company	Gene Peterson	Pres.	Snyder
Tetsel Ditch Company	Major Gilfrey	Pres.	Snyder
Trowell Ditch Company	Willis Elson	Pres.	Hillrose
Upper Platte & Beaver Canal Co.	Keith Lindell	Secy.	First National Bank Brush
Union Ditch Company	B. B. Peterson	Pres.	Snyder
Weldon Valley Ditch Company	Don Christensen	Pres.	Weldona

Kiowa-Bijou Groundwater Basin

Donald F. McClary

231 Main Street  
Fort Morgan

## WATER DISTRICT NO. 2

## DITCH AND RESERVOIR COMPANIES

Big Dry Creek Ditch & Reservoir Co.	Mrs. G. R. Norden	Secy.	Rt. 1 Ft. Lupton
Burlington Ditch Reservoir & Land Co.	Joseph Zajonkowski	Supt.	Brighton
Brighton Ditch Company	George Stieber	Pres.	Rt. 1 Box 104 Ft. Lupton
Coal Ridge Ditch Company	George Gerhardt	Pres.	Ft. Lupton
Delta Ditch Company	Robert Davis	Pres.	712 10th Street Greeley
Denver Water Board	James Ogilvie	Manager	144 W. Colfax Denver
Farmers Independent Ditch Co.	John Henderson	Secy.	1st National Bank Greeley
Farmers Reservoir & Irrigation Co.	Mel Sarchet	Pres.	Hudson
Fulton Ditch Company	W. W. Gaunt	Secy.	25 South 4th Avenue Brighton
Gardners Ditch Company	Sollie James	Pres.	6610 York Denver
German Ditch Company	Albert Sack	Pres.	Brighton
Godfrey Ditch Company	Jerome Loeffler	Pres.	La Salle
Henrylyn Irrigation District	Ralph Rouse	Manager	Box 141 Hudson
Highland Ditch Company	Mary Nix	Secy.	P.O. Box 15 Lucerne
Little Burlington Ditch Company	Mell Sarchet	Pres.	Hudson
Lower Latham Ditch Company	Victor R. Klein	Pres.	Kersey
Lupton Bottom Ditch Company	Ray Sarchet	Pres.	Ft. Lupton
McCanne Ditch & Reservoir Co.	John Stewart	Secy.	Great Western Sugar Co Brighton
Meadow Island Irrigation Co.	Wm. Mayer	Secy.	Rt. 2 Box 74 Platteville
Meadow Island No. 2 Irrigation Co.	Ruben Gustafson	Secy.	Rt. 2 Box 145 Ft. Lupton
New Brantner Ditch Company	W. W. Gaunt	Secy.	25 South 4th Avenue Brighton
North Star Reservoir Company	G. R. Norden	Pres.	Rt. 1 Ft. Lupton
Platte Valley Irrigation Company	Delbert Shable	Pres.	Platteville
Platteville Irr. & Milling Co.	John Kunzman	Secy.	Rt. 2 Box 120 Ft. Lupton
Slate Ditch Company	George Breikler	Pres.	Ft. Lupton
Union Ditch Company	Mrs. Frances Hill	Secy.	LaSalle
Walter & Roberts Ditch Company	Roy Lunvall	Pres.	Greeley
Western Mutual Ditch Company	Ed. Fritzler	Pres.	LaSalle
Wellington Reservoir Company	Bernice McConnell	Secy.	301 S. Main Brighton
Thompson Ditch Company	G. R. Norden	Secy.	Rt. 1 Box 196 Ft. Lupton



## WATER DISTRICT NO. 3

## DITCH AND RESERVOIR COMPANIES

Arthur Irrigation Company	Ronald Strahle	Secy.	1st National Bank Bldg. Ft. Collins
B. H. Eaton Ditch Company	Mrs. Carol Schmidt	Secy.	P.O. Box 98 Windsor
Boxelder Ditch Company	Wm. Stover	Secy.	Poudre Valley National Bank Building Greeley
Boyd Irrigation Company	Rodger Houtchens	Secy.	1007 9th Avenue Greeley
Cache la Poudre Irrigation Co.	Cecil Elliott	Pres.	Ft. Collins
Divide Canal & Reservoir Co.	Don E. Engel	Secy.	106 Elm Eaton
Dixon Canyon Ditch & Reservoir Co.	Ronald Strahle	Secy.	1st National Bank Bldg. Ft. Collins
Greeley Irrigation Company	Edgar Bartels	Secy.	1227 8th Avenue Greeley
Jackson Ditch Company	Vivienne Woodward	Secy.	2319 E. Mulberry Ft. Collins
Josh Ames Ditch Company	Great Western Sugar Co.	Secy.	11 Factory Road Loveland
Kern Reservoir & Ditch Company	C. W. Kirby	Pres.	P.O. Box 220 Windsor
Kitchell Reservoir Company	Alice Fisher	Secy.	Rt. 4 Ft. Collins
Lake Canal Company	John Hartman	Secy.	Poudre Valley National Bank Building Ft. Collins
Lake Canal Reservoir Company	John Hartman	Secy.	Poudre Valley National Bank Building Ft. Collins
Larimer County Canal No. 2 Irr. Co.	Ronald Strahle	Secy.	1st National Bank Bldg. Ft. Collins
Larimer & Weld Irr. Company	Don E. Engel	Secy.	106 Elm Eaton
Larimer & Weld Reservoir Co.	Don E. Engel	Secy.	106 Elm Eaton
Mail Creek Ditch Company	Ronald Strahle	Secy.	1st National Bank Bldg. Ft. Collins
New Cache la Poudre Irr. Co.	H. E. Meyer	Secy.	708 8th Street Greeley
New Mercer Ditch Company	Ronald Strahle	Secy.	1st National Bank Bldg. Ft. Collins
North Poudre Irrigating Co.	Lawrence Cox	Mgr.	North Poudre Irrl Office Wellington
No. 10 Ditch Company	Alden Hill	Secy.	160 W. Mountain Ave. Ft. Collins
Ogilvy Land & Irr. Company	Mrs. Shirley Wayman	Secy.	1007 9th Avenue Greeley
Pleasant Valley & Lake Canal Co.	Ward Fischer	Secy.	1st National Bank Bldg. Ft. Collins
Taylor & Gill Canal Company	Wm. Seaworth	Pres.	Rt. 3 Ft. Collins
Tunnel Water Company	Vivienne Woodward	Secy.	2319 E. Mulberry Ft. Collins

## WATER DISTRICT NO. 3 (continued)

## DITCH AND RESERVOIR COMPANIES

Warren Lake Reservoir Company	Ronald Strahle	Secy.	1st National Bank Bldg. Ft. Collins
Water Supply & Storage Company	Vivienne Woodward	Secy.	2319 E. Mulberry Ft. Collins
Whitney Irrigation Company	Mrs. Carol Schmidt	Secy.	P.O. Box 98 Windsor
Wm. Jones Irrigation Company	Geo. Firestien	Pres.	Farmers Spur Greeley
Windsor Reservoir & Canal Co.	Don Engel	Secy.	106 Elm Eaton

## WATER DISTRICT NO. 4

## DITCH AND RESERVOIR COMPANIES

Arkins Water Association	Mrs. Joy Cross	Secy.	P.O. Box 6 Masonville
Bald Mountain Water Association	Charles McAfee	Secy.	Rt. 2 Box 319N Loveland
Beeline Ditch Company	Guy A. Shable	Secy.	Rt. 1 Box 65 Milliken
Big Thompson Manufacturing Ditch Company	Robert Christensen	Secy.	P.O. Box 642 Loveland
Big Thompson & Platte River Ditch Company	Guy A. Shable	Secy.	Rt. 1 Box 65 Milliken
Blower Ditch Company	Henry Pope Jr.	Supt.	Rt. 1 Box 138 Longmont
Boulder & Larimer County Irrigation & Manufacturing Ditch Co. (ISH)	L. V. French	Secy.	Rt. 2 Box 23 Berthoud
Buckhorn Highline Ditch Co.	Mrs. Zella R. Soderberg	Secy.	Star Route Box 317 Loveland
Buckhorn Water Users Association	Mrs. Helen L. Mettlen	Secy.	Masonville
Central Weld County Water Dist.	Dale D. Olhausen	Secy.	115 18th Street Greeley
Consolidated Hillsborough Ditch Company	Don Davis	Secy.	1st National Bank Bldg. Johnstown
Consolidated Home Supply Ditch & Reservoir Company	W. R. Keirnes	Secy.	Star Route Box 450 Loveland
Culver Irrigation Company	George Landers	Secy.	P.O. Box 209 Longmont
Diagonal Water & Sanitation District	Jim Hudson	Secy.	1200 28th Street Boulder
Eagle Ditch Company	Mrs. Donald H. Lemmon	Secy.	Rt. 2 Box 120 Berthoud
Elgin Ditch Company	Troy Buehler	Secy.	Rt. 2 Box 127 Berthoud
Evans Ditch Company	Town Clerk of Evans	Secy.	Evans
Fairport Reservoir Company	Nellie Ver Straten	Secy.	Rt. 1 Ft. Collins
Farmers Irrigation Ditch & Reservoir Company	F. Ray DeGood	Secy.	P.O. Box 657 Loveland
Greeley-Loveland Irrigation Co.	Carroll E. Flack	Secy.	808 23 Avenue Greeley
George Rist Ditch Company	W. R. Kiernes	Secy.	Star Route Box 450 Loveland
Handy Ditch Company	Louis Bein	Secy.	Box 460 Berthoud
Hill & Brush Ditch Company	Jim Nelson	Secy.	Rt. 1 Milliken
Kershner Ditch Company	Harry Soderberg	Secy.	Star Rt. Box 317 Loveland
Little Thompson Valley Water Dist.	Lovilo Fagan	Mgr.	307 Welch Avenue Berthoud
Longs Peak Water Users Assn.	Mrs. Joanne Macy	Secy.	P.O. Box 714 Longmont

WATER DISTRICT NO. 4  
(continued)

Louden Irrigation Reservoir & Canal Company	Ralph Benson		925 West 29th Loveland
Loveland & Greeley Reservoir Company	Carroll E. Flack	Secy.	808 23 Avenue Greeley
Mariana Water District	Lovilo Fagan	Secy.	307 Welch Avenue Berthoud
Masonville Union Ditch & Reservoir Company	Ben Milner	Secy.	Star Route Loveland
Minor Longdon Ditch Company	Elmer Rutt		Rt. 1 Box 3 Johnstown
New Ish Ditch & Reservoir Co.	Horace G. McCarty	Secy.	P.O. Box 658 Longmont
North Carter Lake Water District	Lovilo Fagan	Secy.	307 Welch Avenue Berthoud
Osborn & Caywood Ditch Company	Alvin Stumpf	Secy.	Rt. 2 Box 32 Berthoud
Perkins Ditch Company	Arnold Friend	Owner	Star Route Loveland
Rist & Benson Reservoir Co.	Ralph Benson	Supt.	925 West 29th Loveland
Rockwell Ditch Company	Max H. Schaal	Secy.	Rt. 1 Box 50 Berthoud
Ryan Gulch Reservoir Co.	Stanley Johnson	Secy.	Rt. 2 Loveland
Seven Lakes Reservoir Co.	Carroll Flack	Secy.	808 23 Avenue Greeley
South Side Irrigation & Reservoir Company	Robert Ausenhus	Secy.	203 East 5th Street Loveland
Victory Irrigating Canal Co.	Cal Carter	Secy.	Star Route Loveland
Wind Cliff Water Association Inc.	Mrs. Vivien Wylene Buser	Secy.	62 Elmhurst Lane, River- dale Bettendorf, Iowa

## WATER DISTRICT NO. 5

## DITCH AND RESERVOIR COMPANIES

Allen Lake Reservoir Company	A. D. Steel	Secy.	Rt. 3, Longmont
Beckwith Ditch & Reservoir Co.	Lloyd Dickens	Secy.	Rt. 2, Longmont
Bonus Ditch Company	Fred Pace	Secy.	Rt. 2, Longmont
Boulder & Left Hand Irrigation Co.	J. D. Williamson	Secy.	384 Main Street Longmont
Clover Basin Ditch & Reservoir Co.	Wayne Jurgens	Secy.	Longmont
Davis & Downing Ditch Company	Gordon Keadney	Secy.	Rt. 3, Longmont
Denio & Taylor Ditch Company	Ray Reynolds	Secy.	Longmont
Highland Ditch Company	George Landers	Secy.	1st National Bank Longmont
Highland Lake Reservoir Co.	George Landers	Secy.	1st National Bank Longmont
Ide & Starbird Reservoir Co.	Louis Bein	Secy.	Berthoud
Independent Reservoir Co.	Ray Reynolds	Secy.	Longmont
James Ditch Company	Don Andrews	Secy.	Rt. 3, Box 171 Longmont
Last Chance Ditch Company	<sup>Dr.</sup> Harold Nelson	Secy.	Rt. 4, Longmont
Left Hand Ditch Company	A. P. Steele	Secy.	Rt. 4, Longmont
Longmont Supply Ditch Company	Geo. Landers	Secy.	P.O. Box 209 Longmont
Lower Baldwin Ditch Company	Walter Iverson	Secy.	Rt. 2, Longmont
Niwot Irrigation Ditch Company	Lloyd Dickens	Secy.	Rt. 2, Longmont
Oligarchy Irrigating Company	George Landers	Secy.	P.O. Box 209 Longmont
Peck Ditch Company	George Wagner	Secy.	Rt. 3, Longmont
Pella Ditch Company	Rueben Fredstrom	Secy.	Rt. 3, Longmont
Palmerton Consolidated Ditch Co.	James Goss	Secy.	Rt. 3, Longmont
Pleasant Valley Reservoir & Ditch Co.	Harold Dawson	Secy.	1st National Bank Longmont
Rough & Ready Ditch Co.	Harold Dawson	Secy.	1st National Bank Longmont
Smead Ditch Company	Warren Bashor	Secy.	Rt. 3, Longmont
South Flat Ditch Company	David Wagner	Secy.	Rt. 3, Longmont
South Ledge Ditch Company	Reinhold Loukonen	Secy.	Lyons
Supply Ditch Company	George Landers	Secy.	1st National Bank Longmont
Swede Ditch Company	Myron Gingery	Secy.	Rt. 3, Longmont
Upper Baldwin Ditch Company	Walter Iverson	Secy.	Rt. 2, Longmont
Union Ditch Company	Frances Hill	Secy.	LaSalle
Union Reservoir Company	Frances Hill	Secy.	LaSalle
Zweck and Turner Ditch Company	Russel Zweck	Secy.	Rt. 3, Longmont

## WATER DISTRICT NO. 6

## DITCH AND RESERVOIR COMPANIES

Andrews & Farwell Ditch & Reservoir Company	Forest White	Secy.	Rt. 3 Boulder
Baseline Land & Reservoir Co.	Mrs. Margaret Nelson	Secy.	Rt. 1 Box 218 Erie
Boulder & Left Hand Irrigation Co.	Niels Jensen	Secy.	Longmont National Bank Longmont
Boulder & Weld County Ditch Co.	Geo. Landers	Secy.	P.O. Box 209 Longmont
Boulder & Weld Reservoir Co.	Geo. Landers	Secy.	P.O. Box 209 Longmont
Boulder & White Rock Ditch & Reservoir Company	Frank F. Flanders	Secy.	P.O. Box 209 Longmont
Butte Irrigation & Milling Co.	Cliff Hodgson	Pres.	7996 Valmont Drive Boulder
Carr & Tyler Ditch Company	Milton Nelson	Pres.	2040 W. Longs Peak Longmont
Coal Ridge Ditch	Mrs. Mildred Sarchet	Secy.	Rt. 2 Box 162 Ft. Lupton
Community Ditch	M. L. Sarchet	Pres.	402 Cochran Building 1031 15th Street Denver
Consolidated Lower Boulder Reservoir & Ditch Co.	Mrs. Ray Nelson	Secy.	Rt. 1 Box 218 Erie
Davidson Ditch & Reservoir Co.	J. D. Mayhoffer	Secy.	Rt. 1 Lafayette
Dry Creek No. 2 Ditch Company	C. B. Beitelshes	Secy.	Rt. 1 Box 322 Boulder
East Boulder Ditch Company	Public Service Co. of Colorado (%Leonard Reichwein)		P.O. Box 840 Denver
Enterprise Irrigating Ditch Co.	Lloyd Hodgson	Pres.	726 Cherryvale Rt. Boulder
Erie Coal Creek Ditch & Reservoir Company	Dave Oscarson	Pres.	Rt. 1 Erie
Farmers Ditch Company	H. O. Dilsaver	Secy.	Woolworth Building Boulder
Godding Daily & Plumb Ditch	Niels Jensen	Secy.	384 Main Street Boulder
Godding Ditch Co. Highland South Side	Niels Jensen	Secy.	Longmont National Bank Longmont
Goodhue Ditch & Reservoir Co.	Mrs. Gale Harmon	Secy.	Lafayette
Houck No. 2 Ditch Co.	Milton Nelson	Owner	2040 W. Longs Peak Longmont
Howard Ditch Company	Ernest J. Coleman	Secy.	5678 Baseline Road Boulder
Leggett Ditch & Reservoir Co.	Niels Jensen	Secy.	Longmont National Bank Longmont
Leyner-Cottonwood Consolidated Ditch Company	Walter Wise	Secy.	11587 Jasper Road Canfield Erie

WATER DISTRICT NO. 6  
(continued)

Lower Boulder Ditch Company	Mrs. Margaret Nelson	Secy.	Rt. 1 Box 218 Erie
McGinn Ditch Company	Mrs. W. A. Thomas	Secy.	1232 Grand View Avenue Boulder
McKay Reservoir	M. L. Sarchet	Pres.	402 Cochran Building 1031 15th Street Denver
Marshall Reservoir	M. L. Sarchet	Pres.	402 Cochran Building 1031 15th Street Denver
Marshallville Ditch Co.	Ewalt Anderson	Secy.	Rt. 3 Box 325 Boulder
New Anderson Ditch Company	Grovner L. Ketterman	Secy.	3055 25th Street Boulder
Niwot Irrigating Ditch Co.	Mrs. John Schlagel	Secy.	Rt. 2 Box 112 Longmont
N. K. Smith & Tyler Ditch	Lee Powell	Owner	Rt. 4 Longmont
North Boulder Farmers Ditch Co.	John Reich	Secy.	P.O. Box 227 Boulder
Original Cottonwood No. 2 Ditch Company	Albert Kold	Secy.	Rt. 3 Box 316 Boulder
Rural Ditch Company	Catherine C. Owen	Secy.	1020 Emery Street Longmont
Silver Lake Ditch Company	Thomas Waugh	Secy.	3737 Broadway Boulder
Smith & Emmons Ditch Co.	Ward Burrett	Secy.	Rt. 4 Box 54 Longmont
South Boulder & Bear Creek Ditch	Tim Shanahan	Secy	Marshall Boulder
South Boulder & Coal Creek Irrigating Ditch Co.	Richard Viella	Secy.	Louisville
Tom Delahant Ditch	Milton Nelson	Pres.	2040 W. Longs Peak Longmont
West Lake Company	M. L. Sarchet	Pres.	402 Cochran Building 1031 15th Street Denver
Williamson Ditch Company	Gordon Knaus	Secy.	Rt. 2 Longmont

## WATER DISTRICT NO. 7

## DITCH AND RESERVOIR COMPANIES

Bayou Association of Ditches	Earnest R. Schultz	Secy.	4315 Xenon Street Wheatridge
Boyle	A. T. DeBell		3951 W. 56 Way Denver
Church (Golden City & Ralston Cr.) and Croke Canal	G. A. Pelz	Secy.	Farmers Reservoir & Irrigation Company Denham Building 1845 California Denver
Colorado Agricultural	Louis Rallo	Secy.	Rt. 1, Box 043 Denver
Cort Graves & Hughes	Sam Spano		6640 W. 52 Avenue Arvada
Denver View Water Company	Wayne Harkness	Secy.	Rt. 1 Box 590 Golden
Farmers Highline	Mrs. Virginia Collins	Secy.	Farmers Highline Canal & Reservoir Company 8089 Washington Ave Denver
Fisher	John DiTirro Jr.	Secy.	4400 Wynkoop Denver
Kershaw	Jack Calabrese		5801 Lowell Denver
Lee Stewart & Eskins	Albert F. Ervin	Secy.	12703 W. 52 Avenue Arvada
Lower Clear Creek Company (Clear Creek & Platte River Ditch)	Frank Wooley	Secy.	Rt. 1 Box 515 Denver
Manhart	George Ditolla		6030 Wolff Arvada
Ouelette	Ira Fox		4298 Kipling Wheatridge
Reno Juchem & Swadley Longan	Mrs. Ernest Delva	Secy.	Consolidated Juchem Ditch & Reservoir Co. 6501 W. 60 Avenue Arvada
Rocky Mountain, Miles & Eskins and South Side	W. F. Moses	Secy.	Adolph Coors Co. Golden
United Water Company	Henry J. Johnson	Secy.	Box 840 Denver
Wannemaker	Ernie Bergman	Secy.	10285 Ridge Road Wheatridge
Welch and Agricultural	Wilson B. Roup	Secy.	Agricultural Ditch & Reservoir Company 10080 W. 27 Avenue Lakewood



## WATER DISTRICT NO. 8

## DITCH AND RESERVOIR COMPANY

City & County of Denver	Wm. Schuler	Board of Water Commissioners 144 West Colfax Denver
F. L. Green Ditch Company	Edith Jurgens	Secy. 5480 West Arizona Place Denver
Last Chance Ditch Company	Wm. Schuler	Board of Water Commissioners 144 West Colfax Denver
Nevada Ditch Holding Company	Wm. Schuler	" " " " " " "
Northern Colorado Irrigation Co.	" "	" " " " " " "
Tri City Trust	" "	" " " " " " "

## WATER DISTRICT NO. 9

Bergen Ditch & Reservoir Co.	Wm. Grant	Owner Western Federal Savings Building Denver
Bowles Ditch Company	Wm. Grant	Owner Western Federal Savings Building Denver
Colorado Central Power Company	Leonard Reichwein	Engr. Evergreen
Hodgson Ditch Operating Ass'n.	B. F. Lowell	Pres. Mt. Morrison
Independent Highline Ditch Co.	Stan Harwood	Owner Mt. Morrison
Pioneer Union Ditch Company	Jack McCoy	Pres. Mt. Morrison
Ward Ditch Company	Wm. V. Hodges Jr.	Secy. Denver Club Building Denver
Warrior Ditch Company	Earl Maddox	Pres. Mt. Morrison

## WATER DISTRICT NO. 23

Jefferson Lake Ditch Company	Paul Anschutz	Pres. Jefferson
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## WATER DISTRICT NO. 48

Tunnel Water Company	Viviene Woodward	Secy. 2319 East Mulberry Fort Collins
Water Supply & Storage Company	Viviene Woodward	Secy. 2319 East Mulberry Fort Collins

## WATER DISTRICT NO. 49

Hale Ditch Company		Hale
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## WATER DISTRICT NO. 64

## DITCH AND RESERVOIR COMPANIES

Batton Ditch Company	Clifford Sherwin	Owner	P.O. Box 63 Sterling
Bravo Ditch Company	Ivan Barden	Secy.	Iliff
Carlson Ditch Company	James V. Jankovsky	Secy.	Sedgwick
Chambers Ditch Company	Wm. Condon	Owner	916 Fairhurst Street Sterling
Davis Brothers Ditch Co.	Paris Oacomasso	Secy.	Atwood
Farmers Pawnee Ditch Co.	Robert Roberts	Secy.	P.O. Box 70 Sterling
Harmony Ditch Co. No. 1	Mrs. Howard Hamilton	Secy.	P.O. Box 205 Crook
Henderson & Smith Ditch Co.	Scalva Brothers	Owner	R.R. Sterling
Iliff & Platte Valley Ditch Co.	Earl E. Reynolds	Secy.	205½ Main Street Sterling
J. B. Ditch Company	Frank Manuela	Owner	Iliff
Liddle Ditch Company	Don Liddle	Pres.	Ovid
Lone Tree Ditch Company	Kent L. Reynolds	Secy.	P.O. Box 111 Sterling
Low Line Ditch Company	Earl E. Reynolds	Secy.	205½ Main Street Sterling
Peoples Ditch Company	Sam Carg	Secy.	Rt. 2 Sterling
Peterson Canal & Reservoir Co.	Jacob Sanger	Pres.	Ovid
Proctor Water Company	Kent L. Reynolds	Secy.	P.O. Box 1111 Sterling
Ramsey Ditch Company	Don DeMers	Secy.	708 Elm Street Sterling
Red Lion Ditch Company	Maynard Sonneberg	Secy.	P.O. Box 1271 Sterling
Schneider Ditch Company	James Williamson	Secy.	Atwood
South Platte Ditch Company	Melvin Bartlett	Secy.	Merino
South Reservation Ditch Co.	James Parker	Secy.	Ovid
Springdale Ditch Company	Robert Roberts	Secy.	P.O. Box 70 Sterling
Sterling Irrigation Company	Lawrence Giacomini	Secy.	P.O. Box 1013 Sterling
Sterling No. 2 Ditch Company	Lester Garner	Secy.	327 Taylor Sterling
Upper Harmony Ditch Company	Carold Merick	Secy.	Crook
Julesburg Irrigation District	Herbert Bonesteel	Secy.	Julesburg
North Sterling Irrigation District	Alex Michel	Secy.	205½ Main Street Sterling
Prewitt Reservoir Company	Alex Michel	Secy.	205½ Main Street Sterling

WATER DISTRICT NO. 65

DITCH AND RESERVOIR COMPANIES

Laird Ditch Company  
Pioneer Ditch Company  
Wray Ditch Company

Warren Noffsinger  
Paul Wiley  
Henry Wiltfang

Secy.  
Pres.  
Pres.

Laird  
Laird  
Vernon

VIII.

C.

## GROUND WATER MANAGEMENT DISTRICTS

Arikaree Management District	Dave Idler	Secy.	Kirk
Central Yuma Management District	Elbert Zion	Secy.	Rt. 1 Vernon
Frenchman Management District	Doyle Neiman	Secy.	Holyoke
Plains Management District	Cliff Hawthorne		1454 Martin Avenue Burlington
Sandhills Management District	Richard Wisdom	Secy.	Holyoke Route Wray
W-Y Management District	Roy L. Mekelburg	Secy.	Rt. 1 Box 19 Yuma

DIVISION SUMMARY - DIVISION NO. 1  
Direct Flow Diversions  
1972

IX A Water Commissioners Summary

W.D.	Total Structures Reported		Irrigation Use Diversions AF	No. of Acres Irrigated	Ac.Ft. Per Acre	Industrial Use Diversions Ac.Ft.	Municipal Use Diversions Ac.Ft.	Recreation Use Diversions Ac.Ft.	Trans Mtn.* Diversions Ac.Ft.	Total Diversions Ac.Ft.	Total No. of Daily Reports	Delivered to Compact Cmtmt Ac. Ft.
	Active	Inactive*										
1	33	NA 13 NU 18	167,245	186,107	0.90					167,245	3,798	
2	80	70	263,863	202,648	1.30	17,960				281,823	11,732	
3	181	169	286,046	281,700	0.72		25,374		T 22,648	334,068	23,411	
4	52	35	91,616	107,706	0.85		5,214		T 291	97,121	11,383	
5	122		95,381	95,920	0.99		5,778			101,159	3,009	
6	102	7	88,861	166,700	0.53		77,483		T 61,470*	166,344	8,490	
7	138	20	86,887	51,250	2.10	13,000	9,612		T 594	110,093	8,354	
8-80	327	167	46,688	29,878	1.88	1,670	94,182		T 35,488	178,028	8,367	
9	36	70	11,968	9,970	1.52	225	1,684			13,877	5,617	
23	94	593	77,543	15,000	4.50		500		T 16,770	94,813	3,468	
48	59		19,889	4,845	4.12				F 19,880	39,769	200 E	
49	5		4,594	1,555	2.95					4,594	350 E	
64	70	31 10	153,909	99,344	1.41					153,909	7,792	
65	8		7,523	4,740	3.22					7,523	650 E	
TOTALS	1307	141 1062	1,402,013	1,257,363		32,855	219,827		157,141	1,750,366	96,621	

NA = No Water Available

NU = Non Use

\*Transmountain Diversions: Designate either to (T) or from (F) Division

E = Estimate

DIVISION SUMMARY - DIVISION NO. 1  
Storage Report - Acre Feet  
1972

IX B Water Commissioners Summary

W.D.	Amount in Storage Acre Feet			Actual Am't Diverted to Storage During Season	Delivered from Storage to Irrigation	Storage to Industrial Use	Storage to Municipal Use	Storage to Recreation Use	Storage to Projects
	11-1-71	5-1-72	10-31-72						
1	17,996	126,080	55,581	311,086	97,298		4,541		6,228 CBT to Irr.
2	60,927	107,116	40,521	104,642	51,312		3,285		65,783 CBT to Irr. 1,300 CBT to Mun.
3	194,064	283,998	178,917	69,399	36,104				41,232 CBT to Irr. 1,786 CBT to Mun.
4	148,621	199,497	135,067	33,202	46,802		2,600		31,302 CBT to Irr. 5,749 CBT to Mun.
5	52,409	52,817	50,962	7,494	13,762		6,497		12,964 CBT to Irr.
6	80,038	62,289	65,235	148	14,539				
7	39,285	47,620	34,249	21,629	267				
8-89	120,430	115,214	95,101	41,662	5,536		35,730		
9	6,565	7,035	3,955	1,952	2,135		1,050		
23	100,940	97,097	110,459		836		19,937		
48									
49									
64	81,784	112,970	27,187		100,545				
65									
TOTALS	903,059	1,211,733	797,234	591,214	369,136		70,355		166,344



X.

#### RECOMMENDATIONS AND SUGGESTIONS

The problem of regulating wells is still a major concern. The enforcement of any regulation has been delayed while seeking clarification and resolution of the issues through the Water Court. Further legislation is proposed by various groups to achieve the desirable goals in each case. Undoubtedly, there will be regulation of wells within the priority system by some means. To retain as many of the benefits made possible by the development of wells, it will be necessary to make use of a variety of means, either individually or in combination, such as replacement, exchange, alternate plans of operation, recharge and additional diversion structures. That this can be done, as is being ably demonstrated by GASP with its voluntary membership and replacement program.

It will be necessary to consider historic diversions and the available supply for surface diversion resulting from well regulation in recognizing demands upon the stream. For instance, a 1900 priority which would receive no water in the absence of well operation could not be considered as having a valid call.

The enforcement of well regulations will be difficult at best. With the wide spread resentment and belief that well regulation is legally and morally wrong, compliance will be reluctant. Further court orders will no doubt be necessary. The present field staff will be insufficient to adequately enforce the regulations now anticipated.

The necessity of submitting subdivision plans to the State Engineer for an opinion of adequacy of water supply is relatively new. Many subdividers owning shares of ditch stock look to such shares as a supply of replacement water for the wells they wish to have permitted. In any plan involving ditch stock, the ditch company should be a party to any change of a water right involving type or place of use or point of diversion either by open consent or court action.

Compensation of travel in privately owned vehicles at 10¢ per mile is no longer adequate to fully cover expenses incurred. A change to 12¢ per mile would be more equitable.

The water commissioners have historically provided their own office space, furniture and utilities as well as secretarial help from their families. Some compensation to cover these items would be appropriate.

The division office also has a space and manpower problem. In addition to the present staff, a clerk typist and an engineer are particularly needed to handle the paper work and review the applications coming from the Water Court. Additional space for the expanded staffing and filing will be necessary.



XI.

A. WATER NEWS

We have included in this section the portion of the "Colorado Water News" from the office of the State Engineer, which is put in by the Division Engineer. It is felt that inclusion of these excerpts from the Water News will help to present a more complete picture of division activities.

November 1, 1971

Division 1, Dugan Wilkinson, Division Engineer

The general storm starting September 17th which resulted in moisture in excess of three inches in many areas resulted in considerable damage to the crops, particularly in the tributary areas where much of the moisture was in the form of snow. Much of the corn for ensilage had not been harvested when the storm started and was subsequently killed by the freeze that followed. Picking corn had not matured completely and was also damaged by the freeze. Third cutting of hay was flattened by the heavy snow; however, a large part of this hay has since been salvaged. The weather since the storm has been much better and the beet harvest is well underway as of the middle of October.

The Division 1 Staff Meeting was held on September 28th on the C.S.U. Campus at Fort Collins. The Staff of the Hydraulics Laboratory hosted a tour through their facilities and provided a very interesting, informational program.

The two gaging stations on the South Platte River at Balzac were vandalized on October 2nd. Equipment suffered severe damage as a result with losses estimated at approximately \$1500.00.

The Bureau of Reclamation held their Annual Meeting for the Western Division of the Missouri River Basin Project at Loveland on October 13th and 14th. The meeting was well attended by water and power officials from Colorado, Wyoming, Nebraska, Montana and Oregon. The local Bureau officials conducted a very interesting tour over east slope Big-T facilities on the 13th. The Loveland Chamber of Commerce graciously hosted an evening steak cookout at the Loveland Powerplant. On October 14th a business meeting was held at the new offices of the Northern Colorado Water Conservancy District at which the operation for the Bureau facilities over the past year were discussed. This meeting was attended by Bill Mattern, Dugan Wilkinson, Lee Enewold, Bud Bloye and Dean Thompson as representatives of the Division of Water Resources.

December 1, 1971

Division 1, Dugan Wilkinson, Division Engineer

After the low blow suffered as a result of the mid-September snow storm and subsequent freeze, this area has enjoyed mostly mild and pleasant weather and the opportunity to virtually complete the fall harvest. Some corn is still in the fields, however a few more days of dry weather should see it all harvested.

The Water Commissioners are rapidly completing their annual reports which are due November 15. This is always an arduous task, the completion of which lends extra significance to the Thanksgiving Season for the commissioners.

The Division office is also wrestling with its annual report. It seems such a short time since last year's report was completed.

Reservoir storage looks very favorable for the start of another year. Fall storage diversions plus season carry-over as of November 1 shows storage to be 55 percent of capacity in the division.

Applications for water rights continue to stream into the office of the Water Clerk. At last report Case No. W-1596 had been filed. Many of these applications are for multiple rights.

After the irrigation season comes the time for repair and maintenance. Art Wenz, Water Commissioner in District 23, is convalescing following surgery on November 9. Dugan Wilkinson, Division Engineer, is back at work following ulcer surgery on October 22.

January 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

Precipitation over the division for the month of November was approximately 40 percent of normal. This does not represent an extreme departure in total water, as November is normally a dry month but it does indicate the continuance of the subnormal trend since last spring with only September producing above normal precipitation.

The cold snap of November 8 reduced the stream flows enough to cause ice collapse in some reservoir inlet ditches. Because of the increased flows that followed, ice jams were created resulting in ditch overflow. This condition was most prevalent in District 1. The worst problem reported to date was near the head of North Sterling Ditch where it was necessary to shut out for approximately four days to repair the damage. Close surveillance and reduced flows will be necessary until the ice cover can again be established in the canal.

The annual meeting of mutual canal and reservoir companies are being held through the winter months. If any such companies have questions and would like information on administration, we would be happy to assist when possible.

The Public Service Company of Colorado hosted a tour for the division staff through the new Fort St. Vrain Nuclear Power Plant at Platteville on November 7. The plant is nearing completion and power generation is expected to start sometime next spring. Our thanks to Leonard Reichwein for arranging for this most interesting and educational experience.

We were saddened by the untimely death of Tilley Walia on November 6. Tilley, daughter of Dar Walia of our hydrographic section in Greeley, was the accidental victim of carbon monoxide. Our sympathies and prayers are with the Walia's in their sorrow.

Art Wenz, Water Commissioner in District 23, continues to mend slowly. Both he and his wife, Marge, have been sorely beset with health problems this winter. We hope they are both well soon.

February 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

It is with sadness and a deep sense of loss that we have to report the death of Dar Walia, a Hydrographer of the Division stationed in Greeley, on January 22, 1972. Mr. Walia died suddenly after a brief illness. Our heartfelt sympathy goes out to Mrs. Walia who has suffered the loss of husband and recently the loss of her daughter, Tillie, aged 21, who passed away on December 6, 1971.

The cold weather which moved into our area in early January, making travel somewhat more difficult, also added ice chopping to the hydrographers chores, with the attendant blisters and sore muscles. The ice also caused some difficulties for irrigation companies attempting to fill reservoirs with blockages in the inlet ditches. The high winds of January 11th and 12th, which did so much damage in the foothills area caused concern about reservoir embankments due to severe wave action; however, due to the good ice cover at the time, no serious damage resulted.

The National Weather Service River Forecast Center in Kansas City, in their 1972 Water Supply Forecast issued January 1, 1972, predict stream flows to be somewhat above average for the irrigation season assuming precipitation for the remainder of the water year is near average. Forecasts range from 99 percent of average on St. Vrain and Clear Creeks to 118 percent on the North Fork of the South Platte. Since the major portion of our snow producing season is yet to come, these forecasts can only be regarded as preliminary indications.

A Water Court hearing was scheduled for January 19th on the application of the Tremont Mutual Ditch Company for Approval of a Plan of Augmentation. This plan requests that some 15 wells owned by stockholders under the ditch be made alternate points of diversion for a portion of the surface decree from the South Platte River in Morgan County. This will be a very interesting case, the disposition of which will undoubtedly serve as a guide for future augmentation plans.

The Corps of Engineers have conducted public meetings in Division 1 to explain plans for flood control projects to determine the extent of local interest in such projects. A meeting at Hinkley High School in Aurora, October 13, was attended by a large number of residents interested in the proposed control structures on Sand, Toll Gate and Cherry Creeks. Plans for flood control on Bijou Creek were discussed at Wiggins and Deer Trail meetings on January 14. Colonel Pendergrass, Corps Engineer, explained that only one control structure on West Bijou Creek above Byers could be economically justified at this time.

A public meeting for interested water users and particularly well owners will be held at 7:00 P.M., February 15th in the Community Building at 545 Cleveland Avenue, Loveland. A panel of speakers including C. J. Kuiper, State Engineer, will discuss the proposed rules and regulations for use of underground water for the 1972 irrigation season.

February 1, 1972

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Ben Sublette, a well known water attorney of Sterling, passed away December 21. Mr. Sublette was counsel for several irrigation interests and organizations in this Division.

Mrs. Rhonda Vigil, daughter of the Don Palmers, Water Commissioner of Longmont, was killed in an auto accident on icy roads January 12 near Lyons.

Our sympathies are with the Sublette and Palmer families.

Mr. George Epperson, Fort Morgan water attorney, is recuperating from recent ulcer surgery and is now able to spend part-time at his office.

March 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

The State Engineer, C. J. Kuiper, has been the principal speaker at several public meetings held throughout the Division since the first of the year. The main topic of concern with the irrigators has been the proposed rules and regulations governing the use of groundwater and anticipated legislation out of the State Assembly. Meetings have been held at Fort Morgan, Brighton, Wellington, Sterling, Loveland and Ovid.

Proposals have been made to form a basin-wide organization with the authority to raise funds for construction and management which would make it possible to continue the underground water operations without serious curtailment. A meeting was held in Denver on February 28th at the Radisson Hotel for further discussion and organization of such a group. This organization is a well appropriators organization operated by the ground water appropriators.

Water supply forecasts continue to indicate better than normal stream flows for the irrigation season. Snowpack, however, is still spotty and a normal precipitation pattern for the spring months will be necessary to sustain this forecast. Water in storage is well above normal for this time of the year.

Stix and Marilyn Palmer are taking advantage of the slack season to spend a week in Mexico. With the enforcement of Rules and Regulations, we may all be wishing we could spend the whole summer in Mexico.

April 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

As of the middle of March, the weather continued to be warm, dry and windy. Surface soil moisture is very deficient and prospects for seed germination are poor. The snow surveys, however, continue to indicate a runoff somewhat in excess of average. Snow distribution is still spotty and the eventual sufficiency of the water supply will depend on the precipitation received in the next two months. The March 1st forecast varies from 100 to 110 percent of normal on the South Platte and its tributaries.

A staff meeting for Division 1 personnel was held at Longmont, March 14th. Bill Mattern and Walt Knudsen from the Denver office were present and their participation was very helpful and appreciated. The principal item of interest and discussion was the administration of the rules and regulations for the use of ground water which will become effective on May 15th. It was generally agreed that this will be a very busy and interesting summer.

We have two vacancies in our staff which we hope to fill in the near future. These are both for deputy water commissioners on the Big Thompson and Cache la Poudre Rivers. We are sorry to lose Dick Robbins and Jake Lowery from these positions. The loss points up the problem of keeping good men for part-time jobs.

Our office is especially busy this spring with inquiries and requests for help concerning water rights, adjudication, well registration and regulation.



May 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

The dry, windy weather continues into the middle of April and general concern is felt among water users for the adequacy of supplies for the coming season. The adverse moisture conditions are reflected in the stream flow forecasts based on the April 1 snowpack. These forecasts have been lowered to 86 - 92 percent of average on the South Platte and its tributaries. Even these reduced forecasts are surprisingly high considering the very low precipitation pattern since last October. As a result of dry conditions, the demand for direct water started the first week in April.

A meeting was held in Greeley on March 27th for the organizers and incorporators of the Groundwater Appropriators of the South Platte River Basin, Inc. Bylaws were adopted for the organization and plans made for mailing information, subscription forms and ballots to all registered well owners in the division. Considerable enthusiasm has been shown for this approach to the surface-ground water integration of use. Anyone desiring further information relative to this organization and its goals may contact our office at Room 208, 8th & 8th, Greeley, 80631, or by telephone, 352-8712.

We have lost two more of our field staff during the last month. Dick Drexel, Water Commissioner on Clear Creek for the past three years, is transferring to Water District 40 in the Grand Mesa area. Dick has been administering a difficult area in a very capable manner and although we are sorry to lose him, we congratulate him on his promotion and wish him the best in Division 4. The Clear Creek position will be filled by Arlyn Davison who is transferring from District 28 of Division 4. Ralph Kelling is getting an outstanding commissioner and he assures us that we are getting a very good one in return.

Roger Graham, Deputy Water Commissioner in District No. 8 has been forced to resign for reasons of health. He became a member of our staff last summer and showed a lot of promise. Our best wishes to Roger for improved health.

Exams have been held recently to fill the four vacancies in our staff. An exceptionally good group have taken the tests so we feel we will have fine replacements and soon be back to full strength.

Our best wishes for a rapid recovery to Art Wenz, Water Commissioner in South Park. Art was in an auto accident on March 20th and has spent several days in the hospital as a result of injuries. He is recuperating slowly and hopes to be back on the job soon.

July 1, 1972

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June 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

Late April and early May storms brought some badly needed moisture to Division 1. The May 1st snow survey indicates runoff ranging from 86 percent to 98 percent of normal for streams tributary to the South Platte. Carry-over storage in area reservoirs is good, so an adequate water supply is anticipated.

We would like to welcome new deputy water commissioners in Districts 3, 4 and 8, filled by Eric Wilkinson, Wayne Lee and John Noonan respectively.

GASP (Groundwater Appropriators of the South Platte) is off to a good start after some early organizational problems were solved. The organization has already located a substantial amount of replacement water. Meetings were held in Sterling, Greeley, and Fort Morgan on the 8th, 9th and 10th of May to inform area groundwater appropriators once again of the goals of GASP and the many advantages available to them as members of a basin-wide non-profit corporation.

House Bill 1042 was signed into law on May 8th and stopped the late registration of stock and domestic wells. The only alternative for owners of this type of well at this point in time is to make application to the Water Court to have the well adjudicated. New applications for well permits in the stock and domestic category will now carry a \$25.00 fee.

August 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

The final deadline for nonexempt well adjudications has come and gone. The last minute newspaper articles and radio spots paid big dividends.

During the month of June, 1972, there were 3,633 applications for well adjudications received by the Water Court, which included a total of 8,299 wells. There were also 130 applications for 752 water rights other than wells submitted during the month for a total of 9,051 water rights. The grand total for wells since the Court first received applications in September, 1969, is 14,085 and the total for water rights of all types is 15,914. The Division Office is deluged with paper and simply unable to keep up with the indexing and filing. We find ourselves short both on help and space.

The directors of GASP completed action on July 8th on all applications for contracts. All but a few of the contracts were signed by GASP officials and personnel of the Division of Water Resources continues regarding the means of remedying the injury caused by the pumping of wells. GASP also has the participation of subdivision wells under consideration and hopes to reach some decision soon in that regard.

Our sympathies are extended to Stix and Marilyn Palmer in the death of Stix's mother on June 29. We are also sorry to report that Art Wenz has again entered Luthern Hospital at Denver on July 12.

Our water supply continues to drop with below normal precipitation. The exceptionally hot, dry weather has placed an additional burden on our supply with the result that some ditches normally supplied at this time of year are being curtailed. We have a CALL for 1875 water from District 64 which is unusual at this time of year.

On July 12th Dean Thompson, Ray Liesman, and Dugan Wilkinson made the horseback trip into Lawn Lake, which is near timberline above Estes Park, to release water from the reservoir and make the necessary measurements for delivery to the owners down the Big Thompson River. They reported a good trip. The only complaint being some rather hard saddles by the time they got back.

Jim Clark returned July 10th from his vacation spent at a conference at Aspen. He contends that there is no connection between Aspen and Strawberry Lake.

September 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

Judge Wolvington's decision in Case W-6958 was the big news for Division 1 this month. This was the case of the State of Colorado vs. Weldon Valley Ditch Company. In his decision, Judge Wolvington ordered the Weldon Valley Ditch Company to conform to the orders of the water officials of the State of Colorado. The decision also ordered and directed the Water Administration Officials to "Administer, regulate and curtail the use of each diversion device, including each well which draws water from the South Platte River, by requiring its use to be administered, curtailed or regulated during any period when such action would provide water to meet the lawful needs and requirements of any senior appropriator." According to the Court Order this can be accomplished by the implementation of Rules and Regulations.

The protest to the Rules and Regulations was then withdrawn. The Division Engineer and State Engineer immediately issued an order to implement the Rules and Regulations effective August 18, 1972. This order requires irrigation, commercial, industrial and municipal wells to be shut down Friday, Saturday and Sunday each week from now until October 1st unless an approved alternate plan is on file in the Division Engineer's office. There are some exceptions to this order and if there is doubt in a particular case, contact the Division Office.

Deepest sympathy is extended to Bob and Millie Littler because of the recent death of Bob's mother.

Dorothy Wankelman just returned from two pleasant weeks visiting in the State of Washington.

We welcome Don Brazelton, roving Water Commissioner 1, to the staff. He will be working out of the Greeley office and will assist primarily in the administration of wells.

Dean Thompson recently marked his 20th anniversary with the State of Colorado. On observing that occasion he was presented with a cake by the office staff bearing the inscription, "OLD HYDROS NEVER RETIRE, THEY JUST WADE AWAY."

October 1, 1972

Division 1, Dugan Wilkinson, Division Engineer

After waiting all summer, the rains finally came, resulting in mixed benefits. The greatest blessing was in reduction of the demand for water to the extent that the regulation of wells was no longer necessary. On the other side of the coin, the continued cool, wet weather has delayed harvest and reduced crop quality in some cases such as pinto beans; however, as of mid-September, corn, bean and potato harvest are in full swing. Crops appear to be exceptionally good this fall and everyone is hopeful of good weather for the harvest season.

Although the regulation of wells generated a great many problems and concerns, we were pleased with the ultimate cooperation and compliance of well owners. All reasonable alternate plans of operation were approved upon request. Most people agree that some solution must be reached which will allow wells to keep pumping as needed and also maintain a surface supply to satisfy historic senior rights. All well owners are urged to actively and cooperatively seek such a solution before next irrigation season. Some organizations such as GASP and Central Colorado Water Conservancy District are already applying their efforts in that direction.

Some of our staff have managed to take some annual leave at the end of the summer. Jim Clark has combined a visit from his parents with a trip to Chicago and intermediate points visiting other relatives. The Ted Bells spent a few days with Orlyn at Durango. Dean and Effie Thompson took a few days to celebrate their 35th Wedding Anniversary in Las Vegas; our belated congratulations to them on that memorable occasion.

George Sievers has finished his summer hydrographic stint to return to school at C. S. U. Eric Wilkinson will soon complete his deputy water commissioner work to follow suit.

XI.

B. NEWSPAPER CLIPPINGS

Most of the following newspaper clippings were taken from the Greeley Tribune. Presentation of these news items attempts to show development of issues affecting the operation of the Division Engineer's Office in Greeley. Some of these issues are:

- 1) Development of GASP from the first organization meeting held in February to the time wells were ordered to shutdown in August.
- 2) The ups and downs of the Domestic Well Bill (HB 1042) through the legislature with final passage on May 8, 1972.

A number of other items of interest are also included such as hail suppression research centered at New Raymer and some decisions passed down by the Greeley Water Court.

# State Engineer States Water Rules Meetings

TRIBUNE 1-18-72

C. J. Kuiper, Colorado state engineer, will explain the 1972 rules and regulations relating to wells and surface water at a public meeting in Fort Morgan Friday, the Irrigation Association of Water District 1, Division 1, has announced.

The meeting will be held at 1:30 p.m. at the REA building in Fort Morgan.

In its announcement, the association pointed out wells and surface water are subject to regulations contained in the Water Rights Determination and Administration Act of 1969.

A Colorado Supreme Court decision in October, 1971, reversed an order of District Judge Donald A. Carpenter in Water Court here in 1969, which enjoined the state engineer from regulating wells in Division 1.

All well owners and interested

water users are urged by the association to attend the meeting at Fort Morgan.

It was announced also that a public meeting of water users will be held in Loveland at 7 p.m. Feb. 15.

Sponsored by the Larimer County Well Owners Association and the Water Integration Committee of Sterling, the meeting will be held in the Loveland Community Building at 545 Cleveland Ave.

A panel of speakers, which will include Kuiper, will discuss recent and proposed water legislation and the proposed rules and regulations for underground water use during the 1972 irrigation season.

The meeting will be of particular interest to well owners, the sponsoring organizations said. However, all interested water users are urged to attend.

Page 20 GREELEY TRIBUNE Fri., Feb. 25, 1972

## Well User Organization To Be Discussed in Denver

A meeting to explore the possibility of organizing an association of underground water appropriators using water which is tributary to the South Platte River has been called by C. J. Kuiper, state engineer.

The meeting will be held at the Radisson Hotel, Denver, Monday beginning at 2 p.m.

A presentation will be made by Kuiper outlining ways and means of survival of ground water appropriators when these water rights are incorporated into the priority system of the South Platte.

"Considerable thought has been given by the attorneys, engineers, hydrologists, and geologists of the State Engineer's office to a possible solution to the dilemma underground appropriators when these water rights are integrated into the priority system with very early surface rights," a memo from the Division of Water Resources states.

"The impending disaster of a literal interpretation of the

priority system can be averted if the full cooperation of the water users in the South Platte River Basin and the water officials of the Division of Water Resources can be obtained," the memo said.

# State Water Engineer Explains Well Rules

TRIBUNE 1-25-72

Rules and regulations will be issued this year for the use of irrigation wells in the South Platte River Basin, C. K. Kuiper, state water engineer, told about 300 persons at Fort Morgan last Friday.

Kuiper was the principal speaker at a public meeting sponsored by the Irrigation Association of Water District 1, Division 1, at the REA building in Fort Morgan.

### Not Enforced

The state engineer said the 1972 rules generally will follow the rules and regulations established in 1969. The 1969 rules were never enforced because of an injunction issued by Judge Donald A. Carpenter in the Water Division 1 Water Court here.

"I consider these (1972) rules

and regulations to be temporary in that, when the adjudication of all applications for underground water decrees filed by July 1, 1972, are completed, there is no alternative to administering underground water within the priority system," Kuiper said.

One of the provisions in the 1972 rules and regulations, he said, will be that any underground appropriation which has not been filed for in the Water Court here by July 1 will be considered junior to every existing water right in the basin.

"Every underground water right filed for after that date cannot be senior to any right filed for prior to that date," he said. "This is as close as we can come to applying the priority system to relative priorities among underground water rights.

### Can't Divert Water

"My interpretation of this provision of the upcoming rules is that, when the first call comes on the river next summer, all those underground rights which were not filed for by July 1, 1972, are not permitted to divert water in any amount."

The state engineer added that wells which have been decreed in court or have applied for adjudication prior to July 1, 1972, and have not provided for exchange or replacement water, will be curtailed under the 1972 regulations on a percentage basis that will not exceed three-sevenths of the time.

Kuiper said that, as in the 1969 regulations, the areas on each side of the South Platte River will be zoned to assist well owners in determining their regulation periods and to assist the water commissioners in enforcing the regulations.

The state engineer emphasized that the State Legislature has given his office only the authority to administer water not the authority to "manage" water use in the state.

He added:

"The simple fact is that there is ample water in the South Platte River Basin to satisfy all existing demands on this water supply but it cannot be accomplished without basin-wide management of this resource."

### Voluntary Compliance

"The concept of basin-wide management as viewed by my office is that the entire participation by individual junior water rights would be voluntary. For example, if a well owner elected to participate in this project at a given cost per acre or acre-foot, he would be allowed to pump as much water as he needed.

"If a well owner elected not to participate in the management plan, he would be administrated strictly in accordance with the priority system, ergo, he would be shut off at the first call on the river."

# Foes Working to Kill Water Wells Bill

By FRED BROWN  
DENVER POST 3-12-72

on the bill, although McCormick says they support the "general procedure." Under present law, persons seeking to drill wells pumping 15 gallons per minute or less for domestic purposes must be granted permits by the state engineer.

McCormick's bill would remove that exemption. Domestic users first would have to apply to county planning officials—the county commissioners, in many cases—for permission.

If they approve, which would be likely in most cases, the application then must go to the state water engineer. He can deny a permit if he determines that the water used by the well would injure the senior rights of another water user.

**FARMERS HELPED**  
A couple of exemptions were added during five days of deliberation in the House over the past two weeks. One, of benefit to the agricultural lobby, says permits must

be given for small-capacity farm wells—one for each plot of 40 acres or more—used for single-well permits without threat of denial from the state engineer.

Sen. Fred Anderson, Loveland, the chief Senate sponsor of the measure, doesn't like that second exemption. "It's a whale of a loophole that I don't like to see in there," he said.

He said the rush to get permits already has started, and he fears the exemption will be abused.

McCormick isn't too happy with the change, either, but "I knew I would have to accept some amendments to get 33 of the required majority for House passage. Neither Anderson nor McCormick sees anything particularly sinister about the lobbying effort."

Other lobbyists lined up to dilute the bill, according to it supporters, include Wallace Vanderjack, representing a group of persons who own lot now; Frank Mammix of the Colorado Association of Real Estate Boards, and the Colorado Association of Commerce and Industry.

Some of those same lobbyist worked together last year to tone down land-use legislation and they have appeared at hearings before the Senate State Affairs Committee to work their ways on subdivision control measures.

Anderson says the bill won stop honest land development but it will force real estate sellers and purchasers to be more careful.

"The ones it's going to stop are the ones that should I stopped anyway," he said.

As in all regulatory legislation, Anderson said, "you have only 4 to 5 per cent bad guys, but the controls have to affect all of them."

Some developers may already be overextended on their promises of water, he said, but that may be a result of ignorance of water law. He said threats to existing rights are also the fault of the buyer who doesn't check on the availability of water.

McCormick emphasized that he "never had one unethical approach made to me."

The lobbying effort against the bill is represented, among others, by Jack Wogan and Frank Hays of the Rocky Mountain Development Association. Wogan is Denver County Republican Party chairman and Hays is a former lieutenant governor.

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## South Platte River Control Corporation Established

**TRIBUNE 3-1-72**  
DENVER (AP) — Formation of a nonprofit corporation of underground water users in the South Platte River Basin was announced Tuesday by State Engineer Clarence J. Kuiper.

Kuiper said the corporation will plan, construct, operate and manage projects in the river basin to help stabilize the stream flow.

He said the new agency will work toward supplying existing or replacement water and has authority to play ways

## House Debates Well Water Bill

**TRIBUNE 3-2-72**  
DENVER (AP) — Colorado's House of Representatives began debate Tuesday on a bill restricting the drilling of domestic water wells but recessed for the day before it got to any crucial votes.

The bill is scheduled for further debate Thursday. The measure is intended to put a crimp in unrestricted drilling of wells on subdivisions.

The principal sponsor of the measure, Rep. Harold McCormick, R-Canon City, and Rep. Robert Jackson, D-Pueblo, potential rivals for one house seat in the November election stood shoulder-to-shoulder in supporting the bill.

## Senate Group Studies Water Well Measure

**TRIBUNE 3-15-72**  
DENVER (AP) — A Colorado Senate committee began work Monday on a controversial measure approved last week by the House of Representatives to restrict the drilling of domestic wells.

The Senate's Committee on Agriculture, Livestock and Natural Resources held an open hearing on the House-approved bill, which was sponsored by Reps. Harold McCormick, R-Canon City, and Robert Jackson, D-Pueblo.

The committee chairman Sen. Fred Anderson, R-Love land, said no vote would be attempted until the close of another hearing Wednesday and the possibility existed voting would not come until later.

## House Debates Well Water Bill

## Senate Group Studies Water Well Measure



# Irrigators From Economic Disaster

TRIBUNE 3-11-72

By GORDON G. GAUSS  
Associated Press Writer

DENVER (AP) — Voluntary non-profit corporations being set up in the South Platte and Arkansas valleys may save Colorado well-water irrigators from economic catastrophe, State Engineer Clarence J. Kuiper said Friday.

The corporations, if joined by well users generally, also could end bitterness between the surface water right holders and well operators, he suggested.

Kuiper expressed the views in a statement hailing the recent formation of the corporations.

The 1969 recodification of water laws, he said, included the principle that underground water tributary to surface streams and the stream itself were considered a common source of water and must be administered under a common priority system.

"The effect of this legislation," he said, "was a threat to the very survival of the economy based on the use of underground water primarily in the South Platte and Arkansas Rivers and the San Luis Valley."

He said court decisions affirming the doctrine of prior appropriation, coupled with the 1969 laws, "emphasized the fact that underground water appropriators were faced with economic catastrophe without some means of relief."

Kuiper held five meetings in the South Platte Basin and later three in the Arkansas Basin at La Junta, Rocky Ford and Lamar. In them, he stressed that through a unified effort underground water user in each basin "could plan, construct and operate projects to provide replacement and exchange water or devise a plan of augmentation whereby they could remedy the injury to the river in the amount of their depletion during periods of demands on the river by senior appropriators."

He said the cost would be low

for each well, considering there were 10,000 large wells in the South Platte Basin alone.

Municipalities depending upon water wells also were urged to participate.

South Platte irrigators set up

a special corporation and those in the Arkansas Valley arranged to use the existing "Water Development and Protective Corporation" by changing its by-laws and articles of incorporation.

When the corporations become fully operative, Kuiper said, the need for many of the regulations on wells will disappear. He said it may take time to accomplish the entire goal.

## Expert Tells Planning Council

3-28-72

# Proposed Legislation Can Tighten Land Use Policies

By RON STEWART  
Tribune Staff Writer

Land use policies in Colorado could be made more stringent if legislation now being considered is eventually passed in original form, according to a law professor from Denver.

Alan Merson, professor of law at Denver University and a lawyer in Summit County, told some 25 persons at the Forward Together Planning Council meeting Monday night that Senate bills 35 and 36 and House bill 1042 could "put a handle" on uncontrolled and irresponsible development in Colorado.

### Gives Counties Control

In Merson's estimation, Senate Bill 35, in original form, "puts counties in a stronger position to do things they were unable to do before" to control irresponsible land use.

Senate Bill 36, he said, "would assure that the ultimate purchaser will have something of value after he purchases land." This will be done by requiring the developer to insure adequate water, sewage disposal and geological conditions, Merson said.

House bill 1042 would regulate low-flow domestic wells by removing them from an exemption clause in the statutes now. The measure will put these wells under the priority system, as other wells are now.

Merson is the second "resource speaker" to appear before the Planning Council after it was decided at the initial meeting that collecting

information was vital to the group's functioning.

Merson, who described himself as interested in economics as well as aesthetics, said the ultimate aim of land use planning is to "merge profit and beauty."

### Counties Inadequate

He believes counties are often inadequately equipped to handle the responsibility of making wise land use policy. He said Senate bill 35 would help counties by funding personnel with expertise in planning and land use.

"Local government officials often have to sit helplessly by while irresponsible developers disappoint purchasers by selling them land without ultimate worth," Merson said.

He said local authorities are often not aggressive enough to "push laws to the limit" in regulating land use. Some counties, he said, require developers to provide a percentage of "open space" within their developments, but "they do it with their fingers crossed" because the law is unclear.

Zoning, the traditional approach to land use, may be outdated, Merson said.

"The zoning laws are circumvented or subverted by developers who are able to impress city and county officials with drawings and plans, but the problem is that developers are not bound to their drawings once a zoning change is granted," Merson said.

Zoning, Merson said, provides a "segregated" form of land use by lumping categories of uses together.

"The result is that if a worker wants to live in a residential section, work in an industrial section and shop in a commercial section, he has to get in a car every time he wants

"The result is a transportation problem."

As an alternative, Merson endorses the planned unit development (PUD) approach to land use and planning. A planned unit development provides an "integrated" system of use, Merson said, while requiring the developer to be more specific in presentation of his plans. In addition, Merson, said, the developer is bound by his plans so that "if he doesn't come through, the public has a handle on him."

Planning council chairman Lawrence Hertzke said committees will be formed at the next meeting. The committees will deal with more specific problems related to land use, he said. No date has been set for the meeting.

# Solon Blames Land Lobbyists For Bottling Up Water Bill

TRIBUNE 2-28-72

DENVER (AP) — A bill which departs from the long-established priority system for state water rights has drawn the opposition of land development lobbyists who are responsible for keeping the bill locked in the House Rules Committee, according to Rep. Bob Jackson, D-Pueblo.

If the bill is not reported out, he says, unscrupulous land developers will continue to avoid obtaining legitimate water rights for their projects.

And the unsuspecting buyer will be stuck with land for which there is no water, Jackson says.

The bill to which he was referring is one which allows the state engineer to review an application for a domestic well, or wells, and deny that application if the granting of it would cause material injury to existing water rights.

Exemption for existing domestic wells and for future domestic wells approved would continue, however.

The bill, HB 1022, is tied to a bill approved by the legislature last year. That bill restricted

He said subdividers tell prospective customers that they can apply for a permit and drill for water, if water isn't already available on their land.

## Water Not Owned

"As far as I'm concerned, they were definitely selling something they didn't have," he said. "They didn't own water rights, and in no way could they legally, morally or otherwise commit water to the purchasers. But the inference was there."

"So a lot of people bought land, thinking water was a part of it. And the problem is accelerating. The state engineer is getting batches of applications at a time, once 130 of them," he said.

The test, Jackson pointed out, is whether the well offers material injury to other water right holders. "If we don't pass this legislation, what we're facing is the continued taking of water — which belongs to our cities, or water that belongs to agriculture — by huge developments where thousands of wells are being punched down," he said.

# Revised Water Wells Bill Wins Senate Committee OK

DENVER (AP) — After almost three weeks of argument which included charges of lobbying, a Colorado Senate committee approved late Monday a revised version of a bill restricting the drilling of domestic water wells.

State Engineer Clarence Kulp termed the compromise bill a workable one.

The action sends the measure to the Senate floor for a debate, possibly Thursday.

Sen. Fay DeBerard, R-Kremmling, cast the only negative vote on the showdown ballot.

Chairman Fred Anderson, R-Loveland, held the committee in session until after 5 p.m. to force a vote.

As rewritten by Robert F. Welborn, Denver attorney, the bill would allow the owner of any one-acre tract of land to obtain a well drilling permit for a 15-gallon per minute well until Sept. 1. If the request is filed

The permit shall be issued only if the state engineer finds the well will not materially damage other water rights. The water must be used only for households, livestock or irrigating less than an acre of land.

The bill carries a presumption that a single domestic well drilled on a 35-acre tract of ground will not materially damage other water rights.

The senate measure eliminates several provisions written into the bill during a debate in the House of Representatives which lasted more than a week.

Among the eliminations was a requirement that county commissioners must approve the well drilling application before it was forwarded to the state engineer.

The Senate's Committee on Agriculture, Livestock and Natural Resources approved the bill after rejecting another version submitted last week which included allowance for 1,000-gallon a day wells.

Numerous charges of lobbying against the measure by subdivision developers were made when it was in the House and during Senate committee sessions. The resignation of Denver Republican Chairman John Wogan, Jr., a former senator, was demanded by Sen. John Bermingham, R-Denver, at one point because of Wogan's activities in seeking changes in the measure. Wogan hasn't resigned.

# Solon Says ~~Floyd Oliver~~ Among Water Bill Lobbyists

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TRIBUNE 4-1-72

DENVER (AP) — State Rep. Harold McCormick says a "phalanx of lobbyists" is working to kill a water-well control bill designed to stop deceptive land sales practices. The bill, the Canon City Republican says, is in trouble in the State Senate because of the efforts of three former legislators and a former lieutenant governor. McCormick says former State Sens. John B. Wogan, Paul Bradley and Floyd Oliver, and former Lt. Gov. Frank L. Hays are among the lobbyists struggling to defeat the measure.

## Also GOP Chairman

Wogan, an officer of the Rocky Mountain Land Developers' Association, also is chairman of the Denver County Republican organization.

The bill, already approved by the House and by the Senate's Agriculture Committee, would give the state engineer power to approve or reject water well drilling permits. The authority would impose some degree of control over land subdividers and developers.

Under the present law, the state engineer is required to issue domestic well permits.

Rep. Robert Jackson, a Pueblo Democrat, and McCormick co-sponsored the bill. They contend land developers have brought hundreds of permit applications to the engineer's office, and he can not reject them.

Therefore, speculators have been able to sell land with drilling permits despite the fact that the water under the land may belong to someone with senior water rights or that there may be no water under the land at all, the two representatives said.

The bill comes up for initial consideration in the Senate Friday, but lobbying against the measure has been extraordinarily intense, McCormick said.

## Little People For

"Apparently nobody's for the bill but the little people," the Canon City lawmaker said. "I said that I had experienced a massive lobbying effort against it in the house, and since it has gone to the Senate floor, a phalanx of lobbyists appears to be working against it."

McCormick said he was a bit puzzled by opposition to the bill. "The whole basic thrust," he said, "is to legitimize land transactions; I just can't see where legitimate developers could be hurt by this bill," he added.

18—Rocky Mountain News Fri., April 7, 1972, Denver, Colo.

## Senate initially approves much-altered well bill

By RICHARD TUCKER  
Rocky Mountain News Writer

The Colorado Senate approved a much-amended water well bill Thursday, which will require the state engineer to prove agricultural and household wells are damaging existing water rights if he wants to halt them.

A final vote on the bill, which has been completely rewritten since passing the House March 8, is scheduled Friday. Senate amendments still must be accepted by the House and a conference committee may have to iron out differences.

Preliminary passage in the Senate without any attempt to overturn what once were considered crippling amendments by Sen. Fay DeBerard, R-Kremmling.

### CHIEF SPONSOR

The chief sponsor, Sen. Fred Anderson, R-Loveland, indicated earlier that he would try to get the DeBerard changes out. But he didn't make the attempt after conferring with State Engineer Clarence Kuiper.

Kuiper said he thought he could handle the changes and, if necessary, overcome the "presumption" in court.

DeBerard amendments adopted Tuesday and Thursday don't create exemptions for small domestic wells, but they give such wells, used strictly for household purposes, the protection of a "presumption" that they pose no material damage to existing water rights or wells.

In other words, a homeowner would be entitled to a well permit if he wanted it. The state engineer could deny such a per-

mit, but he then would have to overcome the presumption and prove damage was likely.

Earlier, the Senate gave the same presumption for wells on lots of 35 acres or more, used for domestic and agricultural purposes.

### DOMESTIC WELLS

Sen. Carl Williams, R-Denver, attempted to add exemptions for small domestic wells to the bill but failed. One of his amendments later was offered by Sen. Richard Plock, R-Denver, but it was overwhelmed by a 23-5 roll call vote.

"The cruelest cut of all," Plock said, was when Williams left the chambers and didn't support him on the motion.

Williams, who has land development holdings, said the bill won't do anything to slow development as its supporters claim.

If developers need water, they simply will buy it from the persons who own it, Williams said. "All you're doing with this bill is driving the price of water up," he said.

Williams also declared most of the water rights in Colorado are owned by the "agriculturalists." He said 94 per cent of the water used in Colorado is used for agricultural purposes.

The water bill was the major one of 12 measures given either

preliminary or final approval by the Senate in an extraordinary afternoon session.

Final approval was given to a House-passed weather modification bill, which sets up a system for the state director of natural resources to authorize and supervise weather modification programs.

On preliminary consideration, the Senate okayed another House bill, making it possible for 18-, 19- and 20-year-olds who are properly registered to serve as precinct committee-men and women for political parties.

The senators added a provision by Sen. Hugh Fowler, R-Littleton, giving 18-year-olds the right to sign binding contracts.

Sens. Ben Klein and Roger Cisneros, both D-Denver, submitted a 40-page amendment to the bill which would extend all the rights, duties and responsibilities of adults to 18-year-olds.

### SERVE ON JURIES

The Klein-Cisneros provision included the right to serve on juries and to drink hard liquor legally.

Both the Fowler and Klein proposals initially were rejected. Fowler got his accepted on a later roll call by a 16-11 vote, but Klein's was rejected 20-10.

A bill to raise the state level of support under the Public School Foundation Act was sent to the Appropriations Committee for study. The measure, which would increase the level from \$460 to \$518 per pupil, would cost about \$14 million for the six months starting next Jan. 1.

# Opposition Flares Up Over Water Well Issue

TRIBUNE 5-2-72

**By GORDON G. GAUSS**  
**Associated Press Writer**  
**DENVER (AP)** — Opposition flared Monday against the lobbyist-aided bill to restrict drilling of domestic water wells as the Colorado legislature began the 8th week of its 1972 session. Sen. Carl Williams, R-Denver, declared that a compromise version of the bill worked out last week by a six-man conference committee fails to protect the small property owner by elimination of a procedure called "trial de novo" if his application for a household well is denied by the state engineer.

The assertion was denied by the three Senate members of the conference committee — Republicans Fred Anderson of Lovland and Fay DeBerard of Kremmling and Democrat Christian Wunsch of La Junta. Williams drew support, however, from Democrats Sam Taylor of Walsenburg and Clar-

ence Decker of Denver and the opposition forced a delay of any vote until Tuesday. Anderson said he would meet with the objectors privately.

"Hundreds of lots are being sold everyday," DeBerard said in an unusual statement while presiding over the Senate. "Every day we lose we are that much worse off."

The bill was opposed bitterly by a subdivision lobby when it came before the House and again during its passage through the Senate.

The Senate gave its final approval, 24-9, to a constitutional amendment which includes establishing a commission to set legislative salaries.

The proposal originally rejected a constitutional ban against increase in the pay of the county and state officials during their terms in office.

The bill cleared the Senate without a vote to spare since a two-thirds majority was required for passage.

One of the senators who voted for it, Republican Hugh Fowler of Littleton, said he did so only because Rep. Ralph Cole, R-Littleton, had assured him he has "every intention of removing" the plan for a commission to fix legislative pay.

The Senate majority leader, Republican William Armstrong of Aurora, led the fight last week against the commission for legislative pay and finally voted against the entire measure.

The House will consider Senate changes in the bill. Meanwhile, the House gave final approval, 46 to 8, to Senate changes in a constitutional amendment legitimizing the University of Colorado's Denver and Colorado Springs centers and increasing the number

of regents for the university from six to nine.

Leader Tom Farley of Pueblo blasted to the floor for debate an anti-lobbying resolution.

After the defeat of the resolution Rep. Hubert Safran, D-Denver, served a 24-hour notice that he and Farley will attempt a blast on another bill — senate-approved land regulation act sponsored by Senator Anderson, R-Loveland.

After the early morning action both the House and Senate went into caucus on the major

problems still confronting the legislature — adopting state budget for next fiscal year and reapportionment of legislative seats.

Senate Majority Leader Armstrong announced he plans to bring up on special orders nine appropriations bill approved Friday by the Senate Appropriations Committee.

Armstrong said he wanted the bills defeated Monday afternoon.

Among them bills for additional funds for the Department of Welfare, a raise in state aid to public schools from \$460 per pupil annually to \$518; and increase in handicapped children aid from a \$833,333 appropriation to finance the state's share of a state-federal program for removing radio active tailings surrounding houses in Grand Junction.

Once the appropriations are disposed of, agreement between

the House and Senate is expected on the Long Appropriations Bill.

Armstrong said he would not attempt to get consideration before Tuesday morning on the new plan for redistricting the 35 Senate seats. Drafting on the measure was completed late Sunday by the Legislative Drafting Office.

# Controversial Water Well Bill Wins Final Legislative Approval

5-3-72 Tribune

DENVER (AP) — One of the most controversial bills before the Colorado Legislature this year, one restricting the drilling of domestic water wells, won final passage Tuesday.

The House of Representatives accepted a compromise version written by a House-Senate Conference committee during the afternoon. The vote was 50-4.

The Senate approved the compromise 29-2, a few hours earlier.

The action sent the measure to Gov. John A. Love for signature.

Charges of lobbying by representatives of subdivisions haunted the measure throughout the four months of the legislative session.

The principal sponsor, Rep. Harold McCormick, R-Canon City, first raised the charge when the measure was in the House early in the session.

After its final passage,

McCormick called the compromise "a good bill."

Upon signature by the governor, the measure gives the state engineer authority to refuse a well drilling permit to any lot owner, but requires that

he submit his reasons in writing. This ruling can be appealed to the regional water judge in an administrative hearing, and any ruling he makes is subject to appeal to the courts.

Heretofore, any owner of an acre or more could drill a well producing up to 15 gallons of water a minute on his property.

The new measure is intended to protect existing water rights in the mountains and along streams.

The House also completed legislative action and sent to the governor for signature a bill granting limited tax credits to persons of restricted incomes who are 65 years of age or older. The bill provides for credit or refund against income taxes to partly offset taxes paid on property or rent paid.

The House accepted the compromise 56-1, then passed the bill 57-0.

The Senate passed it during the morning, 31-0.

The House also accepted a conference committee report on a bill authorizing creation of regional service authorities whose jurisdiction would cross county lines in metropolitan areas. The House vote was 56-0.

The measure was sent to the Senate.

## Domestic drilling bill wins approval

Coloradoan 5-3-72

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# NOTICE TO WELL OPERATORS

## IN THE SOUTH PLATTE RIVER BASIN

TRIBUNE 5-8-72

Groundwater Appropriators of the South Platte River Basin, Inc., a Colorado non-profit corporation ("GASP"), has been organized for the primary purpose of developing augmentation water for the protection of vested water rights in the South Platte River Basin, which may reduce the necessity for state regulation of well diversions during 1972. GASP is now developing such a plan for the 1972 irrigation season. It invites persons who are residents of the state of Colorado and who own, control or operate water wells located in the South Platte River Basin and desire to participate in the augmentation plan being developed to submit an application for registration of those wells with GASP. Any benefits which may result from the plan to be developed by GASP will be allocated to wells which GASP accepts for registration on an equitable basis determined by it.

The registration fee for each well is \$15 for each 100 acre-foot of anticipated augmentation water needed during 1972, with a minimum registration fee of \$15 per well.

Meetings to discuss GASP will be held at the following times and places:

8 P.M., Monday, May 8  
First National Bank Community Room  
130 North 3rd Street  
Sterling, Colorado

8 P.M., Wednesday, May 10  
Fort Morgan High School  
Auditorium  
Fort Morgan, Colorado

8 P.M., Tuesday, May 9  
Greeley Elks Lodge  
Highway 34 at 35th Avenue  
Greeley, Colorado

Further information and forms may be obtained at those meetings.

This notice is not an offer. Applications should be submitted prior to June 1, 1972. Applications submitted after that date may be too late for consideration by GASP for 1972. Any application for registration which is tendered to GASP may be rejected by it.

# 14,085 Wells Adjudicated In Division 1 Water Court

TRIBUNE 7-20-72

What do well owners and Christmas shoppers have in common? According to statistics from Division I Water Court here, both tend to wait until the last minute to get things done.

Adjudication of wells, which legally establishes a priority date for irrigation, commercial, municipal and industrial wells, began in September, 1969, and ended July 1 of this year.

Division I Water Court statistics show that 14,085 wells were adjudicated during that time — 8,299 of them during the month of June alone. (Division I has jurisdiction over South Platte River drainage in roughly the northeast quarter

of the Colorado Division of Water Resources, said the last minute onslaught was due largely to radio and newspaper articles which spurred well owners to get their wells registered.

A total of 6,225 applications for adjudication were received since 1969 — 3,633, or over half, of the them came in during June.

"The passing of the deadline does not stop the adjudication of irrigation and other non-exempt wells," Clark explained. "But the priority date issued to these wells will now be the date application is made in

# Deadlines Near<sup>102</sup> On Well Rights

TRIBUNE 6-5-1972

Two deadlines are approaching of which well owners should be aware, Colorado state engineer Clarence Kuiper said Monday.

The most important Kuiper said is July 1. All irrigation, industrial, commercial and municipal wells must be adjudicated by that date. Adjudication will establish well use as a water right and will set the date of priority as the original drilling date of the well.

The second important deadline is June 15, the last day for registration in the Groundwater Appropriators of the South Platte (GASP). The deadline was formerly June 1, but has been extended.

GASP is a non-profit organization which hopes to "remedy the injury" done to the surface water owners by the pumping of member groundwater wells. The organization is under the directorship of 20 volunteer well owners representing the entire area of the South Platte and its tributaries from the Continental Divide to the Nebraska line.

GASP enters into contract with individual well owners to provide replacement water at points of injury. Water will be replaced either in the surface stream or through a diversion canal.

In the event full remedy cannot be affected, Kuiper said, member wells will receive the benefits provided on a pro rata basis.

Registration fee for participating well owners is \$15 per 100 feet of water pumped (minimum of \$15 per well). Non-member wells will not receive any of the benefits provided and will be subject to the full regulations as required by law.

Contract applications may be obtained from the Division of Water Resources, 8th Avenue and 8th Street, Greeley, or by writing P.O. Box 744, Greeley. Further information is available by calling 352-8712.

water court. All exempt wells, which includes wells used for domestic, lawn, garden and livestock watering purposes, will continue to receive their drilling date as the priority date."

Clark said an adjudicated well is more valuable than a non-adjudicated well since its legal priority is established. "It can be an important advantage while negotiating a selling price," he said.

## Against Ditch Co.

TRIBUNE 7-20-72

By RON STEWART  
Tribune Staff Writer

A complaint seeking an injunction to stop the Weldon Valley Ditch Co. from diverting water from the South Platte River was filed in District I

Water Court here Wednesday by the State of Colorado.

The complaint alleges that Weldon Valley was ordered on July 13 to "discontinue diversions from the South Platte" after a call for water was put on the river by two senior sur-

face right owners, the Sterling Irrigation Co. and the Schneider Ditch Co. The order was disregarded, according to the complaint.

The complaint contends that the order was justified under Colorado statutes since Weldon Valley's right is both upstream and junior to Schneider's and Sterling's right.

Weldon Valley's headgate is located in Weld County; Sterling's and Schneider's are both in Logan County.

District Court Judge Donald Carpenter set a hearing for Wednesday at 10 a.m.

Informed sources say the case could result in a battle over the question of whether surface right owners can be regulated before well owners are regulated by the State engineer.

The complaint says the discontinuance of diversions was ordered because the water being diverted was required by

persons entitled to it by reason of their senior priorities.

Disregard of the order, the complaint says, "may induce others to do so and will seriously, if not completely, prevent the water officials of this state in the performance of their functions required by statutes and Constitution of Colorado."

### Ditch Firm Diversion Enjoined

7-27-72 - Tribune

# State Engineer Ordered To Enforce Law on Wells

A preliminary injunction which is to be made permanent was issued in District Court here Wednesday, enjoining the Weldon Valley Ditch Co. from diverting water from the South Platte River when a call for water has been put on the river by higher priority users.

The injunction was issued by District Judge Earl A. Wolvington of Sterling in a case filed against the Weldon Valley

Ditch Co. by the state engineer.

#### Orders Wells Stopped

However, Judge Wolvington also ordered the state engineer to follow the law and require wells in the area involved to stop pumping before ordering the ditch firm to stop diverting water from the river.

The case was the first in which the priority of wells has been considered in relation to the priority of surface water users.

Barney Jones of Pierce, president of the Weldon Valley Ditch Co., testified at Wednesday's hearing that ever since 1903, the ditch firm has ceased its diversions from the river whenever a call was made by a higher priority user.

He said, however, this year the company decided to make an issue of the matter because wells in the area were being permitted to pump after the ditch company was ordered to stop diverting. "We felt if the wells were ordered to stop pumping, enough water would get down the river to satisfy the call of the lower users with high priorities without our having to be shut down," he said.

The court action was

provoked when the ditch company refused to discontinue its diversions July 13 after a call for water was put on the river by two senior surface users, Sterling Irrigation Co. and Schneider Ditch Co.

As a result, the state filed a complaint for an injunction against Weldon Valley Ditch Co. in District Court here.

In his order, Judge Wolvington directed that the wells between the Weldon Valley Ditch Company's headgate in Weld County and Sterling's and Schneider's headgates in Logan County be shut down when the two lower users put a call on the river before Weldon is ordered to cease its diversions.

In the past, the state engineer has been unable to shut down wells because many of them were not adjudicated and, consequently, had no date of priority.

However, a new state law required that an application for adjudication be made by all well owners by July 1 of this year. As a result, priority rights of the wells have been established and all wells are subject to regulation by the state engineer.

# THE FORT MORGAN TIMES

## Wells Ordered Shut Down 3 Days A Week

WEDNESDAY, AUGUST 16, 1972

Wells along the South Platte River, including those in Morgan County have been ordered shut down three days a week beginning Friday.

The order, issued by State Engineer C. J. Kuiper and W. G. Wilkinson division engineer of Water District 1, covers city, industrial, agricultural and commercial wells. It includes "everything but exempt domestics and closed basins," according to Bob Samples of Snyder, water commissioner in Division 1 who is responsible for enforcing the shutdown order.

Wells are to be shut down every Friday, Saturday and Sunday until Oct. 1, Samples said.

Fort Morgan City Supt. Ralph Varner said today the city is a member of GASP (Ground Water Appropriators of the South Platte River Basin, Inc.)

and that he assumes GASP will rent water to "allow us our normal production."

Varner continued, "We are not particularly perturbed by it because of our association with GASP."

The shutdown order covers "all ground water appropriators whose diversions are from water tributary to the South Platte and all its tributaries."

The order stated, "All appropriators of underground water for which an application for determination of amount and priority thereof has not been filed with the water clerk of Water Division 1 prior to July 1, 1972, shall immediately cease all diversion of water from such appropriation."

It continued, "All appropriators of underground water who have made ap-

plication for a determination of amount and priority with the water clerk of Water Division 1 prior to July 1, 1972, shall immediately curtail diversion under such appropriations three-sevenths of the time and may divert the other four-sevenths of the time."

The order went on to state that diversions shall cease on Friday, Saturday and Sunday of each week "unless a more efficient and acceptable plan of operation is approved in writing by the division engineer or his duly authorized representative."

The order continued, "Any appropriator of underground water may divert during periods of curtailment provided he has written approval from the division engineer for an exchange plan to reasonably lessen the injury to prior vested

rights resulting from pumping during periods of curtailment."

It added, "Curtailments as set forth above shall begin immediately and continue until the division engineer or his duly authorized representative finds that periods of curtailment are no longer required."

Samples said that the reason for the order is "because of the order handed down by the Water Court in Greeley Aug. 11 which said that we shall administer diversions of water of the South Platte and its tributaries including all ground waters which are part of the river."

"It means some senior appropriator needs water and is not receiving it," Samples said.

He added that on Aug. 14 "the protest of the rules and regulations was withdrawn by the City of Denver, the City of Aurora, the Weldon Valley Ditch Co. and Sterling Irrigation Co. so the state engineer is putting the rules and regulations that are to take effect May 15 in effect now, starting Friday."

He also noted that the state engineer and regulation of the Arkansas



# Well Owners Under GASP Continue To Pump Water

TRIBUNE 8-19-72  
By RON STEWART  
Tribune Staff Writer

A non-profit organization called "GASP" (Groundwater Appropriators of the South Platte) was the legal means for several hundred well owners along the South Platte River when wells were ordered shut down last week by Clarence J. Kuiper, Colorado state engineer.

The order curtailed pumping of adjudicated wells to four days a week (pumping on Friday, Saturday and Sunday was prohibited). Wells not adjudicated in District I Water Court were ordered shut off completely.

## Exchange Permitted

But well owners who have "written approval from the division engineer for an exchange plan to reasonably lessen the injury to prior vested rights resulting from pumping during periods of curtailment" were allowed to continue pumping.

GASP was formed last winter (with the encouragement of Kuiper) for the specific purpose of implementing alternate means to "remedy the injury"

done to the river by the pumping of wells.

Members joined the organization by paying \$15 per 100 acre feet of water they divert. About \$23,070 was collected before membership was closed June 15. Some 400 persons owning 836 wells are in the organization's membership.

The money is to be used to purchase water for replacement in the South Platte. Sources say GASP is in the process of purchasing 3,000 feet — the estimated amount needed to remedy the injury caused by member wells — to place back in the river.

This all amounts to a "plan to reasonably lessen the injury to prior vested rights" caused by pumping, according to Kuiper, and GASP members continue pumping their wells, while others in affected areas are regulated.

## To Buy Water

Reportedly, GASP is purchasing water from Riverside Irrigation Co., Bacon Reservoir, and others for rates ranging from \$3 to \$5 per acre foot.

Any organization of well owners which provides replacement water for its members is eligible for exemption from regulation. However, currently GASP is the only one actually returning water to the river.

Until recent years management of the river basin's water was not difficult. As wells began to increase along the river, however, surface rights owners were often not getting the amount of water they were entitled to and had received historically.

Supreme Court decisions in 1968 and 1971 accepted a fact hydrologists had known for years: all waters in the aquifer of a river are of the same source. Previously, well water was thought to come from sources separate from the river itself.

Few wells were drilled prior to 1930 — long after early settlers along the South Platte established surface water rights for domestic and irrigation purposes. And since Colorado uses a system which gives priority to rights that are earliest chronologically, wells are at a

continual disadvantage when water runs short in the aquifer.

In addition, administration of the law has posed problems for the Division of Water Resources. In an attempt to keep as many wells pumping as possible, Kuiper earlier this year wrote a set of "rules and regulations" which were to become effective on May 15. Generally, the rules and regulations gave the state engineer the right to regulate all wells when a demand for water is made by a senior appropriator.

However, a protest to the rules and regulations was filed on April 27 which essentially prevented their implementation until the matter was heard in court.

A hearing was delayed, however, and finally was preceded by a court case involving the Division of Water Resources and the Weldon Valley Ditch Co. In effect, the ruling on the case permitted the state engineer to implement his rules and regulations — which he did Friday.

Opponents to the rules and regulations insist that all wells, including those adjudicated or "remedying the injury," must be shut down when a senior owner demands water.

## Consider One Unit

In addition, opponents and others feel the priority system is no longer effective and must be replaced with a fairer method of deciding water right ownership. Many insist the entire river basin must be administered as a unit, not as a collection of small water sources.

The problem is bound for long legal, administrative and functional review. Many believe water rights will be among legislation considered next session, and many predict new legislation will override the present system.

In the meantime, however, well owners must abide by the rules and regulations. And although some feel there may be better long range alternatives, GASP and other organizations like it are the only escape for well owners when surface streams cannot supply the water necessary for old, established rights.

# State Cancels Suspension Of Irrigation Well Pumping

DENVER — Curtailment of pumping of wells along the South Platte River, ordered Aug. 16 by the Colorado Division of Water Resources, was suspended Tuesday.

The curtailment was lifted because of "heavy rain storms and high runoff in both the South Platte and Arkansas Rivers" which provided enough water to meet the demands of senior water right owners.

In addition, the Division of Water Resources said no curtailment of ground water pumping will be put into effect

until existing rules and regulations are amended and extended beyond Oct. 1.

## Limited Time

But well owners "have a limited amount of time to become affiliated with an organization to supply replacement water or to present individual plans to accomplish the same purpose," a statement from the Division of Water Resources said.

Underground water users will come under the priority system for water rights when exiting applications to the Division

Water Court are adjudicated, the statement said. Their "only hope to continue these diversions is to supply replacement water to remedy the injury caused to senior rights owners during the time of demand by those senior rights."

In addition, amendments to the rules and regulations currently in effect will be more restrictive next irrigation season, the statement said, and "this restriction will be further increased until the ultimate complete shut off, after adjudications are completed."

Two organizations which well owners may join are the Groundwater Appropriators of the South Platte (GASP) and the Colorado Water Protective and Development Association of the Arkansas River.

Both are non-profit organizations which have acquired some water for the purpose of "remedying the injury" caused by the pumping of member wells.

## Many Arrangements

These corporations have acquired some transmountain return flow, some storage water, some direct flow rights, some underground water rights and are negotiating with senior surface decrees to pay the cost of pumping to satisfy surface decrees, rather than demanding surface and underground junior rights to curtail.

The state engineer, Clarence Kuiper, has said that such concerted efforts by all underground water users to supply replacement water is the ultimate answer to the controversy between surface and underground water right holders.

"Well owners can, of course, choose to remain within the priority system without supplying replacement water, in which case they ultimately will be shut off, as any junior decree holder is now shut off when a demand for water is made by a senior right," the Division of Water Resources statement said.

# Central Water District plans series of well-users meetings

The Central Colorado Water Conservancy District has announced a series of ground water meetings to be held at strategic locations throughout Weld County next month.

Central District's president, Charles Clark, of Keenesburg, said the meetings are being held to explain the services to be provided by the ground water subdistrict being organized by Central.

Central's move to organize well owners was the result of tighter ground water controls and regulations imposed by the state. David J. Miller, Central's attorney, said that the passage of Senate Bill 81 — the 1969 Water Rights Determination

Act — places farmers in extreme jeopardy, and there remains no choice but to join together and administer wells so that pumps can run when the crops need water.

Central's plan, outlined by Miller, calls for substitute water to be provided when senior right holders request water they are entitled to, thereby allowing farmers in the subdistrict to continue pumping water for irrigation. Miller explained that by working together through the subdistrict, well owners could finance their own projects to provide substitute water. Well fields, pipelines, canals and artificial recharge

facilities are being considered by Central's engineers.

Central's plan also includes the eventual use of 15,000 acre feet of adjudicated water the district will accrue from the proposed Narrows Reservoir, half of which has been contracted to Adams and Weld based ditch companies, the remainder to be used by the ground water subdistrict.

Miller also indicated that the district is considering a general program of water annexation which is to include 27 additional units on both eastern and western slopes. These are projects either planned or in progress.

Miller said that the creation of the subdistrict is slated for March 1. Miller tentatively plans to file for the inclusion of

the subdistrict the week of Nov. 13. Hearings would be set 60 to 90 days after the date of filing.

A proposed mill levy, which would be used to finance the subdistrict, would not be available until January, 1974. Miller said the subdistrict would possibly have to float a bond issue to defray the costs of operation during 1973.

Central's ground water meetings are scheduled as follows: 3 p.m., Nov. 3, Lion's Club, La Salle; 3 p.m., Nov. 8, Kersey Community Building; 4 p.m., Nov. 9, Henrylynn District Office, Hudson; 7:30 p.m., Nov. 9, Legion Hall, Keenesburg; 1:30 p.m., Nov. 10, Town Hall, Fort Lupton; 3:30 p.m., Nov. 10, Doubletree Restaurant, Platteville.

## Sign-up for GASP open until March 15

TRIBUNE 10-31-72

The board of directors of the Groundwater Appropriators of the South Platte River Basin, Inc. (GASP) announced that applications for registration in GASP will be accepted from Nov. 15 until March 15. The board said no applications would be accepted after the Mar. 15 closing date.

GASP is a voluntary organization of well owners along the South Platte. The purpose of the non-profit corporation is to provide substitution of water being appropriated from the South Platte in cases where senior right holders request additional water.

GASP successfully provided enough substitute water last summer to enable its members to continue to pump water after other wells were ordered shut down by state engineer, Clarence J. Kuiper.

GASP spokesmen said information and sign-up meetings

will be held in a number of areas in the South Platte Basin. Times and dates will be announced soon, spokesmen said.

# Two State Boards Squeezing Him, Farmer Declares

THE DENVER POST Wed., Oct. 18, 1971

By JOHN G. WHITE

Denver Post Staff Writer

SNYDER, Colo. — Galen Headley believes he is the victim of bureaucratic inconsistency and is being squeezed between the State Division of Highways and the State Water Commission, which has obtained an injunction against him.

Headley, who farms five miles northeast of here, has since 1962 sold gravel and sand for use on highways. He claims the highway department isn't living up to a gravel mining contract it acquired from the Colorado Construction Co., of Denver, for the gravel on his property.

And, he says, the water commission, which wants small dams used to build up the water table, wants him to stop impounding water.

Headley said the highway department has broken two stipulations of the contract. "First," he said, "is a line in the contract that says all stripings shall be placed on the dam site. And secondly, no waste material shall be placed back into the gravel pit."

The dam site is in Antelope Draw, an intermittent stream, within a half mile of the gravel pit. Headley built the dam, he says, according to state regulations with the overburden from the pit.

However, Clarence Kuiper, state water engineer, says Headley has never filed plans

and specifications for the dam with his office, as required by state law. "We want to see these on file," Kuiper said, "I understand he doesn't have an adequate spillway or outlet pipe."

Headley claims that a member of the water commission watched as he placed an 18-inch outlet pipe into the dam. "That certainly meets the requirements," he said. "And, look at this spillway. This is more than adequate. One of my neighbors has a dam over there and doesn't even have a spillway. I don't want to get him into trouble, but it's true."

Kuiper said the pipe was locked open Oct. 2, and that someone had cut the lock. Headley said, "I told them I was going to cut it off. . . . But, as soon as they left, I went out there with my cutting torch and cut the chain."

"The main thing we are worried about is the safety of the dam," Kuiper said. "The injunction requires that he drain the water to a 10-foot level, and that he file the plans and specifications with this office. I also understand there are people below him with priorities to the water he has dammed up."

Headley says, "This doesn't make sense. The Smith and Snyder Irrigation Ditch runs full to its banks just a mile from the dam in question. Below that is the South Platte

river. If they drain my water supply, they'll wash everyone out below."

Headley admits that his dam does not meet the requirements at this time. "But it isn't the spillway or the drainage pipe. You are supposed to have something like five feet between the water and the top of the dam. Right now, I have three feet.

"But if the highway department had lived up to its contract, that is, if it had moved the overburden to the dam, it would now meet the requirements," Headley said.

L. C. Bower, chief engineer of the highway department, said, "He (Headley) signed a release on May 27, 1966, and legally we are in the clear."

"I signed the release only after one of their engineers said that if I were to sign the release they would come back in here and finish the job within a year. I should have known better. I always thought you could trust the government. All they did was push the overburden back into the pit," Headley said.

"Legally we are completely in the clear because he signed the release," Bower said. "We tried to make a reasonable settlement in the interest of public relations. We figured it would cost \$3,000 to complete the job on the dam, and offered him \$1,500 in October 1971, and to the best of my knowledge, we

haven't received an answer."

"This is just another one of their token offers to get out of fulfilling their contract," Headley says.

Headley said the dam has done wonders for his water table. The draw has a very gentle slope, and without the aid of surveyors equipment, the untrained would have trouble distinguishing the draw, Headley says.

"Since we put in the dam we have raised the water table from 40-feet below the surface to 8-feet below the surface. This land will now grow better alfalfa than in the valley, and a couple of years ago I had a 145-bushel-an-acre corn crop. If it wasn't for the dam, this draw would still be arid, desert-like land," he said.

Headley said he believes in water augmentation, which the water commission wants. "They want people to build lakes because it has been proven that we can build our water tables up." Headley believes he is being squeezed between the two state agencies, but Bower and Kuiper both state emphatically that this isn't true. "Mr. Headley, because of his position, may feel this is true. But, the cases are totally unrelated," Kuiper said.

Headley says, "I can see this happening in a country that doesn't have a so called democratic system, but not here. Not in America."

# Water still question in Genesee case

By DOUGLAS BRADLEY  
Chief Staff Reporter

Al Cohen's design for the development of the Genesee Park area was advanced on paper last week by the Jefferson County Planning Commission, but his claim to have sufficient water for the project was viewed as still "an unknown quantity."

The expedited formalities before the Planning Commission in approving the Cohen rezoning application for more than 2,000 acres, came as an anticlimax to the furor of previous hearings on the case.

The Cohen proceedings were moved up to the first order of business over three other scheduled matters, to the chagrin of interested parties who thus arrived too late.

One man who was not foiled was Sydney Koon of 8710 W. 68th Place, Arvada. He arrived at the time scheduled for the start of the meeting, and chipped in some comments for the commissioners to digest and expanded on them later to the Sentinel.

Koon's son, Gordon, is president of the Warrior Ditch Co., an agricultural cooperative with 160 shares in water rights of Bear Creek. Sydney Koon, noting that Cohen only possessed seven shares in Warrior that he had bought, said the developer was also involved in other water litigation which was being heard in Greeley the same day the Planning Commission was handing down its approval of Cohen's Genesee project.

About the seven shares in Bear Creek water, Koon said Cohen was trying to win a court ruling to allow him to change the point of diversion for the amount of his water rights.

With the complexity devolving from the water cases, Koon maintained, the Planning Commission ought to postpone its Genesee decision pending the court water judgments on whether Cohen could have his way.

The Cohen water litigation over Bear Creek is scheduled to be heard on Oct. 16 at Sterling District Court. Warrior Ditch will be "a party in interest" at the hearing.

"The majority of the ditch owners are opposing the transfer of their rights to Cohen, because that is what it amounts to," Coon said. "The water decree would not justify that."

Elsewhere, the Sentinel learned that the Genesee Associates — the corporate name under which Cohen and his partners are operating — have been dickering for exchanges of water with Englewood. The trade-off would be Bear Creek water against South Platte River rights.

Gordon Koon said that both Cohen's attempt to change the point of diversion and effort to exchange water rights could lead to years-long litigation.

"It is very complicated," he said. "The main proposal is to take water out of Bear Creek before it gets to the Warrior Ditch."

"This will cause us (other ditch participants) serious problems. The irrigation water is based on priorities.

"It does not matter how many shares you have. If you have not got the priority, you aren't going to get the water.

"Mr. Cohen will be entitled to seven-160ths of what is available. In a drouth year, that can be nothing of nothing."

Gordon Koon noted that the Warrior stockholders had to bear the burden of the cost of maintenance of the ditch, and favored treatment for Cohen would be inequitable.

Apart from whether the courts would allow Cohen to change the point of diversion, Sydney Koon said he believed a considerable physical problem would confront the developer.

"I don't know how he would get the water up Genesee," he said. "He would have to pump it 10,000 feet and I don't think that's feasible."

The protracted proceedings ahead make it unlikely that Cohen will have to cross that bridge for some time, and Koon didn't believe it would ever involve more than a dab of water, with all the priorities ahead of Cohen.

Sydney Koon questioned whether the Planning Commission had fully followed the directives of the land use law passed in the last session of the legislature.

"The Senate bill stressed quite clearly that a developer has to show evidence that he has the water necessary for his project before he is allowed to proceed," he said.

"Cohen said he had the water but I don't know what proof he tendered to the Planning Commission. He is supposed to show that he has the water in fact."

At the time of the Genesee decision, another man tried to interject his opinion about Cohen's tie-up with the Denver Olympic Organizing Committee and plans to use Genesee for events in the 1976 Winter Games.

"People around here don't want any part of this," the man told the commissioners.

He was told the Olympic issue was not a factor in the Planning Commission arriving at its rezoning decision, which was not to say: Commissioner Ralph Carter added, "that we are not interested or concerned in the possible Olympic designation."

The Planning Commission made its approval of Cohen's development project subject to some conditions.

The 98-acre parcel designated for office buildings was limited to a total of 50,000 square feet of space, and the "shoppette" commercial space was limited to 15,000 square feet. The Genesee Park Road will be subject to determination at the time of platting. Cohen's residential proposals were accepted in total, but the Planning Commission said the whole project would be subject to Cohen and his associates proving they had adequate water and sewer services.

# Denver Has Right To Reuse Water From Western Slope, Rules Court

DENVER (AP) — The City of Denver, through its water board, has the right to reuse water imported from western Colorado except as it may have given the authority away, the Colorado Supreme Court held Monday.

In a companion case ruling, the high court said Denver—working through the metropolitan sewage disposal district—has a right to change the place where it dumps treated effluent back into the South Platte River.

Both opinions were written by Justice James K. Groves and were considered companion decisions.

Groves said that when Denver delivers water to the tap of customers "it does not lose dominion over the water later returning to its sewer."

He also held that in the case of transmountain diversion "the particles of water do not have to be identified as coming from western Colorado but rather . . . can be divided volumetrically."

He said Denver has also shown "that it has never intended to abandon any imported water and that . . . it has had in mind for the future the re-use, successive use and disposition after use of foreign water."

Justice Groves noted that Denver obligated itself in a May, 1940 agreement with several ditch companies "that it will not use or . . . lease any water . . . which shall have been once used through its municipal system and such water shall be allowed to become part of the nearest convenient natural water course."

This agreement, he said, makes invalid an agreement between Denver and Coors Company for the exchange of water from Clear Creek.

The justice held that the effect of the 1940 agreement against re-use of water "is to create a bonanza for . . . downstream users at the expense of Denver and western Colorado."

He said the issue of the agreement's validity was not before the court.

In the other case, involving the spot where water is returned to the South Platte, Justice Groves said it does not

come under the same law as changes in the point of diversion of water.

The plaintiffs in the case—several irrigation companies—have no right to interfere with the change in the point of return, Justice Groves declared.

He added: "We feel we should remark that the general assembly may wish to change . . . the rule . . ."

He overruled a portion of the district court decision holding that the irrigation companies are entitled to damages because the new point of return of the water is below their headgates.

Justice Groves noted in both cases that quality of water was not at issue. He said the court's ruling had no bearing on this.

The decision authorizing re-use, within limitations of water diverted from the Colorado River Basin was unanimous. In the case involving return of water to the stream through the sewage disposal plant, the ruling was 5-1. Justice William Erickson dissented and Justice Donald E. Kelley did not participate.

At the time the sewage district was being developed, Kelley was an attorney for Denver.

## CAN'T SELL TO COORS

# Water Re-Use OK'd by Court

By FRED BROWN  
Denver Post Staff Writer

Denver may re-use the water it imports from the other side of the Continental Divide, the Colorado Supreme Court said Monday.

It can put that water to the same use or to new uses after it has been used once.

It can change the point at which it returns the used water to the South Platte River.

It can even sell, lease or otherwise dispose of that water.

But, because of a 1940 contract with 10 irrigation companies, Denver can't sell its transmountain water to the Adolph Coors Co. of Golden under a 1969 contract, the court said.

The 1940 agreement might not have been such a good idea, the high court indicated, but it stands despite Denver's arguments that changing conditions make the old contract invalid.

The Supreme Court made those rulings in two separate cases, one a unanimous 7-0 decision and the other a 5-1 split decision. Both opinions were written by Justice James K. Groves.

The major case—the one that established the rights of re-use and disposition of water divert-

ed from the Western Slope—affirmed the essential points of a decision by Dist. Judge Oyer G. Leary of Adams County.

The affirmation included Judge Leary's rejection of the 1969 Coors contract, but it disagreed with him on one point.

Leary had said Denver's dominion over the water ended with delivery at the customer's tap; the Supreme Court said it continues through successive uses.

That point also was implicit in the second case. That opinion reversed another Leary decision, in which the district judge said three other irrigation companies were correct in protesting a new outlet from Denver's sewage treatment facilities.

The new effluent line is 1½ miles downstream from an old line and below the point from which the irrigators take their water. The old line came from a Denver plant which became outmoded and was replaced in 1965 with a new plant operated by the Metropolitan Denver Sewage Disposal District.

When the return to the river came from Denver's old Northside plant, the irrigators could use the treated sewage in addition to other water in the South Platte River.

Justice William Erickson disagreed and Justice Donald E. Kelley didn't participate, but the other five justices said Denver could move the outlet as it wanted to.

The irrigators argued that it wasn't Denver which was moving the line, but the Metro Sewage District—a 1965 entity which, the irrigators said, should have a junior right to the water.

The majority of the court disagreed, saying Metro was acting merely as an agent for Denver, which has a senior right to the water.

Justice Erickson's point of disagreement was with the court's holding that the irrigators — the Farmers Reservoir and Irrigation Co.; Burlington Ditch, Reservoir and Land Co., and Henrylyn Irrigation District — had no vested right in the location of the point of return.

Erickson said the cases cited by the rest of the court don't support that conclusion.

In the larger case, the 10 companies involved, led by the Fulton Irrigating Ditch Co., are downstream, rather than upstream from the Metro Sewage outlet.

The court said Denver not only has a right to re-use water, but such re-use saves water which otherwise would have to be diverted through the mountains.

A May 1, 1940, contract with Fulton and the other irrigators, however, said Denver would make only one use of the water which is released later to the irrigators.

Thus the water can't go both through the Coors plant and through Denver's water system without violating that agree-

# Ski Firm's Water Claim Denied in Greeley Court

An application of Lake Eldora Slopes Inc. for water rights for water the firm claimed to have created near Nedarland was denied in Water Division No. 1 District Court here this week.

The application was denied by Clifford H. Darrow, retired Glenwood Springs district judge and water judge, who had been assigned to the case by the State Supreme Court.

Lake Eldora Slopes Inc. claimed to be developing water by cutting timber off ski slopes and sought first priority rights to water salvaged by loss from "evapotranspiration."

Evapotranspiration was defined in court as "elimination

of loss of water from the soil by evaporation and transpiration from the plant, shrub and tree life otherwise growing thereon."

Judge Darrow said the 29.8 acre-feet of water allegedly created did not concern the court but that the "actions of the applicant in the control and judicious use of the resource" was the determining factor.

Lake Eldora Slopes Inc. was planning to use the water for its artificial snow making machine and for possible land development in the Eldora area.

As a result of the decision, the alleged water rights are re-

tained for users of the Boulder Creek basin.

The application was opposed by the city of Longmont, Northern Colorado Water Conservancy District, Public Service Co., St. Vrain Left-Hand Water Conservancy District and a number of other water groups and firms.

## CSU Scientists Investigate Snowpack Evaporation Loss

TRIBUNE 5-2-72

FORT COLLINS — The extent of the physical processes at of winter snowpack loss due to the test sites then can be evaporation and sublimation plied to the larger water re- processes and the possibility of source problem of estimating reducing the losses to increase the additional amount of spring spring runoff water yields are runoff that could be attained being investigated by Colorado through a snowpack manage- State University scientists. ment practice in alpine zones of the central Rocky Mountains.

Dr. James Rasmussen, an atmospheric scientist and project coordinator, explained that one means of increasing the runoff from mountain watersheds is to artificially control the alpine and subalpine snowpack to lessen the evaporation and sublimation effects of high winds and solar radiation.

He said, however, that application of a control program is hindered at present by a lack of understanding of the physical processes of evaporation and sublimation and the role these play in the resulting water resources from mountain watersheds.

Rasmussen and his associates — Dr. James Meiman, a watershed scientist, and Lewis Grant, an atmospheric scientist — now are measuring the meteorological and hydrological processes which affect the transfer of water vapor between the snow surface and the atmosphere in alpine and subalpine zones.

This work is being done at two permanent CSU research stations — Pingree Park, located in Roosevelt National Forest, and Camp Hale, situated near Climax.

Rasmussen said that conclusions drawn from measurements

Evaluating the effectiveness of the physical processes at management technique to increase water yields is the second aspect of this research.

Rasmussen said that controlled avalanching of drifted snow at the top ridges (cornice formations) distributes more snow at the base of slopes facing the northeast where it is relatively free of evaporation-inducing factors of high winds and intense solar radiation.

Tests of avalanching are being made on paired alpine observation sites, with one site avalanched and the other undisturbed.

The researchers are using stereophotography to measure the cornice formations before and after avalanching to determine the quantity of snow displaced into the test basin.

Rasmussen said that comparisons of snow accumulations and runoff between the two test sites will indicate the effectiveness of avalanching to augment water resources.

Tribune 6-13-72

## Supreme Court OKs Groundwater Basin

DENVER (AP)—Designation of a 350-square mile area in east central El Paso County as

a ground water basin was upheld Monday by the Colorado Supreme Court.

The high court decision written by Justice Edward C. Day, ended four years of litigation by water users in the community.

The area, known as the Black Squirrel region was declared an underground basin in May, 1968, by the Colorado Ground Water Commission.

The commission finding was challenged by a score of well owners in the vicinity. An El Paso County district court decision by Judge John N. Mabry upheld the designation and the high court action ratified the district court ruling.

The decision means that the Ground Water Commission will have authority to regulate wells in the area.

# Land Speculation Starting Around Narrows Dam Site

By GORDON G. GAUSS  
Associated Press Writer

DENVER (AP)—Land speculation apparently is starting in the South Platte Valley of northeast Colorado where the long-proposed Narrows Dam has been authorized, Water Conservation Director Felix L. Sparks says.

Sparks said information reaching him from the Weldon Valley vicinity shows there has been an unusual increase in agricultural land sales and that prices are jumping.

The director added that one report he heard was that some land appraised at \$200 an acre was sold for \$500. He did not identify the source of the information or disclose location of the land.

Land speculation in the area, Sparks theorized, would have to be based upon the belief that federal land purchases are in the offing for the reservoir site behind the dam. It will be a few miles up stream from Fort Morgan.

The director said skyrocketing land prices conceivably could pose a threat to the multi-million dollar project which has been under consideration for more than a quarter of a century. Local opposition to the flood control and reclamation development was overcome only during the past few years.

There appears to be little which anyone can do to halt the speculation, Sparks com-

mented. Congress appropriated \$150,000 for preliminary studies for it during the current fiscal year, he said, and President Nixon has requested another \$300,000 for next fiscal year.

This means, Sparks aid, that no money will be available for land purchases earlier than July, 1973.

To begin appraisal and purchase of land needed, he estimated, would require at least a million dollars for the year beginning next July 1.

Sparks expressed his views to a reporter during a trip to the capitol to confer with Gov. John A. Love about testimony the water director will present to the Water Resources Council Monday in Washington.

## Narrows Water OKd By Sterling

STERLING—The City of Sterling has voted to buy 10,000 acre-feet of water from the proposed Narrows Project on the South Platte River if it is built.

The decision puts water contracts from the project at 56,603 acre-feet, according to Eric Wendt, spokesman for the Labor South Platte Water Conservancy District.

Sterling Mayor Earl Franklin Jr. said the project could provide the city with water into the 21st century, in addition to providing recreation, flood control and other benefits to the northeast Colorado city.

The project calls for an earth-fill dam to be built on the river near Fort Morgan. It would capture flood waters, help recharge underground water aquifers, provide recreation and wildlife benefits and supply supplemental irrigation water to farmers, as well as reinforce community water supplies.

While proposed for more than 20 years, the project by the Bureau of Reclamation has yet to receive funding for construction.



# Hail Suppression Work To Begin This Month From Grover Facility

An experiment designed to increase knowledge about hailstorms and to test scientific feasibility of using cloud seeding to reduce crop damage from hail is being conducted from Grover in Northern Weld County.

Field work began this month and will continue through July in the first of five years of experimentation. The experiment is technically dubbed the National Hail Research Experiment (NHRE).

It is managed by the National Center for Atmospheric Research (NCAR), Boulder, and is supported by the National Science Foundation, a federal agency.

## In Hail Alley

Grover was selected as headquarters for the experiment because it is in the middle of "Hail Alley," the region of highest hailstorm frequency in the U.S. Other data gathering equipment is stationed near Fort Morgan and near Sterling.

Dr. William C. Swinbank, NHRE's director, said the experiment is not a large-scale attack on hailstorms, but is intended to answer two questions important to both scientists and farmers:

—What are the physics and dynamics of hailstorms?

—How feasible is cloud seeding as a tool to reduce crop damage from hail?

No cloud seeding has yet been done, Dr. Swinbank said, but is expected to start as soon as hailstorms begin moving over Hail Alley.

Small plastic rockets will be used to seed the clouds, each rocket containing 3.5 ounces of silver iodide. They will be fired upward from aircraft flying beneath the storms selected for seeding.

Four Piper Aztecs operated by Atmospherics, Inc., of Fresno, Calif., are based at the Weld County Municipal Airport to be used for the seeding. Other aircraft, which will fly around and through the storms to collect atmospheric data, will be based at airports in Denver, Broomfield and other locations.

## To Use Silver Iodide

Scientists think the millions of tiny silver iodide crystals released by the rockets will trigger the formation of many small ice particles, instead of a smaller number of large hailstones. They hope, furthermore, that the storm's moisture will reach the ground as rain, not hail.

Although in the center of Hail Alley, it is unlikely scientists will gather information from more than five storms each summer.

Half of the storms that move toward the area will be seeded; the others will be observed without seeding. By comparing the observations of seeded and unseeded storms over the five-year period, the scientists hope to reach some positive conclusions about the feasibility of reducing hail damage by cloud seeding.

Hailstorms over a wide area will be observed, but cloud seeding tests are designed to affect hailfall in an area about 25 miles square.

The experiment is using

equipment visible from highways in northeastern Colorado. Near Grover is a 30-foot metal dish on a tall pedestal which stands near a cluster of small white buildings.

North of Fort Morgan, a large, white inflated plastic sphere protects radar antenna from high winds.

Along roads near Sterling,

scientists have placed clusters of metal objects that look like odd-shaped garbage and milk cans. They are instruments which measure precipitation, rain and hail that falls over the area.

Dr. Swinbank said several scientists from a number of universities and government agencies are working together on the project.

# Area Hail Experiment Is Successful

TRIBUNE 9-23-72

DENVER — Although the National Hail Research Experiment (NHRE) field program in northeastern Colorado this year was very successful, conclusions about the results of NHRE cloud-seeding experiments would be highly premature, according to one of the experiment's senior scientists.

Dr. Guy G. Goyer of the National Center for Atmospheric Research (NCAR) in Boulder reviewed the hail research in a talk Wednesday at the annual convention of the National Association of Mutual Insurance Companies at the Denver Hilton Hotel. Goyer, who is deputy director of the hail experiment, spoke at a session on hail crop insurance.

## Valuable Data Gained

Explaining that the hail researchers gained a great deal of valuable scientific data from their studies of last summer's hailstorms, Goyer said: "We have designed a five-

year research program because, as far as the effects of cloud seeding on hail are concerned, we believe that, depending on the magnitude of the effects, it may take that long to reach conclusions in which we have confidence."

He explained that the 1972 NHRE field operations, which ran from May through July, were the first phase of a five-year effort that has two goals: to learn more about the physics and dynamics of hailstorms and to test the feasibility of using cloud-seeding techniques to reduce hail damage to crops and property.

## Not Weather Modification

Goyer emphasized that the hail experiment, managed by the NCAR and funded by the National Science Foundation, is a research project, not a large-scale operational program of weather modification. The experiment is designed to study the effects of cloud seeding on hailfall in a 25-

mile square northwest of Sterling.

More than 400 ground stations have been set up in this area to measure hailfall, rain, fall, and other weather features. Radar, research aircraft, weather balloons, and other tools of atmospheric research are used to gather data on thunderstorms and related weather conditions over a larger area, centered roughly on the Pawnee National Grassland, just south of the point where Colorado joins Wyoming and Nebraska. Scientists' and technicians from a number of universities and federal agencies are participating in the experiment, directed by Dr. William Swinbank of NCAR.

## Highlights Discussed

Goyer discussed several highlights of last summer's research, including the following:

—A new method for detecting hail with radar was tested successfully. Up until now, it

has been impossible to distinguish between radar echoes from hail and those from rain. With the new technique, developed by scientists and engineers of the University of Chicago and the Illinois State Water Survey, a dual-wavelength radar at Fort Morgan was used to detect hail in real time over the NHRE research area.

## 60 Penetrations

—More than 60 penetrations of hailstorm clouds were made by an armored aircraft from the South Dakota School of Mines and Technology.

This instrumented single-engine T-28 has been reinforced with extra-strong metal skin in vulnerable areas such as the leading edges of the wings and the engine cowling. It can fly into hailstorm clouds to measure liquid water content and the velocity of the powerful updrafts within the storm.

A microphone in the aircraft records the sound of hailstones striking the windshield

to give a rough record of the violence of the hail.

—A sailplane, or glider, the "Explorer," made vertical penetrations from the base of growing cumulus clouds up to 13,000 feet, riding vertical wind currents up into the clouds. The sailplane is equipped with a special particle camera, developed by the NCAR cloud physics group, which photographs liquid droplets and ice particles in the cloud.

## Aircraft Based Here

—Cloud-seeding tests were conducted on 12 days when hailstorms threatened the NHRE research area. Four Piper Aztec aircraft, based at Greeley, used silver iodide flares to seed the hailstorm clouds. On 10 "no-seed" days when hailstorms also threatened, detailed observations were also made of storms that had not been seeded. The scientists believe that, by comparing seeded and non-seeded storms over the five-year period, they can

determine conclusively just what results can be obtained by seeding hailstorms. Although it appears that cloud seeding with an agent such as silver iodide may cause the storm to exhaust its moisture as rain or small hail rather than large, damaging hailstones, this theory has never been adequately tested in a carefully designed experiment.

Noting that hailstorms cause several hundred million dollars in damage to crops in the United States every year, Goyer emphasized that the scientists are not promising to produce a method for successful hail suppression. He said: "What we are trying to do is to answer the question of whether or not cloud seeding can be used as an effective tool for reducing hail damage. The answer may be no instead of yes, but we feel that it is very important to get an answer instead of continuing to guess."